**SUPPLEMENTARY MATERIAL**

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Appendix Table 1. Full list of comorbidities and top 52 case mix groups for bedspaced and assigned GIM wards

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | All patients  (N=3243) | Bedspaced patients  (N=1125) | Assigned GIM wards patients  (N=2118) | Bedspaced vs. assigned GIM standardised difference |
| Charlson Comorbidity Index (CCI) |  |  |  |  |
| Myocardial infarction | 70 (2.2%) | 20 (1.8%) | 50 (2.4%) | 0.0410 |
| Heart failure | 359 (11.1%) | 119 (10.6%) | 240 (11.3%) | 0.0241 |
| Peripheral vascular disease | 47 (1.5%) | 18 (1.6%) | 29 (1.4%) | 0.0191 |
| Cerebrovascular disease | 102 (3.2%) | 33 (2.9%) | 69 (3.3%) | 0.0187 |
| Dementia | 236 (7.3%) | 65 (5.8%) | 171 (8.1%) | 0.0905 |
| Chronic pulmonary disease | 573 (17.7%) | 185 (16.4%) | 388 (18.3%) | 0.0495 |
| Rheumatic disease | 62 (1.9%) | 22 (2.0%) | 40 (1.9%) | 0.0049 |
| Peptic ulcer disease | 68 (2.1%) | 23 (2.0%) | 45 (2.1%) | 0.0056 |
| Mild liver disease | 172 (5.3%) | 53 (4.7%) | 119 (5.6%) | 0.0410 |
| Moderate or severe liver disease | 120 (3.7%) | 35 (3.1%) | 85 (4.0%) | 0.0487 |
| Diabetes mellitus without end  organ damage | 432 (13.3%) | 153 (13.6%) | 279 (13.2%) | 0.0125 |
| Diabetes mellitus with end organ  damage | 754 (23.3%) | 245 (21.8%) | 509 (24.0%) | 0.0537 |
| Hemiplegia or paraplegia | 28 (0.9%) | 5 (0.4%) | 23 (1.1%) | 0.0737 |
| Moderate or severe renal disease | 190 (5.9%) | 58 (5.2%) | 132 (6.2%) | 0.0465 |
| Solid tumor, leukemia or lymphoma | 276 (8.5%) | 121 (10.8%) | 155 (7.3%) | 0.1201 |
| Metastatic solid tumor | 234 (7.2%) | 92 (8.2%) | 142 (6.7%) | 0.0562 |
| HIV / AIDS | 8 (0.3%) | 4 (0.4%) | 4 (0.2%) | 0.0320 |
| CCI score median (IQR) | 2.00  (0.00-3.00) | 2.00  (0.00-3.00) | 2.00  (0.00-3.00) | 0.0002 |
| Top 52 case mix group  (Admission diagnosis) |  |  |  |  |
| 139  Chronic obstructive pulmonary disease | 313 (9.7%) | 97 (8.6%) | 216 (10.2%) | 0.0540 |
| 138  Viral / unspecified pneumonia | 188 (5.8%) | 62 (5.5%) | 126 (6.0%) | 0.0188 |
| 487  Lower urinary tract infection | 152 (4.7%) | 37 (3.3%) | 115 (5.4%) | 0.1050 |
| 196  Heart failure without cardiac catheter | 125 (3.9%) | 42 (3.7%) | 83 (3.9%) | 0.0097 |
| 477  Renal failure | 110 (3.4%) | 41 (3.6%) | 69 (3.3%) | 0.0212 |
| 254  Gastrointestinal hemorrhage | 88 (2.7%) | 41 (3.6%) | 47 (2.2%) | 0.0846 |
| 437  Diabetes | 76 (2.3%) | 25 (2.2%) | 51 (2.4%) | 0.0123 |
| 285  Cirrhosis / alcoholic hepatitis | 70 (2.2%) | 24 (2.1%) | 46 (2.2%) | 0.0027 |
| 132  Malignant neoplasm of respiratory system | 67 (2.1%) | 24 (2.1%) | 43 (2.0%) | 0.0072 |
| 654  Other/unspecified septicemia | 62 (1.9%) | 25 (2.2%) | 37 (1.8%) | 0.0341 |
| 436  Disorder of fluid/electrolyte balance | 61 (1.9%) | 19 (1.7%) | 42 (2.0%) | 0.0219 |
| 811  General symptom/sign | 60 (1.9%) | 12 (1.1%) | 48 (2.3%) | 0.0938 |
| 135  Aspiration pneumonia | 58 (1.8%) | 19 (1.7%) | 39 (1.8%) | 0.0116 |
| 660  Other infectious / parasitic disease | 56 (1.7%) | 11 (1.0%) | 45 (2.1%) | 0.0929 |
| 142  Other lung disease | 53 (1.6%) | 18 (1.6%) | 35 (1.7%) | 0.0042 |
| 405  Cellulitis | 53 (1.6%) | 16 (1.4%) | 37 (1.8%) | 0.0260 |
| 671  Organic mental disorder | 50 (1.5%) | 8 (0.7%) | 42 (2.0%) | 0.1105 |
| 231  Minor upper gastrointestinal intervention | 49 (1.5%) | 12 (1.1%) | 37 (1.8%) | 0.0578 |
| 249  Non-severe enteritis | 47 (1.5%) | 23 (2.0%) | 24 (1.1%) | 0.0729 |
| 257  Symptom/sign of digestive system | 44 (1.4%) | 17 (1.5%) | 27 (1.3%) | 0.0202 |
| 209  Other / miscellaneous cardiac disorder | 43 (1.3%) | 7 (0.6%) | 36 (1.7%) | 0.1007 |
| 287  Disorder of pancreas except malignancy | 38 (1.2%) | 16 (1.4%) | 22 (1.0%) | 0.0348 |
| 200  Pulmonary embolism | 35 (1.1%) | 13 (1.2%) | 22 (1.0%) | 0.0112 |
| 232  Minor lower gastrointestinal intervention | 35 (1.1%) | 13 (1.2%) | 22 (1.0%) | 0.0112 |
| 708  Substance abuse with other state | 33 (1.0%) | 9 (0.8%) | 24 (1.1%) | 0.0341 |
| 778  Poisoning / toxic effect of drug | 33 (1.0%) | 8 (0.7%) | 25 (1.2%) | 0.0485 |
| 248  Severe enteritis | 32 (1.0%) | 11 (1.0%) | 21 (1.0%) | 0.0014 |
| 258  Other gastrointestinal disorder | 32 (1.0%) | 15 (1.3%) | 17 (0.8%) | 0.0516 |
| 149  Symptom/sign of respiratory system | 31 (1.0%) | 7 (0.6%) | 24 (1.1%) | 0.0548 |
| 250  Digestive malignancy | 31 (1.0%) | 16 (1.4%) | 15 (0.7%) | 0.0696 |
| 488  Upper urinary tract infection | 29 (0.9%) | 9 (0.8%) | 20 (0.9%) | 0.0155 |
| 147  Asthma | 27 (0.8%) | 12 (1.1%) | 15 (0.7%) | 0.0382 |
| 130  Respiratory failure | 25 (0.8%) | 7 (0.6%) | 18 (0.9%) | 0.0266 |
| 202  Arrhythmia without cardiac catheter | 22 (0.7%) | 4 (0.4%) | 18 (0.9%) | 0.0639 |
| 284  Hepatobiliary / pancreatic malignancy | 22 (0.7%) | 10 (0.9%) | 12 (0.6%) | 0.0379 |
| 363  Other soft tissue disorder | 22 (0.7%) | 8 (0.7%) | 14 (0.7%) | 0.0061 |
| 136  Bacterial pneumonia | 21 (0.7%) | 9 (0.8%) | 12 (0.6%) | 0.0283 |
| 253  Inflammatory bowel disease | 21 (0.7%) | 14 (1.2%) | 7 (0.3%) | 0.1035 |
| 438  Dehydration | 21 (0.7%) | 8 (0.7%) | 13 (0.6%) | 0.0120 |
| 480  Kidney disease | 21 (0.7%) | 10 (0.9%) | 11 (0.5%) | 0.0442 |
| 143  Disease of pleura | 20 (0.6%) | 8 (0.7%) | 12 (0.6%) | 0.0181 |
| 286  Liver disease except cirrhosis / malignancy | 20 (0.6%) | 11 (1.0%) | 9 (0.4%) | 0.0663 |
| 37  Other dysfunction of central nervous system | 19 (0.6%) | 9 (0.8%) | 10 (0.5%) | 0.0412 |
| 435  Disorder of metabolism | 19 (0.6%) | 9 (0.8%) | 10 (0.5%) | 0.0412 |
| 213  Other / miscellaneous vascular disease | 18 (0.6%) | 6 (0.5%) | 12 (0.6%) | 0.0045 |
| 370  Inflammatory and reactive arthropathy | 17 (0.5%) | 9 (0.8%) | 8 (0.4%) | 0.0552 |
| 662  Fever | 17 (0.5%) | 12 (1.1%) | 5 (0.2%) | 0.1034 |
| 199  Cardiac valve disease | 16 (0.5%) | 1 (0.1%) | 15 (0.7%) | 0.0984 |
| 206  Benign hypertension | 16 (0.5%) | 5 (0.4%) | 11 (0.5%) | 0.0108 |
| 359  Osteomyelitis / septic arthritis | 16 (0.5%) | 2 (0.2%) | 14 (0.7%) | 0.0748 |
| 407  Other disease / disorder of skin / subcutaneous tissue | 16 (0.5%) | 6 (0.5%) | 10 (0.5%) | 0.0087 |
| 633  Agranulocytosis | 16 (0.5%) | 15 (1.3%) | 1 (0.1%) | 0.1558 |

