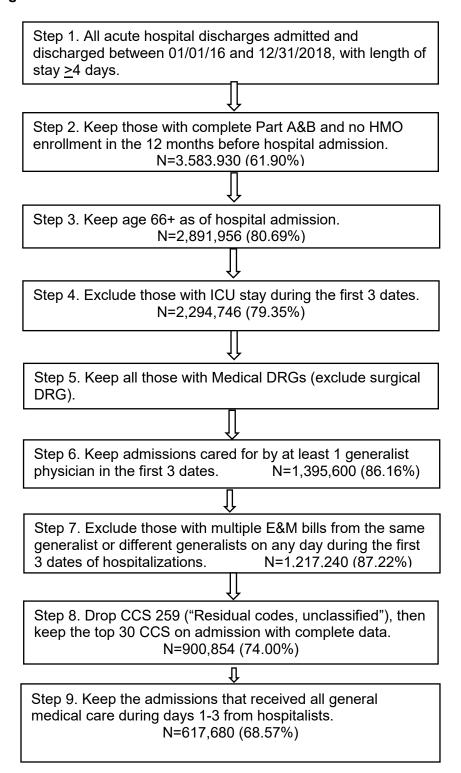
Supplemental Online Content

Goodwin JS, Li S, Hommel E, Nattinger AB, Kuo YF, Raji M. Association of inpatient continuity of care with complications and length of stay among hospitalized Medicare enrollees. *JAMA Netw Open*. 2021;4(8):e2120622. doi:10.1001/jamanetworkopen.2021.20622

eFigure. Cohort Selection
eTable 1. Odds of Adverse Effects of Medical Drugs
eTable 2. Odds of ICU Transfer for Admissions
eTable 3. Length of Stay for Admissions

This supplemental material has been provided by the authors to give readers additional information about their work.

eFigure. Cohort selection.



Abbreviations: ICU: intensive care unit; HMO, health maintenance organization; DRG, Diagnosis-related group; CCS, Clinical Classification Software; E&M, evaluation and management.

Supplement Table e1. Odds of adverse effects of medical drugs^a

| Characteristic | N (%) | Observed rate | Odds Ratio* (95% |
|--|--------------------------------|---------------|-------------------------------|
| | , | | Confidence |
| | | | Interval) |
| All | 617,680 | 7.3% | |
| # of hospitalists | | | |
| 1 | 306,037 (49.6%) | 7.0% | Reference |
| 2 | 274,658 (44.5%) | 7.6% | 1.03 (1.01-1.05) |
| 3 | 36,985 (6.0%) | 7.9% | 1.05 (1.01-1.10) |
| Age (Per year) | | | |
| Q1 (>=66; <=73) | 160,586 (26.0%) | 8.0% | Reference |
| Q2 (>=74; <=80) | 158,226 (25.6%) | 7.8% | 0.95 (0.92-0.97) |
| Q3 (>=81; <=87) | 160,506 (26.0%) | 7.2% | 0.85 (0.83-0.88) |
| Q4 (>87) | 138,362 (22.4%) | 6.1% | 0.71 (0.69-0.74) |
| Education (Percent of | | | |
| persons age 25+ in Zip | | | |
| area with high school | | | |
| education) (Per | | | |
| percent) | 455 500 (05 00() | 0.00/ | 5. |
| Q1 (<=83.0) | 155,592 (25.2%) | 6.8% | Reference |
| Q2 (>=83.1; <=89.0) | 157,402 (25.5%) | 7.2% | 1.02 (0.99-1.05) |
| Q3 (>=89.1; <=93.1) | 151,328 (24.5%) | 7.5% | 1.01 (0.98-1.05) |
| Q4 (>=93.2) | 153,358 (24.8%) | 7.9% | 1.03 (0.99-1.07) |
| Year | 105 550 (04 50() | 7.00/ | |
| 2016 | 195,558 (31.7%) | 7.3% | Reference |
| 2017 | 210,232 (34.0%) | 7.4% | 1.02 (0.99-1.04) |
| 2018 | 211,890 (34.3%) | 7.3% | 1.01 (0.99-1.03) |
| Gender | 055 004 (44 00/) | 7.40/ | D. C. |
| Male | 255,304 (41.3%) | 7.1% | Reference |
| Female | 362,376 (58.7%) | 7.5% | 1.13 (1.11-1.15) |
| Medicaid | 404.070 (70.50() | 7.00/ | Defenses |
| No | 484,979 (78.5%) | 7.6% | Reference |
| Yes | 132,701 (21.5%) | 6.4% | 0.92 (0.89-0.94) |
| Race White | 516,940 (83.7%) | 7.5% | Deference |
| Black | | 6.2% | Reference 0.83 (0.80-0.87) |
| Hispanic | 54,234 (8.8%) 26,701 (4.3%) | 6.5% | 0.94 (0.89-0.99) |
| Other | 19,805 (3.2%) | 7.5% | 1.01 (0.95-1.07) |
| Residence prior to hospit | | 7.570 | 1.01 (0.95-1.07) |
| Community | 562,986 (91.2%) | 7.4% | Reference |
| | , | | |
| Nursing facility or other institutions | 54,694 (8.9%) | 6.8% | 1.01 (0.97-1.05) |
| Emergency hospitalization | | | |
| No | 106,922 (17.3%) | 7.1% | Reference |
| Yes | 510,758 (82.7%) | 7.4% | 1.03 (0.99-1.06) |
| Weekend hospitalization | , , , | | , , |
| No | 438,932 (71.1%) | 7.3% | Reference |
| Yes | 178,748 (28.9%) | 7.3% | 1.00 (0.98-1.02) |
| 100 | 110,170 (20.070) | 1.070 | 1.00 (0.00-1.02) |

| Characteristic | N (%) | Observed rate | Odds Ratio* (95% Confidence Interval) |
|--|-----------------|---------------|---|
| CCS on admission | | | |
| 102 Nonspecific chest pain | 17,141 (2.8%) | 6.0% | Reference |
| 106 Cardiac | 16,672 (2.7%) | 8.0% | 1.28 (1.17-1.39) |
| dysrhythmias | , , | 0.0% | 1.26 (1.17-1.39) |
| 108 Congestive heart | 29,343 (4.8%) | 6.7% | 1.15 (1.06-1.24) |
| failure; nonhypertensive 109 Acute | 14,757 (2.4%) | 3.5% | 0.54 (0.49-0.61) |
| cerebrovascular | 14,757 (2.4%) | 3.5% | 0.54 (0.49-0.61) |
| disease | | | |
| 122 Pneumonia | 43,118 (7.0%) | 6.1% | 1.04 (0.96-1.12) |
| | ` , | | , |
| 127 Chronic | 23,103 (3.7%) | 9.5% | 1.59 (1.47-1.72) |
| obstructive pulmonary | | | |
| disease and | | | |
| bronchiectasis | | | |
| 131 Respiratory | 11,916 (1.9%) | 8.6% | 1.43 (1.30-1.57) |
| failure; insufficiency 133 Other lower | 88,615 (14.5%) | 7.6% | 1.27 (1.18-1.36) |
| respiratory disease | 00,013 (14.5%) | 7.0% | 1.27 (1.10-1.30) |
| 145 Intestinal | 8,821 (1.4%) | 4.7% | 0.71 (0.63-0.80) |
| | 8,821 (1.4%) | 4.7% | 0.71 (0.63-0.80) |
| obstruction without hernia | | | |
| 153 Gastrointestinal | 24,940 (4.0%) | 8.8% | 1.52 (1.41-1.64) |
| | 24,940 (4.0%) | 0.0% | 1.52 (1.41-1.04) |
| hemorrhage 155 Other | 11,586 (1.9%) | 8.7% | 1.45 (1.32-1.59) |
| | 11,360 (1.9%) | 0.170 | 1.45 (1.52-1.59) |
| gastrointestinal disorders | | | |
| 157 Acute and | 20,443 (3.3%) | 11.2% | 2.03 (1.88-2.20) |
| unspecified renal failure | 20,443 (3.370) | 11.2/0 | 2.03 (1.00-2.20) |
| 159 Urinary tract | 32,008 (5.2%) | 4.2% | 0.73 (0.67-0.80) |
| infections | 32,000 (3.270) | 4.2 /0 | 0.73 (0.07-0.00) |
| 163 Genitourinary | 5,556 (0.9%) | 9.4% | 1.68 (1.51-1.88) |
| symptoms and ill- | 3,330 (0.370) | 3.470 | 1.00 (1.51-1.00) |
| defined conditions | | | |
| 197 Skin and | 19,716 (3.2%) | 5.5% | 0.89 (0.81-0.97) |
| subcutaneous tissue | 13,7 10 (3.270) | 0.070 | 0.03 (0.01-0.51) |
| infections | | | |
| 2 Other skin | 38,449 (6.2%) | 5.3% | 0.87 (0.81-0.94) |
| disorders | 00,440 (0.270) | 0.070 | 0.07 (0.01 0.04) |
| 204 Other non- | 8,260 (1.3%) | 6.8% | 1.12 (1.02-1.24) |
| traumatic joint disorders | 0,200 (1.070) | 3.070 | 1.12 (1.02-1.27) |
| 205 Spondylosis; | 9,428 (1.5%) | 9.6% | 1.55 (1.41-1.71) |
| intervertebral disc | 0,120 (1.070) | 3.070 | |
| disorders; other back | | | |
| problems | | | |
| 211 Other connective | 13,292 (2.2%) | 6.8% | 1.12 (1.02-1.23) |
| tissue disease | . 5,252 (2.270) | 3.5,0 | |
| Characteristic | N (%) | Observed rate | Odds Ratio* (95% |
| | (/// | 3200.100.100 | Confidence |
| | | | Interval) |
| 231 Other fractures | 10,181 (1.7%) | 6.6% | 1.10 (0.99-1.22) |

