**Nurse Continuity at Discharge and Return to Hospital**

Supplemental Digital Content: Tables and Figure

Table e1. Sample Characteristics, including unit fixed effects and controls

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | All Patients  N=18,203 | Non-Continuity  N= 11,762 | Nurse Continuitya  N=6,441 |
|  |  |  |  |
| **Post-Discharge Outcomes and Nurse Continuity [Count (%)]** | | |  |
| ED/Obs | 2,174 (11.94) | 1,431 (12.17) | 743 (11.54) |
| Readmission | 1,971 (10.83) | 1,250 (10.63) | 721 (11.19) |
| Nurse Continuity | 6,441 (35.38) |  | 6,441 (100) |
| **Continuous Variables [Mean (Std. Dev.)]** | |  |  |
| READI Nurse Mean | 8.528 (1.28) | 8.521 (1.28) | 8.540 (1.29) |
| Patient Nurse Mean | 8.602 (1.42) | 8.584 (1.42) | 8.637 (1.40) |
| RN OT Hours per Patient Day | 0.196 (0.14) | 0.192 (0.14) | 0.204 (0.15) |
| RN Non-OT Hours per Patient Day | 6.659 (1.30) | 6.650 (1.28) | 6.675 (1.34) |
| Non-RN Hours per Patient Day | 3.393(1.36) | 3.392 (1.39) | 3.393 (1.32) |
| BSN Proportion | 68.49 (16.48) | 68.96 (16.66) | 67.64 (16.11) |
| RN Experience | 8.93 (3.83) | 9.04 (3.80) | 8.73 (3.87) |
|  | [n = 17,523] | [n = 11,310] | [n = 6,213] |
| Age | 59.06 (17.22) | 59.13 (17.20) | 58.93 (17.26) |
| Length of Stay | 4.798 (4.12) | 4.782 (4.19) | 4.827 (4.00) |
| **Categorical Variables [Count (%)]** |  |  |  |
| Male | 8,896 (48.87) | 5,702 (48.48) | 3,194 (49.59) |
| Race |  |  |  |
| Unknown Race | 2,035 (11.18) | 1,311 (11.15) | 724 (11.24) |
| Native American/Alaskan | 235 (1.29) | 142 (1.21) | 93 (1.44) |
| Asian | 452 (2.48) | 313 (2.66) | 139 (2.16) |
| African American | 2,630 (14.45) | 1,668 (14.18) | 962 (14.94) |
| Pacific Islander/Hawaiian | 43 (0.24) | 27 (0.23) | 16 (0.25) |
| White | 12,808 (70.36) | 8,301 (70.57) | 4,507 (69.97) |
| Ethnicity |  |  |  |
| Non-Hispanic | 15,328 (84.21) | 9,862 (83.85) | 5,466 (84.86) |
| Hispanic | 2,518 (13.83) | 1,670 (14.20) | 848 (13.17) |
| Unknown Ethnicity | 357 (1.96) | 230 (1.96) | 127 (1.97) |
| Marital Status |  |  |  |
| Not Married | 8,186 (44.97) | 5,284 (44.92) | 2,902 (45.06) |
| Married | 8,394 (46.11) | 5,388 (45.81) | 3,006 (46.67) |
| Unknown Marital Status | 1,623 (8.92) | 1,090 (9.27) | 533 (8.28) |
| Payer |  |  |  |
| Private Payer | 5,843 (32.1) | 3,790 (32.22) | 2,053 (31.87) |
| Medicare | 7,478 (41.08) | 4,770 (40.55) | 2,708 (42.04) |
| Medicaid | 2,519 (13.84) | 1,589 (13.51) | 930 (14.44) |
| Uninsured | 375 (2.06) | 231 (1.96) | 144 (2.24) |
| Other Paytype | 1,988 (10.92) | 1,382 (11.75) | 606 (9.41) |
| Admission Type |  |  |  |
| Medical | 13,461 (73.95) | 8,774 (74.60) | 4,687 (72.77) |
| Surgical | 4,713 (25.89) | 2,969 (25.24) | 1,744 (27.08) |
| Unknown Medical or Surgical | 29 (0.16) | 19 (0.16) | 10 (0.16) |
| Comorbidities |  |  |  |
| Elixhauser Comorbidity Indexb < 0 | 2,367 (13) | 1,498 (12.74) | 869 (13.49) |
| 0 ≤ Elixhauser Comorbidity Index < 5 | 5,117 (28.11) | 3,291 (27.98) | 1,826 (28.35) |
| 5 ≤ Elixhauser Comorbidity Index < 10 | 5,093 (27.98) | 3,328 (28.29) | 1,765 (27.40) |
| 10 ≤ Elixhauser Comorbidity Index < 15 | 1,839 (10.1) | 1,199 (10.19) | 640 (9.94) |
| 15 ≤ Elixhauser Comorbidity Index < 20 | 1,868 (10.26) | 1,217 (10.35) | 651 (10.11) |
| Elixhauser Comorbidity Index ≥ 20 | 1,919 (10.54) | 1,229 (10.45) | 690 (10.71) |
| Prior Hospitalization |  |  |  |
| No 30-Day Prior | 13,768 (75.64) | 8,822 (75.00) | 4,946 (76.79) |
| 30-Day Prior Hospitalization | 2,579 (14.17) | 1,689 (14.36) | 890 (13.82) |
| No 90-Day Prior | 12,628 (69.37) | 8,130 (69.12) | 4,498 (69.83) |
| Prior Hospitalization past 90 days | 4,134 (22.71) | 2,671 (22.71) | 1,463 (22.71) |
| Major Diagnostic Category |  |  |  |
| Nervous System | 1,013 (5.57) | 668 (5.68) | 345 (5.36) |
| Eye | 22 (0.12) | 16 (0.136) | 6 (0.093) |
| ENT | 209 (1.15) | 142 (1.207) | 67 (1.04) |
| Respiratory | 2,492 (13.69) | 1,646 (13.99) | 846 (13.13) |
| Circulatory | 3,021 (16.6) | 1,950 (16.58) | 1,071 (16.63) |
| Digestive | 2,634 (14.47) | 1,669 (14.19) | 965 (14.98) |
| Hepatobiliary & Pancreatic | 1,002 (5.5) | 653 (5.55) | 349 (5.42) |
| Musculoskeletal | 911 (5) | 584 (4.97) | 327 (5.08) |
| Skin & Subcutaneous | 601 (3.3) | 374 (3.18) | 227 (3.52) |
| Endocrine & Metabolic | 949 (5.21) | 625 (5.31) | 324 (5.03) |
| Kidney & Urinary | 1,013 (5.57) | 644 (5.48) | 369 (5.73) |
| Male Reproductive | 69 (0.38) | 44 (0.37) | 25 (0.39) |
| Female Reproductive | 264 (1.45) | 178 (1.51) | 86 (1.34) |
| Pregnancy | 74 (0.41) | 44 (0.37) | 30 (0.47) |
| Blood & Immunological | 463 (2.54) | 271 (2.30) | 192 (2.98) |
| Meloproliferative | 61 (0.34) | 46 (0.39) | 15 (0.23) |
| Infections & Parasitic | 1,407 (7.73) | 938 (7.98) | 469 (7.28) |
| Mental | 25 (0.14) | 19 (0.16) | 6 (0.09) |
| Alcohol & Drug | 261 (1.43) | 172 (1.46) | 89 (1.38) |
| Injury, Poison, & Toxin | 263 (1.44) | 178 (1.51) | 85 (1.32) |
| Other MDC | 85 (0.47) | 56 (0.48) | 29 (0.45) |
| Multiple Trauma | 37 (0.2) | 25 (0.21) | 12 (0.19) |
| HIV | 32 (0.18) | 17 (0.15) | 15 (0.23) |
| Transplants | 59 (0.32) | 38 (0.32) | 21 (0.33) |
| Unrelated MDC | 139 (0.76) | 89 (0.76) | 50 (0.78) |
| Missing MDC | 1,097 (6.03) | 676 (5.75) | 421 (6.54) |
| Hospital |  |  |  |
| A | 502 (2.76) | 336 (2.86) | 166 (2.58) |
| B | 816 (4.48) | 480 (4.08) | 336 (5.22) |
| C | 923 (5.07) | 576 (4.90) | 347 (5.39) |
| D | 396 (2.18) | 254 (2.16) | 142 (2.21) |
| E | 363 (1.99) | 203 (1.72) | 160 (2.48) |
| F | 243 (1.33) | 135 (1.15) | 108 (1.68) |
| G | 172 (0.94) | 134 (1.14) | 38 (0.59) |
| H | 643 (3.53) | 467 (3.97) | 176 (2.73) |
| I | 289 (1.59) | 197 (1.68) | 92 (1.43) |
| J | 389 (2.14) | 282 (2.40) | 107 (1.66) |
| K | 333 (1.83) | 232 (1.97) | 101 (1.57) |
| L | 575 (3.16) | 374 (3.18) | 201 (3.12) |
| M | 317 (1.74) | 242 (2.06) | 75 (1.16) |
| N | 458 (2.52) | 247 (2.10) | 211 (3.28) |
| O | 614 (3.37) | 401 (3.41) | 213 (3.31) |
| P | 1,134 (6.23) | 762 (6.48) | 372 (5.78) |
| Q | 586 (3.22) | 394 (3.35) | 192 (2.98) |
| R | 745 (4.09) | 488 (4.15) | 257 (3.99) |
| S | 609 (3.35) | 418 (3.55) | 191 (2.97) |
| T | 587 (3.22) | 432 (3.67) | 155 (2.41) |
| U | 566 (3.11) | 370 (3.15) | 196 (3.04) |
| V | 717 (3.94) | 453 (3.85) | 264 (4.10) |
| W | 793 (4.36) | 540 (4.59) | 253 (3.93) |
| X | 470 (2.58) | 346 (2.94) | 124 (1.93) |
| Y | 833 (4.58) | 504 (4.29) | 329 (5.11) |
| Z | 771 (4.24) | 469 (3.99) | 302 (4.69) |
| AA | 557 (3.06) | 384 (3.27) | 173 (2.69) |
| BB | 1,165 (6.4) | 754 (6.41) | 411 (6.38) |
| CC | 617 (3.39) | 241 (2.05) | 376 (5.84) |
| DD | 537 (2.95) | 323 (2.75) | 214 (3.32) |
| EE | 483 (2.65) | 324 (2.76) | 159 (2.47) |
|  |  |  |  |
| Total | 18,203 | 11,762 | 6,441 |

aNurse Continuity: Nurse Continuity is operationalized to represent the structure of the nursing care assignment as a dichotomous variable, 1= the nurse was assigned to the patient the day prior to discharge and the day of discharge and 0= discharging nurse not assigned on the prior day.

bElixhauser Comorbidity Index – categorization of the comorbidities based on the International Classification of Diseases.