Appendix Table 2. In hospital mortality rates for different hospital wards

|  |  |
| --- | --- |
|  | In-Hospital Mortality Rate  (deaths / number of patients) |
| GIM wards | 88 / 2118 (4.2%) |
| Ward A | 50 / 1041 (4.8%) |
| Ward B | 38 / 1077 (3.5%) |
| Bedspaced off-service wards | 88 / 1125 (7.8%) |
| Ward C  Medicine short stay unit  Alternate level of care (ALC) | 31 / 490 (6.3%) |
| Ward D  Hematology / oncology  Medical oncology  Radiation oncology  Palliative care | 45/ 477 (9.4%) |
| Ward E  Gynecology oncology  Plastic surgery  Urology | 2 / 50 (4.0%) |
| Ward F  Cardiology | 4 / 44 (9.1%) |
| Ward G  Otolaryngology  General surgery | 4 / 32 (12.5%) |
| Ward H  Cardiac surgery  Thoracic surgery  Vascular surgery | 2 / 15 (13.3%) |
| Ward I  Neurology  Neurosurgery | 0 / 11 (0%) |
| Ward J  Orthopedic surgery | 0 / 6 (0%) |

Appendix Table 3. In-hospital mortality and length of stay for each Charlson comorbidity index strata

|  |  |  |
| --- | --- | --- |
| Charlson Comorbidity Index (CCI) | Bedspaced patients | Assigned GIM wards patients |
| CCI = 0 |  |  |
| Deaths | 14 / 324 (4.3%) | 12 / 564 (2.1%) |
| Length of stay in days median (IQR) | 4.53  (2.59-8.60) | 5.29  (2.91-9.73) |
| CCI = 1 |  |  |
| Deaths | 14 / 236 (5.9%) | 12 / 472 (2.5%) |
| Length of stay in days median (IQR) | 4.54  (2.91-8.42) | 5.32  (3.52-10.24) |
| CCI >=2 |  |  |
| Deaths | 60 / 565 (10.6%) | 64 / 1082 (5.9%) |
| Length of stay in days median (IQR) | 5.96  (3.67-11.03) | 6.76  (3.67-13.07) |

Appendix Table 4. Full list of comorbidities and top 52 case mix groups for propensity matched bedspaced and assigned GIM wards patients

