Control & Prevention (CDC) ventilator associated event (VAE) definition as a base framework (Figure 1). We modified this definition to include additional elements, such as having a sputum culture ordered within 48 hours of worsening oxygen status, regardless of culture result. Using this algorithm—followed by manual clinician reviews—we retrospectively assessed possible VAP cases to determine the ability of our surveillance system to correctly identify VAP. **Results:** Of the 123 possible VAP cases identified through our automated system, 75 (61%) were correctly diagnosed as VAP after clinical review. This reflects a rate of 1.5 infections per 1000 ventilation days across the system and 1.85 infections per 100 patients ventilated for greater than 2 days. Of the 48 remaining patients without VAP after clinical review, 25% (n=12) were characterized as having hospital-acquired pneumonia, 21% (n=10) as acute respiratory distress syndrome or infection at another site and 10% (n=5) as pulmonary embolism/infarction. Among all patients identified through this automated system (VAP and non-VAP), 53% experienced in-hospital death. **Discussion:** Our automated VAP surveillance algorithm identified 123 cases of potential VAP, 61% of which were consistent with a clinical diagnosis of VAP upon manual chart review. Our VAP rate of 1.5 infections per 1000 ventilation days was similar to published rates at other North American hospital systems. The high in-hospital mortality rate among these patients highlights the need for improved surveillance systems and earlier interventions to reduce the risk of VAP. There are several limitations to the CDC's VAE definition, including its requirement of a positive microbiologic culture and focus on sputum quality. This potentially misses cases of culture-negative VAP in patients receiving antibiotics prior to sputum collection. Our goal is to continue to validate and improve our algorithm's ability to correctly identify patients with clinical VAP, so that targeted prevention efforts can be focused upon the patients with the highest risk for poor outcomes.

Disclosure: Madeline DiLorenzo: Stocks - Abbvie, Amgen Inc., Becton Dickinson, Biogen Inc., Bristol Myers and Squibb, CVS Health, Davita Inc., Elevance Health, Gilead, Henry Schein, Hologic Inc., Humana Inc., Jazz Pharmaceuticals, Laboratory Corp, Merck and Co., Quest Diagnostics, ResMed Inc., Teladoc Health, Vertex Pharmaceuticals, West Pharmaceuticals

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Subject Category: Surveillance

Outpatient Antibiotic Consumption Trends in Belgium: A Comparative Analysis of Reimbursement and Sales Data, 2013-2022

