**Supplementary Table 1. Comparison of Cases Overall vs Cases at Micro-costing Facilities Prior to Matching, Fiscal 2012-2016**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Full Cohort Cases | Before Matching Cases | % Difference  (95% CI) |
|  | n=4,183 | n=2,916 |  |
| Age Categories , N(%) |  |  |  |
| 18-44 years | 382 (9.1) | 290 (9.95) | -0.85  (-5.0, 4.0) |
| 45-54 years | 361 (8.6) | 264 (9.05) | -0.45  (-5.0, 4.0) |
| 55-64 years | 690 (16.5) | 499 (17.1) | -0.6  (-5.0, 4.0) |
| 65-74 years | 823 (19.7) | 567 (19.4) | 0.3  (-3.9, 4.5) |
| 75+ years | 1926 (46.0) | 1296 (44.4) | 1.6  (-2.0, 5.0) |
| Gender |  |  |  |
| Female | 2108 (50.4) | 1433 (49.1) | 1.3  (-2.0, 5.0) |
| Comorbidities |  |  |  |
| Congestive Heart Failure | 888 (21.2) | 615 (21.1) | 0.1  (-4.1, 4.3) |
| Cardiac Arrhythmias | 1037 (24.8) | 720 (24.7) | 0.1  (-4.0, 4.2) |
| Valvular Disease | 275 (6.6) | 201 (6.9) | -0.3  (-4.9, 4.3) |
| Pulmonary Circulation Disorders | 272 (6.5) | 200 (6.9) | -0.4  (-5.0, 4.2) |
| Peripheral Vascular Disorders | 265 (6.3) | 184 (6.3) | 0 (-4.6, 4.6) |
| Hypertension, uncomplicated | 1740 (41.6) | 1203 (41.3) | 0.3  (-3.0, 4.0) |
| Hypertension, complicated | 48 (1.2) | 36 (1.2) | 0 (-5.0, 5.0) |
| Paralysis | 133 (3.2) | 91 (3.1) | 0.1  (-4.5, 4.7) |
| Other neurological disorders | 344 (8.2) | 232 (8.0) | 0.2  (-4.3, 4.7) |
| Chronic Pulmonary Disease | 872 (20.9) | 613 (21.0) | -0.1  (-4.3, 4.1) |
| Diabetes, uncomplicated | 413 (9.9) | 255 (8.7) | 1.2  (-3.3, 5.7) |
| Diabetes, complicated | 866 (20.7) | 564 (19.3) | 1.4  (-3.0, 6.0) |
| Hypothyroidism | 312 (7.5) | 191 (6.5) | 1.0 (-3.0, 5.0) |
| Renal Failure | 455 (10.9) | 304 (10.4) | 0.5  (-4.0, 5.0) |
| Liver Disease | 265 (6.3) | 193 (6.6) | -0.3  (-5.0, 4.0) |
| Peptic Ulcer Disease excl Bleeding | 97 (2.3) | 74 (2.5) | -0.2  (-4.8, 4.4) |
| AIDS/HIV | 14 (0.3) | 11 (0.4) | -0.1  (-4.8, 4.6) |
| Lymphoma | 157 (3.8) | 105 (3.6) | 0.2  (-4.4, 4.8) |
| Metastatic Cancer | 286 (6.8) | 186 (6.4) | 0.4  (-4.0, 5.0) |
| Solid Tumor without Metastasis | 508 (12.1) | 336 (11.5) | 0.6  (-3.8, 5.0) |
| Rheumatoid Arthritis/Collagen Vascular Diseases | 142 (3.4) | 104 (3.6) | -0.2  (-4.8, 4.4) |
| Coagulopathy | 231 (5.5) | 159 (5.4) | 0.1  (-4.5, 4.6) |
| Obesity | 216 (5.2) | 140 (4.8) | 0.4  (-4.0, 5.0) |
| Weight Loss | 350 (8.4) | 259 (8.9) | -0.5  (-5.0, 4.0) |
| Fluid and Electrolyte Disorders | 1295 (31.0) | 886 (30.4) | 0.6  (-3.0, 4.5) |
| Blood Loss Anemia | 106 (2.5) | 70 (2.4) | 0.1  (-4.5, 4.7) |
| Deficiency Anemia | 329 (7.9) | 233 (8.0) | -0.1 (-4.6, 4.4) |
| Alcohol Abuse | 314 (7.5) | 225 (7.7) | -0.2  (-4.7, 4.3) |
| Drug Abuse | 129 (3.1) | 99 (3.4) | -0.3  (-4.9, 4.3) |
| Psychoses | 70 (1.7) | 51 (1.7) | 0 (-4.6, 4.6) |
| Depression | 460 (11.0) | 315 (10.8) | 0.2  (-4.3, 4.7) |
| Healthcare Encounters | | | |
| Number of Previous Admissions in 1 Year Prior | | | |
| Zero | 1414 (33.8) | 1049 (36.0) | -2.2 (-6.0, 1.6) |
| 1 to 2 | 1925 (46.0) | 1329 (45.6) | 0.4 (-3.0, 4.0) |
| 3 to 5 | 701 (16.8) | 452 (15.5) | 1.3 (-3.0, 6.0) |
| 6 or more | 143 (3.4) | 86 (2.9) | 0.5 (-4.0, 5.0) |
| Number of Previous ICU Admissions | | | |
| Zero | 3262 (78.0) | 2239 (76.8) | 1.2 (-1.0, 3.0) |
| 1 to 2 | 859 (20.5) | 633 (21.7) | -1.2 (-5.0, 3.0) |
| 3 to 5 | 62 (1.5) | 44 (1.5) | 0 (-4.7, 4.7) |
| Number of Previous Surgeries | | | |
| Zero | 2860 (68.4) | 1880 (64.5) | 3.9 (1.0-7.0) |
| 1 to 3 | 1105 (26.4) | 847 (29.0) | -3.0 (-6.0, 1.0) |
