**ONLINE DATA SUPPLEMENT**

**Incidence, Predictors, and Outcomes of Hospital-Acquired Anemia**

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**Supplemental Figure 1.** Study flow diagram.

53,995 consecutive medicine hospitalizations among adults ≥18 years old from November 1, 2009 to October 30, 2010

Excluded:

* 1,761 Died in hospital
* 4,892 Transferred to another facility
* 601 Left against medical advice
* 1,635 Discharged to hospice

45,106 potential index hospitalizations

Excluded:

* 6,441 Prior hospitalization within past 30 days at

 any of the 75 hospitals in DFW

38,665 potential index hospitalizations

11,309 index hospitalizations among 11,309 unique individuals included in study

Excluded:

* 24,950 Anemia within 24 hours of admit
* 1,335 Missing hematocrit within 24 hours of admit
* 403 Missing repeat hematocrit prior to discharge
* 668 Not first hospitalization in study time period

ional Status Before and During Acute Hospitalization and

Readmission Risk Iden tiﬁcation

**Supplemental Figure 2.** Admission and discharge hematocrit values.

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Normal

(n=7,563; 67%)

Severe

(n=159; 1%)

Moderate

(n=1,142; 10%)

Mild

(n=2,445; 22%)

Severity of Hospital-Acquired Anemia

HAA was categorized by severity as mild (hematocrit >33% and <36% in women; and >33% and <40% in men), moderate (hematocrit >27% and ≤33% for all), or severe (hematocrit ≤27% for all)

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| **Supplemental Table 1. Ten Most Common Principal Diagnoses of Index Hospitalization** |
| **None** | **Mild** | **Moderate** | **Severe** |
| AHRQ CCS Group (n, %) a |
| Dysrhythmia (513, 6.8%) | DM with complication (113, 4.5%) | Hip fracture (82, 7.2%) | Hip fracture (33, 20.8%) |
| Chest pain (417, 5.5%) | Acute MI (102, 4.1%) | Osteoarthritis (68, 6%) | CAD (13, 8.1%) |
| CHF (405, 5.4%) | Biliary tract disease (96, 3.9%) | Complication of device (52, 4.6%) | Osteoarthritis (12, 7.5%) |
| Acute CVD (371, 4.9%) | Pneumonia (89, 3.6%) | UTI (41, 3.6%) | Complication of device (12, 7.5%) |
| COPD (261, 3.5%) | Skin infection (82, 3.4%) | Intestinal obstruction (40, 3.5%) | Acute MI (7, 4.4%) |
| Pneumonia (251, 3.2%) | Acute CVD (80, 3.2%) | DM with complication (40, 3.5%) | Other disorder b (4, 2.5%) |
| DM with complication (233, 3.0%) | CHF (79, 3.2%) | CAD (39, 3.4%) | Pleurisy (4, 2.5%) |
| Skin infection (217, 2.9%) | Pancreatic disorder (71, 2.9%) | Acute MI (34, 3%) | Pancreatic disorder (4, 2.5%) |
| Acute MI (210, 2.8%) | Dysrhythmia (65, 2.7%) | Pneumonia (34, 3%) | Septicemia (4, 2.5%) |
| Asthma (203, 2.7%) | CAD (61, 2.5%) | Pancreatic disorder (34, 3%) | Heart valve disorder (4, 2.5%) |
| aPrincipal diagnoses are categorized according to the Agency for Healthcare Research and Quality (AHRQ) Clinical Classifications Software, with number and frequencies shown in parentheses.bOther nutritional, endocrine, and metabolic disorders.NOTE: Abbreviations: CHF, congestive heart failure; CVD, cerebrovascular disease; COPD, chronic obstructive pulmonary disorder; DM, diabetes; MI, myocardial infarction; CAD, coronary artery disease; UTI, urinary tract infection |

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| **Supplemental Table 2. Timing of Readmissions by Severity of Hospital-Acquired Anemia** |
|  | **HAA Category** |  |
|  | **None** | **Mild** | **Moderate** | **Severe** | **p-value** |
| Readmissions, n (%) | 694 (9.2) | 280 (11.5) | 155 (13.6) | 24 (15.1) | < 0.001 |
| Time to readmission, median days (IQR) | 12 (5 - 20) | 11 (5 - 20) | 11 (6 - 21) | 10 (4 - 17) | 0.61 |
| Early readmissions ≤7 days, n (%) | 220 (2.9) | 101 (4.1) | 47 (4.1) | 11 (6.9) | 0.001 |

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| **Supplemental Table 3. Association of hospital-acquired anemia and 30-day post-discharge outcomes excluding patients who received blood transfusion (n=11,011)a** |
|  | **Severity of HAA** |
| **Outcome** | **None** | **Mild** | **Moderate** | **Severe** |
| Composite | [Reference] | 1.09 (0.90-1.32) | 1.13 (0.82-1.56) | 1.43 (0.94-2.15) |
| Readmission | [Reference] | 1.10 (0.92-1.32) | 1.12 (0.81-1.55) | 1.40 (0.87-2.26) |
| Mortality | [Reference] | 1.01 (0.61-1.67) | 1.33 (0.75-2.35) b |
| aModels adjusted for confounders (age, gender, race/ethnicity, Charlson Comorbidity Index, prior hospitalizations in past year, nonelective admission status, length of stay, creatinine on admission, and blood urea nitrogen to creatinine ratio >20:1 on admission) and the three selected potential etiologies shown in the Table, and account for clustering of patients by hospital, and account for clustering of patients by hospital. All values are odds ratios (95% confidence intervals).bModerate and severe HAA groups were combined due to the few number of deaths. |

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| **Supplemental Table 4. Association of hospital-acquired anemia and 30-day post-discharge outcomes excluding patients with acute myocardial infarction (n=10,956)a** |
|  | **Severity of HAA** |
| **Outcome** | **None** | **Mild** | **Moderate** | **Severe** |
| Composite | [Reference] | 1.08 (0.90-1.30) | 1.16 (0.84-1.61) | 1.31 (0.95-1.80) |
| Readmission | [Reference] | 1.10 (0.94-1.30) | 1.15 (0.82-1.62) | 1.40 (0.98-2.00) |
| Mortality | [Reference] | 1.00 (0.59-1.71) | 1.31 (0.79-2.16) b |
| aModels adjusted for confounders (age, gender, race/ethnicity, Charlson Comorbidity Index, prior hospitalizations in past year, nonelective admission status, length of stay, creatinine on admission, and blood urea nitrogen to creatinine ratio >20:1 on admission) and the three selected potential etiologies shown in the Table, and account for clustering of patients by hospital, and account for clustering of patients by hospital. All values are odds ratios (95% confidence intervals).bModerate and severe HAA groups were combined due to the few number of deaths |