

Key Findings and Public Health Messages

- The California Department of Public Health (CDPH) received reports of 6 confirmed cases of foodborne botulism with estimated illness onset dates from 2009 through 2012.
- During the surveillance period, 1 (16.7 percent) case-patient was reported to have died with foodborne botulism.
- The ratio of male to female cases was 2.0:1.0.
- From 2009 through 2012, CDPH received reports of one “probable” case in a patient who shared a meal with a person who was laboratory confirmed. Two additional patients were reported as “probable” foodborne botulism cases as they shared a meal and both developed clinical findings consistent with botulism but neither was laboratory confirmed and other possible causes of their symptoms could not be ruled out.
- Ensuring appropriate practices in food preparation and preservation and public education about botulism may provide the best opportunities to prevent and control foodborne botulism.

Background

Clostridium botulinum neurotoxin is a rare but important food intoxicant in the United States (US). This potent toxin is produced by *C. botulinum*, an anaerobic, spore-forming bacterium that is ubiquitous in the environment. Foodborne botulism follows ingestion of preformed toxin in foods contaminated by *C. botulinum*. Despite the

presence of bacteria and toxin in the stools of infected persons, person-to-person transmission has not been documented. *C. botulinum* toxin is listed among the Centers for Disease Control and Prevention (CDC) category A bioterrorism agents.¹

Botulism is a neuroparalytic illness. Early symptoms may include double/blurred vision, drooping eyelids, slurred speech, difficulty swallowing, dry mouth, and muscle weakness. Neurologic symptoms generally begin 12 to 36 hours after ingestion of toxin and can progress to a symmetric, descending flaccid paralysis that begins in the cranial nerves.

Untreated, botulism can progress to respiratory paralysis and death. If administered early in the course of illness, botulism antitoxin can stop the progression of, but cannot reverse paralysis. Antitoxin is available exclusively from public health authorities.

We describe here the epidemiology of confirmed foodborne botulism case-patients with estimated illness onset from 2009 through 2012 in California. Case-patients were reported as of October 22, 2014. The epidemiologic description of food botulism for the 2001-2008 surveillance period was previously published in the Epidemiologic Summary for Food Botulism in California, 2001-2008.² For a complete discussion of the definitions, methods, and limitations associated with this report, please refer to Technical Notes.³ Because of the small numbers of cases, we did not calculate incidence rates.

California reporting requirements and surveillance case definition

California Code of Regulations, Title 17, requires health care providers to report

suspected cases of botulism to their local health department immediately by telephone. In the event that a commercial food product is suspected as the source, special instructions will be given by CDPH. Laboratories must immediately communicate by telephone with the CDPH Microbial Diseases Laboratory for instruction whenever a specimen for laboratory diagnosis of suspected botulism is received. Laboratories must report to the local health department when laboratory testing yields evidence suggestive of *C. botulinum*; notification must occur within one hour after the health care provider has been notified.

California regulations require local health departments to immediately report to CDPH cases of foodborne botulism by telephone. CDPH officially counted cases that satisfied the CDC surveillance case definition. CDC defined a confirmed case of foodborne botulism as one with clinically compatible illness and either (i) laboratory confirmation including detection of botulinum toxin in serum, stool, or patient's food or isolation of *C. botulinum* from stool, or (ii) a history of consuming the same food as persons with laboratory-confirmed botulism. A probable case was one with clinically compatible illness and an epidemiologic exposure (e.g., ingestion of a home-canned food within the previous 48 hours). California regulations defined one case of botulism as a foodborne outbreak if laboratory studies identified the causative agent in food.

Epidemiology of foodborne botulism in California

CDPH received reports of 6 cases of confirmed food-borne botulism with estimated illness onset dates from 2009 through 2012. Annual foodborne botulism case counts showed a decrease from 2009 to 2012 [Figure 1]. During the surveillance period, 1 (16.7 percent) case-patient was reported to have died with foodborne botulism.

During the surveillance period, the number of foodborne botulism cases was highest among persons 45-54 and over 85 years of age [Figure 2]. There were no cases reported for individuals under 45 years of age. The ratio of male to female cases was 2.0:1.0. Foodborne botulism cases reported White, non-Hispanic race/ethnicity more frequently than would be expected based on the overall demographic profile of California. [Figure 3]. Six counties reported at least 1 confirmed case-patients during the surveillance period.

