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2171. Comparing Surveillance Definitions for Noncatheter-Associated Urinary Tract Infections

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Background. Patient sharing between hospitals and long-term care facilities (LTCF) is widespread. However, surveillance criteria for noncatheter associated urinary tract infection (UTI) vary by healthcare setting. Consequently, patients with identical features of UTI may meet criteria in LTCF but not in hospitals. A common definition that spans hospitals and LTCF may inform UTI surveillance efforts across healthcare facilities.

Methods. We performed a cohort analysis of all suspected UTI cases in women ≥65 years from 21 LTCF enrolled in a clinical trial evaluating cranberry capsules to reduce bacteriuria plus pyuria from August 2012 to October 2015. We applied 2017 hospital National Healthcare Safety Network (NSHN), 2012 LTCF NSHN, and proposed criteria (Figure 1) to all suspected UTI cases. Proposed criteria were derived a priori. Differences in the correlated proportions of UTI detected per criteria were assessed using McNemar's test.

Results. Of 350 suspected UTI cases, LTCF NSHN criteria detected more UTI (22/350, 6.3%) compared with hospital NHSN (15/350, 4.3%; $P = 0.04$) and proposed (15/350, 4.3%; $P = 0.02$) criteria (Table 1). Half (11/22) of LTCF NHSN UTI included $\geq 10^2$ CFU/mL of organisms from a catheterized urine as the microbiological criterion. Four UTI meeting LTCF NHSN or proposed criteria did not meet the hospital NHSN criteria because fever is only a listed clinical feature for patients ≤65 years.

Conclusion. Current hospital and LTCF NHSN criteria both have limitations. The hospital NHSN criteria exclude fever in older adults as a clinical feature. The LTCF NHSN criteria include insensitive microbiological criteria. Our proposed surveillance criteria address these limitations and may be generalizable to both hospitals and LTCF.

Table 1. UTI Detection by Surveillance Criteria.

Criteria			*P* value
	LTCF NHSN		
Hospital NHSN	Present	Absent	
Present	13	2	
Absent	9	326	0.04
	LTCF NHSN		
Proposed	Present	Absent	
Present	15	0	
Absent	7	328	0.02

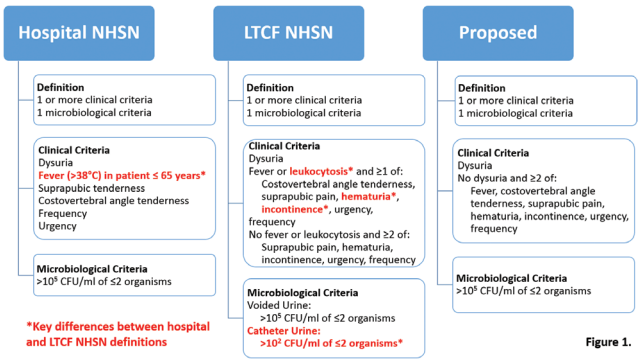

Figure 1.

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2172. Assessment of Cefepime Neurotoxicity in the FDA Adverse Reporting System

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Background. Cefepime is a fourth-generation cephalosporin antibiotic used for the treatment of neutropenic fever, pneumonia, and urinary tract infections. The safety of cefepime is now being questioned as it has recently been implicated as a possible cause for lesser known adverse effects, including neurotoxicity. The objective of this study was to evaluate the association between cefepime and neurotoxicity.

Methods. Adverse drug reactions (ADRs) reported to the U.S. Food and Drug Administration (FDA) from January 1, 2015 to September 30, 2017 were extracted from the FDA's Adverse Event Reporting System (FAERS). The Medical Dictionary for Regulatory Activities (MedDRA) was used to identify preferred terms that were subsequently used to create a neurotoxicity composite ADR. Reporting Odds Ratios (RORs) and corresponding 95% confidence intervals (95% CI) were calculated for the neurotoxicity composite ADR and for common preferred terms associated with neurotoxicity. An association was considered to be statistically significant if the 95% CI did not include 1.0.

Results. The neurotoxicity composite ADR (consisting of 40+ MedDRA preferred terms) occurred in 13.9% (n = 209/1504) of cefepime reports. Cefepime was three times more likely to have a report of the neurotoxicity composite ADR as compared with other drugs in the FDA's FAERS database (ROR, 2.90; 95% CI, 2.51–3.36). The most frequent individual MedDRA preferred terms for the neurotoxicity composite ADR included (in descending order): "confusional state" (3.1%, 46/1,504), "mental status changes" (2.8%, 42/1,504), "encephalopathy" (2.3%, 35/1,504), "seizure" (2.3%, 34/1,504), "myoclonus" (1.8%, 27/1,504), and "neurotoxicity" (1.2%, 18/1,504). The highest RORs with cefepime vs. other drugs were (in descending order): "myoclonus" 45.0 (30.6–66.1), "encephalopathy" 29.7 (21.2–41.6), "mental status changes" 27.8 (20.4–37.8), "neurotoxicity" 26.7 (16.7–42.6), "confusional state" 4.3 (3.2–5.7), and "seizure" 3.5 (2.5–4.9).

Conclusion. Cefepime was associated with significantly higher odds of myoclonus, encephalopathy, mental status changes, neurotoxicity, confusional state, seizure, and a neurotoxicity composite ADR as compared with other drugs. Practitioners should use caution in initiating cefepime in those patients at risk of neurotoxicity and monitor closely for ADRs.

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2173. Surgical Site Infection Determination in Epic® ICON: A Utilization Model

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Background. Prior to 2016, our hospital used microbiology results alone to investigate surgical site infections (SSI). Previous studies show that this practice can miss as many as half of clinically significant infections. To improve accuracy for fiscal year 2016 SSI surveillance was done by manual chart review of 100% of the surgeries we report to NHSN. While more accurate, this process was time and labor intensive. In May 2016, we began using Epic® ICON as our data mining software. ICON can abstract (create denominator data), determine SSI status (create numerator data) and upload to NSHN. Data indicates that partially automated SSI surveillance reduce manual chart review but our team found that many charts were being reviewed unnecessarily.We developed a computerized algorithm within ICON that would that would capture SSIs but limit the number of charts to be reviewed.

Methods. Algorithm variables within Epic® ICON were modified to limit data collection to the following parameters: readmission, chief complaint, surgical log, diagnosis, antibiotic administration post 48 hours, and specific microbiology results. We excluded 31 keywords that were part of the Epic® ICON foundation system from our algorithm. For example, we removed the keyword "infection" which flagged whenever "no infection" was charted. The chief complaints grouper was most important as it allowed only meaningful complaints to be considered. Microbiology results were also limited to only include Aerobic, Anaerobic, Fungus, AFB, and wound cultures. To validate the algorithm, it was run retrospectively for fiscal year 2016.

Results. There was 100% concordance of results comparing SSIs identified using chart review to the use of our computerized algorithm and Table 1 shows the average number of charts requiring review pre and post implementation.