

Vaccinating chickens could prevent food-borne illness

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A vaccine could be developed to prevent *Campylobacter* being carried in chickens. This approach could drastically cut the number of cases of food poisoning, saving the UK economy millions each year, says an American scientist presenting his work at the Society for General Microbiology's Spring Conference in Dublin.

Food-borne illness costs the UK an estimated £2 billion each year. *Campylobacter* is the leading cause of food-borne illness and is responsible for about 30% of cases in the UK. *Campylobacter jejuni* was responsible for more than 371,000 estimated cases in England and Wales in 2009, resulting in more than 17,500 hospitalizations and 88 deaths.

Campylobacter jejuni is found in the gut of many animals, including chickens. If *Campylobacter*-contaminated poultry is not prepared and cooked properly, the micro-organism can be transmitted to humans where it may cause severe gastrointestinal disease.

Scientists at Washington State University are studying the maternal antibodies that are passed from hens to their chicks. "These antibodies protect chicks from becoming colonized by *Campylobacter* in the first week of life," explained Professor Michael Konkel who is leading the research. "Our group has now identified the bacterial molecules that these antibodies attack, which has given us a starting point for a vaccine against *Campylobacter*," he said. "We have already found that chickens injected with these specific molecules – found on the surface of *Campylobacter jejuni* – produce antibodies against the bacterium. This

response partially protects them from colonization."

A vaccine could be a powerful weapon to help control food-borne illness. "Preventing contamination of poultry at slaughter has not been effective at reducing illness in humans. It has been shown that about 65% of chickens on retail sale in the UK are contaminated with *Campylobacter*," explained Professor Konkel. "Ideally, the best way to prevent contamination is to stop chickens on the farm from becoming colonized with this microorganism in the first place, which could be achieved by vaccination. Our goal within the next 6 months is to test a vaccine for [chickens](#) that will reduce *Campylobacter* colonization levels. There's still a long way to go, but I'm confident our lab and others are moving in the right direction."

Controlling food-borne illness through vaccination would have a significant impact both in the UK and globally. "A safe food supply is central to human health. If we can decrease the load of human pathogens in food animals, then we can reduce human illness. A 1% reduction in the number of cases of [food-borne illness](#) would save the UK around £20 million per year. In developing countries, where people and food animals often share the same environment, diseased animals also pose a direct public health risk; vaccination would help mitigate this risk," said Professor Konkel.

Provided by Society for General Microbiology

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