|  |  |  |  |
| --- | --- | --- | --- |
|  | Bedspaced patients  (N=1093) | Assigned GIM wards patients  (N=1093) | Standardised difference |
| Charlson Comorbidity Index (CCI) |  |  |  |
| Myocardial infarction | 20 (1.8%) | 24 (2.2%) | 0.0261 |
| Heart failure | 117 (10.7%) | 126 (11.5%) | 0.0262 |
| Peripheral vascular disease | 18 (1.7%) | 12 (1.1%) | 0.0472 |
| Cerebrovascular disease | 33 (3.0%) | 30 (2.7%) | 0.0164 |
| Dementia | 65 (6.0%) | 74 (6.8%) | 0.0337 |
| Chronic pulmonary disease | 185 (16.9%) | 185 (16.9%) | 0.0000 |
| Rheumatic disease | 21 (1.9%) | 20 (1.8%) | 0.0067 |
| Peptic ulcer disease | 23 (2.1%) | 20 (1.8%) | 0.0198 |
| Mild liver disease | 52 (4.8%) | 63 (5.8%) | 0.0451 |
| Moderate or severe liver disease | 35 (3.2%) | 40 (3.7%) | 0.0251 |
| Diabetes mellitus without end organ  Damage | 151 (13.8%) | 155 (14.2%) | 0.0105 |
| Diabetes mellitus with end organ  damage | 243 (22.2%) | 253 (23.2%) | 0.0218 |
| Hemiplegia or paraplegia | 5 (0.5%) | 10 (0.9%) | 0.0554 |
| Moderate or severe renal disease | 58 (5.3%) | 55 (5.0%) | 0.0124 |
| Solid tumor, leukemia or lymphoma | 107 (9.8%) | 107 (9.8%) | 0.0000 |
| Metastatic solid tumor | 90 (8.2%) | 100 (9.2%) | 0.0325 |
| HIV / AIDS | 4 (0.4%) | 4 (0.4%) | 0.0000 |
| CCI score median (IQR) | 2.00  (0.00-3.00) | 2.00  (0.00-3.00) | 0.0536 |
| Top 52 case mix group  (Admission diagnosis) |  |  |  |
| 139  Chronic obstructive pulmonary disease | 97 (8.9%) | 98 (9.0%) | 0.0032 |
| 138  Viral / unspecified pneumonia | 62 (5.7%) | 55 (5.0%) | 0.0285 |
| 487  Lower urinary tract infection | 37 (3.4%) | 39 (3.6%) | 0.0100 |
| 196  Heart failure without cardiac catheter | 42 (3.8%) | 50 (4.6%) | 0.0365 |
| 477  Renal failure | 41 (3.8%) | 43 (3.9%) | 0.0095 |
| 254  Gastrointestinal hemorrhage | 41 (3.8%) | 39 (3.6%) | 0.0097 |
| 437  Diabetes | 25 (2.3%) | 26 (2.4%) | 0.0061 |
| 285  Cirrhosis / alcoholic hepatitis | 24 (2.2%) | 33 (3.0%) | 0.0517 |
| 132  Malignant neoplasm of respiratory system | 24 (2.2%) | 27 (2.5%) | 0.0182 |
| 654  Other/unspecified septicemia | 25 (2.3%) | 26 (2.4%) | 0.0061 |
| 436  Disorder of fluid/electrolyte balance | 19 (1.7%) | 17 (1.6%) | 0.0144 |
| 811  General symptom/sign | 12 (1.1%) | 9 (0.8%) | 0.0281 |
| 135  Aspiration pneumonia | 19 (1.7%) | 23 (2.1%) | 0.0267 |
| 660  Other infectious / parasitic disease | 11 (1.0%) | 13 (1.2%) | 0.0176 |
| 142  Other lung disease | 18 (1.7%) | 18 (1.7%) | 0.0000 |
| 405  Cellulitis | 16 (1.5%) | 14 (1.3%) | 0.0157 |
| 671  Organic mental disorder | 8 (0.7%) | 5 (0.5%) | 0.0357 |
| 231  Minor upper gastrointestinal intervention | 12 (1.1%) | 10 (0.9%) | 0.0183 |
| 249  Non-severe enteritis | 23 (2.1%) | 19 (1.7%) | 0.0267 |
| 257  Symptom/sign of digestive system | 17 (1.6%) | 20 (1.8%) | 0.0213 |
| 209  Other / miscellaneous cardiac disorder | 7 (0.6%) | 11 (1.0%) | 0.0405 |
| 287  Disorder of pancreas except malignancy | 16 (1.5%) | 13 (1.2%) | 0.0240 |
| 200  Pulmonary embolism | 13 (1.2%) | 11 (1.0%) | 0.0176 |
| 232  Minor lower gastrointestinal intervention | 13 (1.2%) | 10 (0.9%) | 0.0269 |
| 708  Substance abuse with other state | 9 (0.8%) | 10 (0.9%) | 0.0099 |
| 778  Poisoning / toxic effect of drug | 8 (0.7%) | 8 (0.7%) | 0.0000 |
| 248  Severe enteritis | 11 (1.0%) | 8 (0.7%) | 0.0296 |
| 258  Other gastrointestinal disorder | 15 (1.4%) | 14 (1.3%) | 0.0080 |
| 149  Symptom/sign of respiratory system | 7 (0.6%) | 9 (0.8%) | 0.0215 |
| 250  Digestive malignancy | 16 (1.5%) | 13 (1.2%) | 0.0240 |
| 488  Upper urinary tract infection | 9 (0.8%) | 12 (1.1%) | 0.0281 |
| 147  Asthma | 12 (1.1%) | 11 (1.0%) | 0.0090 |
| 130  Respiratory failure | 7 (0.6%) | 9 (0.8%) | 0.0215 |
| 202  Arrhythmia without cardiac catheter | 4 (0.4%) | 5 (0.5%) | 0.0143 |
| 284  Hepatobiliary / pancreatic malignancy | 10 (0.9%) | 11 (1.0%) | 0.0094 |
| 363  Other soft tissue disorder | 8 (0.7%) | 11 (1.0%) | 0.0296 |
| 136  Bacterial pneumonia | 9 (0.8%) | 6 (0.6%) | 0.0333 |
| 253  Inflammatory bowel disease | 6 (0.6%) | 7 (0.6%) | 0.0119 |
| 438  Dehydration | 8 (0.7%) | 9 (0.8%) | 0.0104 |
| 480  Kidney disease | 10 (0.9%) | 10 (0.9%) | 0.0000 |
| 143  Disease of pleura | 8 (07%) | 8 (0.7%) | 0.0000 |
| 286  Liver disease except cirrhosis / malignancy | 9 (0.8%) | 7 (0.6%) | 0.0215 |
| 37  Other dysfunction of central nervous system | 9 (0.8%) | 7 (0.6%) | 0.0215 |
| 435  Disorder of metabolism | 9 (0.8%) | 9 (0.8%) | 0.0000 |
| 213  Other / miscellaneous vascular disease | 6 (0.6%) | 8 (0.7%) | 0.0229 |
| 370  Inflammatory and reactive arthropathy | 9 (0.8%) | 5 (0.5%) | 0.0459 |
| 662  Fever | 4 (0.4%) | 5 (0.5%) | 0.0143 |
| 199  Cardiac valve disease | 1 (0.1%) | 2 (0.2%) | 0.0247 |
| 206  Benign hypertension | 5 (0.5%) | 4 (0.4%) | 0.0143 |
| 359  Osteomyelitis / septic arthritis | 2 (0.2%) | 2 (0.2%) | 0.0000 |
| 407  Other disease / disorder of skin / subcutaneous tissue | 6 (0.6%) | 5 (0.5%) | 0.0129 |
| 633  Agranulocytosis | 1 (0.1%) | 1 (0.1%) | 0.0000 |

