**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) |  |  |  |  |
| 139Chronic obstructive pulmonary disease | 313 (9.7%) | 97 (8.6%) | 216 (10.2%) | 0.0540 |
| 138Viral / unspecified pneumonia | 188 (5.8%) | 62 (5.5%) | 126 (6.0%) | 0.0188 |
| 487Lower urinary tract infection | 152 (4.7%) | 37 (3.3%) | 115 (5.4%) | 0.1050 |
| 196Heart failure without cardiac catheter | 125 (3.9%) | 42 (3.7%) | 83 (3.9%) | 0.0097 |
| 477Renal failure | 110 (3.4%) | 41 (3.6%) | 69 (3.3%) | 0.0212 |
| 254Gastrointestinal hemorrhage | 88 (2.7%) | 41 (3.6%) | 47 (2.2%) | 0.0846 |
| 437Diabetes | 76 (2.3%) | 25 (2.2%) | 51 (2.4%) | 0.0123 |
| 285Cirrhosis / alcoholic hepatitis | 70 (2.2%) | 24 (2.1%) | 46 (2.2%) | 0.0027 |
| 132Malignant neoplasm of respiratory system | 67 (2.1%) | 24 (2.1%) | 43 (2.0%) | 0.0072 |
| 654Other/unspecified septicemia | 62 (1.9%) | 25 (2.2%) | 37 (1.8%) | 0.0341 |
|  436Disorder of fluid/electrolyte balance | 61 (1.9%) | 19 (1.7%) | 42 (2.0%) | 0.0219 |
| 811General symptom/sign | 60 (1.9%) | 12 (1.1%) | 48 (2.3%) | 0.0938 |
| 135Aspiration pneumonia | 58 (1.8%) | 19 (1.7%) | 39 (1.8%) | 0.0116 |
| 660Other infectious / parasitic disease | 56 (1.7%) | 11 (1.0%) | 45 (2.1%) | 0.0929 |
| 142Other lung disease | 53 (1.6%) | 18 (1.6%) | 35 (1.7%) | 0.0042 |
| 405Cellulitis | 53 (1.6%) | 16 (1.4%) | 37 (1.8%) | 0.0260 |
| 671Organic mental disorder | 50 (1.5%) | 8 (0.7%) | 42 (2.0%) | 0.1105 |
| 231Minor upper gastrointestinal intervention | 49 (1.5%) | 12 (1.1%) | 37 (1.8%) | 0.0578 |
| 249Non-severe enteritis | 47 (1.5%) | 23 (2.0%) | 24 (1.1%) | 0.0729 |
| 257Symptom/sign of digestive system | 44 (1.4%) | 17 (1.5%) | 27 (1.3%) | 0.0202 |
| 209Other / miscellaneous cardiac disorder | 43 (1.3%) | 7 (0.6%) | 36 (1.7%) | 0.1007 |
| 287Disorder of pancreas except malignancy | 38 (1.2%) | 16 (1.4%) | 22 (1.0%) | 0.0348 |
| 200Pulmonary embolism | 35 (1.1%) | 13 (1.2%) | 22 (1.0%) | 0.0112 |
| 232Minor lower gastrointestinal intervention | 35 (1.1%) | 13 (1.2%) | 22 (1.0%) | 0.0112 |
| 708Substance abuse with other state | 33 (1.0%) | 9 (0.8%) | 24 (1.1%) | 0.0341 |
| 778Poisoning / toxic effect of drug | 33 (1.0%) | 8 (0.7%) | 25 (1.2%) | 0.0485 |
| 248Severe enteritis | 32 (1.0%) | 11 (1.0%) | 21 (1.0%) | 0.0014 |
| 258Other gastrointestinal disorder | 32 (1.0%) | 15 (1.3%) | 17 (0.8%) | 0.0516 |
| 149Symptom/sign of respiratory system | 31 (1.0%) | 7 (0.6%) | 24 (1.1%) | 0.0548 |
| 250Digestive malignancy | 31 (1.0%) | 16 (1.4%) | 15 (0.7%) | 0.0696 |
| 488Upper urinary tract infection | 29 (0.9%) | 9 (0.8%) | 20 (0.9%) | 0.0155 |
| 147Asthma | 27 (0.8%) | 12 (1.1%) | 15 (0.7%) | 0.0382 |
| 130Respiratory failure | 25 (0.8%) | 7 (0.6%) | 18 (0.9%) | 0.0266 |
| 202Arrhythmia without cardiac catheter | 22 (0.7%) | 4 (0.4%) | 18 (0.9%) | 0.0639 |
| 284Hepatobiliary / pancreatic malignancy | 22 (0.7%) | 10 (0.9%) | 12 (0.6%) | 0.0379 |
| 363Other soft tissue disorder | 22 (0.7%) | 8 (0.7%) | 14 (0.7%) | 0.0061 |