From 2009 through 2012, CDPH received reports of one “probable” case in a patient who shared a meal with a person who was laboratory confirmed. Two additional patients were reported as “probable” foodborne botulism cases as they shared a meal and both developed clinical findings consistent with botulism but neither was laboratory confirmed and other possible causes of their symptoms could not be ruled out.

Figure 1. California foodborne botulism case counts, 2001-2012

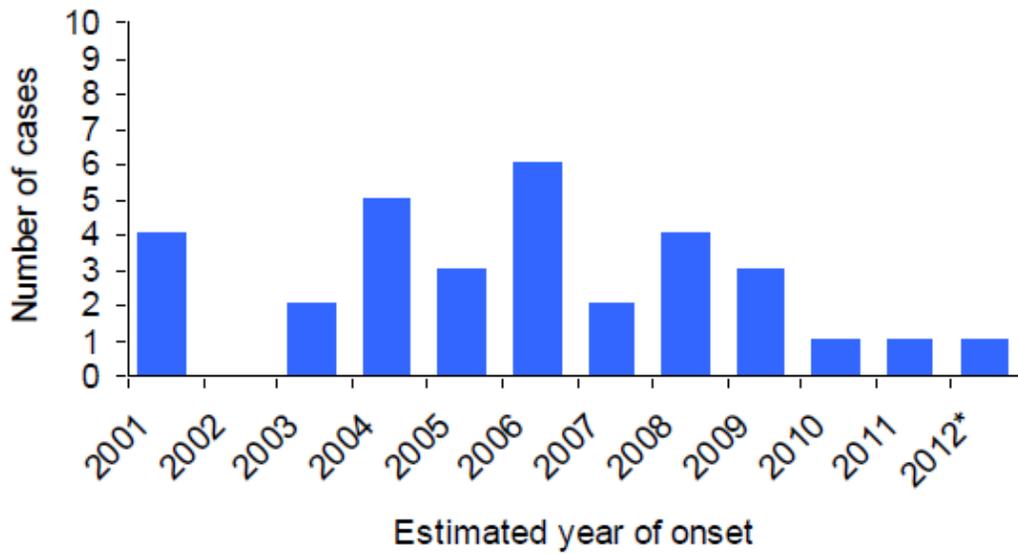


Figure 2. California foodborne botulism cases by age, 2001-2012

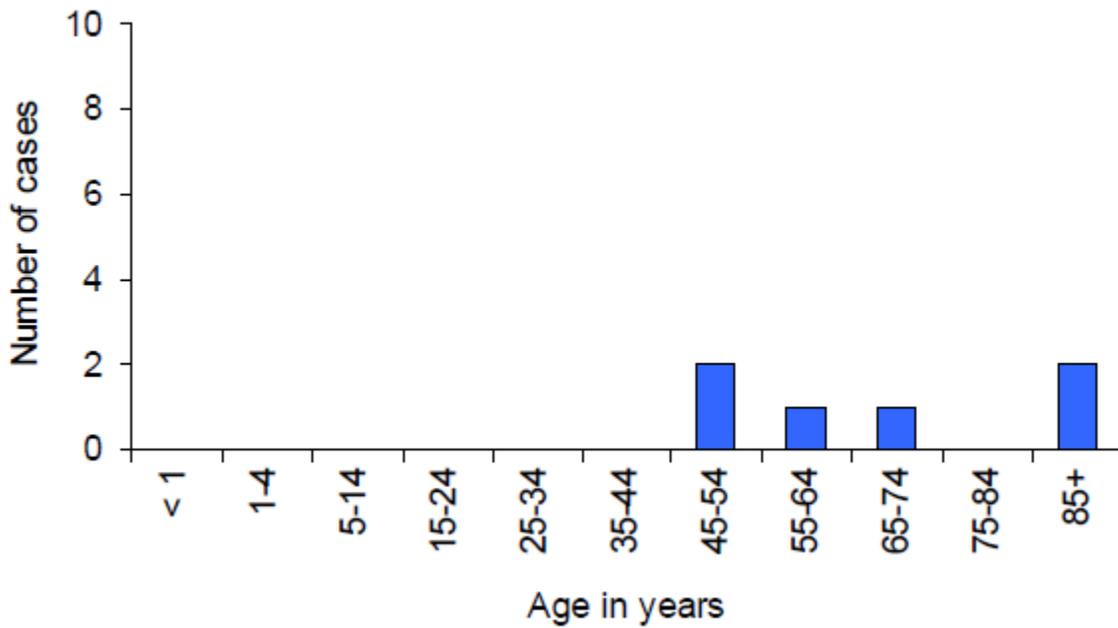
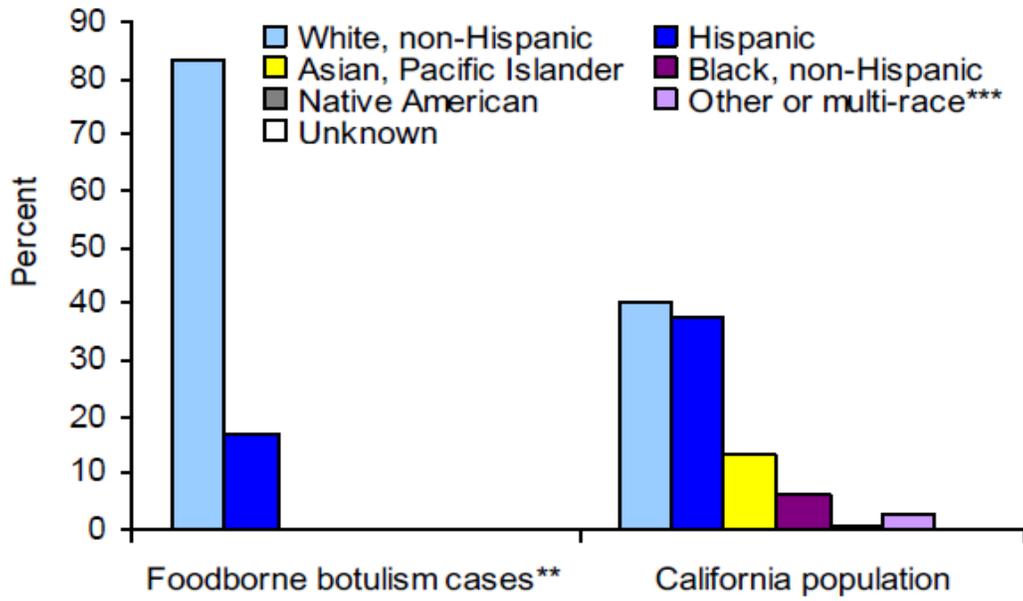


