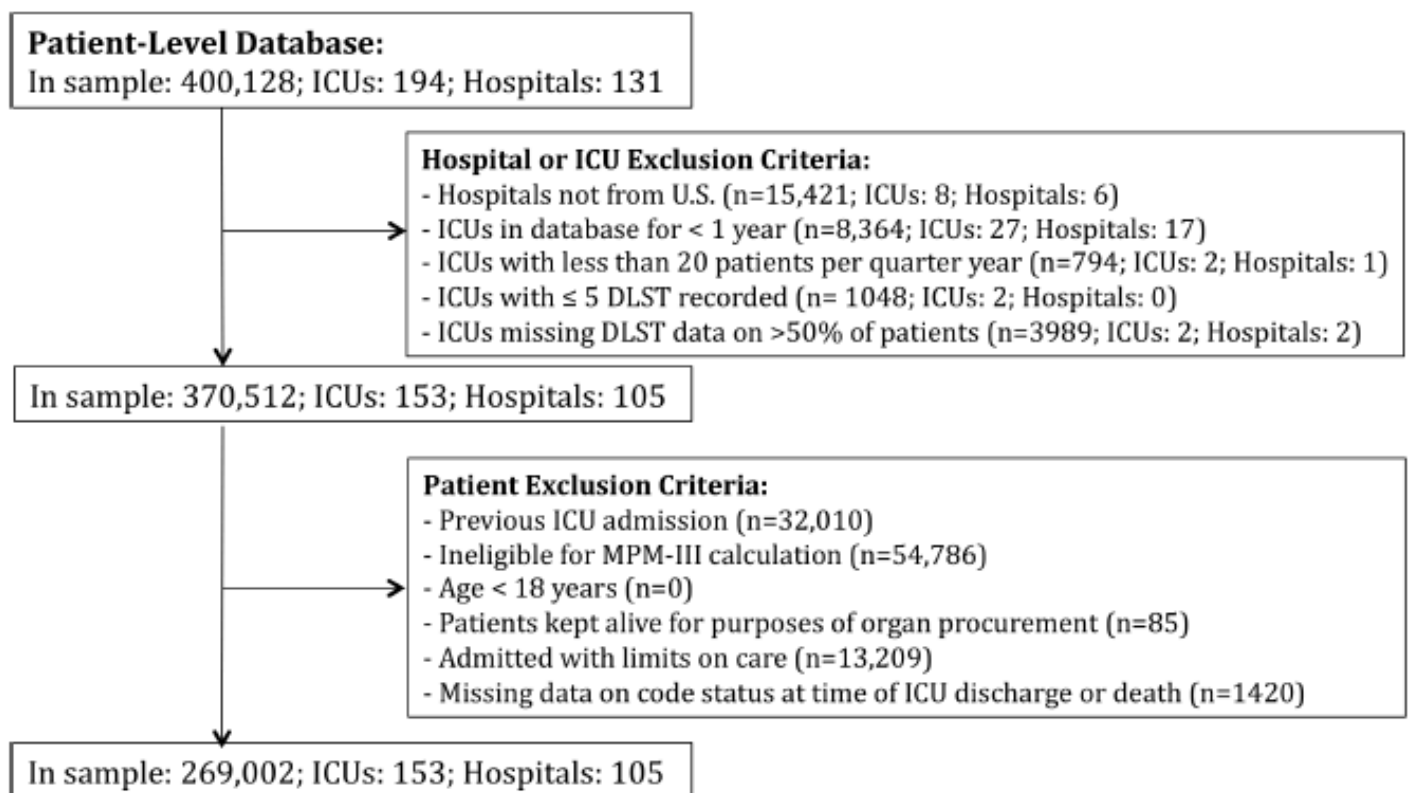


Variation in Decisions to Forgo Life-Sustaining Therapies in US ICUs

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e-Figure 1.



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e-Table 1: Bivariate analysis

