

# Sick of sports? Study shows flu deaths rise when pro sports teams move into cities

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West Virginia University economists, whose research shows flu deaths increase when a city becomes home to a new professional sports team, say their data should make even the biggest fans reconsider support for taxpayer-funded stadium subsidies.

According to their paper in *Sports Economic Review*, U.S. cities that gained pro teams between 1962 and 2016 saw increased influenza mortality of up to 24% after the teams came to town. The researchers analyzed cities with new teams in the four major North American professional leagues: Major League Baseball, the National Football League, the National Basketball Association and the National Hockey League.

Brad Humphreys and Jane Ruseski, professors at the John Chambers College of Business and Economics, conducted the study with Alexander Cardazzi, then Humphreys' doctoral student and now an assistant professor at Old Dominion University.

"Most, if not all, of the sports venues in the cities we studied received direct and/or indirect public financing," Humphreys said. "Since 2000, U.S. state and [local governments](#) have committed nearly \$20 billion to new stadiums—roughly a billion dollars per year. These subsidies usually come in the form of governments essentially cutting team owners a check, funded by issuing bonds, to build their stadiums. The fact that teams basically extort cities to get these subsidies by threatening to move elsewhere makes this of even more interest to economists."

"Our finding, that people in cities with sports teams are likely to be sicker than they would be without the team, has the potential to shift how we think about hosting professional sporting events. We hope taxpayers will be less likely to subsidize professional sports facilities if they realize those teams are making them sicker, burdening health care systems and harming businesses' bottom lines as workers use sick days."

When NFL teams moved to cities that never had pro [sports teams](#) before, those cities saw an average increase in flu deaths of 17%, or about 13 additional deaths a year. Becoming home to an NBA team increased a city's flu mortality by 4.7%, and MLB—whose games

generally occur outside flu season—had the smallest impact, driving three additional deaths each year.

The largest increase in a city's weekly flu mortality came from the NHL. An NHL team moving into a city caused a 24.6% increase in flu deaths per 100,000 residents, Ruseski said, a total increase of about 20 flu deaths a year in each city.

"As for why hockey is so deadly, we believe it is both the timing of the season and location of the teams," she said. "The NHL season overlaps almost perfectly with the flu season and NHL teams are more likely to be in colder cities."

However, Ruseski pointed out they cannot say decisively that the overlap in the flu and league seasons is a major driver of flu mortality.

"Since seasons are almost always played at the same time each year, we don't know what might happen if, say, the NHL played during the summer," she said.

The researchers used Centers for Disease Control data on weekly [flu deaths](#) in 122 U.S. cities over a 54-year period, along with the arrival dates of new NBA, NFL, NHL and MLB teams in cities and the start of play in leagues during that time. They controlled for factors relevant to the spread of viruses, like a [city's](#) population, temperature or rainfall, and yearly dominant flu strains.

While the study looked at influenza, Cardazzi said the same trends likely also apply to COVID-19, since the two viruses are transmitted similarly.

"Sporting events at stadiums and arenas place large numbers of people in close proximity," Cardazzi explained. "These fans touch many surfaces and are talking, yelling and engaging in person-to-person contact like

high-fives. Unlike with other arena events like concerts, people also gather to watch the games on television in homes or [public spaces](#) like bars, where they create similar conditions, ideal for spreading both flu and COVID-19."

The findings are published in the journal *Sports Economics Review*.

**More information:** Alexander Cardazzi et al, Do sporting events amplify airborne virus transmission? Causal evidence from US professional team sports, *Sports Economics Review* (2023). [DOI: 10.1016/j.serev.2023.100013](#)

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