

# Predominantly black neighborhoods excluded from municipal water service have poorer quality drinking water

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A new study from the University of North Carolina at Chapel Hill reveals inequities in water quality in central North Carolina.

In Wake County, some predominantly African-American neighborhoods completely lack access to the municipal [water](#) system. As a result, residents are exposed to notably higher quantities of microbial contaminants via well water.

The study's corresponding author is Jacqueline MacDonald Gibson, associate professor in the Department of Environmental Sciences and Engineering in the UNC Gillings School of Global Public Health. Her co-author is Frank Stillo, an alumnus of the same department who currently works in UNC's Department of the Environment, Health and Safety.

The researchers' findings, titled "Drinking Water Quality and Health Disparities in North Carolina Neighborhoods Excluded from Municipal Water Service," were published online Nov. 10 by the *American Journal of Public Health*.

In previous studies, MacDonald Gibson and colleagues identified neighborhoods in Wake County that depend on private wells for drinking water. In many cases, these neighborhoods are home to largely African-American populations, but are surrounded by mostly-white neighborhoods that do have municipal water access.

After identifying these neighborhoods, researchers went on to determine that residents are more likely to visit an emergency room for acute gastrointestinal illness than are individuals from nearby [neighborhoods](#) with public water system connections.

Continuing the investigation, the most recent study shares the results of direct [water quality](#) surveys conducted by the research team in these same areas. Laboratory testing revealed that residents are indeed being exposed to significantly higher quantities of microbial contaminants, including bacteria associated with human fecal waste.

Nearly 30 percent of the 171 private well water samples tested positive for coliform bacteria, and more than six percent tested positive for E. coli. In samples from households on the municipal system, results for both contaminants were only a fraction of one percent.

Based on these findings, the study's co-authors estimated that more than one-fifth of the underserved communities' 114 annual emergency department visits for acute gastrointestinal illness could be prevented if municipal water service were extended.

**More information:** Frank Stillo et al. Exposure to Contaminated Drinking Water and Health Disparities in North Carolina, *American Journal of Public Health* (2016). [DOI: 10.2105/AJPH.2016.303482](https://doi.org/10.2105/AJPH.2016.303482)

Provided by University of North Carolina at Chapel Hill

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