| 245 Syncope | 16,212 (2.6%) | 8.6% | 1.50 (1.38-1.64) |
|--------------------------------------|------------------|---------------|------------------|
| 246 Fever of | 16,008 (2.6%) | 6.8% | 1.10 (1.01-1.20) |
| unknown origin | | | |
| 250 Nausea and | 10,747 (1.7%) | 8.7% | 1.45 (1.32-1.59) |
| vomiting | 05.405.44.40() | 2.22/ | 4.00 (0.00 4.00) |
| 251 Abdominal pain | 25,465 (4.1%) | 6.3% | 1.00 (0.92-1.08) |
| 252 Malaise and | 39,663 (6.4%) | 7.7% | 1.32 (1.23-1.42) |
| fatigue 55 Fluid and | 21,442 (3.5%) | 10.8% | 1.97 (1.83-2.13) |
| electrolyte disorders | 21,442 (3.5%) | 10.070 | 1.97 (1.03-2.13) |
| 59 Deficiency and | 7,376 (1.2%) | 7.9% | 1.39 (1.24-1.54) |
| other anemia | 7,070 (1.270) | 1.070 | 1.00 (1.24 1.04) |
| 93 Conditions | 6,343 (1.0%) | 8.8% | 1.44 (1.29-1.61) |
| associated with | , , , | | , |
| dizziness or vertigo | | | |
| 95 Other nervous | 14,815 (2.4%) | 10.1% | 1.76 (1.62-1.92) |
| system disorders | | | |
| 99 Hypertension with | 12,264 (2.0%) | 6.6% | 1.15 (1.04-1.26) |
| complications and | | | |
| secondary hypertension | | | |
| Elixhauser comorbidity Alcohol abuse | | | |
| | 004 700 (07 40/) | 7.00/ | Defenses |
| No | 601,762 (97.4%) | 7.3% | Reference |
| Yes | 15,918 (2.6%) | 6.5% | 0.93 (0.87-0.99) |
| Cardiac Arrhythmia | 004 400 (50 00() | 7.00/ | Defenda |
| No | 331,189 (53.6%) | 7.3% | Reference |
| Yes | 286,491 (46.4%) | 7.3% | 1.11 (1.08-1.13) |
| Blood Loss Anemia | 504 405 (05 70() | 7.40/ | D (|
| No | 591,125 (95.7%) | 7.4% | Reference |
| Yes | 26,555 (4.3%) | 5.8% | 0.83 (0.78-0.87) |
| Congestive Heart | | | |
| Failure No | 379,969 (61.5%) | 7.6% | Reference |
| Yes | 237,711 (38.5%) | 6.8% | |
| | 237,711 (38.5%) | 0.8% | 0.98 (0.96-1.01) |
| Chronic Pulmonary Disease | | | |
| No | 376,634 (61.0%) | 7.3% | Reference |
| Yes | 241,046 (39.0%) | 7.4% | 1.06 (1.03-1.08) |
| Coagulopathy | 211,010 (00.070) | 11170 | 1.00 (1.00 1.00) |
| No | 553,501 (89.6%) | 7.4% | Reference |
| Yes | 64,179 (10.4%) | 6.8% | 0.96 (0.93-0.99) |
| Deficiency Anemia | 31,173 (10.470) | 3.570 | 3.00 (0.00 0.00) |
| No | 510,324 (82.6%) | 7.5% | Reference |
| Yes | 107,358 (17.4%) | 6.3% | 0.89 (0.87-0.92) |
| Depression | 107,000 (17.470) | 3.070 | 3.00 (0.01-0.02) |
| No | 459,295 (74.4%) | 7.6% | Reference |
| Characteristic | N (%) | Observed rate | Odds Ratio* (95% |
| Characteristic | 14 (70) | ODSEIVEU IALE | Confidence ` |
| | | | Interval) |
| Yes | 158,385 (25.6%) | 6.5% | 0.91 (0.88-0.93) |
| Diabetes Complicated | | | |
| No | 441,206 (71.4%) | 7.5% | Reference |

| Yes | 176,474 (28.6%) | 6.9% | 0.96 (0.93-0.99) |
|------------------------------------|-------------------|---------------|---|
| Diabetes | | | |
| Uncomplicated | | | |
| No | 389,910 (63.1%) | 7.5% | Reference |
| Yes | 227,770 (36.9%) | 7.1% | 1.01 (0.98-1.04) |
| Drug Abuse | | | |
| No | 602,863 (97.6%) | 7.3% | Reference |
| Yes | 14,817 (2.4%) | 7.0% | 1.02 (0.96-1.09) |
| Fluid and Electrolyte Disorders | | | |
| No | 370,102 (59.9%) | 7.8% | Reference |
| Yes | 247,578 (40.1%) | 6.6% | 0.87 (0.85-0.89) |
| AIDS/HIV | | | , , |
| No | 616,801 (99.9%) | 7.3% | Reference |
| Yes | 879 (0.1%) | 7.4% | 1.13 (0.88-1.47) |
| Hypertension complicated | | | (2.22 |
| No | 389,947 (63.1%) | 7.7% | Reference |
| Yes | 227,733 (36.9%) | 6.7% | 0.92 (0.90-0.95) |
| Hypertension Uncomplicated | | | (0.00 0.00) |
| No | 104,392 (16.9%) | 7.3% | Reference |
| Yes | 513,288 (83.1%) | 7.3% | 1.11 (1.08-1.14) |
| Hypothyroidism | 0.0,200 (00.170) | | () |
| No | 450,545 (72.9%) | 7.3% | Reference |
| Yes | 167,135 (27.1%) | 7.2% | 1.02 (0.99-1.04) |
| Liver Disease | 107,100 (27.170) | 1.270 | 1.02 (0.00 1.04) |
| No | 583,796 (94.5%) | 7.3% | Reference |
| Yes | 33,884 (5.5%) | 7.0% | 0.95 (0.91-0.99) |
| Lymphoma | 33,004 (3.370) | 7.070 | 0.93 (0.91-0.99) |
| No | 603,924 (97.8%) | 7.2% | Reference |
| Yes | 13,756 (2.2%) | 10.6% | 1.47 (1.39-1.56) |
| Metastatic Cancer | 13,730 (2.270) | 10.070 | 1.47 (1.39-1.30) |
| | E00 022 (0E E0/) | 7.1% | Deference |
| No | 590,033 (95.5%) | | Reference |
| Yes | 27,647 (4.5%) | 11.8% | 1.55 (1.48-1.63) |
| Obesity | E44 F04 (00 00() | 7.00/ | Defense |
| No | 514,524 (83.3%) | 7.3% | Reference |
| Yes | 103,156 (16.7%) | 7.4% | 1.01 (0.98-1.04) |
| Other Neurological Disorders | | | |
| No | 501,296 (81.2%) | 7.7% | Reference |
| Yes | 116,384 (18.8%) | 5.7% | 0.83 (0.80-0.85) |
| Pulmonary Circulation Disorders | | | |
| No | 539,536 (87.4%) | 7.3% | Reference |
| Characteristic | N (%) | Observed rate | Odds Ratio* (95% Confidence Interval) |
| Yes | 78,144 (12.6%) | 7.2% | 1.01 (0.97-1.04) |
| Peptic Ulcer Disease | | | |
| excluding bleeding | | | |

