



eAppendix 5 Costing data (natural units, unit costs and/or total costs)

Cost Variable (Total Cost)	Allen et. al (2013)	Branch-Elliman et. al (2015)	Fansi et. al (2012)***	Leal et. al (2016)	Lenoir-Wijnkoop et. al (2014)***	Shen et. al (2017)	Vermeersch et. al (2018)***
<b>Diagnostics/Procedures</b>							
Microbiology testing	£45.28-54.94 [27.51-109.88] (unit) \$88.24-107.07 CDN [53.61-214.13] [NHS Reference Costs, Curtis L.]	NR	\$32.16 USD (\$45.67 CDN) (unit, Clostridium Difficile screen) [Hospital database]	\$30.31 CDN (\$31.52) (unit, Clostridium Difficile Quick Check Complete Assay (2-step algorithm test)) [Calgary Laboratory Services]	NR	NR	NR
Diagnostic and therapeutic protocols	£69.65 (\$135.73 CDN) (unit) [NHS Reference Costs, Curtis L.]	NR	NR	NR	NR	NR	NR
CBC	NR	NR	NR	NR	NR	NR	NR
Urea/WBC/LFT	NR	NR	NR	NR	NR	NR	NR
CRP	NR	NR	NR	NR	NR	NR	NR
Abdominal XR	NR	NR	NR	NR	NR	NR	NR
Flexible Sigmoidoscopy	NR	NR	NR	NR	NR	NR	NR
Stool Culture (Toxin/WBC/C&S/Clostridium Difficile PCR)	NR	NR	NR	NR	NR	NR	NR
Fecal transplant	NR	NR	NR	NR	NR	\$3150 USD [1580-4730] (\$4313.48 CDN [2163.59-6477.07]) (total) [Redbook, HCUP]	NR
Colectomy	NR	NR	NR	NR	NR	\$37290 USD [18650-55940] (\$51063.38 CDN [25538.54-76601.92]) (total) [Konejeti et al.]	NR
<b>Medication/Drugs</b>							
Antibiotics	Probiotic: £865.09 (\$1685.86 CDN) Placebo: £829.29 (\$1616.10 CDN) (total, including staff time) [Joint Formulary Committee]	NR	\$0.23 USD (\$0.33 CDN) (Metronidazole, per dose - unit) \$11.76 USD (\$16.70 CDN) (Vancomycin, per dose - unit) [Consumer Price Index]	\$0.37 CDN (\$0.38) (Metronidazole, per capsule - unit) \$4.76 CDN (\$4.95) (Vancomycin, per day - unit) [Alberta Health Services Pharmacy]	NR	\$1490 USD [750-2240] (\$2040.34 CDN [1027.02-3067.36]) (Vancomycin, full course - total) [Redbook, HCUP]	NR
Probiotics	Probiotic: £73.02 (\$142.30 CDN), Placebo: £0.00 (\$0.0)	\$2.18 USD [Range: \$1-10] (\$3.09 CDN [Range: \$1.42-14.16])	\$2.50 USD (\$3.55 CDN) (Lactobacillus acidophilus/casei, per dose - unit)	\$1.57 CDN (\$1.63) Probiotics (per day - unit) [Alberta Health Services Pharmacy]	NR	\$70 USD [40-110] (\$95.86 CDN [54.77-150.63]) (full course - total) [Redbook, HCUP]	€12.40 (\$18.67 CDN) ( <i>S. Boulardii</i> CNCM I-745) [Elseviers/RIZIV/ NAMI]

	(total, including staff time) [Joint Formulary Committee]	(unit) [Pharmacy Red Book]	[Consumer Price Index]				
Medications	NR	NR	NR	NR	Non-Severe: £35 (\$66.50 CDN) (CDAD) vs. £1 (\$1.90 CDN) (non-CDAD) Severe: £92 (\$174.80 CDN) (CDAD) vs. £2 (\$3.80 CDN) (non-CDAD) (unit) [British National Formulary, 2009; Department of Health Reference Costs, 2009/10; PSSRU Unit Costs of Health and Social Care, 2010]	NR	NR
Diarrhea Treatment	Probiotic: £4531.36 (\$8830.59 CDN) Placebo: £473.23 (\$922.22 CDN) (total) [Joint Formulary Committee]	NR	NR	NR	NR	NR	NR
AAD Treatment	Probiotic: £1742.15 (\$3395.05 CDN) Placebo: £2220.38 (\$4327.01 CDN) (total) [Joint Formulary Committee]	NR	NR	NR	NR	NR	NR
Oral decontamination	NR	\$13.30 USD [Range: 5-25] (\$18.84 CDN [Range: 7.08-35.40]) (unit) [Pharmacy Red Book]	NR	NR	NR	NR	NR
Digestive decontamination	NR	\$17.92 USD [Range: 9-45] (\$25.38 CDN [Range: 12.75-63.73]) (unit) [Pharmacy Red Book]	NR	NR	NR	NR	NR
<b>Devices/Equipment</b>							
Cleaning/laundry/disposables	£57.15-95.73	NR	NR	NR	NR	NR	NR