Appendix Table 5. Full list of comorbidities and top 52 case mix groups for bedspaced and assigned GIM wards patients matched by rotation block, CTU team and case mix group

|  |  |  |  |
| --- | --- | --- | --- |
|  | Bedspaced patients  (N=456) | Assigned GIM wards patients  (N=456) | Standardised difference |
| Charlson Comorbidity Index (CCI) |  |  |  |
| Myocardial infarction | 8 (1.8%) | 9 (2.0%) | 0.0162 |
| Heart failure | 63 (13.8%) | 68 (14.9%) | 0.0313 |
| Peripheral vascular disease | 6 (1.3%) | 6 (1.3%) | 0.0000 |
| Cerebrovascular disease | 9 (2.0%) | 10 (2.2%) | 0.0154 |
| Dementia | 34 (7.5%) | 45 (9.9%) | 0.0858 |
| Chronic pulmonary disease | 117 (25.7%) | 111 (24.3%) | 0.0304 |
| Rheumatic disease | 4 (0.9%) | 8 (1.8%) | 0.0770 |
| Peptic ulcer disease | 7 (1.5%) | 12 (2.6%) | 0.0768 |
| Mild liver disease | 22 (4.8%) | 25 (5.5%) | 0.0298 |
| Moderate or severe liver disease | 15 (3.3%) | 20 (4.4%) | 0.0571 |
| Diabetes mellitus without end organ  Damage | 62 (13.6%) | 60 (13.2%) | 0.0129 |
| Diabetes mellitus with end organ  damage | 103 (22.6%) | 114 (25.0%) | 0.0567 |
| Hemiplegia or paraplegia | 1 (0.2%) | 5 (1.1%) | 0.1087 |
| Moderate or severe renal disease | 19 (4.2%) | 30 (6.6%) | 0.1071 |
| Solid tumor, leukemia or lymphoma | 35 (7.7%) | 28 (6.1%) | 0.0606 |
| Metastatic solid tumor | 29 (6.4%) | 25 (5.5%) | 0.0372 |
| HIV / AIDS | 1 (0.2%) | 0 (0%) | 0.0663 |
| CCI score median (IQR) | 1.00  (1.00-3.00) | 2.00  (0.00-3.00) | 0.0513 |
| Top 52 case mix group  (Admission diagnosis) |  |  |  |
| 139  Chronic obstructive pulmonary disease | 83 (18.2%) | 83 (18.2%) | 0.0000 |
| 138  Viral / unspecified pneumonia | 52 (11.4%) | 52 (11.4%) | 0.0000 |
| 487  Lower urinary tract infection | 32 (7.0%) | 32 (7.0%) | 0.0000 |
| 196  Heart failure without cardiac catheter | 31 (6.8%) | 31 (6.8%) | 0.0000 |
| 477  Renal failure | 23 (5.0%) | 23 (5.0%) | 0.0000 |
| 254  Gastrointestinal hemorrhage | 20 (4.4%) | 20 (4.4%) | 0.0000 |
| 437  Diabetes | 15 (3.3%) | 15 (3.3%) | 0.0000 |
| 285  Cirrhosis / alcoholic hepatitis | 13 (2.9%) | 13 (2.9%) | 0.0000 |
| 132  Malignant neoplasm of respiratory system | 12 (2.6%) | 12 (2.6%) | 0.0000 |
| 654  Other/unspecified septicemia | 9 (2.0%) | 9 (2.0%) | 0.0000 |
| 436  Disorder of fluid/electrolyte balance | 9 (2.0%) | 9 (2.0%) | 0.0000 |
| 811  General symptom/sign | 8 (1.8%) | 8 (1.8%) | 0.0000 |
| 135  Aspiration pneumonia | 9 (2.0%) | 9 (2.0%) | 0.0000 |
| 660  Other infectious / parasitic disease | 4 (0.9%) | 4 (0.9%) | 0.0000 |
| 142  Other lung disease | 9 (2.0%) | 9 (2.0%) | 0.0000 |
| 405  Cellulitis | 6 (1.3%) | 6 (1.3%) | 0.0000 |
| 671  Organic mental disorder | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 231  Minor upper gastrointestinal intervention | 6 (1.3%) | 6 (1.3%) | 0.0000 |
| 249  Non-severe enteritis | 10 (2.2%) | 10 (2.2%) | 0.0000 |
| 257  Symptom/sign of digestive system | 7 (1.5%) | 7 (1.5%) | 0.0000 |
| 209  Other / miscellaneous cardiac disorder | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 287  Disorder of pancreas except malignancy | 5 (1.1%) | 5 (1.1%) | 0.0000 |
| 200  Pulmonary embolism | 5 (1.1%) | 5 (1.1%) | 0.0000 |
| 232  Minor lower gastrointestinal intervention | 7 (1.5%) | 7 (1.5%) | 0.0000 |
| 708  Substance abuse with other state | 5 (1.1%) | 5 (1.1%) | 0.0000 |
| 778  Poisoning / toxic effect of drug | 5 (1.1%) | 5 (1.1%) | 0.0000 |
| 248  Severe enteritis | 5 (1.1%) | 5 (1.1%) | 0.0000 |
| 258  Other gastrointestinal disorder | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 149  Symptom/sign of respiratory system | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 250  Digestive malignancy | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 488  Upper urinary tract infection | 2 (0.4%) | 2 (0.4%) | 0.0000 |
| 147  Asthma | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 130  Respiratory failure | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 202  Arrhythmia without cardiac catheter | 2 (0.4%) | 2 (0.4%) | 0.0000 |
| 284  Hepatobiliary / pancreatic malignancy | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 363  Other soft tissue disorder | 2 (0.4%) | 2 (0.4%) | 0.0000 |
| 136  Bacterial pneumonia | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 253  Inflammatory bowel disease | 4 (0.9%) | 4 (0.9%) | 0.0000 |
| 438  Dehydration | 2 (0.4%) | 2 (0.4%) | 0.0000 |
| 480  Kidney disease | 2 (0.4%) | 2 (0.4%) | 0.0000 |
| 143  Disease of pleura | 0 (0%) | 0 (0%) | 0.0000 |
| 286  Liver disease except cirrhosis / malignancy | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 37  Other dysfunction of central nervous system | 4 (0.9%) | 4 (0.9%) | 0.0000 |
| 435  Disorder of metabolism | 2 (0.4%) | 2 (0.4%) | 0.0000 |
| 213  Other / miscellaneous vascular disease | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 370  Inflammatory and reactive arthropathy | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 662  Fever | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 199  Cardiac valve disease | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 206  Benign hypertension | 0 (0%) | 0 (0%) | 0.0000 |
| 359  Osteomyelitis / septic arthritis | 0 (0%) | 0 (0%) | 0.0000 |
| 407  Other disease / disorder of skin / subcutaneous tissue | 0 (0%) | 0 (0%) | 0.0000 |
| 633  Agranulocytosis | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| Other case mix group |  |  | 0.0000 |
| 38  Neoplasm of central nervous system | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 97  Influenza / acute upper respiratory infection | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 433  Disorder related to nutrition | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 650  Multisystemic / unspecified site infection with intervention | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 256  Esophagitis / gastritis / miscellaneous digestive disease | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 698  Psychoactive substance use, acute intoxication | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 810  Palliative care | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 357  Musculoskeletal malignant neoplasm | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 434  Disease / disorder of adrenal / pituitary gland | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 617  Intervention with blood / lymphatic system diagnosis except neoplasm | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 628  Lymphoma | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 653  Septicemia due to staphylococcus aureus / pseudomonas / enterococcus | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 630  Malignant neoplasm of other site | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 771  Spinal injury | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 906  MCC 06 Unrelated Intervention | 1 (0.2%) | 1 (0.2%) | 0.0000 |