| No | 604,641 (97.9%) | 7.3% | Reference |
|----------------------------------|------------------|---------------|------------------|
| Yes | 13,039 (2.1%) | 6.1% | 0.93 (0.86-1.00) |
| Peripheral Vascular Disorders | , | | |
| No | 434,811 (70.4%) | 7.6% | Reference |
| Yes | 182,869 (29.6%) | 6.6% | 0.93 (0.91-0.96) |
| Paralysis | | | , |
| No | 598,131 (96.8%) | 7.4% | Reference |
| Yes | 19,549 (3.2%) | 5.4% | 0.87 (0.81-0.93) |
| Psychoses | | | |
| No | 600,389 (97.2%) | 7.4% | Reference |
| Yes | 17,291 (2.8%) | 5.2% | 0.85 (0.79-0.91) |
| Renal Failure | , , , | | , |
| No | 401,389 (64.9%) | 7.6% | Reference |
| Yes | 216,291 (35.1%) | 6.8% | 1.03 (0.99-1.06) |
| Weight Loss | 2, 2 (221119) | - | (* (* 10 110) |
| No | 542,299 (87.8%) | 7.6% | Reference |
| Yes | 75,381 (12.2%) | 5.6% | 0.76 (0.74-0.79) |
| Valvular Disease | -,() | | (31. 31. 3) |
| No | 485,214 (78.6%) | 7.4% | Reference |
| Yes | 132,466 (21.4%) | 7.2% | 1.02 (0.99-1.05) |
| Solid Tumor without | 102,100 (211170) | 1.270 | 1.02 (0.00 1.00) |
| Metastasis | | | |
| No | 524,918 (85.0%) | 7.0% | Reference |
| Yes | 92,762 (15.0%) | 8.9% | 1.12 (1.09-1.16) |
| Rheumatoid | , , , | | , , |
| Arthritis/collagen | | | |
| No | 569,670 (92.2%) | 7.3% | Reference |
| Yes | 48,010 (7.8%) | 7.8% | 1.08 (1.04-1.11) |
| Hospital Characteristic | | | |
| Bed Size | | | |
| >500 | 158.306 (25.6%) | 7.4% | Reference |
| 350<, <=500 | 100.925 (16.3%) | 7.8% | 1.04 (0.97-1.12) |
| 200<, <=350 | 172.408 (27.9%) | 7.6% | 1.05 (0.98-1.14) |
| <=200 | 186.041 (30.1%) | 6.7% | 0.93 (0.87-1.01) |
| Urban Rural indicator | | | |
| Rural | 93.573 (15.2%) | 6.0% | Reference |
| Urban | 524.107 (84.8%) | 7.5% | 1.33 (1.26-1.41) |
| Type of provider | ` ' | | |
| Nonprofit | 460.368 (74.6%) | 7.5% | Reference |
| For profit | 81.732 (13.2%) | 6.5% | 0.89 (0.84-0.94) |
| Government | 75.580 (12.2%) | 6.8% | 0.86 (0.81-0.91) |
| Characteristic | N (%) | Observed rate | Odds Ratio* (95% |
| | , , | | Confidence ` |
| | | | Interval) |
| Major | 121.922 (19.7%) | 7.6% | Reference |
| Limited | 130.339 (21.1%) | 7.5% | 1.01 (0.94-1.09) |
| Graduate | 29.110 (4.7%) | 7.7% | 1.00 (0.89-1.11) |
| No affiliation | 336,309 (54.5%) | 7.1% | 0.96 (0.90-1.03) |

- SD, standard deviation; CCS, Clinical Classification Software; AIDS, acquired immune deficiency syndrome; HIV, human immunodeficiency virus.
- ^a Odds of adverse effect of medical drugs for admissions on day 4 or later as a function of the number of hospitalists providing care during the first 3 days of hospitalization, adjusted for patient characteristics and hospital characteristics, from a **two level multivariable** (01/01/2016-12/31/2018, 20% National Medicare data).

Supplement Table e2. Odds of ICU Transfer for Admissions^a

| Characteristic | N (%) | Observed rate | Odds Ratio* (95% Confidence Interval) |
|--------------------------|---|---------------|---|
| All | 617,680 | 1.9% | , |
| # of generalists | | | |
| 1 | 306,037 (49.6%) | 1.9% | Reference |
| 2 | 274,658 (44.5%) | 1.9% | 1.02 (0.98-1.06) |
| 3 | 36,985 (6.0%) | 2.0% | 1.03 (0.95-1.12) |
| Age (Per year) | , , | | , |
| Q1 (>=66; <=73) | 160,586 (26.0%) | 2.2% | Reference |
| Q2 (>=74; <=80) | 158,226 (25.6%) | 2.2% | 0.97 (0.92-1.02) |
| Q3 (>=81; <=87) | 160,506 (26.0%) | 1.8% | 0.82 (0.77-0.86) |
| Q4 (>87) | 138,362 (22.4%) | 1.4% | 0.66 (0.62-0.70) |
| Education (Percent of | , , , | | , , |
| persons age 25+ in Zip | | | |
| area with high school | | | |
| education) (Per | | | |
| percent) | | | |
| Q1 (<=83.0) | 155,592 (25.2%) | 2.0% | Reference |
| Q2 (>=83.1; <=89.0) | 157,402 (25.5%) | 1.9% | 0.98 (0.93-1.04) |
| Q3 (>=89.1; <=93.1) | 151,328 (24.5%) | 1.9% | 0.96 (0.91-1.02) |
| Q4 (>=93.2) | 153,358 (24.8%) | 1.9% | 0.97 (0.91-1.02) |
| Year | , , , | | , , |
| 2016 | 195,558 (31.7%) | 1.9% | Reference |
| 2017 | 210,232 (34.0%) | 1.9% | 1.01 (0.96-1.06) |
| 2018 | 211,890 (34.3%) | 1.9% | 0.98 (0.93-1.02) |
| Gender | , | | , |
| Male | 255,304 (41.3%) | 2.2% | Reference |
| Female | 362,376 (58.7%) | 1.7% | 0.84 (0.81-0.88) |
| Medicaid | , | | |
| No | 484,979 (78.5%) | 1.9% | Reference |
| Yes | 132,701 (21.5%) | 2.0% | 0.98 (0.93-1.03) |
| Race | | - | |
| White | 516,940 (83.7%) | 1.9% | Reference |
| Black | 54,234 (8.8%) | 2.2% | 1.08 (1.01-1.15) |
| Hispanic | 26,701 (4.3%) | 2.2% | 1.12 (1.02-1.23) |
| Other | 19,805 (3.2%) | 2.2% | 1.08 (0.98-1.17) |
| Residence prior to hospi | · · · · · · · · · · · · · · · · · · · | | , |
| Community | 562,986 (91.2%) | 1.9% | Reference |
| Nursing facility or | 54,694 (8.9%) | 2.3% | 1.27 (1.19-1.36) |
| other institutions | (0.070) | 2.070 | 1.27 (1.10 1.00) |
| Emergency | | | |
| hospitalization | | | |
| No | 106,922 (17.3%) | 1.7% | Reference |
| Yes | 510,758 (82.7%) | 1.9% | 1.13 (1.07-1.19) |
| Weekend hospitalization | , , , | 1.070 | 1.10 (1.07 1.10) |
| | 1 | 1 00/ | Deference |
| No | 438,932 (71.1%) | 1.9% | Reference |
| Yes | 178,748 (28.9%) | 1.8% | 0.96 (0.92-0.99) |

| Characteristic | N (%) | Observed rate | Odds Ratio* (95% Confidence Interval) |
|--|----------------|---------------|---|
| CCS on admission | | | |
| 102 Nonspecific chest pain | 17,141 (2.8%) | 1.6% | Reference |
| 106 Cardiac dysrhythmias | 16,672 (2.7%) | 1.9% | 1.34 (1.14-1.58) |
| 108 Congestive heart failure; nonhypertensive | 29,343 (4.8%) | 2.1% | 1.33 (1.15-1.54) |
| 109 Acute cerebrovascular | 14,757 (2.4%) | 1.7% | 1.31 (1.10-1.56) |
| disease | 40.440./7.00/\ | 0.00/ | 4.00 (4.47.4.00) |
| 122 Pneumonia | 43,118 (7.0%) | 2.3% | 1.68 (1.47-1.93) |
| 127 Chronic obstructive pulmonary disease and bronchiectasis | 23,103 (3.7%) | 1.7% | 1.11 (0.95-1.30) |
| 131 Respiratory failure; insufficiency | 11,916 (1.9%) | 4.1% | 2.77 (2.37-3.22) |
| 133 Other lower respiratory disease | 88,615 (14.5%) | 2.4% | 1.52 (1.34-1.73) |
| 145 Intestinal obstruction without hernia | 8,821 (1.4%) | 1.5% | 1.08 (0.88-1.34) |
| 153 Gastrointestinal hemorrhage | 24,940 (4.0%) | 1.6% | 1.04 (0.89-1.21) |
| 155 Other gastrointestinal disorders | 11,586 (1.9%) | 2.1% | 1.44 (1.21-1.72) |
| 157 Acute and unspecified renal failure | 20,443 (3.3%) | 2.0% | 1.32 (1.13-1.55) |
| 159 Urinary tract infections | 32,008 (5.2%) | 1.0% | 0.72 (0.61-0.85) |
| 163 Genitourinary symptoms and ill-defined conditions | 5,556 (0.9%) | 1.2% | 0.80 (0.61-1.05) |
| 197 Skin and subcutaneous tissue infections | 19,716 (3.2%) | 0.9% | 0.59 (0.48-0.71) |
| 2 Other skin disorders | 38,449 (6.2%) | 2.9% | 2.06 (1.80-2.36) |
| 204 Other non- traumatic joint disorders | 8,260 (1.3%) | 1.1% | 0.86 (0.67-1.09) |
| 205 Spondylosis; intervertebral disc disorders; other back problems | 9,428 (1.5%) | 1.4% | 1.02 (0.82-1.26) |
| 211 Other connective tissue disease | 13,292 (2.2%) | 1.1% | 0.81 (0.66-0.98) |
| Characteristic | N (%) | Observed rate | Odds Ratio* (95% Confidence Interval) |
| 231 Other fractures | 10,181 (1.7%) | 1.2% | 0.96 (0.77-1.20) |