Table e2. Aim 1 - Direct effect of nurse continuity on return to hospital (Readmissions and ED/Obs)

|  |  |  |
| --- | --- | --- |
|  | ED/Obsb | Readmission |
| Nurse Continuitya | 0.0049 | -0.0085\* |
|  | (-0.0050 - 0.0148) | (-0.0166 - -0.0004) |
| female | 0.0107\* | -0.0101 |
|  | (0.0021 - 0.0194) | (-0.0236 - 0.0033) |
| Age | -0.0007\*\* | 0 |
|  | (-0.0011 - -0.0003) | (-0.0005 - 0.0004) |
| Native American/Alaskan | -0.0087 | 0.0125 |
|  | (-0.0496 - 0.0322) | (-0.0146 - 0.0396) |
| Asian | -0.0349 | -0.0011 |
|  | (-0.0755 - 0.0056) | (-0.0366 - 0.0343) |
| Black/African American | 0 | 0.0097 |
|  | (-0.0292 - 0.0292) | (-0.0134 - 0.0329) |
| Hawaiian/Pacific Islander | 0.0044 | -0.0241 |
|  | (-0.1139 - 0.1228) | (-0.1203 - 0.0721) |
| White | -0.027 | -0.0003 |
|  | (-0.0604 - 0.0064) | (-0.0183 - 0.0178) |
| Hispanic | 0.0001 | -0.0205 |
|  | (-0.0202 - 0.0204) | (-0.0446 - 0.0036) |
| Unknown Ethnicity | 0.0057 | -0.0761\*\* |
|  | (-0.0081 - 0.0195) | (-0.1227 - -0.0295) |
| Lives alone | 0.0054 | 0.0045 |
|  | (-0.0083 - 0.0191) | (-0.0055 - 0.0146) |
| Medicare | 0.0203\*\* | 0.019 |
|  | (0.0059 - 0.0347) | (-0.0002 - 0.0382) |
| Medicaid | 0.0294\*\* | 0.0339\*\* |
|  | (0.0117 - 0.0471) | (0.0138 - 0.0541) |
| Uninsured | 0.0111 | 0.0128 |
|  | (-0.0249 - 0.0471) | (-0.0201 - 0.0458) |
| Other Pay type | -0.0036 | 0.0018 |
|  | (-0.0221 - 0.0150) | (-0.0224 - 0.0261) |
| Total Length of Stay | 0.0006 | 0.0038\*\*\* |
|  | (-0.0009 - 0.0020) | (0.0023 - 0.0053) |
| Eye | 0.0447 | -0.0798 |
|  | (-0.1186 - 0.2081) | (-0.1733 - 0.0138) |
| ENT | -0.0273 | -0.0522 |
|  | (-0.0859 - 0.0314) | (-0.1111 - 0.0067) |
| Respiratory | -0.0283 | -0.0081 |
|  | (-0.0600 - 0.0033) | (-0.0479 - 0.0316) |
| Circulatory | -0.0292 | -0.0044 |
|  | (-0.0585 - 0.0001) | (-0.0443 - 0.0355) |
| Digestive | -0.0214 | -0.0002 |
|  | (-0.0527 - 0.0098) | (-0.0455 - 0.0452) |
| Hepatobiliary/Pancreatic | -0.0223 | 0.0255 |
|  | (-0.0576 - 0.0131) | (-0.0222 - 0.0732) |
| Musculoskeletal | -0.0363\* | -0.0452\* |
|  | (-0.0713 - -0.0012) | (-0.0856 - -0.0049) |
| Skin/Subcutaneous | -0.0353\* | -0.0188 |
|  | (-0.0670 - -0.0036) | (-0.0594 - 0.0218) |
| Endocrine/Metabolic | -0.0307 | -0.0187 |
|  | (-0.0654 - 0.0040) | (-0.0628 - 0.0254) |
| Kidney/Urinary | -0.0199 | 0.0108 |
|  | (-0.0538 - 0.0141) | (-0.0326 - 0.0541) |
| Male Reproductive | -0.0532 | 0.0273 |
|  | (-0.1356 - 0.0292) | (-0.1121 - 0.1667) |
| Female Reproductive | -0.0299 | 0.0185 |
|  | (-0.1013 - 0.0415) | (-0.0501 - 0.0870) |
| Pregnancy | -0.015 | -0.0197 |
|  | (-0.0891 - 0.0591) | (-0.1180 - 0.0787) |
| Blood/Immunological | -0.0206 | 0.0429 |
|  | (-0.0650 - 0.0237) | (-0.0316 - 0.1175) |
| Meloproliferative DD | 0.0293 | 0.1447 |
|  | (-0.0864 - 0.1450) | (-0.0322 - 0.3216) |
| Infectious/Parasitic DD | -0.0374\* | -0.008 |
|  | (-0.0677 - -0.0070) | (-0.0481 - 0.0322) |
| Mental | 0.047 | -0.1223\*\*\* |
|  | (-0.1063 - 0.2003) | (-0.1591 - -0.0855) |
| Alcohol/Drug | -0.0131 | -0.0052 |
|  | (-0.0739 - 0.0478) | (-0.0683 - 0.0578) |
| Injury/Poison/Toxin | -0.0313 | -0.0462 |
|  | (-0.0690 - 0.0064) | (-0.0992 - 0.0068) |
| Other | 0.0032 | -0.0083 |
|  | (-0.0641 - 0.0704) | (-0.0885 - 0.0719) |
| Multiple Trauma | -0.0088 | -0.0317 |
|  | (-0.1056 - 0.0880) | (-0.1080 - 0.0446) |
| HIV | 0.0355 | -0.0722\* |
|  | (-0.1650 - 0.2359) | (-0.1343 - -0.0100) |
| Transplants | -0.0642\* | 0.1636 |
|  | (-0.1124 - -0.0159) | (-0.0476 - 0.3747) |
| Unrelated | -0.0182 | 0.0395 |
|  | (-0.0692 - 0.0328) | (-0.0371 - 0.1161) |
| Missing | -0.0338 | -0.0077 |
|  | (-0.0747 - 0.0071) | (-0.0553 - 0.0399) |
| Surgical | -0.0107 | -0.0311\* |
|  | (-0.0244 - 0.0030) | (-0.0549 - -0.0073) |
| Med./Surg. Unknown | -0.0315 | -0.0369 |
|  | (-0.1031 - 0.0401) | (-0.0952 - 0.0215) |
| 30-Day Prior Hosp. | -0.0094 | 0.0349 |
|  | (-0.0304 - 0.0117) | (-0.0015 - 0.0713) |
| Unknown 30-Day Prior | -0.0831\*\*\* | -0.0892\*\*\* |
|  | (-0.0889 - -0.0773) | (-0.1199 - -0.0586) |
| 0 ≤ Elixhauser Comorbidity Indexc < 5 | -0.0084 | 0.0207\*\* |
|  | (-0.0203 - 0.0035) | (0.0065 - 0.0349) |
| 5 ≤ Elixhauser Comorbidity Index < 10 | -0.0053 | 0.0167\* |
|  | (-0.0188 - 0.0081) | (0.0016 - 0.0317) |
| 10 ≤ Elixhauser Comorbidity Index < 15 | 0.0054 | 0.0335\*\* |
|  | (-0.0113 - 0.0221) | (0.0109 - 0.0560) |
| 15 ≤ Elixhauser Comorbidity Index < 20 | -0.007 | 0.0390\*\*\* |
|  | (-0.0249 - 0.0108) | (0.0181 - 0.0599) |
| Elixhauser Comorbidity Index ≥ 20 | 0.001 | 0.0614\*\*\* |
|  | (-0.0176 - 0.0196) | (0.0368 - 0.0860) |
| *N* | 18,203 | 18,203 |

#Table includes expanded demographic information on counts and percentiles for all Major Diagnostic Categories (MDCs) and Units. Hospital fixed effects included, but not reported.

aNurse Continuity: Nurse Continuity is operationalized to represent the structure of the nursing care assignment as a dichotomous variable, 1= the nurse was assigned to the patient the day prior to discharge and the day of discharge and 0= discharging nurse not assigned on the prior day.

bED/Obs: Emergency department visit or Observation stay <23 hours within 30 days post-discharge.

cElixhauser Comorbidity Index– categorization of the comorbidities based on the International Classification of Diseases (Elixhauser et al., 1998).

Table e3. Aim 2 including unit fixed effects and control - Simultaneous equation estimates for the sequential path of influence of nurse continuity to patient RHDS, nurse RHDS, and return to hospital

