Foodborne Illness—*Major Pathogens, Expanded Tables*

Table 3. Estimated annual number of hospitalizations and deaths caused by 31 pathogens, United States*

Pathogen	Estimated annual number of hospitalizations			Estimated annual number of deaths		
	Hospitalization rate, %†	Total, mean (90% CrI)	Domestically acquired foodborne, mean (90% CrI)	Death rate, %†	Total, mean (90% CrI)	Domestically acquired foodborne, mean (90% CrI)
Bacteria						
Bacillus cereus, foodborne‡	0.4	20 (0–86)	20 (0–85)	0	0	0
Brucella spp.	55.0	132 (79–197)	55 (33–84)	0.9	2 (1–4)	1 (0–2)
Campylobacter spp.	17.1	13,240 (6,770–23,827)	8,463 (4,300–15,227)	0.1	119 (0–523)	76 (0–332)
Clostridium botulinum, foodborne‡	82.6	42 (19–77)	42 (19–77)	17.3	9 (0–51)	9 (0–51)
Clostridium perfringens, foodborne‡	0.6	439 (45–2,015)	438 (44–2,008)	<0.1	26 (0–163)	26 (0–163)
STEC O157	46.2	3,268 (844–7,052)	2,138 (549–4,614)	0.5	31 (0–173)	20 (0–113)
STEC non-O157	12.8	405 (0–1,451)	271 (0–971)	0.3	0§	0§
ETEC, foodborne‡	0.8	26 (0–119)	12 (0–53)	0	0	0
Diarrheagenic E. coli other than STEC and ETEC	0.8	26 (0–120)	8 (0–36)	0	0	0
Listeria monocytogenes	94.0	1,520 (544–3,152)	1,455 (521–3,018)	15.9	266 (0–765)	255 (0–733)
Mycobacterium bovis	55.0	108 (79–140)	31 (21–42)	4.7	9 (8–11)	3 (2–3)
Salmonella spp., nontyphoidal	27.2	23,128 (10,221–44,860)	19,336 (8,545–37,490)	0.5	452 (0–1,210)	378 (0–1,011)
S. enterica serotype Typhi	75.7	623 (0–1,848)	197 (0–583)	0	0	0
Shigella spp.	20.2	5,491 (1,100–13,741)	1,456 (287–3,695)	0.1	38 (0–254)	10 (0–67)
Staphylococcus aureus, foodborne‡	6.4	1,067 (173–3,006)	1,064 (173–2,997)	<0.1	6 (0–48)	6 (0–48)
Streptococcus spp. group A, foodborne‡	0.2	1 (0–6)	1 (0–6)	0	0	0
Vibrio cholerae, toxigenic	43.1	7 (0–16)	2 (0–5)	0	0	0
V. vulnificus	91.3	202 (120–303)	93 (53–145)	34.8	77 (43–120)	36 (19–57)
V. parahaemolyticus	22.5	129 (66–219)	100 (50–169)	0.9	5 (0–22)	4 (0–17)
Vibrio spp., other	37.1	163 (101–240)	83 (51–124)	3.7	16 (6–36)	8 (3–19)
Yersinia enterocolitica	34.4	637 (0–1,396)	533 (0–1,173)	2.0	34 (0–206)	29 (0–173)
Subtotal		50,673 (30,578–75,466)	35,796 (21,519–53,414)		1,093 (358–2,247)	861 (260–1,761)
Parasites						
Cryptosporidium spp.	25.0	2,725 (777–6,558)	210 (58–518)	0.3	46 (0–241)	4 (0–19)
Cyclospora cayetanensis	6.5	20 (0–190)	11(0–109)	0.0	0	0
Giardia intestinalis	8.8	3,581 (2,414–4,822)	225 (141–325)	0.1	34 (18–51)	2 (1–3)
Toxoplasma gondii	2.6	8,889 (5,383–13,203)	4,428 (2,634–6,674)	0.2	656 (409–952)	327 (200–482)
Trichinella spp.	24.3	6 (0–18)	6 (0–17)	0.2	0	0
Subtotal		15,221 (10,617–20,867)	4,881 (3,060–7,146)		736 (456–1,094)	333 (205–488)
Viruses						
Astrovirus	0.4	17,430 (10,203–21,573)	87 (32–147)	<0.1	5 (1–9)	0
Hepatitis A virus	31.5	2,255 (1,250–3,953)	99 (42–193)	2.4	171 (94–299)	7 (3–15)
Norovirus	0.03	56,013 (32,197–86,569)	14,663 (8,097–23,323)	<0.1	571 (331–881)	149 (84–237)
Rotavirus	1.7	69,721 (55,958–84,348)	348 (128–586)	<0.1	32 (23–40)	0
Sapovirus	0.4	17,430 (13,990–21,087)	87 (32–147)	<0.1	5 (1–9)	0
Subtotal		162,850 (130,126–199,658)	15,284 (8,719–23,962)		783 (522–1,112)	157 (91–245)
Total		228,744 (188,326–275,601)	55,961 (39,534–75,741)		2,612 (1,723–3,819)	1,351 (712–2,268)

*All estimates were based on US population in 2006. CrI, credible interval; STEC, Shiga toxin–producing *Escherichia coli*; ETEC, *enterotoxigenic E. coli*.
†For laboratory-confirmed illnesses. Unadjusted hospitalization and death rates are presented. These rates were doubled to adjust for underdiagnosis before being applied to the number of laboratory-confirmed cases to estimate the total number of hospitalizations and deaths. The hospitalization and death rates for astrovirus, norovirus, rotavirus, and sapovirus are the percent of total estimated illness and were not subject to further adjustment.
‡Estimates based on the number of foodborne illnesses ascertained in surveillance and therefore assumed to reflect only foodborne transmission.
§We report median values instead of means for the distributions of deaths caused by STEC non-O157 because of extremely skewed data.