| 245 Syncope | 16,212 (2.6%) | 1.3% | 0.92 (0.77-1.11) |
|--------------------------------|-----------------|-----------------|------------------|
| 246 Fever of | 16,008 (2.6%) | 1.9% | 1.27 (1.08-1.50) |
| unknown origin | , , | | , |
| 250 Nausea and | 10,747 (1.7%) | 1.8% | 1.28 (1.06-1.54) |
| vomiting | | | |
| 251 Abdominal pain | 25,465 (4.1%) | 1.7% | 1.15 (0.98-1.33) |
| 252 Malaise and | 39,663 (6.4%) | 1.7% | 1.21 (1.05-1.40) |
| fatigue | 24 442 (2 22() | | 1.21 (1.12 (.22) |
| 55 Fluid and | 21,442 (3.5%) | 1.9% | 1.31 (1.12-1.53) |
| electrolyte disorders | 7.076 (4.00/) | 4 60/ | 4.00 (0.04.4.05) |
| 59 Deficiency and other anemia | 7,376 (1.2%) | 1.6% | 1.00 (0.81-1.25) |
| 93 Conditions | 6,343 (1.0%) | 1.1% | 0.76 (0.58-0.99) |
| associated with | 0,343 (1.070) | 1.170 | 0.70 (0.30-0.99) |
| dizziness or vertigo | | | |
| 95 Other nervous | 14,815 (2.4%) | 1.7% | 1.17 (0.98-1.40) |
| system disorders | , (=) | /3 | (0.00) |
| 99 Hypertension with | 12,264 (2.0%) | 2.2% | 1.35 (1.13-1.60) |
| complications and | | | , |
| secondary hypertension | | | |
| Elixhauser comorbidity | | | |
| Alcohol abuse | | | |
| No | 601,762 (97.4%) | 1.9% | Reference |
| Yes | 15,918 (2.6%) | 2.6% | 1.07 (0.97-1.19) |
| Cardiac Arrhythmia | | | , , |
| No | 331,189 (53.6%) | 1.7% | Reference |
| Yes | 286,491 (46.4%) | 2.2% | 1.11 (1.06-1.16) |
| Blood Loss Anemia | , , , | | |
| No | 591,125 (95.7%) | 1.9% | Reference |
| Yes | 26,555 (4.3%) | 2.4% | 1.03 (0.94-1.12) |
| Congestive Heart | 20,000 (11070) | | |
| Failure | | | |
| No | 379,969 (61.5%) | 1.6% | Reference |
| Yes | 237,711 (38.5%) | 2.3% | 1.17 (1.11-1.23) |
| Chronic Pulmonary | , , , | | |
| Disease | | | |
| No | 376,634 (61.0%) | 1.7% | Reference |
| Yes | 241,046 (39.0%) | 2.3% | 1.10 (1.06-1.15) |
| Coagulopathy | , , | | , |
| No | 553,501 (89.6%) | 1.8% | Reference |
| Yes | 64,179 (10.4%) | 2.6% | 1.13 (1.06-1.19) |
| Deficiency Anemia | , , , | | , , |
| No | 510,324 (82.6%) | 1.8% | Reference |
| Yes | 107,358 (17.4%) | 2.3% | 1.03 (0.98-1.08) |
| Depression | 21,222 () | | |
| No | 459,295 (74.4%) | 1.9% | Reference |
| Characteristic | N (%) | Observed rate | Odds Ratio* (95% |
| Characteriotic | (,0) | Jacon Four late | Confidence |
| | | | Interval) |
| Yes | 158,385 (25.6%) | 1.9% | 0.88 (0.84-0.92) |
| Diabetes Complicated | , , , , | | , , |
| No | 441,206 (71.4%) | 1.8% | Reference |
| | ,= 55 () | 1 | 1 |

| Yes | 176,474 (28.6%) | 2.2% | 1.03 (0.97-1.09) |
|------------------------------------|---|---------------|---|
| Diabetes | , , | | , , |
| Uncomplicated | | | |
| No | 389,910 (63.1%) | 1.8% | Reference |
| Yes | 227,770 (36.9%) | 2.1% | 0.98 (0.93-1.03) |
| Drug Abuse | | | |
| No | 602,863 (97.6%) | 1.9% | Reference |
| Yes | 14,817 (2.4%) | 2.1% | 0.90 (0.80-1.02) |
| Fluid and Electrolyte | | | , |
| Disorders | 070 400 (50 00() | 4 70/ | Defense |
| No | 370,102 (59.9%) | 1.7% | Reference |
| Yes | 247,578 (40.1%) | 2.2% | 1.08 (1.03-1.13) |
| AIDS/HIV | | | |
| No | 616,801 (99.9%) | 1.9% | Reference |
| Yes | 879 (0.1%) | 2.4% | 0.89 (0.57-1.38) |
| Hypertension | | | |
| complicated | 000 0 1= 12= 121 | 4.70/ | |
| No | 389,947 (63.1%) | 1.7% | Reference |
| Yes | 227,733 (36.9%) | 2.3% | 1.01 (0.95-1.06) |
| Hypertension Uncomplicated | | | |
| No | 104,392 (16.9%) | 1.8% | Reference |
| Yes | 513,288 (83.1%) | 1.9% | 0.89 (0.85-0.94) |
| Hypothyroidism | , | | |
| No | 450,545 (72.9%) | 1.9% | Reference |
| Yes | 167,135 (27.1%) | 1.9% | 0.98 (0.94-1.03) |
| Liver Disease | (211176) | | (0.00 (0.00) |
| No | 583,796 (94.5%) | 1.9% | Reference |
| Yes | 33,884 (5.5%) | 2.6% | 1.10 (1.02-1.19) |
| Lymphoma | 00,001 (0.070) | 2.070 | 1.10 (1.02 1.10) |
| No | 603,924 (97.8%) | 1.9% | Reference |
| Yes | 13,756 (2.2%) | 2.5% | 1.12 (1.01-1.25) |
| Metastatic Cancer | 10,700 (2.270) | 2.070 | 1.12 (1.01-1.20) |
| No | 590,033 (95.5%) | 1.9% | Reference |
| Yes | 27,647 (4.5%) | 2.7% | 1.23 (1.12-1.34) |
| | 21,041 (4.570) | 2.7 /0 | 1.23 (1.12-1.34) |
| Obesity No | 514,524 (83.3%) | 1.8% | Reference |
| | , | | |
| Yes | 103,156 (16.7%) | 2.2% | 0.98 (0.93-1.03) |
| Other Neurological Disorders | | | |
| No | 501,296 (81.2%) | 1.9% | Reference |
| Yes | 116,384 (18.8%) | 2.1% | 1.00 (0.94-1.04) |
| Pulmonary Circulation Disorders | | | |
| No | 539,536 (87.4%) | 1.8% | Reference |
| Characteristic | N (%) | Observed rate | Odds Ratio* (95% Confidence Interval) |
| Yes | 78,144 (12.6%) | 2.7% | 1.18 (1.12-1.24) |
| Peptic Ulcer Disease | , , , , | | , |
| excluding bleeding | | | |

| No | 604,641 (97.9%) | 1.9% | Reference |
|----------------------------------|-----------------|---------------|---|
| Yes | 13,039 (2.1%) | 2.2% | 0.96 (0.85-1.09) |
| Peripheral Vascular Disorders | | | |
| No | 434,811 (70.4%) | 1.8% | Reference |
| Yes | 182,869 (29.6%) | 2.1% | 1.02 (0.98-1.06) |
| Paralysis | | | |
| No | 598,131 (96.8%) | 1.9% | Reference |
| Yes | 19,549 (3.2%) | 2.3% | 1.08 (0.98-1.20) |
| Psychoses | | | |
| No | 600,389 (97.2%) | 1.9% | Reference |
| Yes | 17,291 (2.8%) | 1.9% | 0.94 (0.84-1.06) |
| Renal Failure | | | |
| No | 401,389 (64.9%) | 1.7% | Reference |
| Yes | 216,291 (35.1%) | 2.2% | 1.08 (1.02-1.13) |
| Weight Loss | , | | , |
| No | 542,299 (87.8%) | 1.8% | Reference |
| Yes | 75,381 (12.2%) | 2.5% | 1.16 (1.10-1.23) |
| Valvular Disease | , , | | , , |
| No | 485,214 (78.6%) | 1.8% | Reference |
| Yes | 132,466 (21.4%) | 2.3% | 1.07 (1.02-1.12) |
| Solid Tumor without | , , | | , , |
| Metastasis | | | |
| No | 524,918 (85.0%) | 1.8% | Reference |
| Yes | 92,762 (15.0%) | 2.3% | 1.05 (0.99-1.11) |
| Rheumatoid | | | |
| Arthritis/collagen | (() | | |
| No | 569,670 (92.2%) | 1.9% | Reference |
| Yes | 48,010 (7.8%) | 2.1% | 1.09 (1.02-1.17) |
| Hospital Characteristic | | | |
| Bed Size | | | |
| >500 | 158.306 (25.6%) | 2.1% | Reference |
| 350<, <=500 | 100.925 (16.3%) | 1.9% | 0.95 (0.87-1.04) |
| 200<, <=350 | 172.408 (27.9%) | 2.0% | 1.00 (0.92-1.08) |
| <=200 | 186.041 (30.1%) | 1.7% | 0.86 (0.78-0.93) |
| Urban Rural indicator | | | |
| Rural | 93.573 (15.2%) | 1.5% | Reference |
| Urban | 524.107 (84.8%) | 2.0% | 1.25 (1.16-1.36) |
| Type of provider | | | |
| Nonprofit | 460.368 (74.6%) | 1.9% | Reference |
| For profit | 81.732 (13.2%) | 2.0% | 1.11 (1.03-1.19) |
| Government | 75.580 (12.2%) | 1.8% | 0.96 (0.89-1.05) |
| Characteristic | N (%) | Observed rate | Odds Ratio* (95% Confidence Interval) |
| Major | 121.922 (19.7%) | 2.1% | Reference |
| Limited | 130.339 (21.1%) | 2.0% | 0.97 (0.89-1.06) |
| Graduate | 29.110 (4.7%) | 1.8% | 0.87 (0.76-0.99) |
| No affiliation | 336,309 (54.5%) | 1.8% | 0.93 (0.85-1.01) |

