**Table 1: Rubric for accuracy and completeness assessment**

| | | |
|---|---|---|
| **Accuracy** | | |
| **1** | completely incorrect | **Not acceptable** |
| **2** | more incorrect than correct | |
| **3** | approximately equal correct and incorrect | **Acceptable** |
| **4** | correct than incorrect | |
| **5** | completely correct | |
| **Completeness** | | |
| **1** | addresses no aspect of the question, and the answer is not within the topic queried | **Not Acceptable** |
| **2** | addresses no aspects of the question, but the answer is within the topic queried | |
| **3** | addresses some aspects of the question, but significant parts are missing or incomplete | |
| **4** | addresses most aspects of the question but missing small details | **Acceptable** |
| **5** | addresses all aspects of the question without additional information | |
| **6** | addresses all aspects of the question and provides additional information beyond what was expected | |

**Table 2: Acceptance rate for accuracy and completeness using median score by 3 reviewers**

| ACCEPTABLE ACCURACY = 3 or ABOVE | | | | | |
|---|---|---|---|---|---|
| | | SOURCE 1 | SOURCE 2 | SOURCE 3 | SOURCE 4 |
| **Duration of isolation for various pathogens (N=16)** | **A** | 87.5 | 93.8 | 75 | 87.5 |
| **HCP exposures (N= 9)** | **B** | 88.9 | 100 | 100 | 100 |
| **Patient exposures (N=4)** | **C** | 50 | 100 | 100 | 100 |
| **Handling of room after patient was cared for (N=2)** | **D** | 100 | 100 | 100 | 100 |
| | | | | | |
| | | | | | |
| | | | | | |
| **ACCEPTABLE COMPLETENESS = 4 or ABOVE** | | | | | |
| | | SOURCE 1 | SOURCE 2 | SOURCE 3 | SOURCE 4 |
| **Duration of isolation for various pathogens** | **A** | 43.75 | 56.25 | 75 | 75 |
| **HCP exposures** | **B** | 88.9 | 55.55 | 77.77 | 100 |
| **Patient exposures** | **C** | 50 | 100 | 100 | 100 |
| **Handling of room after patient was cared for** | **D** | 50 | 100 | 100 | 100 |

of hospital epidemiology handles consultation calls and records each question and answer. Using 2022 data, we selected 31 frequently asked questions. We utilized four AI tools, including Chat GPT-3.5 and 4.0, Bing AI, and OpenEvidence, to generate answers. We predefined scales (Table 1) to capture responses by three reviewers, including two hospital epidemiologists and one infection preventionist. The mean score of ≥ 3 and ≥ 4 was considered acceptable in accuracy and completeness, respectively. We reported the percentage of responses with acceptable accuracy and completeness out of assessed questions for each category. **Results:** Among 31 questions, 16 were associated with isolation duration, 9 with healthcare personnel (HCP) exposure, 4 with cleaning contaminated rooms, and 2 with patient exposure. Regarding accuracy, most AI tools performed worse in questions about isolation duration, ranging between 75% and 93.8%. All AI tools, except OpenEvidence, had a 100% accuracy rate for HCP and patient exposure. All AI tools had a 100% accuracy rate for contaminated room handling. The highest overall acceptable accuracy rate was observed in Chat GPT-3.5. Regarding completeness, most AI tools performed worse in questions about isolation duration, ranging between 44% and 75%. All AI tools, except OpenEvidence, had a 100% completeness rate for contaminated rooms and patient exposure. The highest overall acceptable completeness rate was observed in Bing AI (Table 2). **Conclusions:** All AI tools provided reasonable answers to commonly asked IPC-related questions, although, there were variations among different tools used. AI could be used to supplement the infection control program, especially if resources are limited.