Figure 3. California foodborne botulism cases and population by race/ethnicity, 2009-2012



Notes for Figures 1-3

**Unknowns were excluded

***Includes cases who identified 'other' as their race and Californians ('population') who identified more than one race

Comment

Although foodborne botulism remained a rare occurrence in California, each case represented a medical and public health emergency. Surveillance and response to foodborne botulism is intensive because the contaminated food item must be identified and removed from distribution (whether it is commercial or homemade) without delay. Foodborne botulism has often been from home-canned foods.^{4,5} Patients having symptoms of foodborne botulism, should immediately seek medical care. USDA has information and guidelines on canning foods at home.⁶ Ensuring appropriate practices in food preparation and preservation and public education about botulism may provide the best opportunities to prevent and control foodborne botulism.

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References and resources

- 1 [CDC botulism website—General Information and Resources](http://www.cdc.gov/nczved/divisions/dfbmd/diseases/botulism/consumers.html)
(<http://www.cdc.gov/nczved/divisions/dfbmd/diseases/botulism/consumers.html>)
- 2 [Epidemiologic Summary of Foodborne Botulism in California, 2001 - 2008](http://www.cdph.ca.gov/programs/sss/Documents/Epi-Summaries-CA-2001-2008-083111.pdf#page=25)
(<http://www.cdph.ca.gov/programs/sss/Documents/Epi-Summaries-CA-2001-2008-083111.pdf#page=25>)
- 3 [Epidemiologic Summaries of Selected General Communicable Diseases in California, 2001 - 2008 and 2009 - 2012: Technical Notes](http://www.cdph.ca.gov/programs/sss/Documents/TechnicalNotes01-08and09-12.pdf)
(<http://www.cdph.ca.gov/programs/sss/Documents/TechnicalNotes01-08and09-12.pdf>)
- 4 [CDPH botulism website](http://www.cdph.ca.gov/HealthInfo/discond/Pages/Botulism.aspx)
(<http://www.cdph.ca.gov/HealthInfo/discond/Pages/Botulism.aspx>)
- 5 [CDC Home Canning and Botulism](http://www.cdc.gov/features/homecanning/)
(<http://www.cdc.gov/features/homecanning/>)
- 6 [National Center for Home Food Preservation —USDA Complete Guide to Home Canning, 2009 revision](http://nchfp.uga.edu/publications/publications_usda.html)
(http://nchfp.uga.edu/publications/publications_usda.html)