

Appendix 1: Site Characteristics of Participating Academic and Community Hospitals

| Academic Site | Census Subdivision Population | Population Density (per km ²) | ICU Beds (Ventilated) | ASP (Yes/No) | Total Enrollment |
|---|----------------------------------|--|--------------------------|-----------------|---------------------|
| British Columbia | | | | | |
| Royal Columbian Hospital | 78,916 | 5,052 | 16 | Yes | 5 |
| St. Paul's Hospital | 662,248 | 5,750 | 19 | Yes | 50 |
| Vancouver General Hospital | 662,248 | 5,750 | 34 | Yes | 35 |
| Vancouver Island Health Authority | 17,990 | 1,710 | 20 | No | 52 |
| Alberta | | | | | |
| Foothills Medical Centre | 1,306,784 | 1,592 | 28 | Yes | 19 |
| Peter Lougheed Hospital | 1,306,784 | 1,592 | 22 | Yes | 8 |
| Royal Alexandra Hospital | 1,010,899 | 1,320 | 27 | Yes | 13 |
| University of Alberta Hospital | 1,010,899 | 1,320 | 32 | No | 27 |
| Manitoba | | | | | |
| Health Sciences Centre Winnipeg | 749,607 | 1,623 | 27 | Yes | 3 |
| St. Boniface Hospital | 749,607 | 1,623 | 13 | Yes | 11 |
| Ontario | | | | | |
| Hamilton Health Sciences Centre – Hamilton General Hospital | 569,353 | 509 | 31 | Yes | 189 |
| Hamilton Health Sciences Centre – Juravinski Hospital | 569,353 | 509 | 23 | Yes | 75 |
| Kingston General Hospital | 132,485 | 293 | 33 | Yes | 170 |
| London Health Sciences Centre – University Hospital | 422,324 | 1,004 | 19 | Yes | 14 |
| London Health Sciences Centre – Victoria Hospital | 422,324 | 1,004 | 29 | Yes | 132 |
| Ottawa Hospital Civic Campus | 1,017,49 | 364.9 | 26 | No | 126 |
| Ottawa Hospital General Campus | 1,017,49 | 364.9 | 25 | No | 169 |
| Sinai Health System – Mount Sinai Hospital | 2,794,356 | 4,428 | 16 | Yes | 38 |
| St. Joseph's Healthcare Hamilton | 569,353 | 509 | 21 | Yes | 192 |
| Sunnybrook Health Sciences Centre | 2,794,356 | 4,428 | 34 | Yes | 52 |
| Unity Health – St. Michael's Hospital | 2,794,356 | 4,428 | 24 | Yes | 90 |
| University Health Network – Toronto General Hospital | 2,794,356 | 4,428 | 28 | Yes | 59 |
| University Health Network – Toronto Western Hospital | 2,794,356 | 4,428 | 24 | Yes | 33 |
| Quebec | | | | | |
| Centre hospitalier de l'Université de Montréal (CHUM) – Hôpital Saint-Luc | 1,762,949 | 4,833 | 14 | Yes | 9 |
| Centre hospitalier de l'Université de Montréal (CHUM) - NCHUM | 1,762,949 | 4,833 | 60 | Yes | 49 |