| 136Bacterial pneumonia | 21 (0.7%) | 9 (0.8%) | 12 (0.6%) | 0.0283 |
| 253Inflammatory bowel disease | 21 (0.7%) | 14 (1.2%) | 7 (0.3%) | 0.1035 |
| 438Dehydration | 21 (0.7%) | 8 (0.7%) | 13 (0.6%) | 0.0120 |
| 480Kidney disease | 21 (0.7%) | 10 (0.9%) | 11 (0.5%) | 0.0442 |
| 143Disease of pleura | 20 (0.6%) | 8 (0.7%) | 12 (0.6%) | 0.0181 |
| 286Liver disease except cirrhosis / malignancy | 20 (0.6%) | 11 (1.0%) | 9 (0.4%) | 0.0663 |
| 37Other dysfunction of central nervous system | 19 (0.6%) | 9 (0.8%) | 10 (0.5%) | 0.0412 |
| 435Disorder of metabolism | 19 (0.6%) | 9 (0.8%) | 10 (0.5%) | 0.0412 |
| 213Other / miscellaneous vascular disease | 18 (0.6%) | 6 (0.5%) | 12 (0.6%) | 0.0045 |
| 370Inflammatory and reactive arthropathy | 17 (0.5%) | 9 (0.8%) | 8 (0.4%) | 0.0552 |
| 662Fever | 17 (0.5%) | 12 (1.1%) | 5 (0.2%) | 0.1034 |
| 199Cardiac valve disease | 16 (0.5%) | 1 (0.1%) | 15 (0.7%) | 0.0984 |
| 206Benign hypertension | 16 (0.5%) | 5 (0.4%) | 11 (0.5%) | 0.0108 |
| 359Osteomyelitis / septic arthritis | 16 (0.5%) | 2 (0.2%) | 14 (0.7%) | 0.0748 |
| 407Other disease / disorder of skin / subcutaneous tissue | 16 (0.5%) | 6 (0.5%) | 10 (0.5%) | 0.0087 |
| 633Agranulocytosis | 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) |  |  |  |
| 139Chronic obstructive pulmonary disease | 97 (8.9%) | 98 (9.0%) | 0.0032 |
| 138Viral / unspecified pneumonia | 62 (5.7%) | 55 (5.0%) | 0.0285 |
| 487Lower urinary tract infection | 37 (3.4%) | 39 (3.6%) | 0.0100 |
| 196Heart failure without cardiac catheter | 42 (3.8%) | 50 (4.6%) | 0.0365 |
| 477Renal failure | 41 (3.8%) | 43 (3.9%) | 0.0095 |
| 254Gastrointestinal hemorrhage | 41 (3.8%) | 39 (3.6%) | 0.0097 |
| 437Diabetes | 25 (2.3%) | 26 (2.4%) | 0.0061 |
| 285Cirrhosis / alcoholic hepatitis | 24 (2.2%) | 33 (3.0%) | 0.0517 |
| 132Malignant neoplasm of respiratory system | 24 (2.2%) | 27 (2.5%) | 0.0182 |
| 654Other/unspecified septicemia | 25 (2.3%) | 26 (2.4%) | 0.0061 |
|  436Disorder of fluid/electrolyte balance | 19 (1.7%) | 17 (1.6%) | 0.0144 |
| 811General symptom/sign | 12 (1.1%) | 9 (0.8%) | 0.0281 |
| 135Aspiration pneumonia | 19 (1.7%) | 23 (2.1%) | 0.0267 |
| 660Other infectious / parasitic disease | 11 (1.0%) | 13 (1.2%) | 0.0176 |
| 142Other lung disease | 18 (1.7%) | 18 (1.7%) | 0.0000 |
| 405Cellulitis | 16 (1.5%) | 14 (1.3%) | 0.0157 |
| 671Organic mental disorder | 8 (0.7%) | 5 (0.5%) | 0.0357 |
| 231Minor upper gastrointestinal intervention | 12 (1.1%) | 10 (0.9%) | 0.0183 |
| 249Non-severe enteritis | 23 (2.1%) | 19 (1.7%) | 0.0267 |
| 257Symptom/sign of digestive system | 17 (1.6%) | 20 (1.8%) | 0.0213 |
| 209Other / miscellaneous cardiac disorder | 7 (0.6%) | 11 (1.0%) | 0.0405 |
| 287Disorder of pancreas except malignancy | 16 (1.5%) | 13 (1.2%) | 0.0240 |
| 200Pulmonary embolism | 13 (1.2%) | 11 (1.0%) | 0.0176 |
| 232Minor lower gastrointestinal intervention | 13 (1.2%) | 10 (0.9%) | 0.0269 |
