**Table S**. Independent variables for UTI related hospitalization or ER visits with p ≤0.2 in bivariate analysis

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| --- | --- | --- |
| **Category** | **Title** | **Operationalization** |
| **Demographics** | | |
| Age | Age (mean) | Age continuous |
| Age squared (mean) | Age squared |
| Age cubed (mean) | Age cubed |
| Sex | Sex | Binary: Male/Female |
| **Previous history and diagnosis** | | |
| Inpatient Stay 14 Days Prior to home care admission | Discharged from skilled nursing facility, long-term nursing facility or long-term care hospital | Binary: Yes/No |
| Patient was not discharged from an inpatient facility | Binary: Yes/No |
| Prior Conditions | Disruptive or socially inappropriate behavior | Binary: Yes/No |
| Indwelling/suprapubic catheter | Binary: Yes/No |
| Impaired decision-making | Binary: Yes/No |
| Intractable pain | Binary: Yes/No |
| Memory loss | Binary: Yes/No |
| No inpatient facility discharge and no change in medical or treatment regimen in past 14 days | Binary: Yes/No |
| Urinary incontinence | Binary: Yes/No |
| Diagnosis | Arthritis | Binary: Yes/No |
| Cardiac dysrhythmias | Binary: Yes/No |
| Cerebral degeneration | Binary: Yes/No |
| Dementia | Binary: Yes/No |
| Diabetes | Binary: Yes/No |
| Heart failure | Binary: Yes/No |
| Hypertension | Binary: Yes/No |
| Neurological disorder | Binary: Yes/No |
| Peripheral artery disease | Binary: Yes/No |
| Skin ulcer | Binary: Yes/No |
| Stroke | Binary: Yes/No |
| Current Condition | Therapies: Enteral nutrition | Binary: Yes/No |
| Therapies: Intravenous or infusion therapy | Binary: Yes/No |
| Therapies: Parenteral nutrition (TPN or lipids) | Binary: Yes/No |
| **Risk for hospitalization** | | |
| Risk for Hospitalization | Taking five or more medications | Binary: Yes/No |
| History of falls | Binary: Yes/No |
| Recent decline in mental, emotional, or behavioral status | Binary: Yes/No |
| Multiple hospitalizations | Binary: Yes/No |
| Overall Status: Which description best fits the patient’s overall status? | 4 categories   * Stable * Temporarily facing high health risk(s) but is likely to return to being stable * Remaining in fragile health and have ongoing high risk * Serious or unknown |
| Risk Factors | Smoking | Binary: Yes/No |
| Living Condition | Lives alone | Binary: Yes/No |
| Lives with others | Binary: Yes/No |
| Sensory Status | Vision impairment | Binary: Yes/No |
| Hearing impairment | Binary: Yes/No |
| Understanding verbal content | 3 categories   * Understands * Usually * Sometimes/Rarely/Never or Unable to assess |
| Speech expression | 3 categories   * No impairment * Minimal * Moderate/Severe/Unable or Nonresponsive |
| Frequency of pain | 3 categories   * None * No interference activity or less than daily * Daily not constant or all the time |
| **Integumentary Status** | | |
|  | Risk of Developing Pressure Ulcer? | Binary: Yes/No |
|  | Having at least one Unhealed Pressure Ulcer at Stage II or Higher | Binary: Yes/No |
|  | Stage of most problematic unhealed (observable) pressure ulcer | 6 categories   * None * Stage 1 * Stage 2 * Stage 3 * Stage 4 * Unstageable |
| Having Surgical wound | Binary: Yes/No |
|  | Status of most problematic unhealed (observable) surgical wound | 4 categories   * None * Newly epithelialized * Fully or Early/Partial granulation * Not healing |
|  | Skin Lesion or Open Wound | Binary: Yes/No |
| **Respiratory Status** | | |
| Shortness of breath | 5 categories   * Never * When walking 20feets or stairs * Moderate exertion * Minimal exertion * At rest |
|  | Respiratory Treatments at Home (Any) | Binary: Yes/No |
| **Elimination Status** | | |
|  | UTI Treatment in Past 14 Days | Binary: Yes/No |
|  | Urinary Catheter Presence | Binary: Yes/No |
|  | Urinary incontinent | Binary: Yes/No |
|  | When Urinary Incontinence Occurred | 4 categories   * None/Timed voiding/Occasional stress incontinence * Night or day only * Day and night * Urinary catheter |
|  | Bowel Incontinence Frequency | 6 categories   * Never, rarely or unknown * Less than once or one to three times weekly * Four to six times weekly * Daily * More often than once daily * Bowel ostomy |