Appendix Table 6. Bedspaced and assigned GIM wards patients based on first ward bed on admission (rather than primary analysis based on last bed location prior to discharge or death)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Bedspaced patients  (N=1150) | Assigned GIM wards patients  (N=2093) | Standardised difference |
| Demographics |  |  |  |
| Male | 575 (50.0%) | 1056 (50.5%) | 0.0091 |
| Age median (IQR) | 70.00  (57.00-81.00) | 72.00  (60.00-82.00) | 0.1353 |
| Length of stay |  |  |  |
| Length of stay, days: median (IQR) | 5.50  (2.99-10.42) | 5.85  (3.49-11.23) | 0.0113 |
| Admission day |  |  |  |
| Weekend (Saturday and Sunday) | 338 (29.4%) | 500 (23.9%) | 0.1247 |
| Admission months |  |  |  |
| January | 106 (9.2%) | 165 (7.9%) | 0.0477 |
| February | 78 (6.8%) | 153 (7.3%) | 0.0206 |
| March | 87 (7.6%) | 195 (9.3%) | 0.0630 |
| April | 79 (6.9%) | 167 (8.0%) | 0.0423 |
| May | 89 (7.7%) | 167 (8.0%) | 0.0089 |
| June | 110 (9.6%) | 181 (8.7%) | 0.0319 |
| July | 89 (7.7%) | 208 (9.9%) | 0.0775 |
| August | 98 (8.5%) | 203 (9.7%) | 0.0409 |
| September | 103 (9.0%) | 147 (7.0%) | 0.0713 |
| October | 114 (9.9%) | 167 (8.0%) | 0.0678 |
| November | 95 (8.3%) | 171 (8.2%) | 0.0033 |
| December | 102 (8.9%) | 169 (8.1%) | 0.0286 |
| Capacity ratio median (IQR) | 1.35  (1.26-1.41) | 1.34  (1.25-1.41) | 0.0237 |
| CTU team |  |  |  |
| A | 265 (23.0%) | 555 (26.5%) | 0.0805 |
| B | 252 (21.9%) | 534 (25.5%) | 0.0847 |
| C | 323 (28.1%) | 504 (24.1%) | 0.0913 |
| D | 310 (27.0%) | 500 (23.9%) | 0.0705 |
| Charlson Comorbidity Index (CCI) Score |  |  |  |
| 0 | 340 (29.6%) | 548 (26.2%) | 0.0755 |
| 1 | 242 (21.0%) | 466 (22.3%) | 0.0297 |
| >=2 | 568 (49.4%) | 1079 (51.6%) | 0.0432 |
| Charlson Comorbidity Index (CCI) |  |  |  |
| Myocardial infarction | 26 (2.3%) | 44 (2.1%) | 0.0109 |
| Heart failure | 118 (10.3%) | 241 (11.5%) | 0.0403 |
| Peripheral vascular disease | 15 (1.3%) | 32 (1.5%) | 0.0190 |
| Cerebrovascular disease | 33 (2.9%) | 69 (3.3%) | 0.0247 |
| Dementia | 68 (5.9%) | 168 (8.0%) | 0.0831 |
| Chronic pulmonary disease | 190 (16.5%) | 383 (18.3%) | 0.0469 |
| Rheumatic disease | 23 (2.0%) | 39 (1.9%) | 0.0099 |
| Peptic ulcer disease | 26 (2.3%) | 42 (2.0%) | 0.0176 |
| Mild liver disease | 53 (4.6%) | 119 (5.7%) | 0.0488 |
| Moderate or severe liver disease | 33 (2.9%) | 87 (4.2%) | 0.0700 |
| Diabetes mellitus without end organ  Damage | 146 (12.7%) | 286 (13.7%) | 0.0286 |
| Diabetes mellitus with end organ  damage | 243 (21.1%) | 511 (24.4%) | 0.0784 |
| Hemiplegia or paraplegia | 6 (0.5%) | 22 (1.1%) | 0.0600 |
| Moderate or severe renal disease | 54 (4.7%) | 136 (6.5%) | 0.0785 |
| Solid tumor, leukemia or lymphoma | 124 (10.8%) | 152 (7.3%) | 0.1231 |
| Metastatic solid tumor | 97 (8.4%) | 137 (6.6%) | 0.0718 |
| HIV / AIDS | 3 (0.3%) | 5 (0.2%) | 0.0044 |
| CCI score median (IQR) | 1.00  (0.00-3.00) | 2.00  (0.00-3.00) | 0.0192 |
| Resource intensity weight (RIW) | 1.06  (0.69-1.79) | 1.10  (0.71-1.95) | 0.0386 |
| Top 52 case mix group  (Admission diagnosis) |  |  |  |
| 139  Chronic obstructive pulmonary disease | 94 (8.2%) | 219 (10.5%) | 0.0788 |
| 138  Viral / unspecified pneumonia | 65 (5.7%) | 123 (5.9%) | 0.0096 |
| 487  Lower urinary tract infection | 42 (3.7%) | 110 (5.3%) | 0.0778 |
| 196  Heart failure without cardiac catheter | 42 (3.7%) | 83 (4.0%) | 0.0164 |