| 708Substance abuse with other state | 9 (0.8%) | 10 (0.9%) | 0.0099 |
| 778Poisoning / toxic effect of drug | 8 (0.7%) | 8 (0.7%) | 0.0000 |
| 248Severe enteritis | 11 (1.0%) | 8 (0.7%) | 0.0296 |
| 258Other gastrointestinal disorder | 15 (1.4%) | 14 (1.3%) | 0.0080 |
| 149Symptom/sign of respiratory system | 7 (0.6%) | 9 (0.8%) | 0.0215 |
| 250Digestive malignancy | 16 (1.5%) | 13 (1.2%) | 0.0240 |
| 488Upper urinary tract infection | 9 (0.8%) | 12 (1.1%) | 0.0281 |
| 147Asthma | 12 (1.1%) | 11 (1.0%) | 0.0090 |
| 130Respiratory failure | 7 (0.6%) | 9 (0.8%) | 0.0215 |
| 202Arrhythmia without cardiac catheter | 4 (0.4%) | 5 (0.5%) | 0.0143 |
| 284Hepatobiliary / pancreatic malignancy | 10 (0.9%) | 11 (1.0%) | 0.0094 |
| 363Other soft tissue disorder | 8 (0.7%) | 11 (1.0%) | 0.0296 |
| 136Bacterial pneumonia | 9 (0.8%) | 6 (0.6%) | 0.0333 |
| 253Inflammatory bowel disease | 6 (0.6%) | 7 (0.6%) | 0.0119 |
| 438Dehydration | 8 (0.7%) | 9 (0.8%) | 0.0104 |
| 480Kidney disease | 10 (0.9%) | 10 (0.9%) | 0.0000 |
| 143Disease of pleura | 8 (07%) | 8 (0.7%) | 0.0000 |
| 286Liver disease except cirrhosis / malignancy | 9 (0.8%) | 7 (0.6%) | 0.0215 |
| 37Other dysfunction of central nervous system | 9 (0.8%) | 7 (0.6%) | 0.0215 |
| 435Disorder of metabolism | 9 (0.8%) | 9 (0.8%) | 0.0000 |
| 213Other / miscellaneous vascular disease | 6 (0.6%) | 8 (0.7%) | 0.0229 |
| 370Inflammatory and reactive arthropathy | 9 (0.8%) | 5 (0.5%) | 0.0459 |
| 662Fever | 4 (0.4%) | 5 (0.5%) | 0.0143 |
| 199Cardiac valve disease | 1 (0.1%) | 2 (0.2%) | 0.0247 |
| 206Benign hypertension | 5 (0.5%) | 4 (0.4%) | 0.0143 |
| 359Osteomyelitis / septic arthritis | 2 (0.2%) | 2 (0.2%) | 0.0000 |
| 407Other disease / disorder of skin / subcutaneous tissue | 6 (0.6%) | 5 (0.5%) | 0.0129 |
| 633Agranulocytosis | 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) |  |  |  |
| 139Chronic obstructive pulmonary disease | 83 (18.2%) | 83 (18.2%) | 0.0000 |
| 138Viral / unspecified pneumonia | 52 (11.4%) | 52 (11.4%) | 0.0000 |
| 487Lower urinary tract infection | 32 (7.0%) | 32 (7.0%) | 0.0000 |
| 196Heart failure without cardiac catheter | 31 (6.8%) | 31 (6.8%) | 0.0000 |
| 477Renal failure | 23 (5.0%) | 23 (5.0%) | 0.0000 |
| 254Gastrointestinal hemorrhage | 20 (4.4%) | 20 (4.4%) | 0.0000 |
| 437Diabetes | 15 (3.3%) | 15 (3.3%) | 0.0000 |
| 285Cirrhosis / alcoholic hepatitis | 13 (2.9%) | 13 (2.9%) | 0.0000 |
| 132Malignant neoplasm of respiratory system | 12 (2.6%) | 12 (2.6%) | 0.0000 |
| 654Other/unspecified septicemia | 9 (2.0%) | 9 (2.0%) | 0.0000 |
|  436Disorder of fluid/electrolyte balance | 9 (2.0%) | 9 (2.0%) | 0.0000 |
| 811General symptom/sign | 8 (1.8%) | 8 (1.8%) | 0.0000 |
| 135Aspiration pneumonia | 9 (2.0%) | 9 (2.0%) | 0.0000 |
| 660Other infectious / parasitic disease | 4 (0.9%) | 4 (0.9%) | 0.0000 |
| 142Other lung disease | 9 (2.0%) | 9 (2.0%) | 0.0000 |
| 405Cellulitis | 6 (1.3%) | 6 (1.3%) | 0.0000 |
