2894. Metrics of Antimicrobial Use Within Inpatient Settings: Impacts of Statistical Methods and Case-Mix Adjustments

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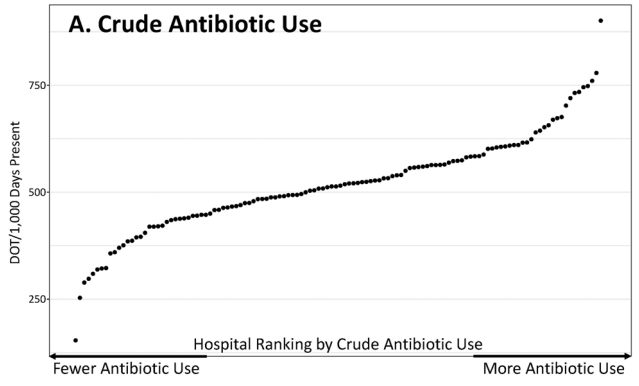
Session: 309. Glass Half Full or Half Empty? Trends in Antimicrobial Prescribing
Saturday, October 5, 2019: 4:15 PM

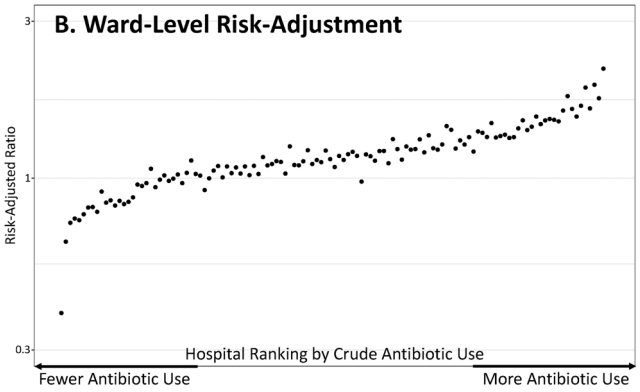
Background. The necessary data elements and optimal statistical methods for benchmarking hospital-level antimicrobial use are still being debated. We aimed to describe the relative influence of case-mix adjustment and different statistical methods when ranking hospitals on antimicrobial use (AU) within inpatient settings.

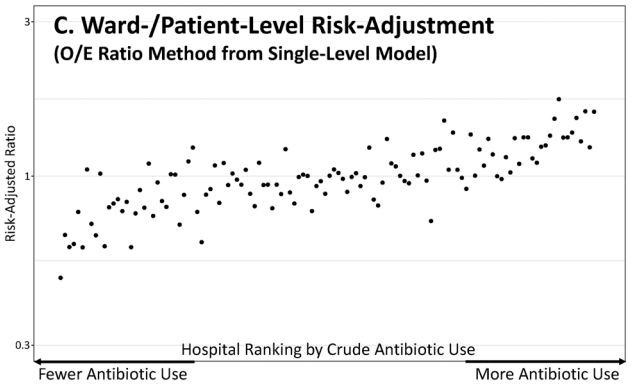
Methods. Using administrative data from the Veterans Health Administration (VHA) system in October 2016, we calculated total antimicrobial days of therapy (DOT) and days present according to the National Healthcare Safety Network (NHSN) protocol. Patient-level demographics, comorbidities, and recent procedures were used for case-mix adjustments. We compared hospital rankings across 4 different methods: (A) crude antimicrobial DOT per 1,000 days present, aggregated at the hospital-level; (B) observed/expected (O/E) AU ratio with risk adjustment for ward-level variables (analogous to NHSN's Standardized Antimicrobial Administration Ratio); (C) O/E AU ratio with risk adjustment for ward-/patient-level variables; (D) predicted/expected (P/E) AU ratio with risk adjustment for ward-/patient-level variables, based on a multilevel model accounting for clustering effects at hospital- and ward-levels.