| 4 to 6 | 157 (3.7) | 139 (4.8) | -1.1 (-5.7, 3.5) |
| 7 or more | 61 (1.5) | 50 (1.7) | -0.2 (-4.9, 4.5) |
| Antibiotic Classa | | | |
| Broad Spectrum Gram Negative Agents | 1502 (35.9) | 1208 (41.4) | -5.5 (-9.2, -1.8) |
| Gram Positive Antimicrobial Resistant Organism Agents | 1082 (25.9) | 817 (28.0) | -2.1 (-6.0, 1.9) |
| Narrow Spectrum Agents | 1787 (42.7) | 1255 (43.0) | -0.3 (-4.0, 3.0) |
| Second to Fifth Generation Cephalosporins | 2029 (48.5) | 1409 (48.3) | 0.2 (-3.0, 3.0) |
| Other Systemic Antibacterials | 3174 (75.9) | 2170 (74.4) | 1.5 (-0.8, 3.9) |
| Severity on Admission | | | |
| Admission Category | | | |
| Urgent | 3457 (82.6) | 2383 (81.7) | 0.9 (-1.1, 2.9) |
| Elective | 726 (17.4) | 533 (18.3) | -0.9 (-5.0, 3.0) |
| Creatinineb | | | |
| Low | 155 (3.7) | 131 (4.5) | -0.8 (-5.0, 4.0) |
| Normal | 1879 (44.9) | 1577 (54.1) | -9.2 (-12.0, -6.0) |
| High | 1262 (30.2) | 1041 (35.7) | -5.5 (-9.0, -2.0) |
| Missing | 887 (21.2) | 167 (5.7) | 15.5 (1.1, 20) |
| Glucosec | | | |
| Low | 23 (0.6) | 21 (0.7) | -0.1 (-4.8, 4.6) |
| Normal | 2468 (59.0) | 2072 (71.1) | -12.1 (-15.0, -9.0) |
| High | 331 (7.9) | 278 (9.5) | -1.6 (-6.0, 3.0) |
| Missing | 1361 (32.5) | 545 (18.7) | 13.8 (11.8, 15.8) |
| Plateletsd | | | |
| Low | 592 (14.2) | 481 (16.5) | -2.3 (-6.0, 2.0) |
| Normal | 2482 (59.3) | 2080 (71.3) | -12.0 (-15.0, -9.0) |
| High | 248 (5.9) | 208 (7.1) | -1.2 (-6.0, 3.0) |
| Missing | 861 (20.6) | 147 (5.0) | 15.6 (11.0, 20.0) |
| Sodiume | | | |
| Low | 536 (12.8) | 445 (15.3) | -2.5 (-6.9, 1.9) |
| Normal | 2682 (64.1) | 2237 (76.7) | 12.6 (-15.1, -10.0) |
| High | 70 (1.7) | 57 (1.9) | -0.2 (-5.0, 4.0) |
| Missing | 895 (21.4) | 177 (6.1) | 15.3 (11.0, 20.0) |
| Urea Nitrogenf | | | |
| Low | 106 (2.5) | 88 (3.0) | -0.5 (-5.0, 4.0) |
| Normal | 1482 (35.4) | 1233 (42.3) | -6.9 (-10.5, -3.0) |
| High | 1350 (32.3) | 1132 (38.8) | -6.5 (-10.3, -2.7) |
| Missing | 1245 (29.8) | 463 (15.9) | 13.9 (9.7, 18.0) |
| White Blood Cell Countg | | | |
| Low | 200 (4.8) | 155 (5.3) | -0.5 (-5.0, 4.0) |
| Normal | 1734 (41.5) | 1417 (48.6) | -7.1 (-10.6, -3.6) |
| High | 1394 (33.3) | 1202 (41.2) | -7.9 (-12.0, -4.0) |
| Missing | 855 (20.4) | 142 (4.9) | 15.5 (11.0, 20.0) |
| pHh | | | |
| Low | 355 (8.5) | 306 (10.5) | 2.0 (-6.0, 2.0) |
| Normal | 392 (9.4) | 327 (11.2) | -1.8 (-6.0, 3.0) |
| High | 121 (2.9) | 106 (3.6) | -0.7 (-5.0, 3.9) |
| Missing | 3315 (79.3) | 2177 (74.7) | 4.6 (-2.3, 6.9) |
| Admission or HA-CDI Characteristics | | | |
| Fiscal Year | | | |
| 2012 | 1095 (26.2) | 665 (22.8) | 3.4 (-0.7, 7.5) |
| 2013 | 1163 (27.8) | 808 (27.7) | 0.1 (-3.9, 4.1) |
| 2014 | 970 (23.2) | 729 (25.0) | -1.8 (-6.0, 2.0) |
| 2015 | 955 (22.8) | 714 (24.5) | -1.7 (-6.0, 2.0) |
| Zone | | | |
| Calgary | 1329 (31.8) | 1189 (40.8) | -9.0 (-13.0, -5.0) |
| Edmonton | 2117 (50.6) | 1726 (59.2) | -8.6 (-12.0, -5.0) |
| North | 144 (3.4) | 1 (0.03) | 3.4 (-1.1, 7.9) |
| Facility Type | | | |
| Teaching | 1423 (34.0) | 1253 (43.0) | -9.0 (-13.0, -5.0) |
| Large Urban | 1648 (39.4) | 1436 (49.2) | 9.8 (-13.0, -6.0) |
| Specialty | 112 (2.7) | 51 (1.7) | 1.0 (-3.6, 5.6) |
| Suburban/Rural | 534 (12.8) | 176 (6.0) | 6.8 (2.0, 11.0) |
| Length of Stay | | | |
| Mean (SD) | 49.64 (68.04) | 48.91 (65.60) | 0.73 (-2.44, 3.90) |
| Median (IQR) | 29.27 (14.65-59.82) | 29.31 (14.88-58.76) |  |
| HA-CDI within 3 days of Admission | 685 (16.4) | 431 (14.8) | 0.016 (-0.001, 0.03) |