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**Presentation Type:**
Poster Presentation - Oral Presentation
**Subject Category:** Quality Improvement
**Quantity versus Quality: Chlorhexidine Bathing Adequacy Assessments in 3 High-Risk Units**
Michelle Doll, Virginia Commonwealth University; Barry Rittmann, Virginia Commonwealth University; Patrick Ching, Virginia Commonwealth University; Kaila Cooper, Nursing VCU Health; Yvette Major, VCUHS and Gonzalo Bearman, Virginia Commonwealth University, Editor in Chief ASHE

**Background:** Chlorhexidine gluconate bathing (CHGB) prevents healthcare associated infections (HAIs). CHGB quality is rarely assessed; prior studies identified that concentrations of CHG can be suboptimal, particularly at the neck, and if rinsed after application. In the setting of increased HAI rates on 3 high-risk units, we evaluated CHG skin concentrations, comparing results to bathing documentation and patient reports as part of a quality improvement initiative. **Methods:** All patients admitted to 3 high-risk units were swabbed for CHG concentration testing at the neck, bilateral upper arms, and groin. Swabs were processed using a semi-quantitative colorimetric CHG assay. A threshold of 0.001875% CHG was used to determine adequacy based on prior studies. Adequacy was assessed by body site, timing of bath, and patient-reported skin care activities using Chi-square tests in SAS 9.4. Per hospital policy, all admitted patients are bathed daily with 2% CHG pre-packed wipes. Patients without a documented CHGB for the duration of the admission were excluded. **Results:** CHG testing was completed on 63 patients: 23 on medical ICU, 18 surgical ICU, 22 oncology ward, yielding 249 samples. Only ward patients could report the time of last CHGB, which agreed with nursing documentation for 12/21(57%) Adequacy by sample was no different across units: 59/88(67%) Oncology, 68/90(76%) MICU, 56/71(79%) SICU, p=0.2091. Site adequacy was different by site: neck 36/63(57%), left arm 49/62(79%), right arm 50/62(81%), groin 48/62(77%), p=0.0083. Samples taken from the 11 patients with > = 24 hours since last CHGB were more likely to be below threshold concentration: 19/47(40%) versus 47/202(23%) not adequate in the recent treatment grouping. Three patients reported showering soon after the CHGB and 8 patients used moisturizing lotion. The percent of samples below threshold for the showering patients (6/12, 50%) and lotion-users (11/32, 34%) were not significantly different from the non-showering or non-lotion using patient samples (p=0.0588 and 0.2800 respectively). **Conclusion:** In a facility with longstanding daily CHGB policies in place, 66/249 samples from 63 patients lacked adequate concentrations of CHG for optimal HAI prevention. Even in patients with recent CHGB, 23% of sites tested revealed inadequate levels of CHG, while 60% of those overdue for CHGB kept adequate concentrations. Reliable implementation strategies are required for CHGB so as to ensure maximal infection prevention impact.

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**Presentation Type:**
Poster Presentation - Oral Presentation
**Subject Category:** Research methodology and statistics
**A Comparison of Variable Input Strategies used for Risk-adjustment Models of Antimicrobial Use**
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Stewardship and Infection Prevention and Benjamin Goldstein, Duke Center for Antimicrobial Stewardship and Infection Prevention

**Background:** External comparisons of antimicrobial use (AU) may be more informative if adjusted for encounter characteristics. Optimal methods to define input variables for encounter-level risk-adjustment models of AU are not established. **Methods:** This retrospective analysis of electronic health record data included 50 US hospitals in 2020-2021. We used NHSN definitions for all antibacterials days of therapy (DOT), including adult and pediatric encounters with at least 1 day present in inpatient locations. We assessed 4 methods to define input variables: 1) diagnosis-related group (DRG) categories by Yu et al., 2) adjudicated Elixhauser comorbidity categories by Goodman et al., 3) all Clinical Classification Software Refined (CCSR) diagnosis and procedure categories, and 4) adjudicated CCSR categories where codes not appropriate for AU risk-adjustment were excluded by expert consensus, requiring review of 867 codes over 4 months to attain consensus. Data were split randomly, stratified by bed size as follows: 1) training dataset including two-thirds of encounters among two-thirds of hospitals; 2) internal testing set including one-third of encounters within training hospitals, and 3) external testing set including the remaining one-third of hospitals. We used a gradient-boosted machine (GBM) tree-based model and two-staged approach to first identify encounters with zero DOT, then estimate DOT among those with >0.5 probability of receiving antibiotics. Accuracy was assessed using mean absolute error (MAE) in testing datasets. Correlation plots compared model estimates and observed DOT among testing datasets. The top 20 most influential variables were defined using modeled variable importance. **Results:** Our datasets included 629,445 training, 314,971 internal testing, and 419,109 external testing encounters. Demographic data included 41% male, 59% non-Hispanic White, 25% non-Hispanic Black, 9% Hispanic, and 5% pediatric encounters. DRG was missing in 29% of encounters. MAE was lower in pediatrics as compared to adults, and lowest for models incorporating CCSR inputs (Figure 1). Performance in internal and external testing was similar, though Goodman/Elixhauser variable strategies were less accurate in external testing and underestimated long DOT outliers (Figure 2). Agnostic and adjudicated CCSR model estimates were highly correlated; their influential variables lists were similar (Figure 3). **Conclusion:** Larger numbers of CCSR diagnosis and procedure inputs improved risk-adjustment model accuracy compared with prior strategies. Variable importance and accuracy were similar for agnostic and adjudicated approaches. However, maintaining adjudications by experts would require significant time and potentially introduce personal bias. If findings are confirmed, the need for expert adjudication of input variables should be reconsidered.