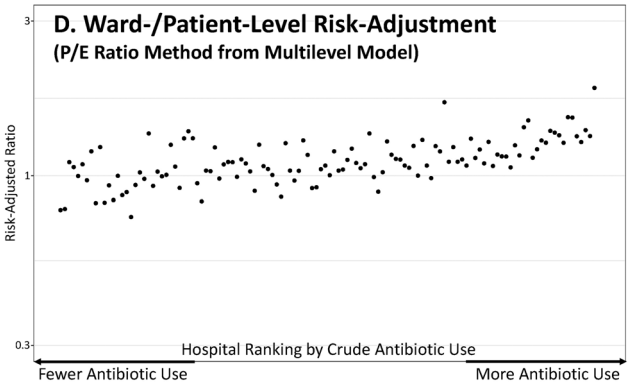
Results. The cohort included 165,949 DOTs and 318,321 days present at 122 acute care hospitals within VHA. Crude DOTs per 1,000 days present ranged from 153.6 to 900.8 (Figure A), and ward-level risk adjustment only modestly changed rankings (Figure B). When adjusted for ward- and patient-level variables (including demographics, 14 comorbidities and 22 procedures), rankings changed substantially (Figure C). Risk-adjustment by a multilevel model changed rankings even further, while shrinking variabilities (Figure D). Ten hospitals in the lowest and 11 hospitals in the highest quartiles by O/E risk adjustment for only ward-level variables were classified to different quartiles on P/E risk adjustment.

Conclusion. We observed that the selection of variables and statistical methods for case-mix adjustment had a substantial impact on hospital rankings for antimicrobial use within inpatient settings. Careful consideration of methodologies is warranted when providing benchmarking metrics for hospitals.









Disclosures. **All Authors:** No reported Disclosures.

2895. Threats to Successful Elimination of Viral Hepatitis: Results from the Nationwide Treatment as Prevention for Hepatitis C (TraP HepC) Program in Iceland

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Session: 310. Hepatitis C: Progress on Elimination and Treatment
Saturday, October 5, 2019: 3:15 PM

Background. The main driver of the Hepatitis C virus (HCV) epidemic in most western countries is injection drug use (IDU) among people who inject drugs (PWID). Iceland has provided unrestricted access to direct-acting antiviral agents (DAA) to all HCV-infected patients in the country covered by national health insurance, by a program entitled Treatment as Prevention for Hepatitis C (TraP HepC) from 2016 and is on track to become among the first to achieve the WHO goals of eliminating HCV as a public health threat.

Methods. We analyzed data regarding testing for HCV, incidence of IDU, prevalence of HCV viremia among PWID, drug use in the community and trends in homelessness prior to and during the first 24 months of TraP HepC to monitor outcomes and identify new or persistent challenges.

Results. Intensity of nationwide testing for HCV increased by 22% in 2016, 60% in 2017, and 81% in 2018 compared with previous years ($P < 0.001$). During 2016–2018 the incidence of new injection drug use, as surveyed among those admitted for addiction treatment increased by 48%. The total number of PWID admitted annually with HCV viremia however remained relatively stable during the entire period (2010–2018). The prevalence of HCV viremia among people recently injecting drugs admitted for addiction treatment however dropped from 48.7% to 16.2% in 2017, and to 10.2% in 2018 ($P < 0.001$). Analysis of data regarding stimulant use, as measured by drug levels in wastewater shows an almost threefold increase of amphetamine and an eightfold increase in cocaine levels during 2016–2018 compared with 2015. Concurrently, the number of homeless has doubled. Two years into TraP HepC > 80% of the estimated total HCV-infected population were started on their first course of DAAs. By intention to treat analysis, the cure rate was 92.4% among patients without history of IDU in the past 6 months, compared with 82.9% among active IDU ($P = 0.0006$); those with history of recent IDU were more likely to discontinue ($P < 0.0001$). Homelessness carried the highest relative risk (RR) of treatment failure (RR = 2.4, $P = 0.008$), mostly due to discontinuation.