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The NBA Restart: A Numbers Game

Nathan L. Clark

Brigham Young University Marriott School of Business, 22.nathanclark@gmail.com

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The NBA is back. After months of uncertainty, millions of fans are anxiously counting down the days until tip-off in Orlando.ⁱ The season restart offers entertainment and a glimmer of hope in a world upended by COVID-19. With all eyes centered on the court, it will be easy to overlook what happens behind the scenes – the people, medical devices, and data that make the NBA restart feasible.

Over the last decade, data analytics has chewed up professional basketball and spit out almost a completely different game. Almost every franchise employs data analysts who work tirelessly with coaches to maximize each athlete's talents and identify undervalued players. The league even runs an annual [Hackathon](#), which allows teams to gain new insights and find talented data analysts.

The NBA restart offers data analytics yet another opportunity to affect the basketball world. By analyzing data from medical devices that monitor player health, perform contact tracing, and promote social distancing, data analysts and healthcare professionals can help all 22 teams mitigate the risk of returning to play during a global pandemic.

Monitoring Player Health

The NBA isn't the only organization in which data analytics has made great strides in the last decade. The efficient management, analysis, and interpretation of big data has also changed the game by opening new avenues for modern healthcare.

Research has shown that wearable medical devices can be repurposed to detect emerging patterns indicative of disease outbreaks. For example, Fitbit devices have been used to inform timely and accurate models of population-level influenza trends.ⁱⁱ Additionally, smart thermometers provided a new source of information for influenza surveillance and forecasting.ⁱⁱⁱ

Amid the NBA's thorough 100-plus page health and safety manual is a specific section on wearable medical devices. Although the Oura ring is not explicitly mentioned, this company has partnered with the league to provide what could potentially be the most crucial technological device found within the ESPN Wide World of Sports Complex at Disney World, otherwise known as "the bubble."

The Oura ring measures body temperature, respiratory functions, and heart rate, which can signal whether or not its wearer is sick.^{iv} Data collected from all players and essential staff members is studied and assessed by the University of Michigan to generate an overall wellness assessment of each person.^v

By screening players and essential staff members for symptoms, wearable medical devices unlock the power of data analytics to provide accurate and real-time insight into preventing the spread of COVID-19 within the NBA community.

Performing Contact Tracing

As researchers continue to work on vaccines and treatment methods for COVID-19, the primary measure of containment is the interruption of human-to-human transmission.^{vi} Contact tracing is the process of identifying and following up with individuals who have been in contact with a person infected with COVID-19.

To help the NBA with contact tracing, each player must wear a Disney MagicBand at all times, except during workouts and games. The MagicBand will act as a hotel room key and allow players to check in at security checkpoints and health screenings.^{vii} By analyzing the data collected from these bracelets, NBA officials can trace the movements of any athletes diagnosed with COVID-19 and alert staff members and teammates were in contact with the individual who contracted the virus.

Analysis of the data collected from MagicBands allows NBA officials to prevent rapid transmission of COVID-19 within the bubble. In addition, the sharing of player data helps on-site healthcare professionals optimize treatments for each unique patient and prevent yet another NBA shutdown.^{viii}

Promoting Social Distancing

Numerous recent studies have shown that social distancing can be extremely effective at reducing the attack rate of an epidemic.^{ix} Figure 1 demonstrates the importance of implementing stringent social distancing measures to help reduce COVID-19 outbreaks. The study found that each day, a city that prolonged implementing social distancing practices delayed the city's ability to contain the outbreak by 2.41 days.^x Therefore, the NBA is focusing on social distancing as another critical area to help mitigate the risks of returning to play during a global pandemic.

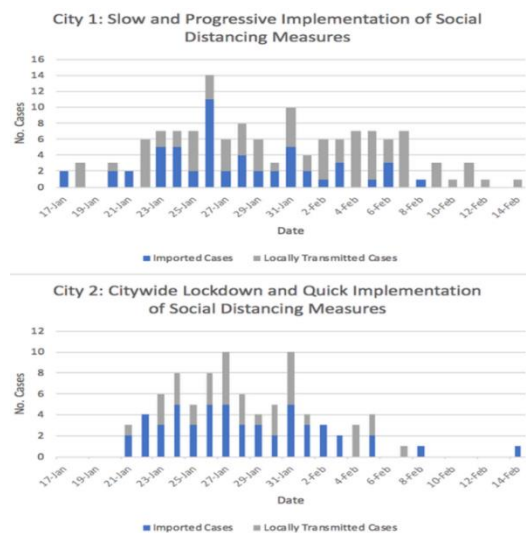


Figure 1 Benefits of Social Distancing Source: Data adapted from Du et al., 2020

The NBA Players Association released a memo stating that all players and league staff will be encouraged to wear a small device on their credentials to help promote adherence to physical distancing rules.^{xi} This device will serve as an alarm that will set off an audio alert when individuals are within six feet of another person for a period of longer than five seconds. The memo also states that the device can detect allowable pairs of people, such as teammates, physicians, and coaches, without setting off the alarm.^{xii}

The NBA is working tirelessly to reduce the chances of spreading the virus within their closed community by minimizing the amount of close contact each individual within the bubble has with one another.