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Patient RHDSa Mean | Nurse RHDSb Mean | ED/Obsc | Readmission |
| Nurse READI Mean |  |  | -0.0034 | -0.0079\*\* |
|  |  |  | (-0.0074 - 0.0007) | (-0.0126 - -0.0033) |
| Patient READI Mean |  | 0.4843\*\*\* | -0.0021 | 0.0009 |
|  |  | (0.4300 - 0.5385) | (-0.0058 - 0.0016) | (-0.0034 - 0.0053) |
| Nurse Continuitye | 0.0578\* | 0.0018 | 0.005 | -0.0083\* |
|  | (0.0029 - 0.1127) | (-0.0332 - 0.0368) | (-0.0050 - 0.0150) | (-0.0165 - -0.0001) |
| Female | -0.1711\*\*\* | -0.0047 | 0.0100\* | -0.0106 |
|  | (-0.2360 - -0.1061) | (-0.0367 - 0.0273) | (0.0015 - 0.0185) | (-0.0240 - 0.0028) |
| Age | -0.0039\*\*\* | -0.0073\*\*\* | -0.0007\*\*\* | -0.0001 |
|  | (-0.0057 - -0.0022) | (-0.0089 - -0.0056) | (-0.0011 - -0.0003) | (-0.0006 - 0.0004) |
| Native American/Alaskan | -0.0279 | -0.4313\* | -0.0104 | 0.0088 |
|  | (-0.3006 - 0.2448) | (-0.8290 - -0.0337) | (-0.0516 - 0.0308) | (-0.0174 - 0.0350) |
| Asian | 0.0393 | 0.0107 | -0.0347 | -0.0013 |
|  | (-0.0922 - 0.1707) | (-0.0845 - 0.1059) | (-0.0752 - 0.0058) | (-0.0365 - 0.0339) |
| Black/African American | 0.0608 | -0.034 | 0 | 0.0094 |
|  | (-0.0555 - 0.1771) | (-0.0949 - 0.0270) | (-0.0289 - 0.0290) | (-0.0133 - 0.0321) |
| Hawaiian/Pacific Islander | -0.1395 | -0.146 | 0.0027 | -0.0255 |
|  | (-0.4831 - 0.2041) | (-0.3553 - 0.0634) | (-0.1155 - 0.1209) | (-0.1205 - 0.0696) |
| White | 0.0467 | 0.0247 | -0.0269 | -0.0001 |
|  | (-0.0391 - 0.1325) | (-0.0253 - 0.0747) | (-0.0602 - 0.0064) | (-0.0180 - 0.0179) |
| Hispanic | 0.0688 | -0.0687\* | 0.0002 | -0.0208 |
|  | (-0.0545 - 0.1922) | (-0.1350 - -0.0024) | (-0.0201 - 0.0206) | (-0.0455 - 0.0038) |
| Unknown Ethnicity | 0.11 | 0.1119\*\* | 0.0064 | -0.0755\*\* |
|  | (-0.1345 - 0.3545) | (0.0460 - 0.1779) | (-0.0075 - 0.0204) | (-0.1228 - -0.0281) |
| Lives Alone | -0.5266\*\*\* | -0.2293\*\*\* | 0.0024 | 0.0014 |
|  | (-0.6141 - -0.4391) | (-0.2860 - -0.1726) | (-0.0109 - 0.0158) | (-0.0087 - 0.0115) |
| Medicare | -0.1242\*\*\* | -0.0913\*\*\* | 0.0195\*\* | 0.0178 |
|  | (-0.1931 - -0.0554) | (-0.1318 - -0.0509) | (0.0054 - 0.0336) | (-0.0017 - 0.0372) |
| Medicaid | -0.2247\*\*\* | -0.2115\*\*\* | 0.0277\*\* | 0.0312\*\* |
|  | (-0.3145 - -0.1350) | (-0.2828 - -0.1403) | (0.0100 - 0.0454) | (0.0112 - 0.0512) |
| Uninsured | -0.2027\* | -0.0982 | 0.01 | 0.0109 |
|  | (-0.3793 - -0.0262) | (-0.2270 - 0.0307) | (-0.0264 - 0.0465) | (-0.0225 - 0.0442) |
| Other Pay type | -0.0846 | -0.016 | -0.0039 | 0.0015 |
|  | (-0.1702 - 0.0010) | (-0.0815 - 0.0496) | (-0.0225 - 0.0147) | (-0.0226 - 0.0256) |
| Total Length of Stay | -0.0211\*\*\* | -0.0139\*\*\* | 0.0004 | 0.0036\*\*\* |
|  | (-0.0302 - -0.0121) | (-0.0184 - -0.0094) | (-0.0010 - 0.0018) | (0.0021 - 0.0051) |
| Eye | -0.0252 | 0.4242 | 0.0468 | -0.078 |
|  | (-0.9709 - 0.9206) | (-0.0923 - 0.9408) | (-0.1181 - 0.2117) | (-0.1741 - 0.0181) |
| ENT | 0.2644\*\* | 0.2092\* | -0.0249 | -0.0505 |
|  | (0.0721 - 0.4567) | (0.0379 - 0.3804) | (-0.0845 - 0.0347) | (-0.1095 - 0.0085) |
| Respiratory | 0.0455 | 0.0281 | -0.0277 | -0.0078 |
|  | (-0.0819 - 0.1729) | (-0.0613 - 0.1176) | (-0.0594 - 0.0040) | (-0.0475 - 0.0320) |
| Circulatory | 0.1048 | 0.0345 | -0.0284 | -0.0038 |
|  | (-0.0098 - 0.2193) | (-0.0450 - 0.1141) | (-0.0576 - 0.0007) | (-0.0439 - 0.0363) |
| Digestive | 0.0286 | 0.1547\*\* | -0.0204 | 0.001 |
|  | (-0.1194 - 0.1766) | (0.0600 - 0.2493) | (-0.0519 - 0.0110) | (-0.0443 - 0.0462) |
| Hepatobiliary/Pancreatic | 0.0408 | 0.0104 | -0.0219 | 0.0256 |
|  | (-0.1074 - 0.1891) | (-0.1089 - 0.1297) | (-0.0570 - 0.0132) | (-0.0222 - 0.0735) |
| Musculoskeletal | 0.0354 | -0.0034 | -0.0361\* | -0.0454\* |
|  | (-0.1165 - 0.1874) | (-0.1745 - 0.1678) | (-0.0709 - -0.0012) | (-0.0859 - -0.0048) |
| Skin/Subcutaneous | 0.1067 | -0.023 | -0.0347\* | -0.0189 |
|  | (-0.0589 - 0.2723) | (-0.1809 - 0.1349) | (-0.0660 - -0.0033) | (-0.0594 - 0.0216) |
| Endocrine/Metabolic | 0.0503 | -0.0778 | -0.0304 | -0.0193 |
|  | (-0.1229 - 0.2234) | (-0.1606 - 0.0051) | (-0.0648 - 0.0041) | (-0.0632 - 0.0247) |
| Kidney/Urinary | -0.0301 | 0.0274 | -0.0196 | 0.0105 |
|  | (-0.2000 - 0.1398) | (-0.0936 - 0.1484) | (-0.0534 - 0.0142) | (-0.0326 - 0.0537) |
| Male Reproductive | 0.0121 | 0.1564 | -0.0525 | 0.0279 |
|  | (-0.2738 - 0.2980) | (-0.0033 - 0.3162) | (-0.1345 - 0.0295) | (-0.1109 - 0.1667) |
| Female Reproductive | 0.0856 | 0.0058 | -0.0293 | 0.0185 |
|  | (-0.0896 - 0.2608) | (-0.1006 - 0.1123) | (-0.1008 - 0.0422) | (-0.0498 - 0.0868) |
| Pregnancy | 0.2370\* | 0.0217 | -0.0133 | -0.02 |
|  | (0.0121 - 0.4620) | (-0.2072 - 0.2506) | (-0.0876 - 0.0609) | (-0.1175 - 0.0774) |
| Blood/Immunological | 0.0288 | 0.1450\* | -0.0198 | 0.0446 |
|  | (-0.1370 - 0.1947) | (0.0340 - 0.2560) | (-0.0642 - 0.0247) | (-0.0295 - 0.1188) |
| Meloproliferative DD | 0.5229\*\* | 0.0269 | 0.032 | 0.147 |
|  | (0.2238 - 0.8220) | (-0.2191 - 0.2728) | (-0.0835 - 0.1474) | (-0.0306 - 0.3246) |
| Infectious/Parasitic DD | 0.1029 | 0.0551 | -0.0365\* | -0.0073 |
|  | (-0.0303 - 0.2360) | (-0.0209 - 0.1310) | (-0.0668 - -0.0061) | (-0.0475 - 0.0329) |
| Mental | -0.754 | -0.6236\*\* | 0.0377 | -0.1219\*\*\* |
|  | (-1.5266 - 0.0186) | (-1.0056 - -0.2417) | (-0.1100 - 0.1853) | (-0.1587 - -0.0852) |
| Alcohol/Drug | -0.5029\*\*\* | -0.2961\*\* | -0.0162 | -0.0093 |
|  | (-0.7638 - -0.2419) | (-0.5000 - -0.0923) | (-0.0757 - 0.0432) | (-0.0720 - 0.0535) |
| Injury/Poison/Toxin | 0.2429\* | 0.0125 | -0.0303 | -0.0457 |
|  | (0.0597 - 0.4261) | (-0.1589 - 0.1839) | (-0.0676 - 0.0070) | (-0.0990 - 0.0075) |
| Other | 0.1593 | 0.0746 | 0.004 | -0.0074 |
|  | (-0.2337 - 0.5524) | (-0.1200 - 0.2692) | (-0.0636 - 0.0715) | (-0.0870 - 0.0721) |
| Multiple Trauma | 0.194 | -0.3276\* | -0.009 | -0.0335 |
|  | (-0.0943 - 0.4823) | (-0.6181 - -0.0370) | (-0.1057 - 0.0877) | (-0.1080 - 0.0409) |
| HIV | -0.7318\*\* | -0.326 | 0.0289 | -0.0746\* |
|  | (-1.2250 - -0.2386) | (-0.8189 - 0.1669) | (-0.1652 - 0.2229) | (-0.1350 - -0.0142) |
| Transplants | 0.5616\*\*\* | 0.3172\*\* | -0.0623\* | 0.1708 |
|  | (0.2889 - 0.8342) | (0.1175 - 0.5168) | (-0.1106 - -0.0141) | (-0.0394 - 0.3810) |
| Unrelated | 0.2302\* | -0.0048 | -0.0171 | 0.0399 |
|  | (0.0334 - 0.4269) | (-0.2082 - 0.1986) | (-0.0688 - 0.0346) | (-0.0362 - 0.1159) |
| Missing | 0.1366 | 0.095 | -0.0326 | -0.0068 |
|  | (-0.0185 - 0.2917) | (-0.0356 - 0.2255) | (-0.0735 - 0.0082) | (-0.0544 - 0.0408) |
| Surgical | 0.0826\* | 0.031 | -0.0101 | -0.0304\* |
|  | (0.0137 - 0.1515) | (-0.0211 - 0.0831) | (-0.0238 - 0.0035) | (-0.0542 - -0.0067) |
| Med./Surg. Unknown | -0.0693 | 0.1035 | -0.0308 | -0.036 |
|  | (-0.3510 - 0.2124) | (-0.1241 - 0.3311) | (-0.1030 - 0.0413) | (-0.0936 - 0.0216) |
| 30-Day Prior Hosp. | -0.0960\*\* | -0.0228 | -0.0099 | 0.0344 |
|  | (-0.1561 - -0.0358) | (-0.1028 - 0.0571) | (-0.0307 - 0.0108) | (-0.0019 - 0.0707) |
| Unknown 30-Day Prior | -0.0564 | -0.0995\*\*\* | -0.0834\*\*\* | -0.0897\*\*\* |
|  | (-0.2472 - 0.1344) | (-0.1467 - -0.0523) | (-0.0891 - -0.0778) | (-0.1204 - -0.0590) |
| 90-Day Prior Hosp. | 0.0158 | -0.0355 |  |  |
|  | (-0.0553 - 0.0868) | (-0.1057 - 0.0348) |  |  |
| Unknown 90-Day Prior | -0.2293\* | 0.0525 |  |  |
|  | (-0.4409 - -0.0177) | (-0.0128 - 0.1178) |  |  |
| 0 ≤ Elixhauser Comorbidity Indexd < 5 | -0.0345 | -0.0469\* | -0.0087 | 0.0201\*\* |
|  | (-0.1007 - 0.0317) | (-0.0911 - -0.0026) | (-0.0204 - 0.0030) | (0.0060 - 0.0342) |
| 5 ≤ Elixhauser Comorbidity Index < 10 | -0.0007 | -0.0632\* | -0.0055 | 0.0159\* |
|  | (-0.0709 - 0.0695) | (-0.1124 - -0.0139) | (-0.0189 - 0.0079) | (0.0008 - 0.0310) |
| 10 ≤ Elixhauser Comorbidity Index < 15 | -0.0659 | -0.0799\* | 0.0048 | 0.0325\*\* |
|  | (-0.1452 - 0.0133) | (-0.1396 - -0.0202) | (-0.0119 - 0.0216) | (0.0101 - 0.0549) |
| 15 ≤ Elixhauser Comorbidity Index < 20 | -0.0395 | -0.0513 | -0.0074 | 0.0384\*\*\* |
|  | (-0.1147 - 0.0357) | (-0.1115 - 0.0088) | (-0.0254 - 0.0106) | (0.0175 - 0.0593) |
| Elixhauser ≥ 20 | -0.0134 | -0.0905\* | 0.0006 | 0.0605\*\*\* |
|  | (-0.0976 - 0.0709) | (-0.1699 - -0.0112) | (-0.0180 - 0.0192) | (0.0359 - 0.0850) |
| Constant | 8.9696\*\*\* | 5.0287\*\*\* |  |  |
|  | (8.7801 - 9.1591) | (4.5303 - 5.5271) |  |  |
| *R*2 | 0.07 | 0.38 |  |  |
| *N* | 18,203 | 18,203 | 18,203 | 18,203 |
|  |  |  |  |  |
| A | -0.1689\*\*\* | -0.4558\*\*\* |  |  |
|  | (-0.2351 - -0.1027) | (-0.5550 - -0.3566) |  |  |
| B | 0.1988\*\*\* | 0.1401\*\*\* |  |  |
|  | (0.1195 - 0.2781) | (0.0637 - 0.2166) |  |  |
| C | 0.2831\*\*\* | -0.0773\*\*\* |  |  |
|  | (0.2586 - 0.3075) | (-0.1110 - -0.0437) |  |  |
| D | 0.1995\*\*\* | -0.1417\*\*\* |  |  |
|  | (0.1690 - 0.2301) | (-0.1664 - -0.1170) |  |  |
| E | 0.1420\*\*\* | 0.1784\*\*\* |  |  |
|  | (0.0875 - 0.1965) | (0.1180 - 0.2387) |  |  |
| F | -0.0573\*\* | -0.2627\*\*\* |  |  |
|  | (-0.0942 - -0.0205) | (-0.2991 - -0.2264) |  |  |
| G | 0.0777\*\*\* | -0.1340\*\*\* |  |  |
|  | (0.0460 - 0.1094) | (-0.1602 - -0.1078) |  |  |
| H | 0.6167\*\*\* | -0.0166 |  |  |
|  | (0.5506 - 0.6827) | (-0.0613 - 0.0280) |  |  |
| I | 0.0704\* | -0.1978\*\*\* |  |  |
|  | (0.0140 - 0.1268) | (-0.2250 - -0.1705) |  |  |
| J | 0.1091\*\*\* | -0.2804\*\*\* |  |  |
|  | (0.0520 - 0.1663) | (-0.3391 - -0.2216) |  |  |
| K | 0.3398\*\*\* | -0.0595\* |  |  |
|  | (0.2939 - 0.3857) | (-0.1109 - -0.0080) |  |  |
| L | 0.1445\*\*\* | -0.1401\*\*\* |  |  |
|  | (0.0953 - 0.1937) | (-0.1826 - -0.0976) |  |  |
| M | 0.3620\*\*\* | 0.1279\*\*\* |  |  |
|  | (0.3219 - 0.4021) | (0.0821 - 0.1738) |  |  |
| N | -0.0196 | 0.0559\* |  |  |
|  | (-0.0899 - 0.0508) | (0.0046 - 0.1072) |  |  |
| O | 0.3898\*\*\* | 0.2419\*\*\* |  |  |
|  | (0.3322 - 0.4474) | (0.1914 - 0.2924) |  |  |
| P | 0.2563\*\*\* | 0.0538\*\*\* |  |  |
|  | (0.2233 - 0.2892) | (0.0241 - 0.0836) |  |  |
| Q | -0.1468\*\*\* | -0.2948\*\*\* |  |  |
|  | (-0.1736 - -0.1199) | (-0.3292 - -0.2603) |  |  |
| R | 0.0374 | -0.0975\*\*\* |  |  |
|  | (-0.0414 - 0.1163) | (-0.1448 - -0.0501) |  |  |
| S | 0.1572\*\*\* | -0.1479\*\*\* |  |  |
|  | (0.0962 - 0.2183) | (-0.2047 - -0.0912) |  |  |
| T | 0.0428 | 0.0687\* |  |  |
|  | (-0.0305 - 0.1160) | (0.0154 - 0.1221) |  |  |
| U | 0.0752 | 0.0672 |  |  |
|  | (-0.1395 - 0.2898) | (-0.0155 - 0.1499) |  |  |
| V | -0.2307\*\*\* | -0.1803\*\*\* |  |  |
|  | (-0.2590 - -0.2025) | (-0.2094 - -0.1512) |  |  |
| W | 0.4931\*\*\* | -0.0873\*\* |  |  |
|  | (0.4462 - 0.5400) | (-0.1489 - -0.0257) |  |  |
| X | 0.0685\* | -0.0563\* |  |  |
|  | (0.0165 - 0.1205) | (-0.1097 - -0.0029) |  |  |
| Y | 0.2575\*\*\* | 0.0781\*\* |  |  |
|  | (0.2036 - 0.3114) | (0.0236 - 0.1325) |  |  |
| Z | 0.4053\*\*\* | 0.1251\*\*\* |  |  |
|  | (0.2867 - 0.5239) | (0.0599 - 0.1902) |  |  |
| AA | 0.0159 | -0.3404\*\*\* |  |  |
|  | (-0.0257 - 0.0575) | (-0.3862 - -0.2946) |  |  |
| BB | -0.2711\*\*\* | 0.1257\*\*\* |  |  |
|  | (-0.3037 - -0.2385) | (0.0911 - 0.1602) |  |  |
| CC | 0.1791\*\*\* | 0.0278 |  |  |
|  | (0.1551 - 0.2032) | (-0.0001 - 0.0558) |  |  |