| Ostomy for Bowel Elimination | 2 categories   * None * Has ostomy but not related or related to an inpatient stay |
| **Neuro/Emotional/Behavioral Status** | | |
|  | Cognitive Functioning | 5 categories   * Alert/oriented * Requires prompting * Requires assistance * Requires considerable assistance, * Totally dependent |
|  | When Confused | 4 categories   * Never * In new or complex situations or On awakening or at night only * During the day and evening but not constantly * Constantly or nonresponsive |
|  | When Anxious | 4 categories   * None * Less than Daily * Daily but not Constant * All of the Time or nonresponsive |
|  | Little interest or pleasure in doing things | 4 categories   * Not at all * Several days * More than half or nearly every * Other Assessment-Further Eval or No Further Eval needed |
|  | Feeling down, depressed, or hopeless? | 4 categories   * Not at all * Several days * More than half or nearly every * Other Assessment-Further Eval or No Further Eval needed |
|  | Patient has physical aggression, delusional or verbal disruption | Binary (yes or no) |
|  | Patient has impaired decision making | Binary (yes or no) |
| Patient has a memory deficit | Binary (yes or no) |
| Frequency of Disruptive Behavior Symptoms | 3 categories   * Never * Less than once a month, once a month, or several times each month * Several times a week or at least daily |
| **ADL/IADLs** | | |
|  | Grooming | 4 categories   * Independent * Grooming utensils must be placed * Someone must assist * Dependent |
|  | Dress Upper Body | 4 categories   * Independent * Able if clothing is laid out * Someone must assist * Dependent |
|  | Dress Lower Body | 4 categories   * Independent * Able if clothing is laid out * Someone must assist * Dependent |
|  | Bathing | 6 categories   * Independent or Use of Device * Intermittent Assistance * Requires Presence * Bedside/Sink * Bedside/Sink with Assistance * Dependent |
|  | Toilet Transferring | 5 categories   * Independent * Assistance * Bedside * Bedpan * Dependent |
|  | Toileting Hygiene | 4 categories   * Independent, * Able if supplies/implements are laid out * Someone must assist * Dependent |
|  | Transferring | 6 categories   * Independent * Minimum Assistance * Bear Weight and Pivot * No Pivot with Assistance * Bedfast but able to turn * Bedfast |
|  | Ambulation/Locomotion | 7 categories   * Independent * Need One-Handed Device * Need Two-handed Device * Need Assistance * Chairfast, Able to Wheel Self * Chairfast, Unable to Wheel Self * Bedrest |
|  | Feeding or Eating | 4 categories   * Independent * Intermittent assistance * Someone must assist * Tube feeding or gastrostomy |
|  | Prepare Light Meals | 3 categories   * Independent * Not Regular Basis * Dependent |
|  | Ability to Use Telephone | 6 categories   * Independent/No phone * Specially adapted telephone * Difficulty with placing calls * Answer the telephone only some of the time * Unable to answer but can listen if assisted * Dependent |
|  | Prior Functioning – Ambulation | 3 categories   * Independent * Some Help * Dependent |
|  | Prior Functioning – Household tasks | 3 categories   * Independent * Some Help * Dependent |
|  | Prior Functioning – Self-Care | 3 categories   * Independent * Some Help * Dependent |
|  | Prior Functioning – Transfer | 3 categories   * Independent * Some Help * Dependent |
|  | Fall Risk | 3 categories   * No Assessment * No Risk * Risk |
| **Medication & Medication Management** | | |
|  | Drug Regimen Review: Did a complete drug regimen review identify potential clinically significant medication issues? | Binary: Yes/No |
|  | Management of Injectable Medications | 4 categories   * No injectable meds or Independent * Preparation needed * Reminders needed * Dependent |
|  | Management of Oral Medications | 4 categories   * No oral meds or independent * Preparation needed * Reminders needed * Dependent |
|  | Prior Medication Management  – Injectable Medications | 3 categories   * No injectable meds or Independent * Some Help * Dependent |