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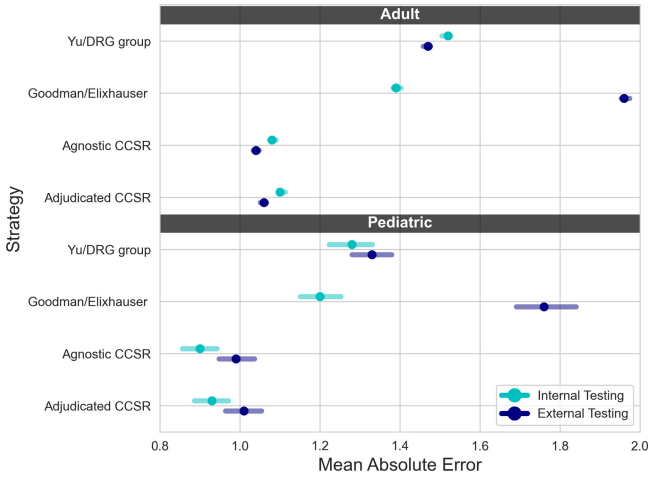
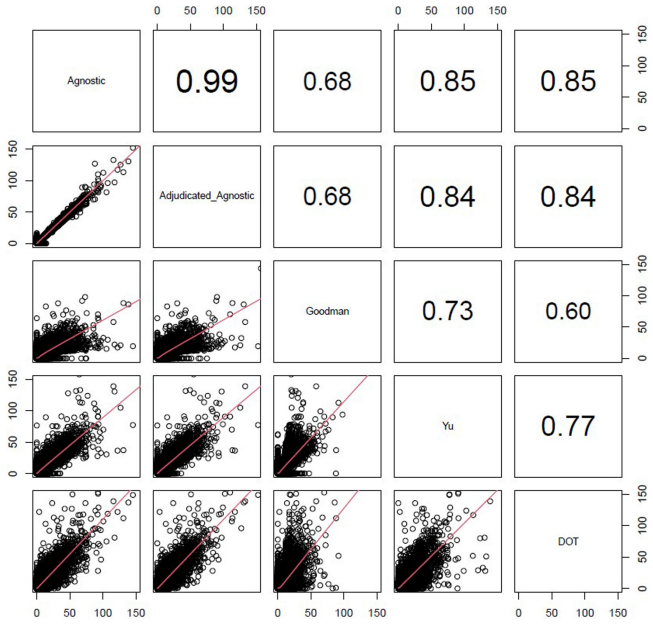
| Yu/DRG Group | Goodman/Elixhauser | Agnostic CCSR | Adjudicated CCSR |
|---|---|---|---|
| N Days Present | N Days Present | N Days Present | N Days Present |
| DRG Group4 | Infection On Admission, Present on Admission (POA) | Infection On Admission, Regardless of POA | Infection On Admission, Regardless of POA |
| DRG Group2 | MedSurg Ward Days Percent | CCS_CM_INF003 (Bacterial Infections) | CCS_CM_INF003 (Bacterial Infections) |
| MedSurg Ward Days Percent | Elixhauser Total Score | CCS_PCS_CAR024 (Venous and arterial catheter placement) | CCS_PCS_CAR024 (Venous and arterial catheter placement) |
| ICU Days Percent | Elixhauser Weight Loss | CCS_CM_SKN001 (Skin and subcutaneous tissue infections) | CCS_CM_SKN001 (Skin and subcutaneous tissue infections) |
| Maternity Days Percent | ICU Days Percent | CCS_CM_PRG030 (Maternal outcome of delivery) | CCS_CM_PRG002 (Gestational weeks) |
| DRG Group1 | Elixhauser Leukemia | CCS_CM_MUS002 (Osteomyelitis) | CCS_CM_MUS002 (Osteomyelitis) |
| Perioperative Days Percent | Age, in years | CCS_PCS_RES001 (Diagnostic bronchoscopy) | CCS_CM_DIG016 (Peritonitis and Intra-abdominal abscess) |
| Stepdown Days Percent | Elixhauser Liver Severe | CCS_CM_DIG016 (Peritonitis and Intra-abdominal abscess) | CCS_CM_NEO060 (Leukemia - acute myeloid leukemia - AML) |
| DRG Group3 | Elixhauser Dementia | CCS_PCS_CAR003 (Coronary artery bypass grafts - CABG) | CCS_PCS_CAR003 (Coronary artery bypass grafts - CABG) |
| Pediatric ICU Days Percent | Hem-Onc Days Percent | CCS_CM_NEO060 (Leukemia - acute myeloid leukemia - AML) | CCS_PCS_RES013 (Lung Transplant) |
| Pediatric Med Surg Ward Days Percent | Elixhauser Other Neurologic Disorder | CCS_PCS_RES013 (Lung Transplant) | CCS_CM_END011 (Fluid and electroly disorders) |