	(\$111.37-186.56 CDN) (unit) [NHS Reference Costs, Curtis L.]						
Gowns	NR	NR	NR	\$21.88 CDN (\$22.76) (gowns per day – unit) [AHS IPC]	NR	NR	NR
Gloves	NR	NR	NR	\$7.15 CDN (\$7.44) (gloves per day – unit) [AHS IPC]	NR	NR	NR
Terminal cleaning	£20.76 [16.61- 24.91] (\$40.45 CDN [32.37-48.54]) (unit) [NHS Reference Costs, Curtis L.]	NR	NR	\$24.08 CDN (\$25.04) (total) [AHS IPC]	NR	NR	NR
Daily cleaning	£9.54 [7.63- 11.45] (\$18.59 CDN [14.87-22.31]) (unit) [NHS Reference Costs, Curtis L.]	NR	NR	NR	NR	NR	NR
Spot cleaning & changing	£32.85 [26.28- 39.42] (\$64.02 CDN [51.21-76.82]) (unit) [NHS Reference Costs, Curtis L.]	NR	NR	NR	NR	NR	NR
Standard ETT	NR	\$3.07 USD [Range: 0-10] (\$4.35 CDN [Range: 0- 14.16]) (unit) [Manufacturer]	NR	NR	NR	NR	NR
Silver ETT	NR	\$50 USD [Range: 30-60] (\$70.81 CDN [Range: 42.49- 84.97]) (unit) [Manufacturer]	NR	NR	NR	NR	NR
Suction ETT	NR	\$17.16 USD [Range: 10- 100] (\$24.30 CDN [Range: 14.16- 141.62]) (unit) [Manufacturer]	NR	NR	NR	NR	NR
VAP bundle	NR	\$33.32 USD [Range: 33.32- 150] (\$47.19 CDN [Range: 47.19- 212.43]) (unit) [Manufacturer]	NR	NR	NR	NR	NR
Oral care	NR	\$38 USD [Range: 38- 150] (\$53.81 CDN [Range: 53.81- 212.43]) (unit) [Manufacturer]	NR	NR	NR	NR	NR

VAP bundle & oral care	NR	\$71.32 USD [Range: \$71-300] (\$101.00 CDN [Range: 100.55-424.85]) (unit) [Manufacturer]	NR	NR	NR	NR	NR
<b>Personnel</b>							
Physician costs	£194.76 [103.01-259.67] (\$379.54 CDN [200.74-506.40]) (unit) [NHS Reference Costs, Curtis L.]	NR	NR	NR	Non-Severe: £141 (\$267.90 CDN) (CDAD) vs. £74 (\$140.60 CDN) (non- CDAD) Severe: £192 (\$364.80 CDN) (CDAD) vs. £147 (\$279.30 CDN) (non- CDAD) (consultation – unit) £36.5 (\$69.35 CDN) (specialist referral – unit) £47 (\$89.30 CDN) (GP referral – unit) £6.9 (\$13.11 CDN) (junior doctor – unit) £43.8 (\$83.22 CDN) (gastroenterol ogy – unit) [British National Formulary, 2009; Department of Health Reference Costs, 2009/10; PSSRU Unit Costs of Health and Social Care, 2010]	\$210 USD [110-320] (\$287.57 CDN [150.63-438.19]) (specialist referral – unit) [Centers for Medicare and Medicaid Services Fee Schedule]	NR
Nurse costs	Probiotic: £105.38 (\$205.36 CDN) Placebo: £90.94 (\$177.22 CDN) (unit) [NHS Reference Costs, Curtis L.]	\$33.32 USD [Range: 25- 120] (\$47.19 CDN [Range: 35.40- 169.94]) (unit – per hour) [US Department of Labor Statistics (median nursing wages)]	NR	\$34.83 CDN (\$36.22) (Nurse donning/doffing PPE per day – unit) [AHS IPC]	£10 (\$19 CDN) (district nurse – unit) [British National Formulary, 2009; Department of Health Reference Costs,	NR	€ 0.63 (\$0.95 CDN)/minute nursing time spent [Elseviers/RIZIV/ NAMI]