| Patient Characteristics at the Time of First ICU Admission | Bivariable Models | | | p value |
|--|-------------------|------|--------------------------|---------|
| | Total number (n) | % | % DFLST at ICU discharge | |
| Number of patients, n | 269,002 | | 11.7 | |
| Age | | | | |
| <65 | 151,965 | 56.5 | 7.6 | - |
| 65-74 | 52,650 | 19.6 | 12.7 | *** |
| 75-84 | 48,461 | 18.0 | 18.2 | *** |
| >84 | 15,926 | 5.9 | 27.2 | *** |
| Race/ethnicity, % | | | | |
| White | 205,925 | 76.5 | 12.2 | - |
| Black | 39,184 | 14.6 | 10.0 | *** |
| Other | 16,080 | 6.0 | 10.1 | *** |
| Sex | | | | |
| Male | 146,316 | 54.4 | 11.0 | - |
| Female | 122,627 | 45.6 | 12.4 | *** |
| Functional status on admission | | | | |
| Independent | 211,204 | 78.5 | 8.7 | - |
| Partially dependent | 40,210 | 14.9 | 20.4 | *** |
| Fully dependent | 16,032 | 6.0 | 27.6 | *** |
| Insurance | | | | |
| Private | 80,707 | 30.0 | 7.5 | - |
| Medicare | 129,243 | 48.0 | 15.7 | *** |
| Medicaid | 23,383 | 8.7 | 9.0 | *** |
| Self-pay | 24,539 | 9.1 | 8.5 | *** |
| Other | 8,289 | 3.1 | 7.9 | 0.168 |
| Source of ICU admission | | | | |
| Emergency department | 110,336 | 41.0 | 12.3 | - |
| Direct admission | 16,763 | 6.2 | 15.0 | *** |
| General care floor | 33,284 | 12.4 | 20.8 | *** |
| Step-down unit | 7,730 | 2.9 | 22.8 | *** |
| Procedure | 89,127 | 33.1 | 5.4 | *** |
| SNF, rehab, LTACH | 1,607 | 0.6 | 21.0 | *** |
| Another ICU | 4,689 | 1.7 | 19.1 | *** |
| Other | 5,407 | 2.0 | 9.5 | *** |
| Patient type | | | | |
| Elective surgery | 59,544 | 22.1 | 3.1 | - |
| Emergency surgery | 33,440 | 12.4 | 10.6 | *** |
| Medical | 176,017 | 65.4 | 14.8 | *** |

*** p-value <0.001

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e-Table 2: Comorbid Conditions Included in Final Model

| |
|---|
| Cardiovascular disease |
| Gastrointestinal disease |
| Chronic hemodialysis or peritoneal dialysis |
| Chronic immunosuppression |
| HIV |
| Lymphoma, leukemia, or myeloma |
| Cancer with proven metastasis |
| Baseline creatinine > 2mg/dl |
| Hematogenous cancer within the last 5 years |
| Chronic lymphoma |
| Solid organ tumor within the last 5 years |

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e-Table 3: Sensitivity Analysis

| Patient Characteristics at the Time of First ICU Admission | Full model, only patients with DFLST data recorded | All missing coded as negative outcome | All missing coded as positive outcome |
|--|--|---------------------------------------|---------------------------------------|
| | OR (95% CI) | OR (95% CI) | OR (95% CI) |
| Age | | | |
| <65 | reference | reference | reference |
| 65-74 | 1.50 (1.43 – 1.58) | 1.50 (1.43 – 1.59) | 1.46 (1.39 – 1.53) |
| 75-84 | 2.18 (2.07 – 2.30) | 2.16 (2.06 – 2.27) | 2.05 (1.96 – 2.15) |
| >84 | 3.44 (3.23 – 3.67) | 3.36 (3.16 – 3.57) | 3.14 (2.96 – 3.33) |
| Race/ethnicity, % | | | |
| White | reference | - | reference |
| Black | 0.73 (0.70 – 0.77) | 0.70 (0.67 – 0.73) | 0.69 (0.66 – 0.72) |
| Other | 0.79 (0.74 – 0.85) | 0.74 (0.69 – 0.79) | 0.73 (0.68 – 0.78) |
| Sex | | | |
| Male | reference | - | reference |
| Female | 1.09 (1.05 – 1.12) | 1.08 (1.05 – 1.12) | 1.08 (1.05 – 1.11) |
| Functional status on admission | | | |
| Independent | reference | - | reference |
| Partially dependent | 1.78 (1.71 – 1.85) | 1.73 (1.67 – 1.79) | 1.68 (1.62 – 1.74) |
| Fully dependent | 2.29 (2.16 – 2.42) | 2.12 (2.02 – 2.22) | 2.06 (1.96 – 2.16) |
| Insurance | | | |
| Private | reference | - | reference |
| Medicare | 1.12 (1.07 – 1.17) | 1.12 (1.07 – 1.18) | 1.12 (1.07 – 1.17) |
| Medicaid | 1.03 (0.96 – 1.10) | 1.03 (0.97 – 1.10) | 1.02 (0.96 – 1.08) |
| Self-pay | 1.15 (1.08 – 1.22) | 1.17 (1.09 – 1.24) | 1.14 (1.07 – 1.21) |
| Other | 1.04 (0.94 – 1.15) | 1.01 (0.91 – 1.11) | 1.00 (0.91 – 1.11) |
| Source of ICU admission | | | |
| Emergency department | reference | - | reference |
| Direct admission | 1.06 (1.00 – 1.13) | 1.05 (0.99 – 1.11) | 1.02 (0.96 – 1.08) |
| General care floor | 1.56 (1.49 – 1.64) | 1.52 (1.46 – 1.59) | 1.50 (1.44 – 1.56) |
| Step-down unit | 1.45 (1.34 – 1.56) | 1.43 (1.33 – 1.54) | 1.39 (1.30 – 1.49) |
| Procedure | 0.76 (0.70 – 0.81) | 0.75 (0.70 – 0.80) | 0.73 (0.69 – 0.78) |
| SNF, rehab, LTACH | 0.77 (0.65 – 0.91) | 0.78 (0.70 – 0.91) | 0.78 (0.67 – 0.91) |
| Another ICU | 1.12 (1.01 – 1.24) | 1.05 (0.95 – 1.15) | 1.02 (0.93 – 1.12) |
| Other | 0.77 (0.68 – 0.87) | 0.78 (0.70 – 0.87) | 0.79 (0.71 – 0.88) |
| Patient type | | | |
| Elective surgery | reference | - | reference |
| Emergency surgery | 1.58 (1.47 – 1.70) | 1.56 (1.45 – 1.67) | 1.52 (1.42 – 1.63) |
| Medical | 2.09 (1.93 – 2.27) | 2.18 (2.01 – 2.36) | 2.07 (1.97 – 2.11) |