ICU, intensive care unit; CCS, Clinical Classification Software; AIDS, acquired immune deficiency syndrome; HIV, human immunodeficiency virus.

^aOdds of ICU transfer for admissions on day 4 or later as a function of the number of hospitalists providing care during the first 3 days of hospitalization, adjusted for patient characteristics and hospital characteristics, from a **two level multivariable** for 01/01/2016- 12/31/2018, 20% National Medicare data.

Supplement Table e3. Length of Stay for Admissions^a

| | | | Adjusted LOS |
|---|--------------|--------------------|---------------------------|
| Characteristic | N (%) | Unadjusted | Adjusted LOS |
| | | LOS | (95% Confidence Interval) |
| | | Mean | |
| | | (SD) | |
| All | 617,680 | 5.30 (3.69) | |
| # of generalists | ĺ | , , | |
| 1 | 306,037 | 5.25 (3.58) | 5.18 (5.16-5.21) |
| • | (49.6%) | 0.20 (0.00) | 0.10 (0.10 0.21) |
| 2 | 274,658 | 5.35 (3.71) | 5.19 (5.17-5.22) |
| 2 | , | 5.55 (5.71) | 3.19 (3.17-3.22) |
| 0 | (44.5%) | 5.40 (4.40) | 5.40 (5.45.5.00) |
| 3 | 36,985 | 5.40 (4.43) | 5.18 (5.15-5.22) |
| | (6.0%) | | |
| Age (Per year) | | | |
| Q1 (>=66; | 160,586 | 5.44 (3.98) | 5.21 (5.18-5.24) |
| <=73) | (26.0%) | | |
| Q2 (>=74; | 158,226 | 5.38 (3.89) | 5.21 (5.18-5.24) |
| <=80) | (25.6%) | | · |
| Q3 (>=81; | 160,506 | 5.27 (3.62) | 5.18 (5.15-5.21) |
| <=87) | (26.0%) | () | , , |
| Q4 (>87) | 138,362 | 5.09 (3.15) | 5.15 (5.12-5.18) |
| α. (ο.) | (22.4%) | 0.00 (0.10) | 0.10 (0.12 0.10) |
| Education (Perce | | ns age 25± in | |
| Zip area with high | | | |
| | i scriooi eu | ucalion) (Fei | |
| percent) | 155 500 | E 40 (2.00) | E 22 /E 40 E 2E) |
| Q1 (<=83.0) | 155,592 | 5.40 (3.80) | 5.22 (5.19-5.25) |
| | (25.2%) | () | |
| Q2 (>=83.1; | 157,402 | 5.30 (3.77) | 5.23 (5.20-5.26) |
| <=89.0) | (25.5%) | | |
| Q3 (>=89.1; | 151,328 | 5.26 (3.72) | 5.20 (5.17-5.22) |
| <=93.1) | (24.5%) | | |
| Q4 (>=93.2) | 153,358 | 5.25 (3.47) | 5.09 (5.06-5.12) |
| | (24.8%) | | |
| Year | | | |
| 2016 | 195,558 | 5.26 (3.47) | 5.18 (5.16-5.21) |
| | (31.7%) | (51.11) | |
| 2017 | 210,232 | 5.31 (3.68) | 5.19 (5.16-5.21) |
| 2011 | (34.0%) | 3.5 (0.00) | 3.13 (3.10 3.21) |
| 2018 | <u> </u> | 5.33 (3.90) | 5.19 (5.16-5.22) |
| 2010 | (34.3%) | 0.00 (0.90) | 0.10 (0.10-0.22) |
| Gender | (0+.070) | | |
| | 0EE 004 | E 44 (2.00) | F 24 /F 24 F 27\ |
| Male | 255,304 | 5.41 (3.99) | 5.24 (5.21-5.27) |
| <u> </u> | (41.3%) | 5.00 (5.15) | 5 45 (5 40 5 45) |
| Female | 362,376 | 5.23 (3.46) | 5.15 (5.12-5.17) |
| | (58.7%) | | |
| Medicaid | | | |
| No | 484,979 | 5.24 (3.48) | 5.16 (5.13-5.18) |
| | (78.5%) | | |
| Yes | 132,701 | 5.53 (4.37) | 5.30 (5.27-5.33) |
| | (21.5%) | ` ′ | · |
| Race | | | |
| White | 516,940 | 5.24 (3.59) | 5.18 (5.15-5.21) |
| *************************************** | (83.7%) | 3.2 (0.00) | 0.10 (0.10 0.21) |
| | (00.1 /0) | | |

