

2012 Annual Report for the Emerging Infections Program for *Clostridium difficile* Infection

In 2012, a total of 16,449 cases of *C. difficile* infection (CDI) were reported to the Emerging Infections Program (EIP) in 35 counties with continuous reporting 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 Epidemiological 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	5533992	2243	40.53	4497	81.26	6740	121.79
Female	5749334	3724	64.77	5985	104.10	9709	168.87
Age group							
1-17 years	2506177	414	16.52	187	7.46	601	23.98
18-44 years	4467587	1444	32.32	975	21.82	2419	54.15
45-64 years	2974510	1991	66.94	2566	86.27	4557	153.20
≥65 years	1335052	2118	158.65	6754	505.90	8872	664.54
Race							
White	7854051	4924	62.69	8135	103.58	13059	166.27
Non-white	3429275	1043	30.41	2347	68.44	3390	98.85
Total^d	11283326	5967	52.88	10482	92.90	16449	145.78

^a The epidemiologic classification was statistically imputed for 0.7% of the observed CDI cases, and race was statistically imputed for 21.1% of the observed CDI cases. The weighted frequency of cases in Colorado and Georgia were 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.

^d Data presented in the table excludes cases from Olmsted County, Minnesota, where CDI surveillance began mid-year. The total number of reported CDI cases in 2012 would be 16,564 if CDI cases from Olmsted County, Minnesota were included.

Laboratory Characterization of *C. difficile* Isolates

In 2012, a total of 1,443 *C. difficile* isolates were available for further analysis. The total number of isolates received from each site ranged from 55 to 232, with a median of 154.5. The majority of the isolates (96%) were collected in metropolitan areas.

Among all available isolates, 156 distinct ribotypes were detected. Ribotypes 027, 106, 002, 020 and 014 were the most common observed in both community- and healthcare-associated *C. difficile* isolates (Tables 2 and 3).



Thirty-one percent of the isolates harbored a deletion in *tcdC*. Thirty 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, 2012 (n=801)

Ribotype	No of isolates	% isolates
027	137	17%
106	74	9%
002	70	9%
020	52	6%
014	42	5%
056	36	4%
001_072	26	3%
078	24	3%
015	20	2%
019	17	2%
Others	303	38%

Table 3. Frequency of Ribotypes Among Healthcare-Associated *C. difficile* Isolates, 2012 (n=642)

Ribotype	No of isolates	% isolates
027	136	21%
106	55	9%
002	36	6%
020	34	5%
014	29	5%
054	21	3%
078	19	3%
017	19	3%
053	18	3%
A12	15	2%
046	15	2%
Others	245	38%