| 477  Renal failure | 38 (3.3%) | 72 (3.4%) | 0.0075 |
| 254  Gastrointestinal hemorrhage | 36 (3.1%) | 52 (2.5%) | 0.0391 |
| 437  Diabetes | 20 (1.7%) | 56 (2.7%) | 0.0638 |
| 285  Cirrhosis / alcoholic hepatitis | 20 (1.7%) | 50 (2.4%) | 0.0457 |
| 132  Malignant neoplasm of respiratory system | 25 (2.2%) | 42 (2.0%) | 0.0117 |
| 654  Other/unspecified septicemia | 27 (2.4%) | 35 (1.7%) | 0.0482 |
| 436  Disorder of fluid/electrolyte balance | 17 (1.5%) | 44 (2.1%) | 0.0471 |
| 811  General symptom/sign | 13 (1.1%) | 47 (2.3%) | 0.0866 |
| 135  Aspiration pneumonia | 21 (1.8%) | 37 (1.8%) | 0.0044 |
| 660  Other infectious / parasitic disease | 9 (0.8%) | 47 (2.3%) | 0.1200 |
| 142  Other lung disease | 18 (1.6%) | 35 (1.7%) | 0.0085 |
| 405  Cellulitis | 17 (1.5%) | 36 (1.7%) | 0.0193 |
| 671  Organic mental disorder | 10 (0.9%) | 40 (1.9%) | 0.0890 |
| 231  Minor upper gastrointestinal intervention | 13 (1.1%) | 36 (1.7%) | 0.0498 |
| 249  Non-severe enteritis | 23 (2.0%) | 24 (1.2%) | 0.0686 |
| 257  Symptom/sign of digestive system | 19 (1.7%) | 25 (1.2%) | 0.0386 |
| 209  Other / miscellaneous cardiac disorder | 10 (0.9%) | 33 (1.6%) | 0.0644 |
| 287  Disorder of pancreas except malignancy | 22 (1.9%) | 16 (0.8%) | 0.1001 |
| 200  Pulmonary embolism | 10 (0.9%) | 25 (1.2%) | 0.0322 |
| 232  Minor lower gastrointestinal intervention | 14 (1.2%) | 21 (1.0%) | 0.0204 |
| 708  Substance abuse with other state | 10 (0.9%) | 23 (1.1%) | 0.0232 |
| 778  Poisoning / toxic effect of drug | 8 (0.8%) | 25 (1.2%) | 0.0516 |
| 248  Severe enteritis | 11 (1.0%) | 21 (1.0%) | 0.0048 |
| 258  Other gastrointestinal disorder | 18 (1.6%) | 14 (0.7%) | 0.0854 |
| 149  Symptom/sign of respiratory system | 8 (0.8%) | 23 (1.1%) | 0.0428 |
| 250  Digestive malignancy | 17 (1.5%) | 14 (0.7%) | 0.0786 |
| 488  Upper urinary tract infection | 11 (1.0%) | 18 (0.9%) | 0.0102 |
| 147  Asthma | 11 (1.0%) | 16 (0.8%) | 0.0208 |
| 130  Respiratory failure | 6 (0.5%) | 19 (0.9%) | 0.0458 |
| 202  Arrhythmia without cardiac catheter | 5 (0.4%) | 17 (0.8%) | 0.0480 |
| 284  Hepatobiliary / pancreatic malignancy | 13 (1.1%) | 9 (0.4%) | 0.0797 |
| 363  Other soft tissue disorder | 9 (0.8%) | 13 (0.6%) | 0.0193 |
| 136  Bacterial pneumonia | 7 (0.6%) | 14 (0.7%) | 0.0076 |
| 253  Inflammatory bowel disease | 12 (1.0%) | 9 (0.4%) | 0.0718 |
| 438  Dehydration | 7 (0.6%) | 14 (0.7%) | 0.0076 |
| 480  Kidney disease | 12 (1.0%) | 9 (0.4%) | 0.0718 |
| 143  Disease of pleura | 7 (0.6%) | 13 (0.6%) | 0.0016 |
| 286  Liver disease except cirrhosis / malignancy | 8 (0.7%) | 12 (0.6%) | 0.0154 |
| 37  Other dysfunction of central nervous system | 7 (0.6%) | 12 (0.6%) | 0.0046 |
| 435  Disorder of metabolism | 11 (1.0%) | 8 (0.4%) | 0.0705 |
| 213  Other / miscellaneous vascular disease | 9 (0.8%) | 9 (0.4%) | 0.0454 |
| 370  Inflammatory and reactive arthropathy | 9 (0.8%) | 8 (0.4%) | 0.0526 |
| 662  Fever | 9 (0.8%) | 8 (0.4%) | 0.0526 |
| 199  Cardiac valve disease | 3 (0.3%) | 13 (0.6%) | 0.0544 |
| 206  Benign hypertension | 6 (0.5%) | 10 (0.5%) | 0.0062 |
| 359  Osteomyelitis / septic arthritis | 5 (0.4%) | 11 (0.5%) | 0.0131 |
| 407  Other disease / disorder of skin / subcutaneous tissue | 6 (0.5%) | 10 (0.5%) | 0.0062 |
| 633  Agranulocytosis | 14 (1.2%) | 2 (0.1%) | 0.1393 |