| Black |
|---|
| Hispanic 26,701 5.44 (4.04) 5.29 (5.26-5.33) Other |
| Other 19,805 (3.2%) 5.48 (4.02) 5.11 (5.07-5.15) Residence prior to hospitalization 562,986 (91.2%) 5.25 (3.56) 5.15 (5.13-5.18) Nursing facility or other institutions 54,694 (8.9%) 5.86 (4.81) 5.55 (5.52-5.59) Emergency hospitalization No 106,922 (17.3%) 5.26 (3.85) 5.23 (5.20-5.26) Yes 510,758 (82.7%) 5.31 (3.66) 5.18 (5.15-5.20) Weekend hospitalization No 438,932 (71.1%) 5.22 (5.20-5.25) Yes 178,748 (82.9%) 5.21 (3.62) 5.10 (5.08-5.13) Clinical Classification Software (CCS) code on admission 102 (28.9%) 4.74 (4.69-4.78) Characteristic N (%) Unadjusted LOS (95% Confidence Interval) Characteristic N (%) Unadjusted LOS (95% Confidence Interval) Congestive heart failure; nonhypertensive 4.8%) 5.57 (3.74) 5.38 (5.34-5.42) 109 Acute 14,757 4.93 (3.44) 4.91 (4.87-4.96) |
| Residence prior to hospitalization |
| Community 562,986 (91.2%) 5.25 (3.56) 5.15 (5.13-5.18) Nursing facility or other institutions Emergency hospitalization No |
| Nursing 54,694 5.86 (4.81) 5.55 (5.52-5.59) |
| Facility or other institutions Emergency hospitalization |
| other institutions Interest temperate (approximate) Interest (approxi |
| Institutions |
| No |
| No |
| No |
| Yes |
| Yes 510,758 (82.7%) 5.31 (3.66) 5.18 (5.15-5.20) Weekend hospitalization No 438,932 (71.1%) 5.34 (3.72) 5.22 (5.20-5.25) Yes 178,748 (28.9%) 5.21 (3.62) 5.10 (5.08-5.13) Clinical Classification Software (CCS) code on admission Code on admission 4.74 (4.69-4.78) 102 Nonspecific chest pain N (%) Unadjusted LOS (95% Confidence Interval) Characteristic N (%) Unadjusted LOS (95% Confidence Interval) 106 Cardiac dysrhythmias 16,672 (2.7%) 4.97 (3.11) (4.93 (4.89-4.97) 108 Congestive heart failure; nonhypertensive (4.8%) (4.8%) 5.57 (3.74) (4.93 (3.44) (4.91 (4.87-4.96)) 109 Acute 14,757 (4.93 (3.44) (4.91 (4.87-4.96)) |
| (82.7%) |
| No |
| No |
| Yes 178,748 (28.9%) 5.21 (3.62) 5.10 (5.08-5.13) Clinical Classification Software (CCS) code on admission 102 Nonspecific chest pain 17,141 (2.8%) 4.92 (3.56) 4.74 (4.69-4.78) Characteristic N (%) Unadjusted LOS (95% Confidence Interval) LOS Mean (SD) 4.97 (3.11) 4.93 (4.89-4.97) 108 Cardiac dysrhythmias 29,343 (2.7%) 5.57 (3.74) 5.38 (5.34-5.42) Congestive heart failure; nonhypertensive (4.8%) 4.93 (3.44) 4.91 (4.87-4.96) |
| Yes 178,748 (28.9%) 5.21 (3.62) 5.10 (5.08-5.13) Clinical Classification Software (CCS) code on admission 4.74 (4.69-4.78) 102 Nonspecific chest pain 17,141 (2.8%) 4.92 (3.56) 4.74 (4.69-4.78) Characteristic N (%) Unadjusted LOS (95% Confidence Interval) Mean (SD) 4.97 (3.11) 4.93 (4.89-4.97) 108 (29,343 (2.7%) 5.57 (3.74) 5.38 (5.34-5.42) Congestive heart failure; nonhypertensive 4.93 (3.44) 4.91 (4.87-4.96) |
| Clinical Classification Software (CCS) |
| Clinical Classification Software (CCS) |
| code on admission 102 17,141 4.92 (3.56) 4.74 (4.69-4.78) Nonspecific chest pain (2.8%) Adjusted LOS (95% Confidence Interval) Characteristic N (%) Unadjusted LOS (95% Confidence Interval) Mean (SD) 4.97 (3.11) 4.93 (4.89-4.97) 108 (2.7%) 4.97 (3.11) 4.93 (4.89-4.97) 108 Congestive heart failure; nonhypertensive (4.8%) 5.57 (3.74) 5.38 (5.34-5.42) 109 Acute 14,757 4.93 (3.44) 4.91 (4.87-4.96) |
| 102 17,141 4.92 (3.56) 4.74 (4.69-4.78) Nonspecific chest pain N (%) Unadjusted LOS (95% Confidence Interval) Characteristic N (%) Unadjusted LOS (95% Confidence Interval) 106 Cardiac dysrhythmias 16,672 (2.7%) 4.97 (3.11) 4.93 (4.89-4.97) 108 Congestive heart failure; nonhypertensive (4.8%) 5.57 (3.74) 5.38 (5.34-5.42) 109 Acute 14,757 4.93 (3.44) 4.91 (4.87-4.96) |
| Nonspecific chest pain Characteristic N (%) Unadjusted LOS (95% Confidence Interval) |
| chest pain N (%) Unadjusted LOS (95% Confidence Interval) 106 Cardiac dysrhythmias 16,672 (2.7%) 4.97 (3.11) 4.93 (4.89-4.97) 108 Congestive heart failure; nonhypertensive 29,343 (4.8%) 5.57 (3.74) 5.38 (5.34-5.42) 109 Acute 14,757 (4.93 (3.44)) 4.91 (4.87-4.96) |
| Characteristic N (%) Unadjusted LOS (95% Confidence Interval) 106 Cardiac dysrhythmias 16,672 (2.7%) 4.97 (3.11) 4.93 (4.89-4.97) 108 Congestive heart failure; nonhypertensive (4.8%) 5.57 (3.74) 5.38 (5.34-5.42) 109 Acute 14,757 4.93 (3.44) 4.91 (4.87-4.96) |
| LOS Mean (SD) 106 Cardiac dysrhythmias 108 29,343 Congestive heart failure; nonhypertensive 109 Acute LOS (95% Confidence Interval) 4.93 (4.89-4.97) 4.93 (4.89-4.97) 5.38 (5.34-5.42) 5.38 (5.34-5.42) |
| Mean (SD) Mean (SD) 106 Cardiac dysrhythmias 16,672 (2.7%) 4.97 (3.11) (2.7%) 108 (29,343 Congestive heart failure; nonhypertensive 5.57 (3.74) (3.74) (4.87-4.96) 109 Acute 14,757 (4.93 (3.44) (4.87-4.96)) |
| (SD) 106 Cardiac dysrhythmias 16,672 (2.7%) 4.97 (3.11) 4.93 (4.89-4.97) 108 Congestive heart failure; nonhypertensive (4.8%) 5.57 (3.74) 5.38 (5.34-5.42) 109 Acute 14,757 4.93 (3.44) 4.91 (4.87-4.96) |
| 106 Cardiac dysrhythmias 16,672 (2.7%) 4.97 (3.11) 4.93 (4.89-4.97) 108 Congestive heart failure; nonhypertensive (4.8%) 5.57 (3.74) 5.38 (5.34-5.42) 109 Acute 14,757 4.93 (3.44) 4.91 (4.87-4.96) |
| dysrhythmias (2.7%) 108 29,343 5.57 (3.74) 5.38 (5.34-5.42) Congestive heart failure; nonhypertensive (4.8%) 4.91 (4.87-4.96) 109 Acute 14,757 4.93 (3.44) 4.91 (4.87-4.96) |
| 108 29,343 5.57 (3.74) 5.38 (5.34-5.42) Congestive |
| Congestive heart failure; nonhypertensive 109 Acute 14,757 4.93 (3.44) 4.91 (4.87-4.96) |
| heart failure; nonhypertensive 109 Acute 14,757 4.93 (3.44) 4.91 (4.87-4.96) |
| nonhypertensive 4.93 (3.44) 4.91 (4.87-4.96) |
| 109 Acute 14,757 4.93 (3.44) 4.91 (4.87-4.96) |
| |
| UCICUIOVASUUIAI (2.4/0) |
| |
| disease |
| 122 43,118 5.40 (3.37) 5.42 (5.39-5.46) |
| Pneumonia (7.0%) |
| 127 Chronic 23,103 5.08 (2.91) 5.10 (5.06-5.14) |
| obstructive (3.7%) |
| pulmonary |
| |
| disease and |
| disease and bronchiectasis |
| disease and bronchiectasis 131 11,916 5.87 (4.40) 5.72 (5.66-5.77) |
| disease and bronchiectasis 5.87 (4.40) 131 11,916 Respiratory (1.9%) 5.87 (4.40) 5.72 (5.66-5.77) |
| disease and bronchiectasis 131 |
| disease and bronchiectasis 5.87 (4.40) 5.72 (5.66-5.77) Respiratory failure; insufficiency (1.9%) 5.72 (5.66-5.77) |
| disease and bronchiectasis 131 |

| | | 1 | T |
|-----------------------|------------------|----------------------------|--------------------------------------|
| respiratory | | | |
| disease | 0.004 | 5.00 (0.00) | 5.05 (5.00.5.04) |
| 145 Intestinal | 8,821 | 5.26 (3.29) | 5.25 (5.20-5.31) |
| obstruction | (1.4%) | | |
| without hernia | 04.040 | 4.00 (0.40) | 470 (400 475) |
| 153 | 24,940 | 4.88 (3.16) | 4.72 (4.68-4.75) |
| Gastrointestinal | (4.0%) | | |
| hemorrhage | 44.500 | 5 77 (4 O4) | 5.50 (5.54.5.04) |
| 155 Other | 11,586 | 5.77 (4.21) | 5.56 (5.51-5.61) |
| gastrointestinal | (1.9%) | | |
| disorders | 00.440 | 5.70 (4.00) | 5.50 (5.47.5.50) |
| 157 Acute | 20,443 | 5.72 (4.38) | 5.52 (5.47-5.56) |
| and unspecified | (3.3%) | | |
| renal failure | 00.000 | 4.07 (0.50) | 4.04 (4.00 4.05) |
| 159 Urinary | 32,008 | 4.97 (3.50) | 4.91 (4.88-4.95) |
| tract infections | (5.2%) | 5 00 (4 00) | 5.00 (5.00 5.40) |
| 163 | 5,556 | 5.28 (4.08) | 5.09 (5.03-5.16) |
| Genitourinary | (0.9%) | | |
| symptoms and | | | |
| ill-defined | | | |
| conditions | | (2. 2.2) | |
| 197 Skin and | 19,716 | 5.14 (3.36) | 5.12 (5.08-5.16) |
| subcutaneous | (3.2%) | | |
| tissue infections | | | |
| 2 Other skin | 38,449 | 5.98 (4.68) | 5.83 (5.79-5.87) |
| disorders | (6.2%) | | |
| 204 Other | 8,260 | 4.60 (2.98) | 4.61 (4.56-4.66) |
| non-traumatic | (1.3%) | | |
| joint disorders | | | |
| 205 | 9,428 | 5.13 (3.53) | 5.10 (5.04-5.15) |
| Spondylosis; | (1.5%) | | |
| intervertebral | | | |
| disc disorders; | | | |
| other back | | | |
| problems | | - (1 (1) | |
| 211 Other | 13,292 | 5.13 (4.57) | 5.05 (5.00-5.09) |
| connective | (2.2%) | | |
| tissue disease | 40.404 | 4.50 (0.00) | 1.00 (4.57.4.07) |
| 231 Other | 10,181 | 4.53 (2.98) | 4.62 (4.57-4.67) |
| fractures | (1.7%) | 4.70 (2.21) | 1.00 (4.50 4.07) |
| 245 Syncope | 16,212 | 4.73 (3.04) | 4.63 (4.59-4.67) |
| | (2.6%) | | |
| 246 Fever of | 16,008 | 5.48 (3.59) | 5.29 (5.25-5.34) |
| unknown origin | (2.6%) | | |
| Characteristic | N (%) | Unadjusted | Adjusted LOS |
| | | LOS | (95% Confidence Interval) |
| | | Mean | |
| | 10 = 1 | (SD) | |
| 250 Nausea | 10,747 | 5.31 (3.59) | 5.21 (5.16-5.27) |
| and vomiting | (1.7%) | | |
| | | | |
| 251 | 25,465 | 5.29 (3.44) | 5.20 (5.16-5.24) |
| 251 Abdominal pain | 25,465 (4.1%) | , , | |
| 251 | 25,465 | 5.29 (3.44) 5.23 (3.85) | 5.20 (5.16-5.24) 5.14 (5.10-5.17) |