Life Inside the Bubble

With so much data being collected, players, coaches, and staff have every right to be concerned about the use of their personal data. However, almost everyone within the bubble believes that while following strict rules is a sacrifice, the NBA's protocols paired with data analytics are for their safety and benefit.

Luke Walton, Sacramento Kings head coach: "It's the NBA. They always do a great job. With this, they know there's going to be a risk. They're trying their best to keep everybody safe, and I think some of the technology they're using is great."^{xiii}

Kyle Lowry, Toronto Raptors guard: "I think our protocols and health and safety measures have been top-notch. I think the league and the Players Association have done a great job, a phenomenal job of making sure that we are healthy and safe."^{xiv}

Jarrett Allen, Nets center: "I think for everybody, including myself, there's a little bit of worry. We're all going into an unknown. But at the end of the day, I have no doubt that the two powerhouses, Disney and the NBA, are coming up with the best solution for us."^{xv}

A Numbers Game

The use of technological medical devices and the analysis of the collected data are critical for ensuring the safety and well-being of all those currently in the bubble. Without medical devices capable of monitoring player health, performing contact tracing, and promoting social distancing, data analysts and healthcare professionals would have no successful way to mitigate the risks of returning to play during a global pandemic.

Within the past few years, data analytics has swept across the NBA, changing the philosophy of how the game of basketball is played and how talent is valued. Data analysis has seeped into

every facet of the game, and is now the very lifeblood keeping the collective hope of millions of NBA fans alive.

Click [here](#) for the upcoming NBA schedule!

ⁱ Tim Reynolds, "'Our Fans are Everywhere': NBA Still Growing Internationally," *Philadelphia Tribune*, October 14, 2018.

ⁱⁱ Jennifer M. Radin, et. al., "Harnessing Wearable Device Data to Improve State-Level Real-Time Surveillance of Influenza-like Illness in the USA: a Population-Based Study," *The Lancet Digital Health* 2, no. 2 (January 2020): 385-e95, [https://doi.org/10.1016/s2589-7500\(19\)30222-5](https://doi.org/10.1016/s2589-7500(19)30222-5).

ⁱⁱⁱ Aaron C. Miller, et. al., "A Smartphone-Driven Thermometer Application for Real-Time Population-and Individual-Level Influenza Surveillance," *Clinical Infectious Diseases* 62, no. 3 (July 2018): 388-397, <https://doi.org/10.1093/cid/ciy073>.

^{iv} "West Virginia University Rockefeller Neuroscience Institute, Oura Health Unveil Study to Predict Outbreak of COVID-19 in Healthcare Professionals," *Targeted News Service*, April 09, 2020, ProQuest.

^v Maggie Fox, "The NBA Is Offering Players a 'Smart' Ring to Track COVID. But Does It Even Work?" *CNN*, June 24, 2020, <https://www.cnn.com/2020/06/21/health/nba-smart-ring-tracking-covid/index.html>.

^{vi} Meshari F. Alwashmi, "The Use of Digital Health in the Detection and Management of COVID-19," *International Journal of Environmental Research and Public Health* 17, no. 8 (2020): 2906, <http://doi.org/10.3390/ijerph17082906>.

^{vii} Kurt Helin, "NBA Orlando Restart: What Players Can Expect as They Arrive at the Bubble," *NBC Sports*, July 07, 2020, <https://nba.nbcsports.com/2020/07/07/nba-orlando-restart-what-players-can-expect-as-they-arrive-at-bubble/>.

^{viii} Tim Hulsen, "Sharing is Caring—Data Sharing Initiatives in Healthcare," *International Journal of Environmental Research and Public Health* 17, no. 9 (2020): 3046, <http://doi.org/10.3390/ijerph17093046>.

^{ix} Savi Maharaj and Adam Kleczkowski, "Controlling Epidemic Spread by Social Distancing: Do It Well or Not at All," *BMC Public Health* 12, (2012): 679, <http://doi.org/10.1186/1471-2458-12-679>.

^x Zhanwei Du, et. al., "Effects of Proactive Social Distancing on COVID-19 Outbreaks in 58 Cities, China," *CDC Emerging Infectious Diseases* 26, no. 9 (2020), <http://doi.org/10.3201/eid2609.201932>.

^{xi} Jeff Zillgitt, "NBA Players Union Memo Outlines Health and Safety Precautions for 2020 Season Restart at the ESPN Wide World of Sports." *USA Today*, June 16, 2020, <https://www.usatoday.com/story/sports/nba/2020/06/16/nba-disney-world-restart-extensive-covid-19-safety-restrictions/320294.3001/>.

^{xii} Zillgitt, "NBA Players Union Memo."

^{xiii} ESPN Internet Ventures, "What People in the NBA Are Saying about the Orlando Restart and the Coronavirus," *ESPN*, July 3, 2020, https://www.espn.com/nba/story/_/id/29400971/what-people-nba-saying-orlando-restart-coronavirus.

^{xiv} Lori Ewing, "'Protocols are Unbelievable': Lowry Confident in NBA Restart Measures," *The Globe and Mail*, July 13, 2020, <https://www.theglobeandmail.com/sports/basketball/article-kyle-lowry-believes-the-nba-restart-will-work-perfectly-thanks-to/>.

^{xv} ESPN Internet Ventures, "What People in the NBA Are Saying."