In a competing risk model, compared to GIM ward patients, bedspaced off-service ward patients had an sHR of 1.78 (95% CI: 1.33-2.39; p=0.0001) for dying in hospital and sHR of 0.94 (95% CI: 0.87-1.01; p=0.1081) for being discharged alive. The sHR of bedspaced patients for dying in hospital was 3.18 (95% CI: 2.03-4.98; p<0.0001) with sHR of 0.96 (95% CI: 0.93-0.99; p=0.0123) for interaction of bedspacing with time in days. The sHR of bedspaced patients for being discharged alive was 1.14 (95% CI: 1.02-1.26; p=0.0210) with sHR of 0.98 (95% CI: 0.98-0.99; p=0.0002) for interaction of bedspacing with time in days.

Appendix Table 7. Bedspaced and assigned GIM wards patients matched by rotation block, CTU team, case mix group and same admission week

|  |  |  |  |
| --- | --- | --- | --- |
|  | Bedspaced patients  (N=168) | Assigned GIM wards patients  (N=168) | Standardised difference |
| Demographics |  |  |  |
| Male | 77 (45.8%) | 76 (45.2%) | 0.0120 |
| Age median (IQR) | 74.00  (64.00-83.00) | 74.00  (65.00-84.00) | 0.0414 |
| Admission day |  |  |  |
| Weekend (Saturday and Sunday) | 49 (29.2%) | 43 (25.6%) | 0.0802 |
| Admission months |  |  |  |
| January | 17 (10.1%) | 17 (10.1%) | 0.0000 |
| February | 16 (9.5%) | 16 (9.5%) | 0.0000 |
| March | 14 (8.3%) | 14 (8.3%) | 0.0000 |
| April | 9 (5.4%) | 10 (6.0%) | 0.0258 |
| May | 8 (4.8%) | 7 (4.2%) | 0.0288 |
| June | 14 (8.3%) | 14 (8.3%) | 0.0000 |
| July | 15 (8.9%) | 15 (8.9%) | 0.0000 |
| August | 13 (7.7%) | 13 (7.7%) | 0.0000 |
| September | 11 (6.6%) | 10 (6.0%) | 0.0246 |
| October | 16 (9.5%) | 17 (10.1%) | 0.0200 |
| November | 21 (12.5%) | 21 (12.5%) | 0.0000 |
| December | 14 (8.3%) | 14 (8.3%) | 0.0000 |
| Capacity ratio median (IQR) | 1.37  (1.28-1.41) | 1.35  (1.26-1.41) | 0.0680 |
| CTU team |  |  |  |
| A | 38 (22.6%) | 38 (22.6%) | 0.0000 |
| B | 41 (24.4%) | 41 (24.4%) | 0.0000 |
| C | 40 (23.8%) | 40 (23.8%) | 0.0000 |
| D | 49 (29.2%) | 49 (29.2%) | 0.0000 |
| Charlson Comorbidity Index (CCI) Score |  |  |  |
| 0 | 33 (19.6%) | 43 (25.6%) | 0.1426 |
| 1 | 51 (30.4%) | 40 (23.8%) | 0.1477 |
| >=2 | 84 (50.0%) | 85 (50.6%) | 0.0119 |
| Charlson Comorbidity Index (CCI) |  |  |  |
| Myocardial infarction | 4 (2.4%) | 1 (0.6%) | 0.1479 |
| Heart failure | 23 (13.7%) | 24 (14.3%) | 0.0172 |
| Peripheral vascular disease | 1 (0.6%) | 0 (0%) | 0.1094 |
| Cerebrovascular disease | 4 (2.4%) | 3 (1.8%) | 0.0417 |
| Dementia | 13 (7.7%) | 19 (11.3%) | 0.1219 |
| Chronic pulmonary disease | 62 (36.9%) | 53 (31.6%) | 0.1131 |
| Rheumatic disease | 2 (1.2%) | 4 (2.4%) | 0.0900 |
| Peptic ulcer disease | 3 (1.8%) | 5 (3.0%) | 0.0781 |
| Mild liver disease | 7 (4.2%) | 7 (4.2%) | 0.0000 |
| Moderate or severe liver disease | 4 (2.4%) | 5 (3.0%) | 0.0369 |
| Diabetes mellitus without end organ  Damage | 25 (14.9%) | 21 (12.5%) | 0.0693 |
| Diabetes mellitus with end organ  damage | 37 (22.0%) | 38 (22.6%) | 0.0143 |
| Hemiplegia or paraplegia | 0 (0%) | 2 (1.2%) | 0.1552 |
| Moderate or severe renal disease | 10 (6.0%) | 12 (7.1%) | 0.0481 |
| Solid tumor, leukemia or lymphoma | 9 (5.4%) | 11 (6.6%) | 0.0503 |
| Metastatic solid tumor | 13 (7.7%) | 6 (3.6%) | 0.1811 |
| HIV / AIDS | 1 (0.6%) | 0 (0%) | 0.1094 |
| CCI score median (IQR) | 1.50  (1.00-3.00) | 2.00  (0.00-3.00) | 0.1203 |
| Resource intensity weight (RIW)  Median (IQR) | 0.97  (0.69-1.41) | 0.97  (0.70-1.70) | 0.0807 |
| Top 52 case mix group  (Admission diagnosis) |  |  |  |
| 139  Chronic obstructive pulmonary disease | 47 (28.0%) | 47 (28.0%) | 0.0000 |
| 138  Viral / unspecified pneumonia | 26 (15.5%) | 26 (15.5%) | 0.0000 |
| 487  Lower urinary tract infection | 15 (8.9%) | 15 (8.9%) | 0.0000 |
| 196  Heart failure without cardiac catheter | 8 (4.8%) | 8 (4.8%) | 0.0000 |
| 477  Renal failure | 8 (4.8%) | 8 (4.8%) | 0.0000 |
| 254  Gastrointestinal hemorrhage | 6 (3.6%) | 6 (3.6%) | 0.0000 |
| 437  Diabetes | 5 (3.0%) | 5 (3.0%) | 0.0000 |
| 285  Cirrhosis / alcoholic hepatitis | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 132  Malignant neoplasm of respiratory system | 4 (2.4%) | 4 (2.4%) | 0.0000 |
| 654  Other/unspecified septicemia | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 436  Disorder of fluid/electrolyte balance | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 811  General symptom/sign | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 135  Aspiration pneumonia | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 660  Other infectious / parasitic disease | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 142  Other lung disease | 0 (0%) | 0 (0%) | 0.0000 |
| 405  Cellulitis | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 671  Organic mental disorder | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 231  Minor upper gastrointestinal intervention | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 249  Non-severe enteritis | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 257  Symptom/sign of digestive system | 5 (3.0%) | 5 (3.0%) | 0.0000 |
| 209  Other / miscellaneous cardiac disorder | 0 (0%) | 0 (0%) | 0.0000 |
| 287  Disorder of pancreas except malignancy | 3 (1.8%) | 3 (1.8%) | 0.0000 |
| 200  Pulmonary embolism | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 232  Minor lower gastrointestinal intervention | 5 (3.0%) | 5 (3.0%) | 0.0000 |
| 708  Substance abuse with other state | 3 (1.8%) | 3 (1.8%) | 0.0000 |
| 778  Poisoning / toxic effect of drug | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 248  Severe enteritis | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 258  Other gastrointestinal disorder | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 149  Symptom/sign of respiratory system | 0 (0%) | 0 (0%) | 0.0000 |
| 250  Digestive malignancy | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 488  Upper urinary tract infection | 0 (0%) | 0 (0%) | 0.0000 |
| 147  Asthma | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 130  Respiratory failure | 0 (0%) | 0 (0%) | 0.0000 |
| 202  Arrhythmia without cardiac catheter | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 284  Hepatobiliary / pancreatic malignancy | 0 (0%) | 0 (0%) | 0.0000 |
| 363  Other soft tissue disorder | 0 (0%) | 0 (0%) | 0.0000 |
| 136  Bacterial pneumonia | 0 (0%) | 0 (0%) | 0.0000 |
| 253  Inflammatory bowel disease | 0 (0%) | 0 (0%) | 0.0000 |
| 438  Dehydration | 0 (0%) | 0 (0%) | 0.0000 |
| 480  Kidney disease | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 143  Disease of pleura | 0 (0%) | 0 (0%) | 0.0000 |
| 286  Liver disease except cirrhosis / malignancy | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 37  Other dysfunction of central nervous system | 0 (0%) | 0 (0%) | 0.0000 |
| 435  Disorder of metabolism | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 213  Other / miscellaneous vascular disease | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 370  Inflammatory and reactive arthropathy | 0 (0%) | 0 (0%) | 0.0000 |
| 662  Fever | 0 (0%) | 0 (0%) | 0.0000 |
| 199  Cardiac valve disease | 0 (0%) | 0 (0%) | 0.0000 |
| 206  Benign hypertension | 0 (0%) | 0 (0%) | 0.0000 |
| 359  Osteomyelitis / septic arthritis | 0 (0%) | 0 (0%) | 0.0000 |
| 407  Other disease / disorder of skin / subcutaneous tissue | 0 (0%) | 0 (0%) | 0.0000 |
| 633  Agranulocytosis | 0 (0%) | 0 (0%) | 0.0000 |
| Other case mix group |  |  |  |
| 38  Neoplasm of central nervous system | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 653  Septicemia due to staphylococcus aureus / pseudomonas / enterococcus | 1 (0.6%) | 1 (0.6%) | 0.0000 |

