

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

In 2014, a total of 16,345 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<sup>a</sup>**

Demographic Characteristic	Population ≥1 Year of Age	Community Associated CDI <sup>b</sup>		Healthcare Associated CDI <sup>b</sup>		All CDI	
		No.	Incidence <sup>c</sup>	No.	Incidence <sup>c</sup>	No.	Incidence <sup>c</sup>
<b>Sex</b>							
<b>Male</b>	5647311	2480	43.91	4228	74.87	6708	118.78
<b>Female</b>	5886545	4168	70.81	5469	92.91	9637	163.71
<b>Age group</b>							
<b>1-17 years</b>	2525154	581	23.01	192	7.60	773	30.61
<b>18-44 years</b>	4538522	1623	35.76	1064	23.44	2687	59.20
<b>45-64 years</b>	3025422	2052	67.83	2693	89.01	4745	156.84
<b>≥65 years</b>	1444758	2392	165.56	5748	397.85	8140	563.42
<b>Race</b>							
<b>White</b>	7927252	5230	65.97	7282	91.86	12512	157.84
<b>Non-white</b>	3606604	1418	39.32	2415	66.96	3833	106.28
<b>Total</b>	11533856	6648	57.64	9697	84.07	16345	141.71

<sup>a</sup> The epidemiologic classification was statistically imputed for 0.6% 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.

<sup>b</sup> 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.

<sup>c</sup> Cases per 100,000 persons.

### Laboratory Characterization of *C. difficile* Isolates

In 2014, a total of 1,123 *C. difficile* isolates were submitted to CDC for further analysis. The total number of isolates received from each site ranged from 13 to 252, with a median of 102. The majority of the isolates (89%) were collected in metropolitan areas.

Among all isolates submitted, 134 distinct ribotypes were detected. Ribotype 106 was the most common ribotype among community-associated *C. difficile* isolates, followed by 020, 002 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=619)**

Ribotype	No of isolates	% isolates
106	70	11%
020	49	8%
002	49	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%

