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**Research Study Summary**

**Introduction**

The scientists in the research study were looking for the risk factors for antibiotic-resistant Escherichia Coli in young children in Peru. There are two main factors why there is resistance in people. One is how much antibiotics is given to animals and that is transmitted to humans by eating meat, and two, the distribution of antibiotics to the people. There are some cases where the people have been given enough of a supply of antibiotics that does not kill the bacteria all the way, potentially allowing the bacteria to become antibiotic-resistant such as bacteria E. coli. This study was done in Peru because of the influence of medical, agricultural and environmental factors in the household, individual, and community. E. Coli was also selected for study because it is common in both humans and animals.

**Materials and Methods**

The researchers selected sixteen zones in four regions of Peru. Twenty-five households were selected in each of the sixteen zones, based on how many children were living in the households from the ages of three months to three years of age. At every household the researchers preformed a rectal and hands-dip broth swab that was obtained form the child and from the child’s mother. Each swab obtained was then cultured for E. coli. The researcher then conducted questionnaire to each of the families. The researchers used standard questions like: the age of the child, the owner of the household, where the food is bought and where the antibiotics are obtained and sold.

**Results**

The ciprofloxacin had the highest resistance in Chincha but was low in all the other zones. And all the cultures in children were sensitive to Ceftriaxone. The cultured E. coli on the Mothers’ had been resistant to ampicillin, sulfamethoxazole, and ciprofloxacin (only in Chincha). The market chickens that were swapped were resistant to ampicillin and sulfamethoxazole but the household chickens living with the household was significantly lower than the market chickens. The researchers also found the use of antibiotics before the age of three months caused an increase risk of carrying ampicillin-resistant Escherichia coli. The levels for the resistant E. coli lowered as the age increased. And there seemed to be more resistance in households who were not the owner of the home than those who owned the home.

**Discussion**

The researchers in this study used sixteen different zones around Peru. By doing this it created a mix of medical, agricultural, and environmental exposures that can contribute to the risk factors of carry resistant-antibiotic E. coli. The main risk factors that were discovered through doing this study were the household members and their recent use of antibiotics. Another major factor that was contributed was that some households did not own the home and those households had greater carriage of antibiotic-resistant bacteria. Other factors that contributed to the risk of the resistant E. coli are: the zones that had greater proportions of households, the great amount of antibiotic use in children, and the inadequate of protection against the resistant bacteria in water also contributed. To help prevent the risks of the children being carriers is to lower the use of antibiotics and to decrease household size can help as protective measures.

**Bibliography**

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