aBroad-spectrum Gram-negative agents: Ertapenem, Meropenem, Piperacillin/tazobactam; Gram-positive antimicrobial-resistant organism active agents: Linezolid, Vancomycin; Narrow-spectrum agents: Amoxicillin, Ampicillin, Cefazolin, Cephalexin, Cloxacillin, Gentamicin, Penicillin G sodium, Penicillin V potassium, Tobramycin; Second- to fifth-generation cephalosporins: Cefepime, Cefixime, Cefotaxime, Cefprozil, Ceftazidime, Ceftriaxone, Cefuroxime; Other systemic antibacterials: Amoxicillin/clavulanate, Ciprofloxacin, Clarithromycin, Clindamycin, Colistin Erythromycin, Levofloxacin, Metronidazole, Nitrofurantoin, Piperacillin, Sulfamethoxazole/trimethoprim, Tetracycline, Trimethoprim

Normal laboratory reference ranges reported (lowest min – highest max):

bSerum Creatinine (35-125 µmol/L),

cGlucose (2.2-11.0 mmol/L),

dPlatelets (140-450 x109 /L),

eSodium (133-148 mmol/L),

fBlood Urea Nitrogen (2.0-9.0 mmol/L),

gWhite blood cell counts (4.0-11.0 x109 /L)

hpH (7.35-7.45)