In a competing risk model stratified by matching pairs, compared to GIM ward patients, bedspaced off-service ward patients had an sHR of 2.04 (95% CI: 0.77-5.42; p=0.1531) for dying in hospital and sHR of 1.07 (95% CI: 0.75-1.17; p=0.5507) for being discharged alive. The sHR of bedspaced patients for dying in hospital was 5.12 (95% CI: 0.76-34.78; p=0.0946) with sHR of 0.93 (95% CI: 0.84-1.02; p=0.1288) for interaction of bedspacing with time in days. The sHR of bedspaced patients for being discharged alive was 1.11 (95% CI: 0.82-1.49; p=0.5068) with sHR of 0.98 (95% CI: 0.95-1.00; p=0.1030) for interaction of bedspacing with time in days.

**Appendix Text 1. Sensitivity analyses using restricted mean survival time**

Methods

Bedspaced and assigned GIM ward patients were compared using restricted mean survival time was done, which did not assume proportional hazards.1,2 In R, analysis of restricted mean survival time was done using the package survRM2.3

Results

In the unadjusted analysis, the restricted mean time survival at 30 days was 26.1 days (95% CI 25.2-26.9 days) for bedspaced patients and 28.1 days (95% CI 27.7-28.6 days) for assigned GIM wards patients with a ratio of 0.93 (95% CI 0.89-0.96; p<0.0001).

In the propensity matched analysis, the restricted mean time survival at 30 days was 26.1 days (95% CI 25.1-26.9 days) for bedspaced patients and 27.9 days (95% CI 27.3-28.6 days) for assigned GIM wards patients with a ratio of 0.93 (95% CI 0.90-0.97; p=0.0006).

In the paired matched analysis, the restricted mean time survival at 30 days was 24.6 days (95% CI 22.9-26.3 days) for bedspaced patients and 28.4 days (95% CI 27.4-29.3 days) for assigned GIM wards patients with ratio of 0.87 (95% CI 0.80-0.94; p=0.0003).

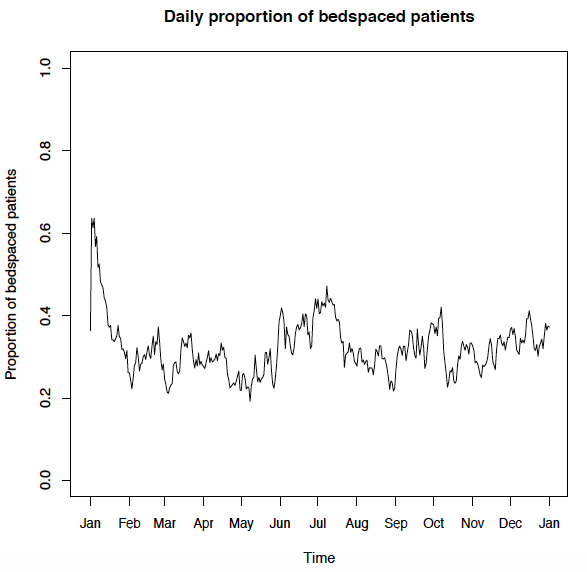
References

1. Royston P, Parmar MK. Restricted mean survival time: an alternative to the hazard ratio for the design and analysis of randomized trials with a time-to-event outcome. *BMC Med Res Methodol.* 2013;13:152.

2. Uno H, Claggett B, Tian L, *et al*. Moving beyond the hazard ratio in quantifying the between-group difference in survival analysis. *J Clin Oncol.* 2014;32:2380-5.

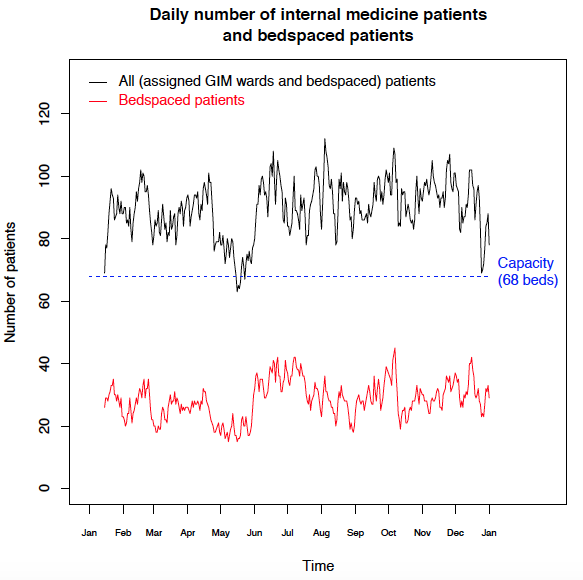
3. Uno H, Tian L, Cronin A, *et al.* survRM2: Comparing Restricted Mean Survival Time. <https://cran.r-project.org/package=survRM2>. Accessed July 25, 2017.

Appendix Figure 1. Daily proportion of bedspaced patients



The first 14 days of January were excluded from the graph due to overlap with a significant number of patients who were admitted in the previous year (2014) and were still hospitalised in January 2015 that were not included in the analysis.

Appendix Figure 2. Number of patients on GIM service and bedspaced patients over time



The first 14 days of January were excluded from the graph due to overlap with a significant number of patients who were admitted in the previous year (2014) and were still hospitalised in January 2015 that were not included in the analysis. Note that GIM ward bed capacity (68 beds) was exceeded for all but 5 days in May during the entire 2016 calendar year.

Appendix Figure 3. Daily incidence of deaths for assigned GIM ward and bedspaced patients over time