Equations are estimated simultaneously using seemingly unrelated regression equations estimation technique. Shown are marginal effects and 95% Confidence Intervals of marginal effects. Multiple linear regression for RN- and PT-RHDS scores, Logistic regression for readmission and ED/Obs. The analysis controlled for the following variables; lives alone, age, gender, race, ethnicity, payer type, Major Diagnostics Categories (MDCs), Elixhauser Comorbidity Index, length of stay, prior hospitalization within 90 days, and patient type.

Table include all control variables and fixed effects

aPatient-RHDS: Patient self-report form: Readiness for Hospital Discharge Scale scores 0-10, higher scores=greater readiness

bNurse-RHDS: Nurse assessment form: Readiness for Hospital Discharge Scale

cED/Obs: Emergency department visit or Observation stay <23 hours within 30 days post-discharge.

dElixhauser Comorbidity Index–categorization of the comorbidities based on the International Classification of Diseases (Elixhauser et al., 1998).

eNurse Continuity: Nurse Continuity is operationalized to represent the structure of the nursing care assignment as a dichotomous variable, 1= the nurse was assigned to the patient the day prior to discharge and the day of discharge and 0= discharging nurse not assigned on the prior day.

\*<0.05; \*\*<0.01; \*\*\*<0.001

Table e4. Aim 3– Marginal Effects of Nurse Continuity regressed on unit environment characteristics including fixed effects and controls

|  |  |
| --- | --- |
| Effect on Nurse Continuitya | Marginal Effect  (95% CI) |
| Nurse Mean | -0.000 |
|  | (-0.008 - 0.008) |
| Patient Mean | 0.008 |
|  | (-0.000 - 0.015) |
| RN OT Hourss per PT Day Q2 | -0.010 |
|  | (-0.042 - 0.022) |
| RN OT Hours per PT Day Q3 | -0.013 |
|  | (-0.041 - 0.016) |
| RN OT Hours per PT Day Q4 | 0.008 |
|  | (-0.031 - 0.046) |
| RN Non-OT Hours per PT Day Q2 | 0.012 |
|  | (-0.045 - 0.068) |
| RN Non-OT Hours per PT Day Q3 | 0.045 |
|  | (-0.016 - 0.106) |
| RN Non-OT Hours per PT Day Q4 | 0.033 |
|  | (-0.033 - 0.099) |
| Non-RN Hours per PT Day Q2 | -0.008 |
|  | (-0.030 - 0.014) |
| Non-RN Hours per PT Day Q3 | -0.017 |
|  | (-0.056 - 0.022) |
| Non-RN Hours per PT Day Q4 | 0.019 |
|  | (-0.049 - 0.088) |
| BSN Percent Q2 | -0.025 |
|  | (-0.072 - 0.022) |
| BSN Percent Q3 | -0.026 |
|  | (-0.073 - 0.021) |
| BSN Percent Q4 | 0.022 |
|  | (-0.033 - 0.077) |
| RN Experience Q2 | -0.044\* |
|  | (-0.080 - -0.008) |
| RN Experience Q3 | -0.014 |
|  | (-0.064 - 0.036) |
| RN Experience Q4 | -0.088\*\* |
|  | (-0.149 - -0.027) |
| Female | -0.009 |
|  | (-0.024 - 0.006) |
| Age | 0.000 |
|  | (-0.001- 0.001) |
| Native American/Alaskan | -0.001 |
|  | (-0.060 - 0.058) |
| Asian | -0.028 |
|  | (-0.077 - 0.021) |
| Black/African American | 0.015 |
|  | (-0.020 - 0.051) |
| Hawaiian/Pacific Islander | 0.089 |
|  | (-0.005 - 0.184) |
| White | 0.006 |
|  | (-0.024 - 0.035) |
| Hispanic | -0.003 |
|  | (-0.029 - 0.024) |
| Unknown Ethnicity | 0.082\*\*\* |
|  | (0.048 - 0.116) |
| 1.lives\_alone | 0.013 |
|  | (-0.006 - 0.031) |
| Medicare | 0.003 |
|  | (-0.017 - 0.023) |
| Medicaid | 0.014 |
|  | (-0.015 - 0.042) |
| Uninsured | 0.033 |
|  | (-0.026 - 0.092) |
| Other Paytype | -0.015 |
|  | (-0.047 - 0.016) |
| Total Length of Stay | 0.001 |
|  | (-0.002 - 0.005) |
| 0 ≤ Elixhauser Comorbidity Indexb < 5 | -0.011 |
|  | (-0.034 - 0.013) |
| 5 ≤ Elixhauser Comorbidity Index < 10 | -0.015 |
|  | (-0.039 - 0.009) |
| 10 ≤ Elixhauser Comorbidity Index < 15 | -0.013 |
|  | (-0.043 - 0.016) |
| 15 ≤ Elixhauser Comorbidity Index < 20 | -0.016 |
|  | (-0.047 - 0.015) |
| Elixhauser Comorbidity Index ≥ 20 | -0.005 |
|  | (-0.037 - 0.026) |
| Eye | -0.111 |
|  | (-0.314 - 0.093) |
| ENT | 0.016 |
|  | (-0.069 - 0.100) |
| Respiratory | 0.011 |
|  | (-0.046 - 0.068) |
| Circulatory | 0.026 |
|  | (-0.0256b- 0.079) |
| Digestive | 0.031 |
|  | (-0.018 - 0.080) |
| Hepatobiliary/Pancreatic | 0.016 |
|  | (-0.042 - 0.074) |
| Musculoskeletal | 0.027 |
|  | (-0.032 - 0.085) |
| Skin/Subcutaneous | 0.049 |
|  | (-0.016 - 0.113) |
| Endocrine/Metabolic | 0.001 |
|  | (-0.063 - 0.064) |
| Kidney/Urinary | 0.047 |
|  | (-0.017 - 0.111) |
| Male Reproductive | 0.035 |
|  | (-0.078 - 0.147) |
| Female Reproductive | -0.002 |
|  | (-0.066 - 0.063) |
| Pregnancy | 0.086 |
|  | (-0.069 - 0.242) |
| Blood/Immunological | 0.024 |
|  | (-0.027 - 0.074) |
| Meloproliferative DD | -0.100 |
|  | (-0.219 - 0.018) |
| Infectious/Parasitic DD | -0.002 |
|  | (-0.063 - 0.059) |
| Mental | -0.103 |
|  | (-0.273 - 0.067) |
| Alcohol/Drug | 0.014 |
|  | (-0.092 - 0.119) |
| Injury/Poison/Toxin | 0 |
|  | (-0.081 - 0.081) |
| Other | 0.007 |
|  | (-0.130 - 0.144) |
| Multiple Trauma | 0.047 |
|  | (-0.099 - 0.193) |
| HIV | 0.115 |
|  | (-0.026 - 0.257) |
| Transplants | 0.014 |
|  | (-0.244 - 0.272) |
| Unrelated | 0.020 |
|  | (-0.081 - 0.121) |
| Missing | 0.023 |
|  | (-0.048 - 0.094) |
| Surgical | 0.011 |
|  | (-0.014 - 0.035) |
| Med./Surg. Unknown | -0.053 |
|  | (-0.158 - 0.052) |
| 30-Day Prior Hosp. | -0.019 |
|  | (-0.045 - 0.006) |
| Unknown 30-Day Prior | 0.019 |
|  | (-0.003 - 0.041) |
| *N* | 17,523 |