| 671Organic mental disorder | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 231Minor upper gastrointestinal intervention | 6 (1.3%) | 6 (1.3%) | 0.0000 |
| 249Non-severe enteritis | 10 (2.2%) | 10 (2.2%) | 0.0000 |
| 257Symptom/sign of digestive system | 7 (1.5%) | 7 (1.5%) | 0.0000 |
| 209Other / miscellaneous cardiac disorder | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 287Disorder of pancreas except malignancy | 5 (1.1%) | 5 (1.1%) | 0.0000 |
| 200Pulmonary embolism | 5 (1.1%) | 5 (1.1%) | 0.0000 |
| 232Minor lower gastrointestinal intervention | 7 (1.5%) | 7 (1.5%) | 0.0000 |
| 708Substance abuse with other state | 5 (1.1%) | 5 (1.1%) | 0.0000 |
| 778Poisoning / toxic effect of drug | 5 (1.1%) | 5 (1.1%) | 0.0000 |
| 248Severe enteritis | 5 (1.1%) | 5 (1.1%) | 0.0000 |
| 258Other gastrointestinal disorder | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 149Symptom/sign of respiratory system | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 250Digestive malignancy | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 488Upper urinary tract infection | 2 (0.4%) | 2 (0.4%) | 0.0000 |
| 147Asthma | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 130Respiratory failure | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 202Arrhythmia without cardiac catheter | 2 (0.4%) | 2 (0.4%) | 0.0000 |
| 284Hepatobiliary / pancreatic malignancy | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 363Other soft tissue disorder | 2 (0.4%) | 2 (0.4%) | 0.0000 |
| 136Bacterial pneumonia | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 253Inflammatory bowel disease | 4 (0.9%) | 4 (0.9%) | 0.0000 |
| 438Dehydration | 2 (0.4%) | 2 (0.4%) | 0.0000 |
| 480Kidney disease | 2 (0.4%) | 2 (0.4%) | 0.0000 |
| 143Disease of pleura | 0 (0%) | 0 (0%) | 0.0000 |
| 286Liver disease except cirrhosis / malignancy | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 37Other dysfunction of central nervous system | 4 (0.9%) | 4 (0.9%) | 0.0000 |
| 435Disorder of metabolism | 2 (0.4%) | 2 (0.4%) | 0.0000 |
| 213Other / miscellaneous vascular disease | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 370Inflammatory and reactive arthropathy | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 662Fever | 3 (0.7%) | 3 (0.7%) | 0.0000 |
| 199Cardiac valve disease | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 206Benign hypertension | 0 (0%) | 0 (0%) | 0.0000 |
| 359Osteomyelitis / septic arthritis | 0 (0%) | 0 (0%) | 0.0000 |
| 407Other disease / disorder of skin / subcutaneous tissue | 0 (0%) | 0 (0%) | 0.0000 |
| 633Agranulocytosis | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| Other case mix group |  |  | 0.0000 |