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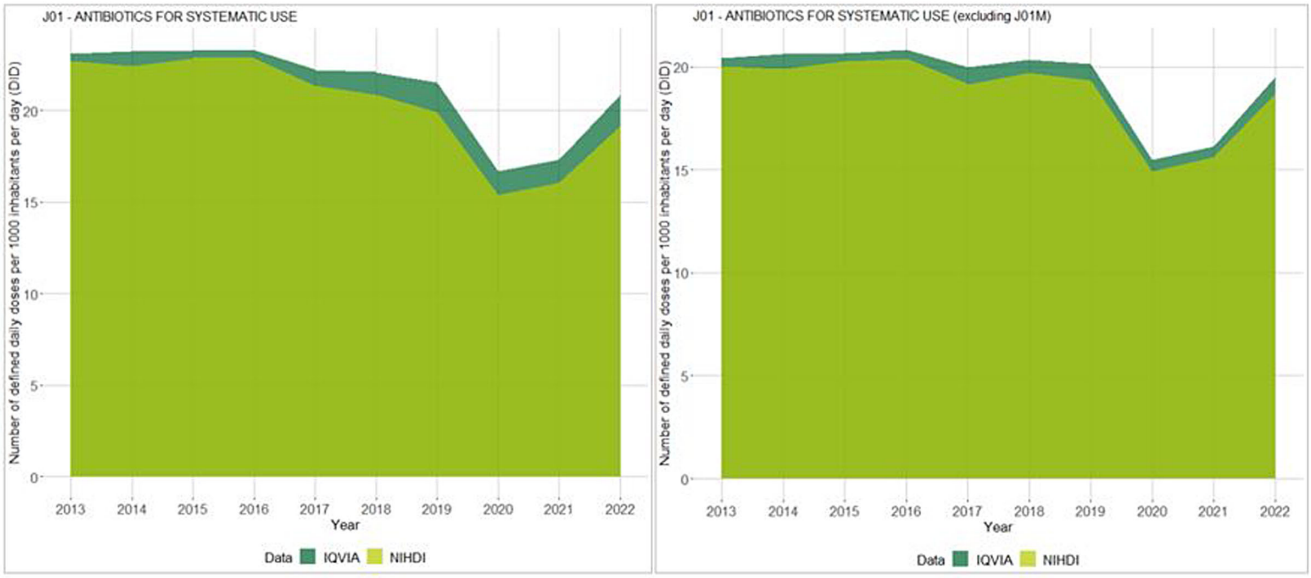
Background: Antimicrobial resistance (AMR) is a global public health concern, necessitating close and timely monitoring of antibiotic consumption (AMC). In Belgium, AMC surveillance traditionally relies on reimbursement data, excluding over-the-counter non-reimbursed or imported products and involving a time lag. This study investigates disparities in AMC between reimbursement data and retail data, providing insights into AMC variations. Additionally this study seeks to critically evaluate the validity and representativeness of the reimbursed data in accurately reflecting the true extent of AMC in the country. **Method:** Utilizing reimbursement data from the National Institute for Health and Disability Insurance (NIHDI) and retail data (IQVIA Sales data; www.iqvia.com) for systemic antibacterials (ATC Group J01), outpatient consumption was estimated for the period 2013-2022. Volume of antimicrobials was measured in Defined Daily Doses (DDDs - WHO ATC/DDD Index 2023), while population data were extracted from Eurostat. Relative differences (RDs) in DDDs per 1000 inhabitants per day (DID) were computed, and validated through correlation analysis (Pearson's r) and Bland–Altman plots. **Result:** J01 antibacterial sales declined from 23.10 DID (2013) to 20.85 (2022). Non-linear decreases, notably during the Covid-19 pandemic (21.54 DID in 2019 to 16.69 in 2020), followed by a rebound to pre-pandemic quantities in 2022 were observed (Figure 1). Reimbursement NIHDI data slightly underestimated IQVIA sales, with RDs ranging from 2% (2013) to 9% (2022). Notable differences, especially in recent years were attributed to quinolone reimbursement criteria changes implemented by law in Belgium in 2018, reducing the reimbursed proportion from 99% (2017) to 35% (2022). ATC-3 level analysis revealed disparities in low-DID groups (J01B, J01E and J01G). Notably, a small proportion of amphenicols (J01B) were reimbursed (< 1 0%), with a congestion relieving combination product of tiamphenicol (+ N-acetylcysteine;

Figure 1. Evolution of outpatient reimbursement (NIHDI) and retail sales (IQVIA) data for systemic antibacterials (ATC J01) with (L) and without (R) fluoroquinolones (J01M) in Belgium from 2013 to 2022



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Fluimucil®) frequently bought and remaining unreimbursed. Overall and across ATC3 groups, the correlation between NIDHI and IQVIA estimates was almost perfect across years and the Bland–Altman plots showed high agreement. **Conclusion:** Reimbursement data are reliable for outpatient AMC monitoring with slightly lower estimates than retail data across most categories. The 2018 quinolone reimbursement criteria change highlights the necessity of incorporating retail data for accurate assessments in this specific category. The synergistic use of reimbursement and retail datasets is crucial for a comprehensive understanding of consumption patterns, supporting effective AMR mitigation strategies in Belgium.

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Variability of MDRO Reporting Across Tennessee Microbiology Laboratories

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Background: Identification and timely reporting of multi-drug resistant organisms (MDROs) drives efficacy of infection prevention efforts. Data on MDRO reporting timeliness and inter-facility variability are limited. Facility-dependent variability in MDRO reporting across Tennessee was examined to identify opportunities for MDRO surveillance improvement. **Methods:** Data for reported Tennessee MDROs including carbapenem-resistant Enterobacterales (CRE), carbapenem-resistant Acinetobacter baumannii (CRAB), Carbapenem-resistant Pseudomonas aeruginosa (CRPA) and Candida auris, were obtained from the southeast regional Antibiotic Resistance Laboratory Network (ARLN) from 2018-2022, excluding screening and colonization specimens. Variance in days accrued from specimen collection to ARLN receipt was analyzed using one-way analysis of variance (ANOVA) with Tukey's test (SAS 9.4). Facilities were categorized as fast (1-10 days), slow (11-20 days), or delayed (21-100 days) reporters. **Results:** There were 9,569 MDRO isolates reported. CRPA was reported faster than other MDROs ($p < 0.001$), while specimens from West Tennessee compared to other regions ($p < 0.001$) (Figure) and blood cultures compared to other specimens were reported more slowly ($p < 0.001$) (Table). There was no difference in reporting times for facilities using on-site microbiology laboratories versus reference laboratories ($P = 0.062$). **Conclusion:** MDRO reporting times varied across Tennessee by region, specimen, and organism. Future work to elucidate drivers of variability will consist of surveys and focused interviews with laboratory personnel to identify shared and unique barriers and opportunities for improvement.