					2009/10; PSSRU Unit Costs of Health and Social Care, 2010]		
Allied staff costs	Probiotic: £759.71 (\$1480.50 CDN) Placebo: £738.34 (\$1438.86 CDN) (unit) [NHS Reference Costs, Curtis L.]	NR	NR	NR	£45 (\$85.50 CDN) (pharmacist – unit) [British National Formulary, 2009; Department of Health Reference Costs, 2009/10; PSSRU Unit Costs of Health and Social Care, 2010]	NR	NR
Societal productivity loss	NR	NR	NR	NR	NR	NR	€290.22 (\$437.00 CDN)/day [Cleemput]
<b>Hospital Cost</b>							
Lost bed day (closure)	£334.17 (\$651.22 CDN) (unit) [NHS Reference Costs, Curtis L.]	NR	NR	NR	NR	NR	NR
Ward closure	£9356.76 (\$18234.19 CDN) (unit) [NHS Reference Costs, Curtis L.]	NR	NR	NR	NR	NR	NR
Diarrhea (case per day)	£81.40 (\$158.05 CDN) (unit) [NHS Reference Costs, Curtis L.]	NR	NR	NR	NR	NR	NR
Hospital in-patient day	£267.34-401.00 (\$520.98-781.46 CDN) (unit) [NHS Reference Costs, Curtis L.]	NR	\$1424.16 USD (\$2022.31 CDN) (Hospital care for CDAD patient per day hospitalized) (unit) [Hospital database]	NR	Non-Severe: £2268 (\$4309.20 CDN) (CDAD) vs. £1614 (\$3066.60) (non-CDAD) Severe: £5588 (\$10617.20 CDN) (CDAD) vs. £2897 (\$5504.30 CDN) (non-CDAD) (unit) [British National Formulary, 2009; Department of Health Reference Costs, 2009/10;	NR	NR

					PSSRU Unit Costs of Health and Social Care, 2010]		
General ward	NR	NR	NR	NR	£530 (\$1007 CDN) (unit) [British National Formulary, 2009; Department of Health Reference Costs, 2009/10; PSSRU Unit Costs of Health and Social Care, 2010]	NR	NR
Single ward	NR	NR	NR	NR	£479 (\$910 CDN) (unit) [British National Formulary, 2009; Department of Health Reference Costs, 2009/10; PSSRU Unit Costs of Health and Social Care, 2010]	NR	NR
VAP Cost	NR	\$15975 [Range: 7000-35000] (\$22623.38 CDN [Range: 9913.22-49566.09]) (total) [Safdar, Restrepo, Kolley, Institute for Health Care Improvement]	NR	NR	NR	NR	NR
AAD cost	NR	NR	NR	NR	NR	NR	€1250.60 [277.40-2150.3] (\$1883.08 CDN [417.69-3237.79]) (bottom up) €1248.7 (\$1880.22 CDN) (top-down) [Elseviers/RIZIV/I NAMI]
CDAD cost	NR	NR	NR	NR	NR	\$7670 USD [3830-11500] (\$10502.98 CDN [5244.64-15747.62]) (inpatient cost per case – total) \$440 USD [210-620] (\$602.52 CDN [287.57-849.00])	€1339.50 [588.80-2239.10] (\$2016.94 CDN [866.58-3371.50]) (bottom up) €1337.50 (\$2013.93 CDN) (top-down) [Elseviers/RIZIV/I NAMI]

						(outpatient cost per case – total) [Redbook, HCUP]	
CDAD Relapse (one-time cost)	NR	NR	NR	NR	NR	NR	€11868.50 (\$17870.88 CDN)/episode [Elseviers/RIZIV/INAMI]
Probiotic induced bacteremia/fungemia	NR	NR	NR	NR	NR	\$18280 USD [9140-27420] (\$25031.87 CDN [12515.94-37547.81]) (total) [Redbook, HCUP]	NR
Isolation room	NR	NR	NR	\$41.67 CDN (\$43.34) (per day – unit) [AHS IPC]	NR	NR	€133.89 (\$201.60 CDN)/day [Elseviers/RIZIV/INAMI]
Total Cost	Probiotic: £8020.11 (\$15629.36 CDN) Placebo: £8011.37 (\$15612.33 CDN) (CDAD, total) [NHS Reference Costs, Curtis L.]	NR	NR	NR	NR	NR	NR

**AAD:** Antibiotic associated diarrhea, **AHS:** Alberta Health Services, **C&S:** Culture and sensitivity, **CBC:** complete blood count, **CDAD:** *Clostridium Difficile* associated diarrhea, **CRP:** C-reactive protein, **ETT:** Endotracheal tube, **Euro: €**, **GBP:** Great Britian Pound (£), **HCUP:** Healthcare Cost and Utilization Project, **IPC:** Infection Prevention and Control, **LFT:** liver function tests, **NHS:** National Health Service, **PCR:** polymerase chain reaction, **PPE:** personal protective equipment, **PSSRU:** Personal Social Services Research Unit, **RIZIV/INAMI:** National Institute for Health and Disability Insurance, **US:** United States, **VAP:** ventilator associated pneumonia, **WBC:** white blood cell count, **XR:** X-ray  
[Ranges] in brackets/square parentheses (if reported)

\*\*\* - industry sponsored study