| 38Neoplasm of central nervous system | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 97Influenza / acute upper respiratory infection | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 433Disorder related to nutrition | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 650Multisystemic / unspecified site infection with intervention | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 256Esophagitis / gastritis / miscellaneous digestive disease | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 698Psychoactive substance use, acute intoxication | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 810Palliative care | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 357Musculoskeletal malignant neoplasm | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 434Disease / disorder of adrenal / pituitary gland | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 617Intervention with blood / lymphatic system diagnosis except neoplasm | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 628Lymphoma | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 653Septicemia due to staphylococcus aureus / pseudomonas / enterococcus | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 630Malignant neoplasm of other site | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 771Spinal injury | 1 (0.2%) | 1 (0.2%) | 0.0000 |
| 906MCC 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) |  |  |  |
| 139Chronic obstructive pulmonary disease | 94 (8.2%) | 219 (10.5%) | 0.0788 |
| 138Viral / unspecified pneumonia | 65 (5.7%) | 123 (5.9%) | 0.0096 |
| 487Lower urinary tract infection | 42 (3.7%) | 110 (5.3%) | 0.0778 |
| 196Heart failure without cardiac catheter | 42 (3.7%) | 83 (4.0%) | 0.0164 |
| 477Renal failure | 38 (3.3%) | 72 (3.4%) | 0.0075 |
| 254Gastrointestinal hemorrhage | 36 (3.1%) | 52 (2.5%) | 0.0391 |
| 437Diabetes | 20 (1.7%) | 56 (2.7%) | 0.0638 |
| 285Cirrhosis / alcoholic hepatitis | 20 (1.7%) | 50 (2.4%) | 0.0457 |
| 132Malignant neoplasm of respiratory system | 25 (2.2%) | 42 (2.0%) | 0.0117 |
| 654Other/unspecified septicemia | 27 (2.4%) | 35 (1.7%) | 0.0482 |
|  436Disorder of fluid/electrolyte balance | 17 (1.5%) | 44 (2.1%) | 0.0471 |
| 811General symptom/sign | 13 (1.1%) | 47 (2.3%) | 0.0866 |
| 135Aspiration pneumonia | 21 (1.8%) | 37 (1.8%) | 0.0044 |
| 660Other infectious / parasitic disease | 9 (0.8%) | 47 (2.3%) | 0.1200 |
| 142Other lung disease | 18 (1.6%) | 35 (1.7%) | 0.0085 |
| 405Cellulitis | 17 (1.5%) | 36 (1.7%) | 0.0193 |
| 671Organic mental disorder | 10 (0.9%) | 40 (1.9%) | 0.0890 |
| 231Minor upper gastrointestinal intervention | 13 (1.1%) | 36 (1.7%) | 0.0498 |
| 249Non-severe enteritis | 23 (2.0%) | 24 (1.2%) | 0.0686 |
| 257Symptom/sign of digestive system | 19 (1.7%) | 25 (1.2%) | 0.0386 |
| 209Other / miscellaneous cardiac disorder | 10 (0.9%) | 33 (1.6%) | 0.0644 |
| 287Disorder of pancreas except malignancy | 22 (1.9%) | 16 (0.8%) | 0.1001 |
| 200Pulmonary embolism | 10 (0.9%) | 25 (1.2%) | 0.0322 |
| 232Minor lower gastrointestinal intervention | 14 (1.2%) | 21 (1.0%) | 0.0204 |
| 708Substance abuse with other state | 10 (0.9%) | 23 (1.1%) | 0.0232 |
| 778Poisoning / toxic effect of drug | 8 (0.8%) | 25 (1.2%) | 0.0516 |
| 248Severe enteritis | 11 (1.0%) | 21 (1.0%) | 0.0048 |