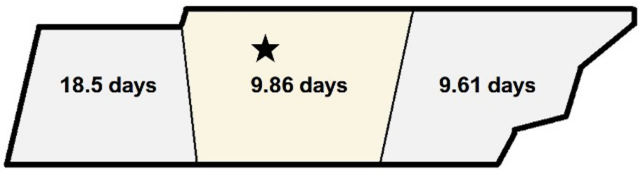

Figure. Three grand divisions of Tennessee (West, Middle, and East) with average time to report. ARLN site denoted by star.

Table. Reporting Times

	Fast (%)	Slow (%)	Delayed (%)	Average Time to Report in Days (SD)	ANOVA P-Value
MDRO Type					<.0001
CRAB	436 (67.39)	154 (23.8)	57 (8.81)	11.16 (10.23)	
CRE	4282 (67.39)	1671 (26.3)	1671 (26.3)	10.84 (9.09)	
CRPA	1933 (75.63)	568 (22.22)	55 (2.15)	8.82 (5.51)	
Candida auris	6 (50)	5 (41.66)	1 (8.3)	11.17 (5.10)	
Reporting Region					<.0001
East	2474 (70.2)	950 (26.96)	100 (2.84)	9.61 (5.52)	
Middle	3094 (74.48)	840 (20.22)	220 (5.3)	9.86 (9.02)	
No Identified Location	836 (65.36)	419 (32.76)	24 (1.88)	9.86 (3.57)	
West	253 (41.34)	189 (30.88)	170 (27.78)	18.50 (16.79)	
Specimen Type					<.0001
Abscess and Wound	861 (71.27)	297 (24.59)	50 (4.14)	9.76 (7.34)	
Blood	242 (65.94)	88 (23.98)	37 (10.08)	12.17 (12.31)	
Lower Respiratory	695 (71.87)	225 (23.27)	47 (4.86)	9.64 (7.04)	
Urine	3180 (68.79)	1259 (27.23)	184 (3.98)	10.08 (7.31)	
All other	1679 (69.84)	529 (22.00)	196 (8.15)	11.04 (10.38)	

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Serratia marcescens Burden in a Neonatal Intensive Care Unit: Colonization Rate, Clinical Infections and Strain Relatedness

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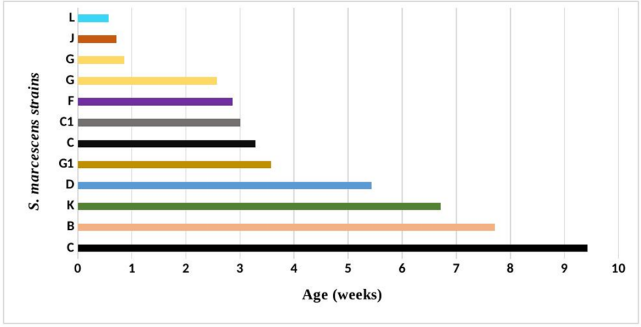
Background: Serratia marcescens (S. marcescens) is an environmentally associated organism known for causing healthcare associated infections and outbreaks in neonatal intensive care units (NICUs). The colonization or infection rates in NICU settings remain uncertain. This study aims to evaluate the rate of baseline colonization and clinical infection and relatedness of S. marcescens isolates. **Methods:** Prospective surveillance of rectal colonization and clinical infection of S. marcescens was conducted on patients admitted to the NICU at Mount Sinai Hospital in Toronto, Ontario, from March 1, 2023, to September 30, 2023. The NICU is a 57

Figure 1: Patients chronological age at S. mercescens detection in accordance to strain



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