| | Elixhauser Diabetes mellitus, No Complications | CCS_CM_END011 (Fluid and electroly disorders) | Post-partum Ward Days Percent |
| | Elixhauser Obesity | CCS_PCS_ADM012 (Chemotherapy) | CCS_PCS_ADM012 (Chemotherapy) |
| | Elixhauser Cerebrovascular, POA | CCS_CM_CIR004 (Endocarditis and endocardial disease) | CCS_CM_INF004 (Fungal infections) |
| | Elixhauser Congestive Heart Failure, POA | CCS_PCS_MST020 (Subcutaneous tissue and fascia excision) | CCS_CM_INF012 (COVID-19) |
| | Elixhauser Metastatic Cancer | CCS_CM_INF004 (Fungal infections) | CCS_CM_CIR004 (Endocarditis and endocardial disease) |
| | Elixhauser HIV/AIDS | CCS_CM_INJ037 (Complication of other surgical or medical care, injury, initial encounter) | CCS_PCS_MST020 (Subcutaneous tissue and fascia excision) |
| | Elixhauser Renal Failure Severe, POA | CCS_CM_END008 (Malnutrition) | CCS_PCS_PGN003 (Cesarian section) |
| | Elixhauser Liver Mild | CCS_CM_RSP010 (Aspiration pneumonitis) | CCS_CM_BLD008 (Immunity disorders) |

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**Subject Category:** Surveillance

**Evaluation of minimum inhibitory concentration data in National Healthcare Safety Network's Antimicrobial Resistance Option**

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**Background:** Clinical laboratories perform antimicrobial susceptibility testing (AST) primarily by determining the minimum inhibitory concentration (MIC) for an organism–antimicrobial combination and comparing it with established breakpoints to generate interpretations. The Antimicrobial Resistance (AR) Option of CDC's National Healthcare Safety Network (NHSN) permits hospitals to submit clinical isolate AST data, including test values and interpretations (Figure 1). The Clinical and Laboratory Standards Institute (CLSI) periodically revises breakpoints, but their adoption by clinical laboratories can be delayed, potentially affecting national AR surveillance data accuracy. Using MIC values, instead of