| 258Other gastrointestinal disorder | 18 (1.6%) | 14 (0.7%) | 0.0854 |
| 149Symptom/sign of respiratory system | 8 (0.8%) | 23 (1.1%) | 0.0428 |
| 250Digestive malignancy | 17 (1.5%) | 14 (0.7%) | 0.0786 |
| 488Upper urinary tract infection | 11 (1.0%) | 18 (0.9%) | 0.0102 |
| 147Asthma | 11 (1.0%) | 16 (0.8%) | 0.0208 |
| 130Respiratory failure | 6 (0.5%) | 19 (0.9%) | 0.0458 |
| 202Arrhythmia without cardiac catheter | 5 (0.4%) | 17 (0.8%) | 0.0480 |
| 284Hepatobiliary / pancreatic malignancy | 13 (1.1%) | 9 (0.4%) | 0.0797 |
| 363Other soft tissue disorder | 9 (0.8%) | 13 (0.6%) | 0.0193 |
| 136Bacterial pneumonia | 7 (0.6%) | 14 (0.7%) | 0.0076 |
| 253Inflammatory bowel disease | 12 (1.0%) | 9 (0.4%) | 0.0718 |
| 438Dehydration | 7 (0.6%) | 14 (0.7%) | 0.0076 |
| 480Kidney disease | 12 (1.0%) | 9 (0.4%) | 0.0718 |
| 143Disease of pleura | 7 (0.6%) | 13 (0.6%) | 0.0016 |
| 286Liver disease except cirrhosis / malignancy | 8 (0.7%) | 12 (0.6%) | 0.0154 |
| 37Other dysfunction of central nervous system | 7 (0.6%) | 12 (0.6%) | 0.0046 |
| 435Disorder of metabolism | 11 (1.0%) | 8 (0.4%) | 0.0705 |
| 213Other / miscellaneous vascular disease | 9 (0.8%) | 9 (0.4%) | 0.0454 |
| 370Inflammatory and reactive arthropathy | 9 (0.8%) | 8 (0.4%) | 0.0526 |
| 662Fever | 9 (0.8%) | 8 (0.4%) | 0.0526 |
| 199Cardiac valve disease | 3 (0.3%) | 13 (0.6%) | 0.0544 |
| 206Benign hypertension | 6 (0.5%) | 10 (0.5%) | 0.0062 |
| 359Osteomyelitis / septic arthritis | 5 (0.4%) | 11 (0.5%) | 0.0131 |
| 407Other disease / disorder of skin / subcutaneous tissue | 6 (0.5%) | 10 (0.5%) | 0.0062 |
| 633Agranulocytosis | 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) |  |  |  |
| 139Chronic obstructive pulmonary disease | 47 (28.0%) | 47 (28.0%) | 0.0000 |
| 138Viral / unspecified pneumonia | 26 (15.5%) | 26 (15.5%) | 0.0000 |
| 487Lower urinary tract infection | 15 (8.9%) | 15 (8.9%) | 0.0000 |
| 196Heart failure without cardiac catheter | 8 (4.8%) | 8 (4.8%) | 0.0000 |
| 477Renal failure | 8 (4.8%) | 8 (4.8%) | 0.0000 |
| 254Gastrointestinal hemorrhage | 6 (3.6%) | 6 (3.6%) | 0.0000 |
| 437Diabetes | 5 (3.0%) | 5 (3.0%) | 0.0000 |
| 285Cirrhosis / alcoholic hepatitis | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 132Malignant neoplasm of respiratory system | 4 (2.4%) | 4 (2.4%) | 0.0000 |
| 654Other/unspecified septicemia | 1 (0.6%) | 1 (0.6%) | 0.0000 |
|  436Disorder of fluid/electrolyte balance | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 811General symptom/sign | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 135Aspiration pneumonia | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 660Other infectious / parasitic disease | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 142Other lung disease | 0 (0%) | 0 (0%) | 0.0000 |