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e-Table 4: Multivariate analysis stratified by survivor status

| Patient Characteristics at the Time of First ICU Admission | Died in ICU [#] | | Survived to ICU Discharge ⁺ | |
|--|--------------------------|---------|--|---------|
| | OR (95% CI) | p-value | OR (95% CI) | p-value |
| Number of patients, n | 21,758 (8.1%) | | 247,244 (91.9%) | |
| Age | | | | |
| <65 | reference | - | reference | - |
| 65-74 | 1.24 (1.09 - 1.41) | *** | 1.74 (1.04 - 1.23) | *** |
| 75-84 | 1.62 (1.41 - 1.86) | *** | 2.71 (2.25 - 2.91) | *** |
| >84 | 2.11 (1.75 - 2.54) | *** | 4.56 (4.20 - 4.95) | *** |
| Race/ethnicity, % | | | | |
| White | reference | - | reference | - |
| Black | 0.55 (0.49 - 0.61) | *** | 0.72 (0.67 - 0.77) | *** |
| Other | 0.78 (0.66 - 0.93) | 0.006 | 0.72 (0.64 - 0.80) | *** |
| Sex | | | | |
| Male | reference | - | reference | - |
| Female | 1.25 (1.15 - 1.36) | *** | 1.09 (1.04 - 1.13) | *** |
| Functional status on admission | | | | |
| Independent | reference | - | reference | - |
| Partially dependent | 1.25 (1.12 - 1.39) | *** | 2.12 (2.02 - 2.23) | *** |
| Fully dependent | 1.38 (1.19 - 1.61) | *** | 3.15 (2.94 - 3.36) | *** |
| Insurance | | | | |
| Private | reference | - | reference | - |
| Medicare | 1.09 (0.95 - 1.23) | 0.21 | 1.24 (1.15 - 1.33) | *** |
| Medicaid | 1.11 (0.94 - 1.30) | 0.21 | 1.09 (0.99 - 1.20) | 0.08 |
| Self-pay | 1.06 (0.90 - 1.24) | 0.51 | 0.95 (0.84 - 1.06) | 0.35 |
| Other | 1.15 (0.90 - 1.49) | 0.27 | 1.04 (0.88 - 1.22) | 0.68 |
| Source of ICU admission | | | | |
| Emergency department | reference | - | reference | - |
| Direct admission | 1.07 (0.89 - 1.29) | 0.46 | 1.03 (0.95 - 1.12) | 0.47 |
| General care floor | 0.94 (0.84 - 1.05) | 0.25 | 1.37 (1.29 - 1.45) | *** |
| Step-down unit | 0.94 (0.79 - 1.13) | 0.52 | 1.39 (1.26 - 1.54) | *** |
| Procedure | 0.78 (0.64 - 0.94) | 0.008 | 0.74 (0.67 - 0.82) | *** |
| SNF, rehab, LTACH | 0.54 (0.37 - 0.79) | 0.002 | 0.77 (0.63 - 0.93) | 0.007 |
| Another ICU | 0.88 (0.69 - 1.11) | 0.28 | 0.91 (0.78 - 1.07) | 0.26 |
| Other | 1.06 (0.76 - 1.48) | 0.72 | 0.72 (0.61 - 0.85) | *** |
| Patient type | | | | |
| Elective surgery | reference | - | reference | - |
| Emergency surgery | 1.26 (1.02 - 1.54) | 0.03 | 1.75 (1.56 - 1.96) | *** |
| Medical | 1.06 (0.86 - 1.29) | 0.60 | 2.48 (2.21 - 2.79) | *** |

[#]pseudo $r^2 = 0.10$ | AUROC = 0.72

⁺pseudo $r^2 = 0.24$ | AUROC = 0.86

***p<0.001

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