



## A story of **Impact**

### *A NIOSH-funded Research Study Improves Safety and Health of Farm Workers and Their Families*

Farm workers and their families in rural areas face unique challenges to their health than people who live in cities and towns. Since getting health care in a remote area can be difficult, a rural resident might not be treated in time for a medical emergency or screened for a long-lasting health problem like heart disease or lung cancer. Farming is one of the few industries in which family members, who often share the work and live on the farm, are around work-related dangers such as large machinery, animals, and pesticides. About 1 in 5 people in the United States lives in a rural area.<sup>7</sup> They have a higher chance for a number of preventable injuries and diseases related to working on a farm and living in a rural area. People in rural counties died more frequently from unintentional injuries—40% more—than people in urban counties.<sup>4</sup> Of the 4,405 work-related deaths in the United States in 2013, 479 occurred in the agriculture, forestry, and fishing industries. Agricultural production, which includes crop production and livestock production (i.e., farms), accounted for 339 deaths.<sup>4</sup>

Because farmers are open to a wide variety of dangers, it can be difficult to identify the cause of work-related injury

▲ Area clinic (Sigourney, Iowa) where study participants received medical testing and provided survey responses. Photo by a member of the KCRHS research team.

#### **Relevant Information**

**Between 1994 and 2011**, the Keokuk County Rural Health Study (KCRHS) enrolled 5,700 individuals representing 2,668 Iowa households with men and women ranging from newborn to 98 years of age who lived in farm, rural nonfarm, and town households.<sup>2</sup>

**KCRHS supported and provided** education for 6 post-doctoral fellows, 17 graduate students, and 5 international trainees.

**KCRHS has published** 48 journal articles.

**KCRHS research team** has maintained partnerships with over 30 organizations and individuals.



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and illness. The Keokuk County Rural Health Study (KCRHS)—led by Dr. James Merchant and other researchers at the Great Plains Center for Agricultural Health (GPCAH) at the University of Iowa and funded by the National Institute for Occupational Safety and Health (NIOSH)—investigated the relation of agricultural, occupational, and other environmental exposures to injury and disease.<sup>2</sup> KCRHS followed entire farm families living in a rural community over a period of 17 years to observe their health outcomes and identify health conditions, behaviors, and work duties that make injury and illness more likely. For example, KCRHS found that farm workers had the greatest risk of exposure to H1N1 and H1N2 (swine flu) infection, even greater than others who work with pigs (e.g., meat processing workers, veterinarians), since they come into contact with live pigs.<sup>2</sup>

### Impact

KCRHS, the first of its kind, provided the basis for developing ways to prevent and reduce farm-related injury and illness among farm workers and their families in rural areas. By monitoring the health of residents in Keokuk County over a long period of time, GPCAH created a comprehensive data resource to help determine how working on a farm and living in a rural area affect safety and health.

KCRHS identified a need to include swine workers in surveillance programs.<sup>3</sup> Based on KCRHS, the Pew Commission on Industrial Farm Animal Production recommended to policymakers and industry stakeholders that livestock workers be a high priority group for immunizations to protect them, their family members, and their communities from the spread of viral diseases like the flu.<sup>6</sup> Seasonal influenza vaccination of workers might also decrease the potential for people or pigs to become infected with both human and swine influenza viruses.<sup>1</sup>

Additionally, over 1,300 researchers referenced KCRHS to guide and expand their research in this area. KCRHS data was used in 24 new research projects, funded by the National Institutes of Health (NIH) and other institutes. In a community where medical treatment is less available, KCRHS focuses on improving public safety and health through prevention. KCRHS provides knowledge needed to advance research and develop strategies and policy recommendations to reduce and prevent injury and illness among farm workers, their families, and residents of their rural communities.

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Visit the Great Plains Center for Agricultural Health ([www.public-health.uiowa.edu/gpcah/](http://www.public-health.uiowa.edu/gpcah/)) for more information or NIOSH ([www.cdc.gov/niosh](http://www.cdc.gov/niosh)) for more on workplace safety and health. Information specific to this study may be found in *Environmental Research*, 122:74-80—*Relative exposure to swine animal feeding operations and childhood asthma prevalence in an agricultural cohort*—Pavilonis BT, Sanderson WT, Merchant JA. (2013).

<sup>1-7</sup> For a complete list of references, see [www.cdc.gov/niosh/docs/2015-175/](http://www.cdc.gov/niosh/docs/2015-175/).

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