Equations are estimated simultaneously using seemingly unrelated regression equations estimation technique. Logistic regression for Nurse Continuity. Shown are marginal effects and standard errors of marginal effects. The analysis controlled for the following variables; lives alone, age, gender, race, ethnicity, payer type, Major Diagnostic Categories (MDCs), Elixhauser Comorbidity Index, length of stay, prior hospitalization within 90 days, and patient type.

aNurse Continuity: Nurse Continuity is operationalized to represent the structure of the nursing care assignment as a dichotomous variable, 1=the nurse was assigned to the patient the day prior to discharge and the day of discharge and 0= discharging nurse not assigned on the prior day

bElixhauser Comorbidity Index – categorization of the comorbidities based on the International Classification of Diseases (Elixhauser et al., 1998).

\*<0.05; \*\*<0.01; \*\*\*<0.001

Table e5. Logistic regression models for moderating effects of unit environment and unit nurse characteristic variables on return to hospital (Readmissions and ED/Obs)#

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | ED/Obsa Visits | | Readmissions | |
|  | | Effect of Nurse Continuityb |  | Effect of Nurse Continuity |  |
|  | Marginal Effects  (95% CI) | | Contrasts of Marginal Effects with Quartile 1  (p-values of the contrasts) | Marginal Effects  (95% CI) | Contrasts of Marginal Effects with Quartile 1  (p-values of the contrasts) |
| RN Overtime Hours per Patient Day | | |  |  |  |
| Quartile 1 | | 0.003 |  | -0.002 |  |
|  | | (-0.014, 0.020) |  | (-0.017, 0.015) |  |
| Quartile 2 | | 0.015 | 0.012 | -0.012 | -0.01 |
|  | | (-0.001, 0.030) | (-0.013, 0.037) | (-0.031, 0.008) | (-0.032, 0.012) |
| Quartile 3 | | 0.004 | 0.001 | -0.005 | -0.004 |
|  | | (-0.014, 0.021) | (-0.018, 0.019) | (-0.027, 0.016) | (-0.030, 0.022) |
| Quartile 4 | | -0.006 | -0.009 | -0.016 | -0.014 |
|  | | (-0.026, 0.015) | (-0.031, 0.013) | (-0.046, 0.014) | (-0.042, 0.013) |
|  | | 18,203 | . | 18,203 | . |
|  | |  |  |  |  |
| RN Non-Overtime Hours per Patient Day | | |  |  |  |
| Quartile 1 | | 0.017 |  | -0.011 |  |
|  | | (-0.002, 0.036) |  | (-0.032, 0.011) |  |
| Quartile 2 | | 0.007 | -0.01 | -0.016 | -0.006 |
|  | | (-0.028, 0.042) | (-0.037, 0.017) | (-0.047, 0.015) | (-0.031, 0.020) |
| Quartile 3 | | -0.005 | -0.022 | 0.003 | 0.0132 |
|  | | (-0.028, 0.018) | (-0.047, 0.002) | (-0.016, 0.021) | (-0.007, 0.033) |
| Quartile 4 | | -0.005 | -0.022 | -0.007 | 0.003 |
|  | | (-0.023, 0.012) | (-0.047, 0.003) | (-0.062, 0.048) | (-0.029, 0.036) |
|  | | 18,203 | . | 18,203 | . |
|  | |  |  |  |  |
| Non-RN Hours per Patient Day | | |  |  |  |
| Quartile 1 | | -0.003 |  | -0.006 |  |
|  | | (-0.022, 0.017) |  | (-0.021, 0.010) |  |
| Quartile 2 | | 0.006 | 0.009 | -0.008 | -0.003 |
|  | | (-0.012, 0.024) | (-0.014, 0.031) | (-0.037, 0.019) | (-0.029, 0.023) |
| Quartile 3 | | 0.009 | 0.011 | -0.017 | -0.011 |
|  | | (-0.010, 0.027) | (-0.010, 0.032) | (-0.044, 0.010) | (-0.040, 0.018) |
| Quartile 4 | | 0.005 | 0.007 | -0.003 | 0.003 |
|  | | (-0.020, 0.030) | (-0.021, 0.035) | (-0.031, 0.025) | (-0.019, 0.024) |
|  | | 18,203 | . | 18,203 | . |
|  | |  |  |  |  |
| Unit BSN Percentage | | |  |  |  |
| Quartile 1 | | 0.021\* |  | -0.07\* |  |
|  | | (0.004, 0.038) |  | (-0.031, -0.002) |  |
| Quartile 2 | | -0.003 | -0.024\* | 0.014 | 0.031\* |
|  | | (-0.011, 0.006) | (-0.041, -0.006) | (-0.000, 0.028) | (0.004, 0.057) |
| Quartile 3 | | -0.006 | -0.027 | -0.008 | 0.008 |
|  | | (-0.029, 0.017) | (-0.056, 0.002) | (-0.032, 0.016) | (-0.009, 0.025) |
| Quartile 4 | | -0.000 | -0.021\* | -0.018\* | -0.002 |
|  | | (-0.017, 0.017) | (-0.039, -0.003) | (-0.033, -0.004) | (-0.020, 0.017) |
|  | | 18,203 | . | 18,203 | . |
|  | |  |  |  |  |
| Unit RN Experience | | |  |  |  |
| Quartile 1 | | 0.004 |  | -0.012 |  |
|  | | (-0.009, 0.016) |  | (-0.038, 0.015) |  |
| Quartile 2 | | 0.002 | -0.001 | -0.012 | -0.000 |
|  | | (-0.024, 0.029) | (-0.018, 0.016) | (-0.060, 0.037) | (-0.026, 0.025) |
| Quartile 3 | | 0.007 | 0.004 | -0.009 | 0.002 |
|  | | (-0.016, 0.031) | (-0.021, 0.028) | (-0.034, 0.015) | (-0.019, 0.023) |
| Quartile 4 | | 0.013 | 0.0010 | -0.008 | 0.003 |
|  | | (-0.035, 0.062) | (-0.029, 0.048) | (-0.046, 0.029) | (-0.018, 0.024) |
|  | | 17,523 | . | 17,523 | . |

Table includes all control variables and fixed effects.

Equations are estimated simultaneously using seemingly unrelated regression equations estimation technique. Shown are marginal effects and standard errors of marginal effects. The analysis controlled for the following variables; lives alone, age, gender, race, ethnicity, payer type, Major Diagnostic Categories (MDCs), Elixhauser Comorbidity Index, length of stay, prior hospitalization within 90 days, and patient type.

aED/Obs: Emergency department visit or Observation stay <23 hours within 30 days post-discharge.

bNurse Continuity: Nurse Continuity is operationalized to represent the structure of the nursing care assignment as a dichotomous variable, 1=the nurse was assigned to the patient the day prior to discharge and the day of discharge and 0= discharging nurse not assigned on the prior day.

