



Center for Worker Health

Wake Forest School of Medicine

POLICY BRIEF

Drinking Water Quality in NC Migrant Farmworker Camps

Summary

Water is the essence of human life. It is part of every cell, and is vital for every function of our body. The World Health Organization has declared that safe water is a basic human right. Migrant farmworkers in the United States are at increased risk for illness and injuries, including those that result from consuming unsafe drinking water. The quality of drinking water was studied in 181 migrant farmworker camps in eastern North Carolina from June through October, 2010.

One-third (61) of the camps failed standard tests for drinking water safety. Bacteria usually found in human and animal waste were found in the water samples collected at these camps. This contamination poses a risk to the health of farmworkers and to those living in surrounding communities. Changes are needed to secure safe water in migrant farmworker camps, including water monitoring in more camps, stronger enforcement, and changes to regulations, such as testing water during occupancy.

What did the researchers do?

From June through October, 2010, the researchers studied 181 migrant farmworker camps in 16 eastern North Carolina counties. The study had three parts.

1. Researchers questioned two workers in each camp about housing.
2. They used the NC Department of Environment & Natural Resources guidelines to collect water samples in each camp. The water samples were tested in state-certified labs to check for total coliform bacteria and *E. coli*.
3. They measured 49 factors that could affect water quality. These included overall camp cleanliness and distance from animal barns.

What did they find?

One-third of the camps studied (61 of 181 camps) failed state water quality requirements. These camps failed the test for total coliform bacteria, meaning that the levels of bacteria in the water were high enough to cause health concerns. Two of the camps also had *E. coli* in the water. Coliform bacteria are indicators of



Kitchen sink in a farmworker camp that participated in this study.

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contamination from human and animal waste. They signal the presence of disease-causing germs in the water.

The researchers looked at many factors for each camp that could affect water safety. These included housing conditions and distance from animal barns. They also examined whether the camps had a Certificate of Inspection from the NC Department of Labor, and whether the source of the camp's water was a "nontransient, noncommunity (NTNC) public water system." None of these factors made a difference in the results of the water quality tests.

Why does it matter?

Testing drinking water is vital to protect the public from serious diseases. High levels of coliform bacteria were present in many of the migrant farmworker camps, indicating that the water contained human or animal waste. Contaminated water puts the health of the workers who drink it at risk. It also puts the health of the surrounding community at risk because they may be using water from the same sources.

Drinking water polluted by human or animal waste can cause serious health problems. These include symptoms such as diarrhea, vomiting, and dehydration. They also include diseases such as hepatitis A, Legionnaires' disease, and cholera. When a water system is polluted, large numbers of people can get sick.

A NC Department of Labor Certificate of Inspection indicates that a migrant farmworker camp had passed a water quality test before the farmworkers arrived. NTNC public water systems are required to be tested for water quality regularly. Neither of these factors was related to water quality in the camps. This indicates that current regulations are not sufficient to protect water quality in migrant farmworker camps.

Recommendations

In order to improve health and safety of migrant farmworker housing, the researchers provide three recommendations:

1. Stronger enforcement of existing regulations by state agencies. Fines should reflect the seriousness of health risks posed by unsafe water.
2. Test water in more camps to ensure safe water for more people.
3. Conduct water testing when migrant farmworker camps are occupied, not just before farmworkers arrive for the season. Additional testing would assure water safety throughout the season.

Further Reading

Previous studies of drinking water in farm labor camps found similar problems:

- Vanderslice J. Drinking water infrastructure and environmental disparities: evidence and methodological considerations. *American Journal of Public Health* 2011;101:S109-S114.
- Ciesielski S et al. The microbiologic quality of drinking water in North Carolina migrant labor camps. *American Journal of Public Health* 1991;81:762-764.

Definition of Terms:

Coliform Bacteria – Coliform bacteria are germs found in the waste of warm-blooded animals, in soil, on plants, and in rivers and lakes. These germs do not usually make you sick. However, because germs that do cause disease are hard to test for in the water, "total coliforms" are tested instead. If the total coliform count is high, then it is very possible that harmful agents like viruses, bacteria, and parasites might also be found in the water.

E. coli – A type of coliform bacteria found in human and animal waste. *E. coli* are usually harmless. However, a positive *E. coli* test may mean that human waste and harmful agents have found their way into the water system. These harmful agents can cause serious disease.

Exposure – Contact with something by swallowing, breathing, or touching the skin or eyes. Exposure may be short-term or long-term.

Migrant Farmworker – Someone who leaves home and travels to reach a farm where they have temporary work. Many migrant workers travel from state to state, or cross from one country into another to work on a farm.

Nontransient, Noncommunity Public Water Systems – A public water system that regularly serves at least 25 of the same people for more than 6 months each year; for example, schools, factories, office buildings, and hospitals that have their own water systems. They are regulated by the Safe Drinking Water Act of the US EPA and the North Carolina Rules Governing Public Water Systems.