| | | | | | |
|---|--------------------------------------|--|------------------------------|---------------------|-------------------------|
| Centre hospitalier de l'Université de Montréal (CHUM) – Notre Dame | 1,762,949 | 4,833 | 60 | Yes | 62 |
| Centre intégré universitaire de santé et de services sociaux de l'Estrie - Centre hospitalier universitaire de Sherbrooke | 172,950 | 489 | 44 | Yes | 129 |
| Centre intégré universitaire de santé et de services sociaux du Nord-de-l'Île-de-Montréal (Hôpital du Sacré-Cœur de Montréal) | 1,762,949 | 4,833 | 36 | No | 90 |
| Centre intégré universitaire de santé et de services sociaux de l'Est-de-l'Île-de-Montréal (Hôpital Maisonneuve-Rosemont) | 1,762,949 | 4,833 | 16 | Yes | 39 |
| CHU de Québec-Université Laval (Hôpital de l'Enfant-Jésus) | 549,459 | 1,215 | 29 | No | 139 |
| Institut Universitaire de Cardiologie et de Pneumologie de Québec | 549,459 | 1,215 | 35 | No | 18 |
| McGill University Health Centre (Montréal General Hospital) | 1,762,949 | 4,833 | 22 | No | 54 |
| McGill University Health Centre (Royal Victoria Hospital, Glen Site) | 1,762,949 | 4,833 | 30 | No | 18 |
| Nova Scotia Health Authority QEII | 440,072 | 80 | 21 | Yes | 36 |
| | Census Subdivision Population | Population Density (per km²) | ICU Beds (Ventilated) | ASP (Yes/No) | Total Enrollment |
| Community Sites | | | | | |
| Ontario | | | | | |
| Brantford General Hospital | 104,688 | 1,061 | 15 | Yes | 129 |
| Grand River Hospital | 256,885 | 1,878 | 20 | Yes | 70 |
| Joseph Brant Hospital | 186,948 | 1,004 | 20 | Yes | 4 |
| Niagara Health – St. Catharines Site | 136,803 | 1,422 | 14 | Yes | 53 |
| Unity Health – St. Joseph's Health Care | 2,794,356 | 4,428 | 20 | Yes | 43 |
| William Osler Health System – Brampton Civic Hospital | 656,480 | 2,469 | 24 | Yes | 17 |
| Quebec | | | | | |
| Centre intégré de santé et de services sociaux de Chaudière-Appalaches (L'Hôtel-Dieu de Lévis) | 149,683 | 334 | 18 | Yes | 37 |

ASP = Antibiotic Stewardship Program

Data obtained from Census Profile, 2021 Census, Statistics Canada

A census metropolitan area (CMA) is a large urban centre with 100,000 or more people

Downtowns are located in the central core of a CMA and all other areas can be characterized by their proximity to the downtown.

Areas outside of the downtown in CMAs can be broken down into four separate zones characterized by the time it takes for a person to drive to the downtown by car:

- Urban Fringe (less than 10 minutes from downtown)
- Near Suburb (10-20 minutes from downtown)
- Intermediate suburb (20-30 minutes from downtown)
- Distant suburb (30 minute or more from downtown)

Appendix 2: Admitting Diagnoses.

| | Community n=352 | Academic n=2203 | Total n=2555 |
|---------------------------------|----------------------------|----------------------------|-------------------------|
| Admitting Diagnosis, number (%) | | | |
| Respiratory | 146 (41.5) | 736 (33.4) | 882 (34.5) |
| Neurologic | 43 (12.2) | 410 (18.6) | 453 (17.7) |
| Trauma | 3 (0.9) | 339 (15.4) | 342 (13.4) |
| Sepsis | 46 (13.1) | 271 (12.3) | 317 (12.4) |
| Cardiovascular | 31 (8.8) | 208 (9.4) | 239 (9.4) |
| Gastrointestinal | 40 (11.4) | 64 (2.9) | 104 (4.1) |
| Metabolic | 26 (7.4) | 66 (3.0) | 92 (3.6) |
| Renal | 6 (1.7) | 21 (1.0) | 27 (1.1) |
| Cardiovascular surgery | 0 (0.0) | 10 (0.5) | 10 (0.4) |
| Hematologic | 1 (0.3) | 4 (0.2) | 5 (0.2) |
| Orthopedic | 1 (0.3) | 2 (0.1) | 3 (0.1) |
| Gynecologic | 0 (0.0) | 2 (0.1) | 2 (0.1) |
| Other Medical | 5 (1.4) | 38 (1.7) | 43 (1.7) |
| Other Surgical | 4 (1.1) | 32 (1.5) | 36 (1.4) |

Appendix 3. Subgroup Analysis of Primary Outcomes

| Primary Outcome (VAP) | Probiotics | Placebo | Hazard Ratio (95% CI) | P-value for the interaction term |
|-----------------------|-----------------|-----------------|--------------------------|-------------------------------------|
| Community (%) | 42/174 (24.1) | 41/178 (23.0) | 0.94 (0.61-1.44) | 0.575 |
| Academic (%) | 241/1098 (21.9) | 233/1105 (21.1) | 1.07 (0.89-1.28) | |

CI = Confidence Interval

VAP = ventilator-associated pneumonia; AE = adverse events; SAE = Serious adverse events