\*<0.05; \*\*<0.01; \*\*\*<0.001

Table e6. Full series of regression models for Aim 4: Unit environment and unit nurse characteristics as moderators of the Relationship of nurse continuity and readmission

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | RN OTc Hours PPDd | | RN Non-OT Hours PPD | | Non-RN Hours PPD | | BSN Proportion | | RN Experience | |
|  | ED/Obsa | Readmission | ED/Obs | Readmission | ED/Obs | Readmission | ED/Obs | Readmission | ED/Obs | Readmission |
| RN READI | -0.003 | -0.008\*\* | -0.003 | -0.008\*\* | -0.003 | -0.008\*\* | -0.003 | -0.008\*\* | -0.003 | -0.009\*\*\* |
|  | -0.002 | -0.002 | -0.002 | -0.002 | -0.002 | -0.002 | -0.002 | -0.002 | -0.002 | -0.002 |
| PT READI | -0.002 | 0.001 | -0.002 | 0.001 | -0.002 | 0.001 | -0.002 | 0.001 | -0.003 | 0.002 |
|  | -0.002 | -0.002 | -0.002 | -0.002 | -0.002 | -0.002 | -0.002 | -0.002 | -0.002 | -0.002 |
| Nurse Continuityb | 0.005 | -0.008\* | 0.005 | -0.008\* | 0.005 | -0.008\* | 0.005 | -0.009\* | 0.006 | -0.010\*\* |
|  | -0.005 | -0.004 | -0.004 | -0.004 | -0.005 | -0.004 | -0.004 | -0.0033 | -0.005 | -0.003 |
| RN OT Hours PPD Q2 | -0.006 | -0.003 |  |  |  |  |  |  |  |  |
|  | -0.006 | -0.007 |  |  |  |  |  |  |  |  |
| RN OT Hours PPD Q3 | -0.003 | -0.009 |  |  |  |  |  |  |  |  |
|  | -0.006 | -0.009 |  |  |  |  |  |  |  |  |
| RN OT Hours PPD Q4 | 0.013 | -0.007 |  |  |  |  |  |  |  |  |
|  | -0.010 | -0.011 |  |  |  |  |  |  |  |  |
| RN Non-OT Hours PPD Q2 |  |  | -0.007 | 0.000 |  |  |  |  |  |  |
|  |  |  | -0.008 | -0.009 |  |  |  |  |  |  |
| RN Non-OT Hours PPD Q3 |  |  | -0.003 | -0.015 |  |  |  |  |  |  |
|  |  |  | -0.008 | -0.013 |  |  |  |  |  |  |
| RN Non-OT Hours PPD Q4 |  |  | -0.005 | 0.016 |  |  |  |  |  |  |
|  |  |  | -0.016 | -0.022 |  |  |  |  |  |  |
| Non-RN Hours PPD Q2 |  |  |  |  | -0.008 | 0.007 |  |  |  |  |
|  |  |  |  |  | -0.008 | -0.008 |  |  |  |  |
| Non-RN Hours PPD Q3 |  |  |  |  | -0.008 | 0.014\* |  |  |  |  |
|  |  |  |  |  | -0.007 | -0.007 |  |  |  |  |
| Non-RN Hours PPD Q4 |  |  |  |  | 0.003 | 0.009 |  |  |  |  |
|  |  |  |  |  | -0.011 | -0.012 |  |  |  |  |
| Proportion BSN Q2 |  |  |  |  |  |  | 0.024\*\* | -0.013 |  |  |
|  |  |  |  |  |  |  | -0.008 | -0.007 |  |  |
| Proportion BSN Q3 |  |  |  |  |  |  | 0.028\* | -0.009 |  |  |
|  |  |  |  |  |  |  | -0.013 | -0.008 |  |  |
| Proportion BSN Q4 |  |  |  |  |  |  | -0.002 | -0.009 |  |  |
|  |  |  |  |  |  |  | -0.011 | -0.009 |  |  |
| RN Experience Q2 |  |  |  |  |  |  |  |  | 0.006 | -0.032\* |
|  |  |  |  |  |  |  |  |  | -0.007 | -0.012 |
| RN Experience Q3 |  |  |  |  |  |  |  |  | 0.019\* | -0.070\* |
|  |  |  |  |  |  |  |  |  | -0.007 | -0.026 |
| RN Experience Q4 |  |  |  |  |  |  |  |  | 0.026 | -0.101\*\* |
|  |  |  |  |  |  |  |  |  | -0.018 | -0.030 |
| Age | -0.001\*\*\* | -0.000 | -0.001\*\*\* | -0.000 | -0.001\*\*\* | -0.000 | -0.001\*\*\* | -0.000 | -0.001\*\*\* | -0.000 |
|  | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.001 | -0.000 |
| Female | 0.010\* | -0.011 | 0.010\* | -0.011 | 0.010\* | -0.011 | 0.010\* | -0.010 | 0.011\* | -0.013 |
|  | -0.004 | -0.007 | -0.004 | -0.007 | -0.004 | -0.007 | -0.004 | -0.007 | -0.004 | -0.007 |
| Native American/Alaskan | -0.011 | 0.009 | -0.010 | 0.010 | -0.010 | 0.008 | -0.010 | 0.009 | -0.009 | 0.011 |
|  | -0.020 | -0.013 | -0.02 | -0.013 | -0.02 | -0.013 | -0.02 | -0.013 | -0.021 | -0.013 |
| Asian | -0.035 | -0.001 | -0.035 | -0.000 | -0.035 | -0.001 | -0.035 | -0.001 | -0.039 | -0.010 |
|  | -0.020 | -0.017 | -0.020 | -0.017 | -0.020 | -0.017 | -0.020 | -0.017 | -0.021 | -0.020 |
| Black/African American | 0 | 0.0097 | -0.000 | 0.011 | 0.000 | 0.009 | -0.000 | 0.010 | 0.000 | 0.010 |
|  | -0.014 | -0.011 | -0.014 | -0.011 | -0.014 | -0.011 | -0.014 | -0.011 | -0.015 | -0.011 |
| Hawaiian/Pacific Islander | 0.003 | -0.025 | 0.002 | -0.023 | 0.003 | -0.0256 | 0.004 | -0.025 | -0.017 | -0.001 |
|  | -0.058 | -0.046 | -0.057 | -0.047 | -0.059 | -0.047 | -0.058 | -0.047 | -0.068 | -0.055 |
| White | -0.027 | 0.000 | -0.027 | 0.001 | -0.027 | -0.000 | -0.027 | -0.000 | -0.025 | -0.001 |
|  | -0.016 | -0.009 | -0.016 | -0.009 | -0.016 | -0.009 | -0.016 | -0.009 | -0.017 | -0.010 |
| Hispanic Ethnicity | -0.001 | -0.020 | 0.000 | -0.018 | 0 | -0.021 | 0.001 | -0.021 | 0.004 | -0.022 |
|  | -0.010 | -0.012 | -0.010 | -0.010 | -0.01 | -0.012 | -0.010 | -0.012 | -0.011 | -0.013 |
| Unknown Ethnicity | 0.004 | -0.075\*\* | 0.006 | -0.074\*\* | 0.005 | -0.075\*\* | 0.007 | -0.075\*\* | 0.006 | -0.073\*\* |
|  | -0.008 | -0.023 | -0.007 | -0.023 | -0.007 | -0.024 | -0.007 | -0.023 | -0.008 | -0.025 |
| 1.lives\_alone | 0.002 | 0.001 | 0.002 | 0.002 | 0.002 | 0.001 | 0.002 | 0.001 | 0.001 | 0.002 |
|  | -0.007 | -0.005 | -0.007 | -0.005 | -0.007 | -0.005 | -0.007 | -0.005 | -0.007 | -0.005 |
| Medicare | 0.020\*\* | 0.018 | 0.020\*\* | 0.018 | 0.020\*\* | 0.018 | 0.020\*\* | 0.018 | 0.020\*\* | 0.017 |
|  | -0.007 | -0.010 | -0.007 | -0.010 | -0.007 | -0.010 | -0.007 | -0.010 | -0.007 | -0.010 |
| Medicaid | 0.0278\*\* | 0.031\*\* | 0.028\*\* | 0.031\*\* | 0.028\*\* | 0.031\*\* | 0.028\*\* | 0.031\*\* | 0.028\*\* | 0.028\* |
|  | -0.009 | -0.010 | -0.009 | -0.010 | -0.009 | -0.010 | -0.009 | -0.010 | -0.009 | -0.010 |
| Uninsured | 0.010 | 0.011 | 0.011 | 0.010 | 0.010 | 0.011 | 0.010 | 0.010 | 0.01 | 0.011 |
|  | -0.02 | -0.016 | -0.018 | -0.016 | -0.018 | -0.016 | -0.018 | -0.016 | -0.018 | -0.016 |
| Other Pay type | -0.005 | 0.002 | -0.004 | 0.001 | -0.004 | 0.001 | -0.004 | 0.001 | -0.004 | -0.001 |
|  | -0.009 | -0.012 | -0.009 | -0.012 | -0.009 | -0.012 | -0.009 | -0.012 | -0.010 | -0.012 |
| Length of Stay | 0.000 | 0.004\*\*\* | 0.000 | 0.004\*\*\* | 0.000 | 0.004\*\*\* | 0.000 | 0.004\*\*\* | 0.001 | 0.004\*\*\* |
|  | -0.001 | -0.001 | -0.001 | -0.001 | -0.000 | -0.001 | -0.001 | -0.001 | -0.001 | -0.001 |
| Surgical Patient | -0.010 | -0.031\* | -0.010 | -0.031\* | -0.010 | -0.031\* | -0.010 | -0.031\* | -0.010 | -0.032\*\* |
|  | -0.007 | -0.012 | -0.007 | -0.012 | -0.007 | -0.012 | -0.007 | -0.012 | -0.007 | -0.011 |
| Unknown Medical/Surgical | -0.029 | -0.037 | -0.031 | -0.037 | -0.031 | -0.036 | -0.029 | -0.037 | -0.032 | -0.033 |
|  | -0.036 | -0.028 | -0.036 | -0.028 | -0.035 | -0.028 | -0.037 | -0.029 | -0.035 | -0.028 |
| 30-Day Prior Hospitalization | -0.010 | 0.034 | -0.010 | 0.035 | -0.01 | 0.035 | -0.010 | 0.035 | -0.010 | 0.034 |
|  | -0.01 | -0.018 | -0.010 | -0.018 | -0.010 | -0.018 | -0.010 | -0.018 | -0.010 | -0.018 |
| Unknown 30-Day Prior | -0.081\*\*\* | -0.089\*\*\* | -0.084\*\*\* | -0.088\*\*\* | -0.083\*\*\* | -0.090\*\*\* | -0.083\*\*\* | -0.090\*\*\* | -0.080\*\*\* | -0.086\*\*\* |
