Animals farmed for meat are the No. 1 source of food poisoning bug, study shows

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A study by researchers from Lancashire, England, and Chicago, IL, found that 97 percent of campylobacteriosis cases sampled in Lancashire were caused by bacteria typically found in chicken and livestock. The work, which appears September 26 in the open-access journal *PLoS Genetics*, is based on DNA-sequence comparison of thousands of bacteria collected from human patients and animal carriers.

Campylobacter jejuni causes more cases of gastroenteritis in the developed world than any other bacterial pathogen, including *E. coli*, *Salmonella*, *Clostridium* and *Listeria* combined. Wild and domestic animals act as natural reservoirs for the disease, which can also survive in water and soil. However, the relative importance of these sources is unclear, and recent work has suggested that livestock are not the main reservoir for human disease.

Researchers led by Daniel Wilson, of the University of Chicago, and formerly Lancaster University, United Kingdom, sequenced the DNA of bacteria collected from 1,231 patients and compared it to *Campylobacter jejuni* DNA sequences collected from wild and domestic animals, and the environment. They used evolutionary modeling to trace the ancestry of human *C. jejuni* back to one of seven source populations.

In 57 percent of cases, the bacteria could be traced to chicken, and in 35 percent to cattle. Wild animal and environmental sources were accountable for just three percent of disease.

"The dual observations that livestock are a frequent source of human disease isolates and that wild animals and the environment are not, strongly support the notion that preparation or consumption of infected meat and poultry is the dominant transmission route," Wilson said.

Further studies are underway in the United States, the United Kingdom and New Zealand to determine the generality of the result. But the authors say they hope the current study will add impetus to initiatives aimed at controlling food-borne pathogens.

Source: University of Chicago

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