



California Poultry Letter

June 1997

New Light Shed on Food Borne Disease

The Sentinel Site Study, or Foodnet, as it is now called, is a cooperative effort between USDA Food Safety Inspection Service (FSIS) and the FDA's Center for Disease Control (CDC). This study concentrates on dense population areas averaging 2.65 million people each in five states. The goal is to better identify and control bacteria causing food borne illnesses. CDC estimates that they receive reports on only one percent of food associated illnesses. This new program is aimed at improving reporting cases, fatalities and causes of illnesses associated with food or water. The 1996 report provides some interesting findings.

Campylobacter jejuni were the most common cause of food borne illnesses with 24.7 cases per 100,000 population (Table 1). Salmonella was second with 16.2/100,000. Both bacteria may live in the intestine of animals and can contaminate carcasses during slaughter. California had the highest rate of *Campylobacter* with 58 cases/100,000 population.

E. coli 0157:H7 ranked fourth as a cause of illness but 45% of victims were less than 10 years old and 62% were under 20. Food borne disease in this age group has generated emotional headlines, which influenced national policy. Animal products were directly

associated with only 5.5% of these (*E. coli* 0157:H7) illnesses while lettuce, juice, person-to-person contacts, recontamination in public feeding situations and swimming were associated with the balance.

While *Listeria monocytogenes*' was unusual (0.5 cases/100,000) 14% of the reported cases were fatal. Victims are often over 60 years old. This bacteria can be carried by infected animals, is psychotropic in nature and is still active at 32°F. It can reside in evaporator drip pans and can be spread through ventilation ducts.

Salmonellae continue to be a concern as the second most important cause of food borne disease. The number of cases nationwide appear to have declined and approach 1985 baseline levels of 16/100,000 population. However, *Salmonella* were responsible for half of the fatalities. *Salmonella enteritidis* (SE) was second to *S. typhimurium* as a cause of food borne illnesses (Table 2). However, California's more than average number of cases of *Salmonella* is a cause for concern.

Food poisoning is a particular problem for young children with 31% of all cases occurring in children up to 10 years old and 40% in people in the 0 to 20 age group.

Table 1. Food Poisoning by Most Common Pathogens in California as Reported to CDC in 1996.

Pathogen	No. of Cases	No. of Deaths	Rate/100,000	California Rate/100,000
Campylobacter	3267	3	24.7	58.0
E. coli:0157:H7	384	2	2.9	1.1
Listeria	63	9	0.5	0.6
Salmonella	2142	16	16.2	19.7
Shigella	1251	2	9.5	18.3
Vibrio	17	1	0.1	0.2
Yersinia	135	0	1.0	0.5
Total	7259	33	54.9	98.4

Source: FSIS/CDC/FDA Sentinel Site Study (1997)

Table 2. Salmonella Serotypes Identified in Patients (1996)

Salmonella Serotype	In California	Total*
S . typhimurium	73	560
S. enteritidis	59	363
All others (102 serotypes)	262	1219
Total	394	2141

*In CA GA MN. OR and CT survey region

Fatalities. The total number of confirmed deaths from food poisoning in the Sentinel report was 33. If this rate were extrapolated to the entire U.S. population the number of fatalities would be about 660 per year. This is a serious cause for concern but far short of the 9,000 fatalities previously estimated by CDC. Unfortunately the larger estimates are **often** cited in the media to scare the public when food poisoning is discussed. It is vital to the animal industries that CDC be held responsible to report only confirmed cases and for refining reporting procedures to provide more accurate data.

Food borne diseases in perspective. The World Health Organization recently published its annual report on the causes of death in worldwide populations. As in previous years, heart attacks, strokes and cancers were the leading causes of death. Food and water borne diseases are in 5th place, with close to 3 million fatalities out of 50.5 million deaths recorded. Diarrhea related diseases are a major problem for developing countries where large scale outbreaks frequently occur with high fatality rates. Many of the poor countries lack appropriate clean water supplies, sewage treatment and sanitary food handling. Water

and food borne disease also hits hard during and after natural or man-made disasters when sanitary systems collapse.

