Brucellosis has a variable and sometimes prolonged incubation period (5 days to 6 months) and often presents as a non-specific febrile syndrome (acute or insidious onset of fever, night sweats, undue fatigue, headache, and arthralgia). Brucellosis may occur in acute, chronic, and asymptomatic forms. Recurrent or ‘undulant’ fevers can occur if patients go untreated for long periods. Infections that last for more than 12 months can result in infections in bones, joints, liver, kidney, spleen, or heart valves.

We describe here the epidemiology of human brucellosis in California from 2001 through 2008. Data for 2008 are provisional and may differ from data in future publications. For a complete discussion of the definitions, methods, and limitations associated with this report, please refer to Technical Notes1.

California reporting requirements and surveillance case definition
California Code of Regulations, Title 17, requires health care providers to report suspected cases of brucellosis to their local health department immediately by telephone. Laboratories must immediately communicate by telephone with the CDPH Microbial Diseases Laboratory for instruction whenever a specimen for laboratory diagnosis of suspected human brucellosis is received. Laboratories must also report to the local health department when laboratory testing yields evidence suggestive of Brucella spp; notification must occur within one hour after the health care provider has been notified.

California regulations also require local health officers to report to CDPH cases of brucellosis immediately by telephone. CDPH officially counted cases that satisfied the CDC surveillance case definition. CDC defined a confirmed case as one with an illness characterized by acute or insidious onset of fever, night sweats, undue fatigue, anorexia, weight loss, headache, and arthralgia and isolation of Brucella spp. from a clinical specimen or fourfold or greater rise in Brucella agglutination titer between serum specimens obtained at least 2 weeks apart and studied at the same laboratory, or demonstration by immunofluorescence of Brucella spp. in a clinical specimen. A probable case was one with clinically compatible illness and either an epidemiologic link to a confirmed case or supportive serology.

Epidemiology of brucellosis in California
CDPH received reports of 225 cases of brucellosis with estimated onset dates from 2001 through 2008. This corresponds to an average annual incidence rate of 0.08 per 100,000 Californians. Annual brucellosis
incidence rates decreased by 54.5 percent from 2001 (0.11 per 100,000) to 2008 (0.05 per 100,000), although rates rose from 2003 (0.05 per 100,000) to 2006 (0.09 per 100,000) [Figure 1]. During the surveillance period, 1 (0.4 percent) case was reported to have died with brucellosis.

Average annual brucellosis incidence rates during the surveillance period were higher among persons 55 to 64 years of age (0.10 per 100,000) and 65 to 74 years of age (0.15 per 100,000) [Figure 2]. The ratio of male to female cases was 1.0:1.0. During the surveillance period, brucellosis cases with complete information on race/ethnicity (88.0 percent of all cases) reported Hispanic ethnicity (86.4 percent) more frequently than would be expected based on the overall proportion of Hispanics (35.3 percent) in the California population.

Average annual incidence rates for brucellosis were similar in Northern California and Southern California. However, average incidence rates for the San Diego (0.14 per 100,000), San Joaquin Valley (0.11 per 100,000), and Central Coast (0.11 per 100,000) regions were higher than other regions in the state [Figure 3].

From 2001 through 2008, CDPH received reports of 2 outbreaks of foodborne brucellosis involving 7 cases. Both outbreaks were associated with consumption of imported unpasteurized cheese.

**Comment**

Brucellosis in California occurred more frequently among persons of Hispanic ethnicity. Animal brucellosis control programs (vaccination and/or test-and-slaughter of infected animals) are central to preventing human cases. Avoiding consumption of unpasteurized dairy products, limiting exposure to infected domestic animals, and education of higher risk groups (especially persons in higher risk occupations such as laboratory workers and veterinarians) may provide the best opportunities for human brucellosis prevention and control.

**References and resources**


CDPH brucellosis information website [http://www.cdph.ca.gov/HealthInfo/discond/Pages/Brucellosis.aspx]

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