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Drinking Water, Nitrates, and the Great Commandment

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Abstract

"As a society, we will need to develop and implement policies that reward land managers for the environmental services they provide, in addition to the crops they produce."

Posting about loving our neighbors by stewarding the creation from *In All Things* - an online journal for critical reflection on faith, culture, art, and every ordinary-yet-graced square inch of God's creation.

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in all things

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Robb DeHaan

“Teacher, which is the greatest commandment in the law?” Jesus replied: “ ‘Love the Lord your God with all your heart and with all your soul and with all your mind.’ This is the first and greatest commandment. And the second is like it: ‘Love your neighbor as yourself.’ All the law and the prophets hang on these two commandments.”[1]

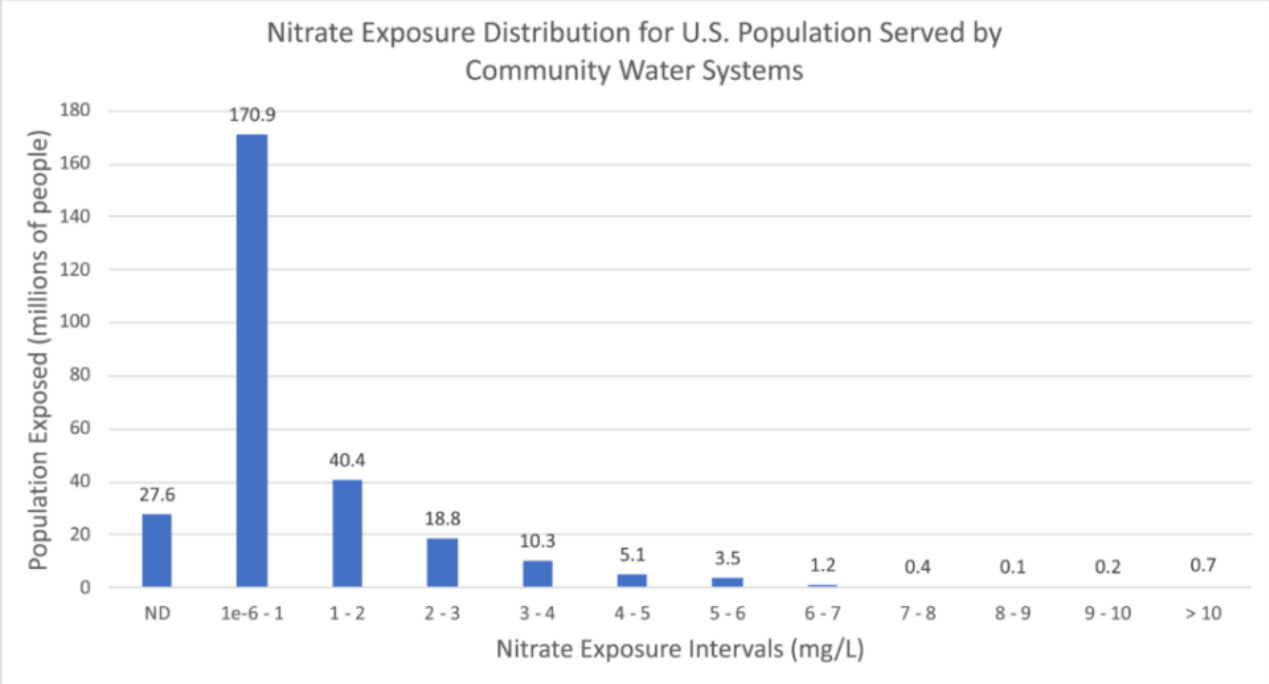
In a recent news release the Environmental Working Group reported that “Nitrate pollution of U.S. drinking water may cause up to 12,594 cases of cancer a year.” This estimate is based on a peer-reviewed journal article published in June of 2019 which stated, “Nitrate contamination of drinking water is a serious problem, and especially in the nation’s farm country.” Given the location of Dordt University, the home addresses of many of our family members and friends, and Jesus command to love our neighbors, this seems like a very relevant issue.

Another article, “Funding denial hurts Lewis and Clark project” was also published this spring. Seemingly unrelated to the nitrate research discussed above, this article explains how funding decisions have delayed the anticipated flow of water from the Missouri River to agricultural communities in Northwest Iowa—like Sioux Center.

Let’s take a closer look. The journal article referred to above—”Exposure-based assessment and economic valuation of adverse birth outcomes and cancer risk due to nitrate in United States drinking water”—is a meta-analysis of data published by several other scientists. It is unique in that it estimates nitrate exposure from drinking water for the entire U.S. population. The authors then use statistical tools to determine if exposure to higher nitrate levels in drinking water increases the risk of cancer. Their conclusion is that elevated nitrate levels (above 0.14 mg/L) in drinking water do significantly increase cancer risk, particularly that of colorectal cancer.

As a Christian, a neighbor, a citizen, and a faculty member at Dordt University, this leads me to ask several questions. Questions like: What is the nitrate concentration in Sioux Center drinking water? What is the current standard for nitrate in U.S. drinking water? Who is responsible for the current situation? What, if anything, can or should be done? How does this relate to my call to love God and neighbor?

Sioux Center, it turns out, is representative of many rural communities throughout the Midwest U.S. According to the 2018 Water Quality Report for Sioux Center Municipal Water Department the nitrate concentration was 7.93 mg/L, with a range of 5.38 to 7.93 mg/L. This is below the standard of 10 mg/L set by the U.S. Environmental Protection Agency in 1962, but much higher than the 0.14 mg/L level above which recent research suggests cancer rates may be elevated. It is also much higher than the level in water consumed by most people in the U.S.



According to the 2018 Water Quality Report for Sioux Center, nitrate in the community's drinking water is coming from runoff from fertilizer use, leaching from septic tanks and sewage, and erosion of natural deposits. Runoff and leaching from agricultural fertilizer use appears to be the predominant source in most rural communities in the Midwest.

It is tempting to lay full responsibility for the current high levels of nitrate runoff and leaching from agricultural fields at the feet of the agricultural community (farmers, agronomists, input suppliers, etc.) but while this segment of society plays an important role and has many opportunities to reduce nitrate movement to drinking water systems, substantial changes will require much broader engagement. Currently, farmers are

rewarded for production, not for environmental care. As a society, we will need to develop and implement policies that reward land managers for the environmental services they provide, in addition to the crops they produce. Scientists know how to reduce nitrate movement from agricultural fields to drinking water supplies, but the policies and the economic incentives to implement these practices throughout the region are not yet in place.

Implementing the Great Commandment in this case includes broad consideration of the well-being of God's creation, as well as the impact on our human neighbors.Elevated nitrate levels in water almost certainly impact wild plants, animals, insects and microbes. We need to learn more about these impacts and work to address them. Our human neighbors are involved in all parts of the equation—as producers, consumers, researchers, policy makers, and regulators. They all need to be loved.

Living out the Great Commandment can take a wide variety of shapes. For Sioux Centers' leaders, loving their neighbors includes doing their best to connect the community to the Lewis and Clark water system with its low nitrate water. For parents it may involve looking at a nitrate removal system for their family. For citizens, love for neighbor impacts which policies and which political leaders they support. Agricultural professionals can love their neighbors by finding opportunities to reduce nitrate movement given current agricultural policy and economic realities.

The daunting challenge of improving water quality in agricultural communities throughout the Midwest U.S. provides a wide variety of opportunities for Christians to live out their faith, and the Great Commandment, in truly meaningful ways.

FOOTNOTES

1. Matthew 22:36-40, NIV