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**County of Los Angeles • Department of Health Services**  
**Public Health**  
**Acute Communicable Disease Control**  
**Special Studies Report 2000**

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**EAST MEETS WEST: CAMPYLOBACTERIOSIS ASSOCIATED WITH AN ETHNIC SPECIALTY**

**BACKGROUND**

Campylobacteriosis, the most common bacterial cause of foodborne illness in the United States, is spread via fecal/oral transmission. *Campylobacter* infections usually occur in single, sporadic cases and often are acquired by consumption of raw or undercooked meat or poultry. Outbreaks of campylobacteriosis can occur but usually are associated with drinking unpasteurized milk rather than consumption of raw or undercooked poultry. Recent studies have shown *Campylobacter* spp. may contaminate up to 80% of domestic retail raw chicken.<sup>1</sup>

During a routine case investigation, LAC DHS discovered that two unrelated but temporally associated campylobacteriosis cases consumed chicken dishes at a Japanese restaurant. In order to evaluate the association, LAC DHS initiated an investigation.

**METHODS**

Culture-confirmed campylobacteriosis cases with onsets from January 1, 1999 to December 31, 2000 were included in the study. Data was obtained from case history forms of reported campylobacteriosis cases and the LAC surveillance database.

LAC conducts passive surveillance for campylobacteriosis. After receiving a morbidity report of campylobacteriosis, Public Health Nurses (PHNs) interview the patient and complete the epidemiology case history form. These follow-up communications confirm the existence of a *Campylobacter* infection and collect and/or validate information regarding demographics, risk factors and other pertinent data. The completed case forms are reviewed and then entered into a surveillance database for each year. The surveillance database includes variables on demographics, serotype, restaurant exposure, certain risk factors, and a comment field. Information contained in the comment field includes suspicious or unusual information (including names of restaurants that are repeatedly mentioned).

Demographic characteristics (age, race/ethnicity, and gender), occupation, and risk factor (food consumed, travel history, etc.) information were summarized for each year separately and collectively for the study period. Proportional morbidity ratios, 95% confidence intervals (CIs), and Fisher exact p-values were calculated using Epi-Info. Population estimates were obtained from the 1999 Urban Research database.

**RESULTS**

During the study period 2,359 cases of campylobacteriosis were reported to LAC. Among these, 13 reported restaurant A exposure during the incubation period. These individuals were likely to be Asian male students under the age of 30, and reporting student status as his/her occupation (Table

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1). Asian race (RR=14, CI: 4.5-42, p<0.01) and the 20- to 24-year-old age group (RR=7.8, CI: 2.6-24, p<0.01) were associated with consuming undercooked chicken.

**Table 1: 1999-2000 Campylobacteriosis Cases Who Ate at Restaurant A**

| Characteristic | Total Cases (n=13) |    |
|----------------|--------------------|----|
|                | No.                | %  |
| <b>Gender</b>  |                    |    |
| Male           | 8                  | 62 |
| Female         | 5                  | 38 |
| <b>Race</b>    |                    |    |
| Asian          | 8                  | 62 |
| White          | 4                  | 31 |
| Other          | 1                  | 7  |
| <b>Age</b>     |                    |    |
| 20-24          | 5                  | 38 |
| 25-29          | 5                  | 38 |
| 30+            | 3                  | 24 |
| <b>Student</b> |                    |    |
| Yes            | 6                  | 46 |
| No             | 7                  | 54 |

All exposed cases consumed chicken prepared by the restaurant in traditional Japanese dishes. The restaurant serves two different chicken dishes that are purposely served undercooked. Tataki chicken is prepared by searing a small piece of chicken on a Japanese-style BBQ and served cold. Toriwas chicken is prepared by placing small pieces of chicken in a saucepan of broth and bringing to a boil and then immediately cooking. The recipe calls for chicken in both dishes to be a desirable internal color of “pink to red.” The chicken used in both dishes was purchased from a custom slaughterhouse and transported to the restaurant in an unsanitized ice chest.

## DISCUSSION

Ethnic delicacies from a particular restaurant were associated with campylobacteriosis. Restaurants are rarely identified as the source for *Campylobacter* infections. During the study period LAC identified 3 other restaurant-associated campylobacteriosis outbreaks where chicken was identified as the suspected source.

Previous studies have shown that most retail raw chicken is contaminated with *Campylobacter* spp. One study reported an isolation rate of 98%<sup>1</sup> and a California study in the 1980s discovered that

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68% of retail chickens were contaminated.<sup>2</sup> In 1999, LAC DHS performed a convenience sample of retail whole raw chickens and found that 19 of 30 chickens (63%) were positive for *Campylobacter* species.

Asian race/ethnicity, the age group of 20 to 24 years old, and student status were associated with consumption of raw/undercooked chicken. Anecdotal information from interviews of Japanese students indicated that the perceived risk of disease acquisition was low. Additionally, foreign-born Asian cases believe that chickens are “clean” in Japan. However, a recent Japanese study reported that 46% of Japan’s retail chicken was contaminated with *Campylobacter jejuni*.<sup>3</sup>

The 2000 California Uniform Retail Food Facilities Law (CURFFL) states that chicken shall be heated to a minimum internal temperature of 165 °F. There are two exceptions to the law: (1) the consumer can specifically order a food item less cooked, or (2) the food facility must notify the consumer orally or in writing that he/she has ordered a raw or less than thoroughly cooked food item. If exceptions are met, the food facility can serve undercooked or raw food items.

## **RECOMMENDATIONS**

CURFFL exists to protect the consumer from unsafe foodhandling practices. Appropriate enforcement agencies need to enforce the law. Additionally, we can educate the public of the risks of consuming raw/undercooked meat or poultry by placing food warning labels in the restaurant or on the menu. Public health departments should be alert for ethnic foods which may be high risk (steak tartare, cured meats, etc.) during routine inspection or investigation of foodborne illness in restaurants. Health departments should establish communication with ethnic restaurants and food associations through public health newsletters and other outreach methods. These relationships can be used to educate specific communities about the consequences of consuming high-risk foods.

## **REFERENCES**

1. Centers for Disease Control and Prevention. *Campylobacter jejuni* - An Emerging Foodborne Pathogen. *Emer Infect Dis* 1999;5:5.
2. Wempe J, Genigeorgis C, Farver T, et al. Prevalence of *Campylobacter jejuni* in Two California Chicken Processing Plants. *Appl Environ Microbiol* 1983;45:355-9.
3. Ono K, Yamamoto K. Contamination of meat with *Campylobacter jejuni* in Saitama, Japan. *Int J Microbiol* 1999;47:211-219.