|  | -0.003 | -0.016 | -0.003 | -0.015 | -0.003 | -0.015 | -0.003 | -0.015 | -0.002 | -0.014 |
| 0 <= Elixhauser Comorbidity Indexe < 5 | -0.009 | 0.020\*\* | -0.009 | 0.020\*\* | -0.009 | 0.020\*\* | -0.009 | 0.020\*\* | -0.010 | 0.020\*\* |
|  | -0.006 | -0.007 | -0.006 | -0.007 | -0.008 | -0.007 | -0.006 | -0.007 | -0.006 | -0.007 |
| 5 <= Elixhauser Comorbidity Index < 10 | -0.006 | 0.016\* | -0.006 | 0.016\* | -0.006 | 0.016\* | -0.006 | 0.016\* | -0.006 | 0.019\* |
|  | -0.007 | -0.007 | -0.007 | -0.007 | -0.007 | -0.007 | -0.007 | -0.007 | -0.007 | -0.008 |
| 10 <= Elixhauser Comorbidity Index < 15 | 0.005 | 0.033\*\* | 0.005 | 0.032\*\* | 0.005 | 0.033\*\* | 0.005 | 0.033\*\* | 0.001 | 0.032\*\* |
|  | -0.008 | -0.011 | -0.008 | -0.011 | -0.009 | -0.011 | -0.008 | -0.011 | -0.008 | -0.011 |
| 15 <= Elixhauser Comorbidity Index < 20 | -0.008 | 0.039\*\*\* | -0.008 | 0.038\*\*\* | -0.007 | 0.038\*\*\* | -0.008 | 0.039\*\*\* | -0.008 | 0.039\*\* |
|  | -0.009 | -0.010 | -0.009 | -0.010 | -0.009 | -0.010 | -0.009 | -0.010 | -0.009 | -0.011 |
| 20 <= Elixhauser | 0.001 | 0.060\*\*\* | 0.001 | 0.060\*\*\* | 0.001 | 0.060\*\*\* | 0.001 | 0.061\*\*\* | 0.001 | 0.060\*\*\* |
|  | -0.009 | -0.012 | -0.009 | -0.012 | -0.009 | -0.012 | -0.009 | -0.012 | -0.009 | -0.013 |
|  | 18,203 | 18,203 | 18,203 | 18,203 | 18,203 | 18,203 | 18,203 | 18,203 | 17,523 | 17,523 |
|  |  |  |  |  |  |  |  |  |  |  |
| Eye | 0.044 | -0.078 | 0.049 | -0.079 | 0.044 | -0.078 | 0.044 | -0.078 | 0.081 | -0.125\*\*\* |
|  | -0.081 | -0.047 | -0.083 | -0.047 | -0.080 | -0.047 | -0.080 | -0.047 | -0.093 | -0.019 |
| ENT | -0.024 | -0.051 | -0.025 | -0.051 | -0.025 | -0.051 | -0.024 | -0.051 | -0.035 | -0.048 |
|  | -0.029 | -0.029 | -0.029 | -0.029 | -0.029 | -0.029 | -0.029 | -0.029 | -0.031 | -0.031 |
| Respiratory | -0.027 | -0.008 | -0.028 | -0.008 | -0.028 | -0.008 | -0.028 | -0.008 | -0.033\* | -0.013 |
|  | -0.016 | -0.020 | -0.016 | -0.019 | -0.016 | -0.019 | -0.0156 | -0.020 | -0.016 | -0.020 |
| Circulatory | -0.028 | -0.004 | -0.028 | -0.004 | -0.029 | -0.004 | -0.028 | -0.004 | -0.032\* | -0.009 |
|  | -0.014 | -0.020 | -0.014 | -0.020 | -0.014 | -0.020 | -0.014 | -0.020 | -0.015 | -0.020 |
| Digestive | -0.02 | 0.001 | -0.021 | 0.001 | -0.021 | 0.001 | -0.020 | 0.001 | -0.024 | -0.002 |
|  | -0.015 | -0.022 | -0.015 | -0.022 | -0.015 | -0.022 | -0.015 | -0.022 | -0.016 | -0.023 |
| Hepatobiliary/Pancreatic | -0.021 | 0.026 | -0.022 | 0.026 | -0.022 | 0.025 | -0.021 | 0.026 | -0.023 | 0.023 |
|  | -0.017 | -0.023 | -0.017 | -0.023 | -0.017 | -0.023 | -0.017 | -0.024 | -0.018 | -0.025 |
| Musculoskeletal | -0.036\* | -0.045\* | -0.036\* | -0.046\* | -0.036\* | -0.046\* | -0.036\* | -0.045\* | -0.040\* | -0.051\* |
|  | -0.017 | -0.020 | -0.017 | -0.020 | -0.017 | -0.020 | -0.017 | -0.020 | -0.018 | -0.021 |
| Skin/Subcutaneous | -0.035\* | -0.019 | -0.035\* | -0.019 | -0.035\* | -0.019 | -0.034\* | -0.019 | -0.039\* | -0.022 |
|  | -0.015 | -0.020 | -0.015 | -0.020 | -0.015 | -0.020 | -0.016 | -0.020 | -0.016 | -0.021 |
| Endocrine/Metabolic | -0.030 | -0.020 | -0.030 | -0.019 | -0.030 | -0.020 | -0.030 | -0.019 | -0.038\* | -0.024 |
|  | -0.017 | -0.022 | -0.017 | -0.022 | -0.017 | -0.021 | -0.017 | -0.022 | -0.016 | -0.023 |
| Kidney/Urinary | -0.020 | 0.011 | -0.020 | 0.010 | -0.020 | 0.010 | -0.020 | 0.011 | -0.027 | -0.001 |
|  | -0.017 | -0.021 | -0.016 | -0.02 | -0.017 | -0.021 | -0.017 | -0.021 | -0.016 | -0.021 |
| Male Reproductive | -0.052 | 0.027 | -0.053 | 0.029 | -0.053 | 0.028 | -0.052 | 0.030 | -0.056 | 0.024 |
|  | -0.041 | -0.068 | -0.040 | -0.067 | -0.040 | -0.068 | -0.040 | -0.069 | -0.041 | -0.068 |
| Female Reproductive | -0.029 | 0.019 | -0.030 | 0.018 | -0.030 | 0.018 | -0.030 | 0.019 | -0.033 | 0.017 |
|  | -0.035 | -0.034 | -0.035 | -0.033 | -0.035 | -0.033 | -0.035 | -0.034 | -0.035 | -0.035 |
| Pregnancy | -0.014 | -0.020 | -0.013 | -0.020 | -0.014 | -0.020 | -0.013 | -0.022 | -0.027 | -0.020 |
|  | -0.036 | -0.048 | -0.036 | -0.048 | -0.036 | -0.048 | -0.036 | -0.047 | -0.034 | -0.049 |
| Blood/Immunological | -0.019 | 0.045 | -0.020 | 0.044 | -0.020 | 0.044 | -0.020 | 0.045 | -0.027 | 0.040 |
|  | -0.022 | -0.036 | -0.022 | -0.036 | -0.022 | -0.036 | -0.022 | -0.036 | -0.022 | -0.038 |
| Meloproliferative DD | 0.032 | 0.147 | 0.031 | 0.150 | 0.032 | 0.147 | 0.031 | 0.147 | 0.018 | 0.159 |
|  | -0.057 | -0.086 | -0.057 | -0.087 | -0.056 | -0.087 | -0.056 | -0.087 | -0.057 | -0.087 |
| Infectious/Parasitic DD | -0.036\* | -0.007 | -0.036\* | -0.007 | -0.037\* | -0.008 | -0.036\* | -0.008 | -0.039\* | -0.011 |
|  | -0.015 | -0.020 | -0.015 | -0.020 | -0.015 | -0.020 | -0.015 | -0.020 | -0.016 | -0.021 |
| Mental | 0.039 | -0.122\*\*\* | 0.037 | -0.122\*\*\* | 0.038 | -0.122\*\*\* | 0.041 | -0.122\*\*\* | 0.037 | -0.125\*\*\* |
|  | -0.073 | -0.018 | -0.073 | -0.018 | -0.072 | -0.018 | -0.073 | -0.018 | -0.075 | -0.019 |
| Alcohol/Drug | -0.016 | -0.009 | -0.017 | -0.009 | -0.017 | -0.009 | -0.018 | -0.009 | -0.027 | -0.013 |
|  | -0.030 | -0.031 | -0.030 | -0.031 | -0.029 | -0.031 | -0.030 | -0.031 | -0.029 | -0.032 |
| Injury/Poison/Toxin | -0.030 | -0.046 | -0.031 | -0.045 | -0.031 | -0.046 | -0.030 | -0.046 | -0.032 | -0.059\* |
|  | -0.018 | -0.026 | -0.018 | -0.026 | -0.018 | -0.026 | -0.018 | -0.026 | -0.019 | -0.023 |
| Other | 0.005 | -0.007 | 0.004 | -0.007 | 0.003 | -0.008 | 0.004 | -0.008 | 0.010 | -0.009 |
|  | -0.033 | -0.039 | -0.034 | -0.039 | -0.0323 | -0.039 | -0.033 | -0.039 | -0.036 | -0.043 |
| Multiple Trauma | -0.007 | -0.034 | -0.009 | -0.035 | -0.009 | -0.034 | -0.008 | -0.032 | -0.012 | -0.050 |
|  | -0.048 | -0.036 | -0.047 | -0.036 | -0.0472 | -0.036 | -0.047 | -0.037 | -0.055 | -0.043 |
| HIV | 0.030 | -0.075\* | 0.033 | -0.076\* | 0.0281 | -0.075\* | 0.031 | -0.075\* | 0.023 | -0.077\* |
|  | -0.095 | -0.030 | -0.097 | -0.029 | -0.095 | -0.030 | -0.098 | -0.030 | -0.094 | -0.03 |
| Transplants | -0.062\* | 0.171 | -0.062\* | 0.171 | -0.062\* | 0.172 | -0.062\* | 0.170 | -0.066\*\* | 0.165 |
|  | -0.023 | -0.104 | -0.024 | -0.100 | -0.024 | -0.104 | -0.024 | -0.103 | -0.024 | -0.104 |
| Unrelated | -0.017 | 0.041 | -0.018 | 0.040 | -0.017 | 0.040 | -0.017 | 0.039 | -0.021 | 0.032 |
|  | -0.025 | -0.037 | -0.026 | -0.037 | -0.025 | -0.037 | -0.026 | -0.037 | -0.027 | -0.039 |
| Missing | -0.035 | -0.005 | -0.032 | -0.005 | -0.032 | -0.006 | -0.037 | -0.004 | -0.035 | -0.016 |
|  | -0.019 | -0.023 | -0.020 | -0.024 | -0.02 | -0.024 | -0.019 | -0.024 | -0.021 | -0.026 |