| 405Cellulitis | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 671Organic mental disorder | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 231Minor upper gastrointestinal intervention | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 249Non-severe enteritis | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 257Symptom/sign of digestive system | 5 (3.0%) | 5 (3.0%) | 0.0000 |
| 209Other / miscellaneous cardiac disorder | 0 (0%) | 0 (0%) | 0.0000 |
| 287Disorder of pancreas except malignancy | 3 (1.8%) | 3 (1.8%) | 0.0000 |
| 200Pulmonary embolism | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 232Minor lower gastrointestinal intervention | 5 (3.0%) | 5 (3.0%) | 0.0000 |
| 708Substance abuse with other state | 3 (1.8%) | 3 (1.8%) | 0.0000 |
| 778Poisoning / toxic effect of drug | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 248Severe enteritis | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 258Other gastrointestinal disorder | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 149Symptom/sign of respiratory system | 0 (0%) | 0 (0%) | 0.0000 |
| 250Digestive malignancy | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 488Upper urinary tract infection | 0 (0%) | 0 (0%) | 0.0000 |
| 147Asthma | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 130Respiratory failure | 0 (0%) | 0 (0%) | 0.0000 |
| 202Arrhythmia without cardiac catheter | 2 (1.2%) | 2 (1.2%) | 0.0000 |
| 284Hepatobiliary / pancreatic malignancy | 0 (0%) | 0 (0%) | 0.0000 |
| 363Other soft tissue disorder | 0 (0%) | 0 (0%) | 0.0000 |
| 136Bacterial pneumonia | 0 (0%) | 0 (0%) | 0.0000 |
| 253Inflammatory bowel disease | 0 (0%) | 0 (0%) | 0.0000 |
| 438Dehydration | 0 (0%) | 0 (0%) | 0.0000 |
| 480Kidney disease | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 143Disease of pleura | 0 (0%) | 0 (0%) | 0.0000 |
| 286Liver disease except cirrhosis / malignancy | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 37Other dysfunction of central nervous system | 0 (0%) | 0 (0%) | 0.0000 |
| 435Disorder of metabolism | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 213Other / miscellaneous vascular disease | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 370Inflammatory and reactive arthropathy | 0 (0%) | 0 (0%) | 0.0000 |
| 662Fever | 0 (0%) | 0 (0%) | 0.0000 |
| 199Cardiac valve disease | 0 (0%) | 0 (0%) | 0.0000 |
| 206Benign hypertension | 0 (0%) | 0 (0%) | 0.0000 |
| 359Osteomyelitis / septic arthritis | 0 (0%) | 0 (0%) | 0.0000 |
| 407Other disease / disorder of skin / subcutaneous tissue | 0 (0%) | 0 (0%) | 0.0000 |
| 633Agranulocytosis | 0 (0%) | 0 (0%) | 0.0000 |
| Other case mix group |  |  |  |
| 38Neoplasm of central nervous system | 1 (0.6%) | 1 (0.6%) | 0.0000 |
| 653Septicemia 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

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3. Uno H, Tian L, Cronin A, *et al.* survRM2: Comparing Restricted Mean Survival Time. [https://cran.r-project.org/package=survRM2](https://cran.r-project.org/package%3DsurvRM2). 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

