

# Central American kidney disease epidemic linked to occupational heat exposure

March 14 2019

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Chronic kidney disease, common in agricultural workers in El Salvador and Nicaragua, was also found in 12 percent of sample of brick makers.

For two decades, Nicaragua and El Salvador have seen increasing mortality from an unusual form of [chronic kidney disease](#) (CKD), also called Mesoamerican Nephropathy (MeN). The disease has disproportionately affected sugarcane and other [agricultural workers](#), and appears to be unrelated to traditional [kidney](#) disease risk factors such as diabetes.

Now, a new study by researchers from Boston University School of Public Health (BUSPH) and Nicaragua adds to the evidence that the CKD epidemic in the region is linked to occupational heat exposure.

The study, published in the *American Journal of Kidney Diseases*, found 12.1 percent of a sample of artisanal brick makers in Nicaragua had CKD, and that the disease was particularly common among individuals who worked with the ovens for baking bricks.

"Clinicians in the region have said that sugarcane workers are not the only people affected by this [disease](#), despite the media attention they receive, and we were told by brick makers that oven workers were at greatest risk," says Madeleine Scammell, associate professor of environmental health at BUSPH and one of the study's two senior authors. "It turns out their observations were spot-on."

The researchers gathered data from 224 workers at brickmaking facilities in La Paz Centro, a municipality in northwestern Nicaragua, in February and June of 2016. This sample constituted about 44 percent of the brick makers in La Paz Centro.

The brick makers were all between 18 and 60 years old, had been working in brickmaking for at least a year, and had been working for no more than two hours on the mornings when researchers collected blood and urine samples to estimate [kidney function](#).

The researchers found that 12.1 percent of the brick workers had stage 3 to 5 CKD. Operating the ovens, less education, older age, and having an immediate family member with CKD were all associated with worse kidney function. The biggest risk factors for a decline in kidney function during the study period were drinking less than three liters of water during a working shift and working for more than 48 hours per week.

While the sample only included 32 women, these women were just as likely to work with the ovens as men—but none of them had CKD. This may be an area for further study, the authors wrote, as is the question of whether CKD runs in families because of [genetic factors](#) or because brickmaking—like agriculture and other industries where CKD is common—itself runs in families.

**More information:** Lyanne Gallo-Ruiz et al, Prevalence and Risk Factors for CKD Among Brickmaking Workers in La Paz Centro, Nicaragua, *American Journal of Kidney Diseases* (2019). [DOI: 10.1053/j.ajkd.2019.01.017](https://doi.org/10.1053/j.ajkd.2019.01.017)

Provided by Boston University School of Medicine

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