2015 Annual Report for the Emerging Infections Program for *Clostridium difficile* Infection

In 2015, a total of 17,354 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	5717797	2787	48.74	4305	75.29	7092	124.03
Female	5964630	4901	82.17	5361	89.88	10262	172.05
Age group							
1-17 years	2537415	595	23.45	189	7.45	784	30.90
18-44 years	4580200	1964	42.88	1136	24.80	3100	67.68
45-64 years	3064141	2412	78.72	2667	87.04	5079	165.76
≥65 years	1500671	2717	181.05	5674	378.10	8391	559.15
Race							
White	7979542	6116	76.65	7054	88.40	13170	165.05
Non-white	3702885	1572	42.45	2612	70.54	4184	112.99
Total	11682427	7688	65.81	9666	82.74	17354	148.55

[a] The epidemiologic classification was statistically imputed for 0.9% of the observed CDI cases, and race was statistically imputed for 16.8% 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 2015, a total of 1,152 *C. difficile* isolates were submitted to CDC for further analysis. The total number of isolates received from each site ranged from 61 to 279, with a median of 99. The majority of the isolates (88%) were collected in metropolitan areas.

Among all isolates submitted, 133 distinct ribotypes were detected. Ribotype 106 was the most common ribotype among community-associated *C. difficile* isolates, followed by 027, 014 and 020 (Table 2). Among healthcare-associated *C. difficile* isolates, ribotype 027 predominated, followed by 106, 002 and 014 (Table 3). An increase in ribotype 027 occurred from 14% in 2014 to 19% in 2015 among healthcare-associated *C. difficile* isolates, although it was not statistically significant (p=0.08). Ribotype 027 remained relatively stable among community-associated *C. difficile* isolates between 2014 (7%) and 2015 (8%).

Twenty-six percent of the isolates harbored a deletion in *tcdC.* Twenty-six percent of the isolates were binary toxin-positive, and among these, ribotypes 027, 153_251, and 078 predominated.

Table 2. Frequency of Ribotypes Among Community-Associated *C. difficile* Isolates, 2015 (n=614)

Ribotype	No of isolates	% isolates
106	58	9%
027	52	8%
014	46	7%
020	40	7%
002	35	6%
015	21	3%
054	20	3%
005	19	3%
056	18	3%
046	17	3%
Others	288	47%

Table 3. Frequency of Ribotypes Among Healthcare-Associated *C. difficile* Isolates. 2015 (n=538)

Ribotype	No of isolates	% isolates
027	102	19%
106	48	9%
002	40	7%
014	36	7%
020	30	6%
015	18	3%
001_072	17	3%
056	17	3%
017	15	3%
005	14	3%
Others	201	37%