| 55 Fluid and | 24 442 | E 20 (2 00) | 5.22 (5.17-5.26) |
|-------------------|-----------|-------------|-------------------|
| | 21,442 | 5.39 (3.90) | 0.22 (0.17-0.20) |
| electrolyte | (3.5%) | | |
| disorders | | | |
| 59 Deficiency | 7,376 | 5.40 (3.83) | 5.11 (5.05-5.17) |
| and other | (1.2%) | | |
| anemia | | | |
| 93 Conditions | 6,343 | 4.54 (3.20) | 4.51 (4.46-4.57) |
| associated with | (1.0%) | , , | |
| dizziness or | (******) | | |
| vertigo | | | |
| 95 Other | 14,815 | 5.39 (4.38) | 5.22 (5.17-5.26) |
| | | 5.39 (4.36) | 3.22 (3.17-3.20) |
| nervous system | (2.4%) | | |
| disorders | | | |
| 99 | 12,264 | 5.56 (3.61) | 5.31 (5.26-5.37) |
| Hypertension | (2.0%) | | |
| with | | | |
| complications | | | |
| and secondary | | | |
| hypertension | | | |
| Elixhauser | | | |
| comorbidity | | | |
| Alcohol abuse | | | |
| | 224 722 | = 00 (0 00) | 5 40 (5 40 5 04) |
| No | 601,762 | 5.29 (3.66) | 5.18 (5.16-5.21) |
| | (97.4%) | | |
| Yes | 15,918 | 5.76 (4.74) | 5.28 (5.23-5.32) |
| | (2.6%) | | |
| Cardiac | , | | |
| Arrhythmia | | | |
| No | 331,189 | 5.14 (3.49) | 5.14 (5.12-5.17) |
| 140 | (53.6%) | 0.14 (0.40) | 0.14 (0.12-0.17) |
| Yes | | E 40 (2 04) | F 24 /F 24 F 26) |
| res | 286,491 | 5.49 (3.91) | 5.24 (5.21-5.26) |
| | (46.4%) | | |
| Blood Loss | | | |
| Anemia | | | |
| No | 591,125 | 5.28 (3.67) | 5.19 (5.16-5.21) |
| | (95.7%) | | |
| Yes | 26,555 | 5.72 (4.12) | 5.22 (5.18-5.26) |
| | (4.3%) | (/ | |
| Congestive Heart | | <u> </u> | |
| | 1 | E 42 (2.00) | E 14 (E 10 E 17) |
| No | 379,969 | 5.13 (3.62) | 5.14 (5.12-5.17) |
| | (61.5%) | | |
| Yes | 237,711 | 5.58 (3.80) | 5.26 (5.23-5.29) |
| | (38.5%) | | |
| Chronic Obstructi | ve Pulmon | ary Disease | |
| No | 376,634 | 5.19 (3.66) | 5.17 (5.15-5.20) |
| | (61.0%) | 3.10 (0.00) | (5.70 5.20) |
| Yes | 241,046 | 5.48 (3.73) | 5.21 (5.18-5.24) |
| 169 | | J.40 (J.73) | J.21 (J. 10-J.24) |
| 0 | (39.0%) | | |
| Coagulopathy | | | |
| No | 553,501 | 5.24 (3.62) | 5.17 (5.14-5.19) |
| | (89.6%) | | |
| Yes | 64,179 | 5.87 (4.21) | 5.35 (5.32-5.38) |
| | (10.4%) | ' | · |
| L | () | I | I . |

| D. C. i. | | | |
|--------------------------|--------------------|-------------|---------------------------|
| Deficiency | | | |
| Anemia | E40.001 | F 00 (0 F0) | F 40 (F 45 5 00) |
| No | 510,324 (82.6%) | 5.22 (3.56) | 5.18 (5.15-5.20) |
| Yes | 107,358 (17.4%) | 5.69 (4.23) | 5.24 (5.21-5.27) |
| Depression | | | |
| No | 459,295 | 5.24 (3.56) | 5.19 (5.16-5.21) |
| | (74.4%) | (3.22) | |
| Yes | 158,385 (25.6%) | 5.49 (4.03) | 5.18 (5.15-5.21) |
| Diabetes Complicated | | | |
| No | 441,206 (71.4%) | 5.21 (3.62) | 5.18 (5.15-5.20) |
| Yes | 176,474 (28.6%) | 5.54 (3.87) | 5.24 (5.21-5.27) |
| Diabetes | | | |
| Uncomplicated | | | |
| Characteristic | N (%) | Unadjusted | Adjusted LOS |
| | | LOS | (95% Confidence Interval) |
| | | Mean | |
| NI- | 200.040 | (SD) | F 40 (F 40 F 94) |
| No | 389,910 | 5.21 (3.56) | 5.19 (5.16-5.21) |
| Yes | (63.1%) 227,770 | 5.46 (3.91) | 5.18 (5.15-5.21) |
| | (36.9%) | J.40 (J.81) | 3.10 (3.13-3.21) |
| Drug Abuse | | | |
| No | 602,863 (97.6%) | 5.30 (3.66) | 5.19 (5.16-5.21) |
| Yes | 14,817 (2.4%) | 5.62 (4.71) | 5.14 (5.10-5.19) |
| Fluid and Electroly | | ers | |
| No | 370,102 (59.9%) | 5.05 (3.35) | 5.10 (5.08-5.13) |
| Yes | 247,578 (40.1%) | 5.67 (4.12) | 5.32 (5.29-5.34) |
| AIDS/HIV | (121.72) | | |
| No | 616,801 (99.9%) | 5.30 (3.69) | 5.18 (5.16-5.21) |
| Yes | 879 (0.1%) | 5.92 (4.13) | 5.07 (4.91-5.23) |
| Hypertension complicated | , , | | |
| No | 389,947 (63.1%) | 5.12 (3.47) | 5.19 (5.16-5.21) |
| Yes | 227,733 (36.9%) | 5.62 (4.03) | 5.18 (5.16-5.21) |
| Hypertension Unc | | <u> </u> | |
| No | 104,392 (16.9%) | 5.17 (3.71) | 5.32 (5.29-5.35) |
| Yes | 513,288 (83.1%) | 5.33 (3.69) | 5.16 (5.13-5.19) |
| Hypothyroidism | , , | | |

