

2014 Annual Report for the Emerging Infections Program for *Clostridium difficile* Infection

In 2014, a total of 16,333 cases of *C. difficile* infection (CDI) were reported to the Emerging Infections Program (EIP) in 35 counties in 10 US states (California, Colorado, Connecticut, Georgia, Maryland, Minnesota, New Mexico, New York, Oregon, and Tennessee).

The overall distribution of EIP CDI cases and crude incidence by selected demographic factors and epidemiologic classification are presented in Table 1. Data in this report are not intended to be directly compared to annual reports from other years, and should not be used to determine annual changes in EIP CDI incidence rates because single year calculations do not account for changes in testing practices by reporting facilities.

Table 1. Reported Number of CDI Cases and Crude Incidence by Sex, Age Group, Race, and Epidemiologic Classification Among the 10 EIP Sites^a

Demographic Characteristic	Population ≥1 Year of Age	Community-Associated CDI ^b		Healthcare-Associated CDI ^b		All CDI	
		No.	Incidence ^c	No.	Incidence ^c	No.	Incidence ^c
Sex							
Male	5647311	2487	44.04	4220	74.73	6707	118.76
Female	5886545	4183	71.06	5443	92.47	9626	163.53
Age group							
1-17 years	2525154	580	22.97	192	7.60	772	30.57
18-44 years	4538522	1632	35.96	1054	23.22	2686	59.18
45-64 years	3025422	2060	68.09	2682	88.65	4742	156.74
≥65 years	1444758	2398	165.98	5735	396.95	8133	562.93
Race							
White	7927252	5239	66.09	7255	91.52	12494	157.61
Non-white	3606604	1431	39.68	2408	66.77	3839	106.44
Total	11533856	6670	57.83	9663	83.78	16333	141.61

^a The epidemiologic classification was statistically imputed for 0.4% of the observed CDI cases, and race was statistically imputed for 18.8% of the observed CDI cases. The weighted frequency of cases in Colorado and Georgia was based on 33% random sampling.

^b A CDI case was classified as community-associated if the *C. difficile*-positive stool specimen was collected on an outpatient basis or within 3 days after hospital admission in a person with no documented overnight stay in a healthcare facility in the preceding 12 weeks. All CDI cases that do not meet the aforementioned criteria were classified as healthcare-associated.

^c Cases per 100,000 persons.

Laboratory Characterization of *C. difficile* Isolates

In 2014, a total of 1,122 *C. difficile* isolates were submitted to CDC for further analysis. The total number of isolates received from each site ranged from 13 to 251, with a median of 102. The majority of the isolates (89%) were collected in metropolitan areas.

Among all isolates submitted, 135 distinct ribotypes were detected. Ribotype 106 was the most common ribotype among community-associated *C. difficile* isolates, followed by 002, 020 and 027 (Table 2). Among healthcare-associated *C. difficile* isolates, ribotype 027 predominated, followed by 106, 002 and 014 (Table 3). A significant decrease in ribotype 027 occurred from 12% in 2013 to 7% in 2014 among community-associated *C. difficile* isolates. Similarly, ribotype 027 decreased from 24% in 2013 to 14% among healthcare-associated isolates of *C. difficile*.

Twenty-two percent of the isolates harbored a deletion in *tcdC*. Twenty-two percent of the isolates were binary toxin-positive, and among these, ribotypes 027, 078 and 019 predominated.

Table 2. Frequency of Ribotypes Among Community-Associated *C. difficile* Isolates, 2014 (n=618)

Ribotype	No of isolates	% isolates
106	70	11%
002	49	8%
020	48	8%
027	44	7%
014	32	5%
054	25	4%
015	20	3%
076	20	3%
078	18	3%
005	17	3%
Others	275	44%

Table 3. Frequency of Ribotypes Among Healthcare-Associated *C. difficile* Isolates, 2014 (n=504)

Ribotype	No of isolates	% isolates
027	70	14%
106	61	12%
002	46	9%
014	35	7%
020	31	6%
056	18	4%
001_072	15	3%
103	11	2%
054	10	2%
017	10	2%
Others	197	39%