The United States, with about 5% of the world population, has major problems with AIDS (15% of the world deaths), violent crimes (10%) and drunk driving accidents which double the death toll. Diabetes is a huge problem in the U.S., where it is the third largest killer, but also the largest crippling disease. Most kidney failures, blindness and foot amputations are the result of diabetes complications. In comparison, food borne diseases are but a nuisance with 0.001 to 0.002% of world fatalities. However, public opinion has pushed legislators to treat food poisoning as a top priority.

There are several things which could improve food safety. Among these are testing, education and certification of employees who handle and prepare food. Education of students in grades K-13 in food safety and personal hygiene. Introduction of modern hand washing equipment and sanitation standards in food preparation establishments could also be helpful. The large turnover in food handling employees makes their training difficult. Emphasis on education can be justified because it will help prevent other causes of illness in addition to food poisoning.

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Avian Influenza Virus in Pennsylvania

Non-pathogenic type A **H7N2** Avian Influenza (AI) virus was found through normal **USDA-APHIS** AI surveillance in 3 commercial laying flocks, one in February, two in May 1997. Strict quarantine of a 70 sq. mile radius in Lancaster County, PA has been instituted. All movement of poultry or poultry products into or out of the area is prohibited until the flock of origin is tested as AI free by the state veterinary services. The flocks (700,000 birds) were voluntarily destroyed as a safeguard measure with the cost borne by the industry. Monitoring by **USDA/APHIS** in Pennsylvania and the surrounding Northeast region is ongoing.

The virus has been tested and found to be nonpathogenic for chickens. The gene sequence for the virus isolates are identical to **H7N2** viruses isolated from birds at live poultry markets in Pennsylvania for the last 2 years. This virus appears to be quite stable.

The Pennsylvania Poultry Federation requested **APHIS** to authorize the production and storage of killed **H7N2** AI vaccine for possible emergency use in Pennsylvania despite current policy for use of vaccine only in the face of a potential outbreak of Highly Pathogenic Avian Influenza. Because this AI virus is nonpathogenic, the present outbreak does not meet this guideline. Historically, AI viruses have shown the ability to become increasingly pathogenic over time as occurred in the 1983-94 Pennsylvania outbreak of **H5N2** Avian Influenza.

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Mortality in Cormorants at Salton Sea

US Fish and Wildlife Services have identified a Newcastle Disease virus **from** tissues submitted to the National Wildlife Health Center in Wisconsin from cormorants on **Salton Sea**. The pathogenicity of the virus isolated by US Fish & Wildlife is being tested by the USDA, National Veterinary Services Laboratory in Ames, Iowa. The lesions observed in cormorants are reported to be the same as those observed in the double crested cormorants in the 1992 Newcastle Disease outbreak in the Great Lakes, Midwest and Canada. In the event the California isolate is a velogenic (highly virulent) type, vaccinated poultry flocks should be protected **from** disease.

In May, the National Wildlife Health Center was informed of high mortality in nestlings of the double-crested cormorants and Caspian terns on Mullet Island in the **Salton Sea**, Southern California by local Nation Wildlife Refuge personnel. Approximately 1600 nestlings were involved. Unfortunately, investigators could not recover any carcasses that were suitable for diagnostic testing. They did however, note young cormorants with neurologic signs **from** paresis to unilateral wing or leg paralysis or inability to move or respond to stimuli. Cormorants with neurologic signs were brought to the **California** Veterinary Diagnostic Laboratory for examination. Diagnostic testing of these birds showed a non-suppurative encephalitis. A virus was isolated and is currently being characterized at the CVDLS-Fresno.

Additional, ongoing mortality events in avian species at the **Salton Sea** include a Type C botulism toxicosis in several fish-eating species (including brown and white pelicans) of 7-8 week duration and an undiagnosed mortality in eared grebes that has occurred repeatedly over the past 5 years.

These situations do not pose an immediate threat to commercial poultry but growers are urged to maintain good biosecurity. Remember if a virus is present in one group of wild birds it could also be present but undetected in others.

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and
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New Web Page

Dr. Joan **Jeffrey** has started a poultry disease web page. You can access it at “<http://www.vetmed.ucdavis.edu/vmtrc/poultry.html>” or from our UC Poultry **Webpage** “<http://etx.ucdavis.edu/avs/avsext.htm>”.

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