|  | Prior Medication Management  – Oral Medications | 3 categories   * No oral meds or independent * Some Help * Dependent |
| **Care Management** | | |
|  | ADL assistance | 4 categories   * No assistance needed * Non-agency caregiver(s) currently provides assistance * Non-agency caregiver(s) needs training * Non-agency caregiver(s) are not likely to provide assistance, unclear or no caregiver |
|  | IADL assistance | 4 categories   * No assistance needed * Non-agency caregiver(s) currently provides assistance * Non-agency caregiver(s) needs training * Non-agency caregiver(s) are not likely to provide assistance, unclear or no caregiver |
|  | Medication administration | 4 categories   * No assistance needed * Non-agency caregiver(s) currently provides assistance * Non-agency caregiver(s) needs training * Non-agency caregiver(s) are not likely to provide assistance, unclear or no caregiver |
|  | Assist - Procedures/treatments | 4 categories   * No assistance needed * Non-agency caregiver(s) currently provides assistance * Non-agency caregiver(s) needs training * Non-agency caregiver(s) are not likely to provide assistance, unclear or no caregiver |
|  | Equipment management | 4 categories   * No assistance needed * Non-agency caregiver(s) currently provides assistance * Non-agency caregiver(s) needs training * Non-agency caregiver(s) are not likely to provide assistance, unclear or no caregiver |
|  | Safety assistance | 4 categories   * No assistance needed * Non-agency caregiver(s) currently provides assistance * Non-agency caregiver(s) needs training * Non-agency caregiver(s) are not likely to provide assistance, unclear or no caregiver |
|  | Advocacy assistance | 4 categories   * No assistance needed * Non-agency caregiver(s) currently provides assistance * Non-agency caregiver(s) needs training * Non-agency caregiver(s) are not likely to provide assistance, unclear or no caregiver |
|  | ADL/IADL assistance | 5 categories   * No assistance received or unknown * Received, but less often than weekly * One to two times per week * Three or more times per week * At least daily |
|  | Therapy Need | Continuous (Replaced outliers > 60 with mean) |
| **Medication Regime** | | |
|  | Analgesics, narcotic | Binary: Yes/No |
|  | Aldosterone antagonists | Binary: Yes/No |
| Antiarthritics | Binary: Yes/No |
|  | Antibacterials and antiseptics, general | Binary: Yes/No |
| Antibacterials, urinary | Binary: Yes/No |
|  | Antibiotics, other | Binary: Yes/No |
|  | Anticoagulants | Binary: Yes/No |
|  | Anticonvulsants | Binary: Yes/No |
|  | Anti-diarrheals | Binary: Yes/No |
| Antimalarials | Binary: Yes/No |
| Antinauseants | Binary: Yes/No |
| Antiparasitics | Binary: Yes/No |
| Antiparkinson agents | Binary: Yes/No |
| Antispasmodics, Anticholinergics | Binary: Yes/No |
| Anti-ulcer and other GI drugs | Binary: Yes/No |
|  | Cardiovascular preparations, other | Binary: Yes/No |
|  | Cholesterol reducers | Binary: Yes/No |
|  | Diabetic therapy | Binary: Yes/No |
|  | Diuretics | Binary: Yes/No |
|  | Emollients protectives | Binary: Yes/No |
|  | Folic acid preparations | Binary: Yes/No |
| Fungicide | Binary: Yes/No |
| Glucocorticoids | Binary: Yes/No |
| Hematinic | Binary: Yes/No |
| Laxatives | Binary: Yes/No |
| Mineralocorticoids | Binary: Yes/No |
|  | Multivitamins | Binary: Yes/No |
|  | Muscle relaxants | Binary: Yes/No |
|  | Other hormones | Binary: Yes/No |
|  | Other hypotensives | Binary: Yes/No |
| Parasympathetic agents | Binary: Yes/No |
|  | Psychostimulants/Antidepressants | Binary: Yes/No |
|  | Psychotropics | Binary: Yes/No |
|  | Streptomycins | Binary: Yes/No |
|  | Sulfonamides | Binary: Yes/No |
|  | Tetracyclins | Binary: Yes/No |
|  | Thyroid preparations | Binary: Yes/No |
|  | Trimethoprim | Binary: Yes/No |
|  | Unclassified drug products | Binary: Yes/No |
|  | Vasodilators: Coronary | Binary: Yes/No |
|  | Vitamin K Preparations | Binary: Yes/No |
|  | Vitamins, Water soluble | Binary: Yes/No |
| **Vital Signs** | | |
|  | Pulse | Continuous |
|  | Body temperature | High temperature (oral > 38.2°C (100.8 °F), axillary (the armpit) > 37.0°C (98.6 °F)) vs. all others (normal + low) |