| Liver Disease No Yes (Liver Disease No Yes (Lymphoma No Yes (Metastatic Cancer No Yes (Yes (Cancer No Yes (Cancer No Yes (Cancer No Cancer Cancer No Cancer N | 450,545 (72.9%) 167,135 (27.1%) 583,796 (94.5%) 33,884 (5.5%) 603,924 (97.8%) 13,756 (2.2%) 590,033 (95.5%) 27,647 | 5.29 (3.74) 5.33 (3.57) 5.27 (3.61) 5.81 (4.82) 5.29 (3.68) 5.78 (4.09) | 5.19 (5.17-5.22) 5.17 (5.14-5.20) 5.18 (5.16-5.21) 5.26 (5.22-5.30) 5.18 (5.16-5.21) 5.43 (5.38-5.48) 5.18 (5.15-5.20) |
|--|--|--|--|
| Yes Liver Disease No Yes Lymphoma No Yes Metastatic Cancer No Yes Yes Cancer No Yes Cancer No Yes | 167,135 (27.1%) 583,796 (94.5%) 33,884 (5.5%) 603,924 (97.8%) 13,756 (2.2%) 590,033 (95.5%) | 5.27 (3.61) 5.81 (4.82) 5.29 (3.68) 5.78 (4.09) | 5.18 (5.16-5.21) 5.26 (5.22-5.30) 5.18 (5.16-5.21) 5.43 (5.38-5.48) |
| Liver Disease No Yes Lymphoma No Yes Metastatic Cancer No Yes Yes () | 583,796 (94.5%) 33,884 (5.5%) 603,924 (97.8%) 13,756 (2.2%) 590,033 (95.5%) | 5.81 (4.82) 5.29 (3.68) 5.78 (4.09) | 5.26 (5.22-5.30) 5.18 (5.16-5.21) 5.43 (5.38-5.48) |
| No Yes Cymphoma No Yes Metastatic Cancer No Yes Yes Cancer No Yes Cancer No Yes Cancer No Cancer | (94.5%) 33,884 (5.5%) 603,924 (97.8%) 13,756 (2.2%) 590,033 (95.5%) | 5.81 (4.82) 5.29 (3.68) 5.78 (4.09) | 5.26 (5.22-5.30) 5.18 (5.16-5.21) 5.43 (5.38-5.48) |
| Yes (Yes (Lymphoma (No (Yes (Metastatic Cancer (No (Yes (Yes (Metastatic (Cancer (No (Yes (Yes (Yes (Yes (Yes (Yes (Yes (Yes (Yes (Yes (| (94.5%) 33,884 (5.5%) 603,924 (97.8%) 13,756 (2.2%) 590,033 (95.5%) | 5.81 (4.82) 5.29 (3.68) 5.78 (4.09) | 5.26 (5.22-5.30) 5.18 (5.16-5.21) 5.43 (5.38-5.48) |
| Yes (Lymphoma No (Yes (Metastatic Cancer No (Yes (Cancer (Ca | 33,884 (5.5%) 603,924 (97.8%) 13,756 (2.2%) 590,033 (95.5%) | 5.29 (3.68) 5.78 (4.09) | 5.18 (5.16-5.21) 5.43 (5.38-5.48) |
| Lymphoma No Yes Metastatic Cancer No Yes (Yes | (5.5%) 603,924 (97.8%) 13,756 (2.2%) 590,033 (95.5%) | 5.29 (3.68) 5.78 (4.09) | 5.18 (5.16-5.21) 5.43 (5.38-5.48) |
| Lymphoma No (Yes (Metastatic Cancer No (Yes (Cancer Cancer Cancer Cancer Cancer Cancer Cancer | 603,924 (97.8%) 13,756 (2.2%) 590,033 (95.5%) | 5.78 (4.09) | 5.43 (5.38-5.48) |
| Metastatic Cancer No Yes (| (97.8%) 13,756 (2.2%) 590,033 (95.5%) | 5.78 (4.09) | 5.43 (5.38-5.48) |
| Yes (Metastatic Cancer No (Yes (| 13,756 (2.2%) 590,033 (95.5%) | , | |
| Metastatic Cancer No (Yes (| 590,033 (95.5%) | 5.28 (3.68) | 5 18 (5 15 5 20) |
| No (| (95.5%) | 5.28 (3.68) | 5 18 (5 15 5 20) |
| Yes (| (95.5%) | 5.28 (3.68) | 5 18 (5 15 5 20) |
| (| 27,647 | | 3.10 (3.13-3.20 <i>)</i> |
| | (4.5%) | 5.85 (4.00) | 5.43 (5.39-5.47) |
| | | | |
| | 514,524 (83.3%) | 5.24 (3.65) | 5.17 (5.15-5.20) |
| Yes | 103,156 (16.7%) | 5.62 (3.89) | 5.27 (5.24-5.30) |
| Other Neurological | | | |
| | 501,296 | 5.22 (3.48) | 5.16 (5.14-5.19) |
| | (81.2%) | (****) | |
| | 116,384 (18.8%) | 5.67 (4.47) | 5.28 (5.25-5.31) |
| Pulmonary Circulati | | ders | |
| | 539,536 (87.4%) | 5.23 (3.63) | 5.16 (5.14-5.19) |
| Yes | 78,144 (12.6%) | 5.78 (4.04) | 5.34 (5.31-5.37) |
| Peptic Ulcer Diseas | | ng bleeding | |
| | 604,641 | 5.29 (3.68) | 5.19 (5.16-5.21) |
| (| (97.9%) | , , | , , |
| | 13,039 (2.1%) | 5.77 (4.42) | 5.26 (5.21-5.31) |
| Peripheral Vascular | r Disorder | | |
| | 434,811 (70.4%) | 5.23 (3.61) | 5.19 (5.16-5.21) |
| Yes | 182,869 (29.6%) | 5.48 (3.87) | 5.18 (5.16-5.21) |
| Paralysis | . / | | |
| No 5 | 598,131 (96.8%) | 5.28 (3.60) | 5.18 (5.15-5.20) |
| | N (%) | Unadjusted LOS Mean (SD) | Adjusted LOS (95% Confidence Interval) |
| | 19,549 (3.2%) | 5.92 (5.79) | 5.44 (5.39-5.48) |

| | | | - |
|----------------------|--------------|--------------|--------------------|
| Psychoses | | | |
| No | 600,389 | 5.28 (3.64) | 5.18 (5.15-5.20) |
| | (97.2%) | , , | |
| Yes | 17,291 | 5.96 (5.23) | 5.52 (5.47-5.56) |
| | (2.8%) | , , | , |
| Renal Failure | | | |
| No | 401,389 | 5.14 (3.48) | 5.13 (5.10-5.16) |
| | (64.9%) | (5111) | |
| Yes | 216,291 | 5.61 (4.04) | 5.29 (5.26-5.32) |
| | (35.1%) | 0.0 . () | 0.20 (0.20 0.02) |
| Weight Loss | (33.173) | | |
| No | 542,299 | 5.21 (3.55) | 5.15 (5.12-5.17) |
| NO | (87.8%) | 0.21 (0.00) | 0.10 (0.12-0.17) |
| Yes | 75,381 | 5.95 (4.55) | 5.48 (5.45-5.52) |
| 165 | (12.2%) | 3.93 (4.33) | 3.40 (3.43-3.32) |
| Valvular | (12.270) | | |
| Disease | | | |
| No | 485,214 | 5.24 (3.68) | 5.19 (5.16-5.22) |
| INU | | 3.24 (3.00) | 3.18 (3.10-3.22) |
| V | (78.6%) | F FO (0.70) | F 40 (F 45 5 04) |
| Yes | 132,466 | 5.53 (3.72) | 5.18 (5.15-5.21) |
| Callel Turns and 120 | (21.4%) | | |
| Solid Tumor witho | | | T = 40 (5 45 5 00) |
| No | 524,918 | 5.26 (3.66) | 5.18 (5.15-5.20) |
| | (85.0%) | | |
| Yes | 92,762 | 5.57 (3.88) | 5.23 (5.20-5.26) |
| | (15.0%) | | |
| Rheumatoid Arthr | itis/collage | | |
| No | 569,670 | 5.30 (3.71) | 5.19 (5.16-5.21) |
| | (92.2%) | | |
| Yes | 48,010 | 5.36 (3.51) | 5.17 (5.13-5.20) |
| | (7.8%) | | |
| Hospital | | | |
| Characteristic | | | |
| Bed Size | | | |
| >500 | 158.306 | 5.72 (4.21) | 5.45 (5.38-5.52) |
| /300 | | 0.12 (4.21) | 0.70 (0.00-0.02) |
| 250 . 500 | (25.6%) | F F 4 (0.00) | 5.00 (5.04 5.45) |
| 350<, <=500 | 100.925 | 5.54 (3.90) | 5.38 (5.31-5.45) |
| | (16.3%) | | |
| 200<, <=350 | 172.408 | 5.36 (3.62) | 5.23 (5.18-5.28) |
| | (27.9%) | | |
| <=200 | 186.041 | 4.90 (2.94) | 4.84 (4.80-4.88) |
| | (30.1%) | (/ | , , , |
| Urban Rural | (50.170) | | |
| | | | |
| indicator | 02.552 | 4.00 (0.75) | A 04 (4 00 A 05) |
| Rural | 93.573 | 4.82 (2.75) | 4.91 (4.86-4.95) |
| | (15.2%) | | |
| Urban | 524.107 | 5.43 (3.79) | 5.24 (5.21-5.26) |
| | (84.8%) | | |
| Type of | | | |
| provider | | | |
| Nonprofit | 460.368 | 5.35 (3.68) | 5.18 (5.15-5.21) |
| rvonpront | | J.JJ (J.UU) | 0.10 (0.10-0.21) |
| | (74.6%) | | |

| For profit | 81.732 | 5.30 (3.46) | 5.23 (5.17-5.29) |
|----------------|---------|-------------|------------------|
| | (13.2%) | | |
| Government | 75.580 | 5.28 (3.62) | 5.18 (5.13-5.24) |
| | (12.2%) | | |
| Medical School | | | |
| Affiliation | | | |
| Major | 121.922 | 5.73 (4.28) | 5.40 (5.34-5.47) |
| | (19.7%) | | |
| Limited | 130.339 | 5.42 (3.82) | 5.24 (5.19-5.30) |
| | (21.1%) | | |
| Graduate | 29.110 | 5.49 (3.71) | 5.32 (5.20-5.44) |
| | (4.7%) | | |
| No affiliation | 336,309 | 5.15 (3.30) | 5.08 (5.04-5.11) |
| | (54.5%) | | |

LOS, length of stay; SD, standard deviation; AIDS, acquired immune deficiency syndrome; HIV, human immunodeficiency virus.

^aLength of stay for admissions on day 4 or later as a function of the number of hospitalists providing care during the first 3 days of hospitalization, adjusted for patient characteristics, from a **two level multivariable** in Model 2 (for the period 01/01/2016 to 12/31/2018, 20% National Medicare data).