Equations are estimated simultaneously using seemingly unrelated regression equations estimation technique. Shown are marginal effects and standard errors of marginal effects. The analysis controlled for the following variables; lives alone, age, gender, race, ethnicity, payer type, Major Diagnostics Category (MDCs), Elixhauser Comorbidity Index, length of stay, prior hospitalization within 90 days, and patient type, and used unit fixed effects.

Q2 – quartile 2, Q3 – quartile 3, Q4 – quartile 4 (reference category = quartile 1)

aED/Obs: Emergency department visit or Observation stay <23 hours within 30 days post-discharge.

bNurse Continuity: Nurse Continuity is operationalized to represent the structure of the nursing care assignment as a dichotomous variable, 1= the nurse was assigned to the patient the day prior to discharge and the day of discharge and 0= discharging nurse not assigned on the prior day.

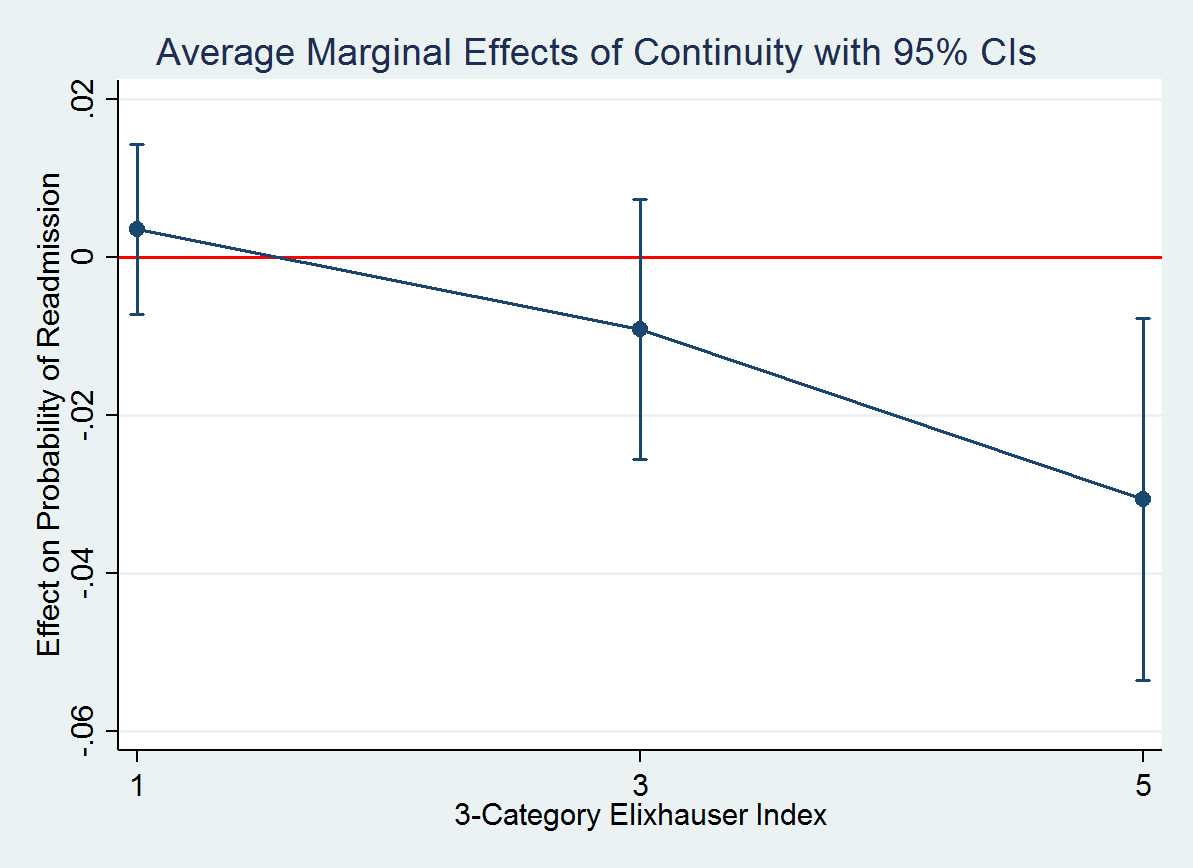
cOT - overtime

dPPD – per patient day

eElixhauser Comorbidity Index–categorization of the comorbidities based on the International Classification of Diseases (Elixhauser et al., 1998).

\*<0.05; \*\*<0.01; \*\*\*<0.001

Figure e1. Marginal effects of logistic regression of nurse continuity of discharge care on readmissions for tertiles of Elixhauser Comorbidity Indexa Scores



aElixhauser Comorbidity Index–categorization of the comorbidities based on the International Classification of Diseases (Elixhauser et al., 1998).

Table e7. Logistic regression of nurse continuity on readmissions for tertiles of Elixhauser Comorbidity Index Scores (marginal effects)

|  |  |  |
| --- | --- | --- |
|  | ED/Obsb | Readmission |
| Nurse Continuitya (average marginal effect) | 0.005 | -0.008\* |
|  | (-0.005 - 0.0151) | (-0.017 - -0.000) |
| Nurse Continuity at: |  |  |
| Lowest Elixhauserc | 0.000 | 0.004 |
|  | (-0.012 - 0.012) | (-0.007 - 0.014) |
| Middle Elixhauser | 0.006 | -0.009 |
|  | (-0.012 - 0.024) | (-0.026 - 0.007) |
| Highest Elixhauser | 0.012 | -0.031\* |
|  | (-0.007 - 0.030) | (-0.054 - -0.008) |
| Nurse Readiness for Hospital Discharge Mean | -0.003 | -0.008\*\* |
|  | (-0.085 - 0.001) | (-0.013 - -0.003) |
| Patient Readiness for Hospital Discharge Mean | -0.002 | 0.001 |
|  | (-0.006 - 0.002) | (-0.003 - 0.005) |
| Female | 0.010\* | -0.011 |
|  | (0.002 - 0.019) | (-0.024 - 0.003) |
| Age | -0.001\*\*\* | -0.000 |
|  | (-0.001 - -0.00) | (-0.001 - 0.000) |
| Native American/Alaskan | -0.010 | 0.009 |
|  | (-0.052 - 0.031) | (-0.018 - 0.035) |
| Asian | -0.035 | -0.001 |
|  | (-0.075 - 0.006) | (-0.036 - 0.034) |
| Black/African American | -0.000 | 0.010 |
|  | (-0.029 - 0.029) | (-0.013 - 0.032) |
| Hawaiian/Pacific Islander | 0.003 | -0.025 |
|  | (-0.115 - 0.121) | (-0.120 - 0.069) |
| White | -0.027 | 0.000 |
|  | (-0.060 - 0.006) | (-0.018 - 0.018) |
| Hispanic | 0.000 | -0.021 |
|  | (-0.020 - 0.021) | (-0.046 - 0.004) |
| Unknown Ethnicity | 0.007 | -0.076\*\* |
|  | (-0.008 - 0.021) | (-0.123 - -0.029) |
| Lives Alone | 0.002 | 0.001 |
|  | (-0.011 - 0.016) | (-0.009 - 0.012) |
| Medicare | 0.020\*\* | 0.018 |
|  | (0.006 - 0.034) | (-0.002 - 0.037) |
| Medicaid | 0.028\*\* | 0.031\*\* |
|  | (0.010 - 0.045) | (0.011 - 0.051) |
| Uninsured | 0.01 | 0.011 |
|  | (-0.026 - 0.046) | (-0.022 - 0.045) |
| Other Pay type | -0.004 | 0.002 |
|  | (-0.023 - 0.0145) | (-0.023 - 0.026) |
| Total Length of Stay | 0.000 | 0.003\*\*\* |
|  | (-0.001 - 0.002) | (0.002 - 0.005) |
| Eye | 0.047 | -0.079 |
|  | (-0.117 - 0.212) | (-0.174 - 0.017) |
| ENT | -0.025 | -0.051 |
|  | (-0.085 - 0.035) | (-0.120 - 0.008) |
| Respiratory | -0.028 | -0.008 |
|  | (-0.059 - 0.004) | (-0.048 - 0.032) |
| Circulatory | -0.029 | -0.0038 |
|  | (-0.058 - 0.001) | (-0.044 - 0.036) |
| Digestive | -0.020 | 0.001 |
|  | (-0.052 - 0.011) | (-0.045 - 0.046) |
| Hepatobiliary/Pancreatic | -0.0212 | 0.025 |
|  | (-0.057 - 0.013) | (-0.023 - 0.073) |
| Musculoskeletal | -0.036\* | -0.045\* |
|  | (-0.071 - -0.001) | (-0.086 - -0.005) |
| Skin/Subcutaneous | -0.035\* | -0.019 |
|  | (-0.066 - -0.003) | (-0.060 - 0.021) |
| Endocrine/Metabolic | -0.030 | -0.02 |
|  | (-0.065 - 0.004) | (-0.063 - 0.025) |
| Kidney/Urinary | -0.020 | 0.011 |
|  | (-0.054 - 0.014) | (-0.032 - 0.054) |
| Male Reproductive | -0.053 | 0.028 |
|  | (-0.134 - 0.029) | (-0.111 - 0.167) |
| Female Reproductive | -0.029 | 0.019 |
|  | (-0.101 - 0.042) | (-0.050 - 0.088) |
| Pregnancy | -0.013 | -0.021 |
|  | (-0.087 - 0.061) | (-0.118 - 0.077) |
| Blood/Immunological | -0.020 | 0.044 |
|  | (-0.064 - 0.025) | (-0.031 - 0.119) |
| Meloproliferative DD | 0.033 | 0.145 |
|  | (-0.082 - 0.148) | (-0.032 - 0.320) |
| Infectious/Parasitic DD | -0.036\* | -0.007 |
|  | (-0.067 - -0.006) | (-0.048 - 0.033) |
| Mental | 0.037 | -0.122\*\*\* |
|  | (-0.110 - 0.185) | (-0.159 - -0.085) |
| Alcohol/Drug | -0.016 | -0.010 |
|  | (-0.076 - 0.044) | (-0.073 - 0.054) |
| Injury/Poison/Toxin | -0.030 | -0.046 |
|  | (-0.068 - 0.007) | (-0.099 - 0.008) |
| Other | 0.004 | -0.008 |
|  | (-0.063 - 0.072) | (-0.088 - 0.072) |
| Multiple Trauma | -0.009 | -0.034 |
|  | (-0.106 - 0.088) | (-0.108 - 0.040) |
| HIV | 0.029 | -0.075\* |
|  | (-0.164 - 0.223) | (-0.135 - -0.015) |
| Transplants | -0.062\* | 0.167 |
|  | (-0.111 - -0.013) | (-0.039 - 0.373) |
| Unrelated | -0.017 | 0.040 |
|  | (-0.069 - 0.035) | (-0.036 - 0.116) |
| Missing | -0.033 | -0.007 |
|  | (-0.073 - 0.008) | (-0.055 - 0.040) |
| Surgical | -0.010 | -0.031\* |
|  | (-0.024 - 0.004) | (-0.054 - -0.007) |
| Med./Surg. Unknown | -0.031 | -0.035 |
|  | (-0.103 - 0.040) | (-0.092 - 0.022) |
| 30-Day Prior Hosp. | -0.0100 | 0.0343 |
|  | (-0.031 - 0.011) | (-0.002 - 0.071) |
| Unknown 30-Day Prior | -0.083\*\*\* | -0.090\*\*\* |
|  | (-0.089 - -0.078) | (-0.121 - -0.059) |
| *N* | 18,203 | 18,203 |

aNurse Continuity: Nurse Continuity is operationalized to represent the structure of the nursing care assignment as a dichotomous variable, 1= the nurse was assigned to the patient the day prior to discharge and the day of discharge and 0= discharging nurse not assigned on the prior day.

bED/Obs: Emergency department visit or Observation stay <23 hours within 30 days post-discharge.

eElixhauser Comorbidity Index–categorization of the comorbidities based on the International Classification of Diseases (Elixhauser et al., 1998).