resistant infections are likely tied to social determinants of health. We assessed the relationship between ADI and targeted MDROs reported (mandatory and voluntary) to the Philadelphia Department of Public Health (PDPH), specifically: carbapenem-resistant Enterobacterales, Acinetobacter baumannii, Pseudomonas aeruginosa and Candida auris. **Method:** Confirmed MDRO case data were obtained from PDPH's Communicable Disease Management System, PhilaVax, and CDC's National Healthcare Safety Network for 04/2018 through 12/2023. MDRO patient home addresses were geocoded to census block groups, spatially mapped to zip codes using ArcGIS, and matched to ADI national percentile rankings and state decile rankings obtained from University of Wisconsin School of Medicine and Public Health's Neighborhood Atlas website. Descriptive analysis using American Community Survey Data, calculation of MDRO prevalence rates by zip code, and Pearson correlation coefficients and simple linear regression between the MDRO cases and ADI were conducted using SAS 9.4. Missing and unknown values were excluded from descriptive analysis. **Result:** We analyzed 2436 MDRO cases reported to PDPH. Cases with race data (n=2138) were 51.9% Black and 34.1% White, compared to 43.3% Black and 38.0% White Philadelphia County population in 2023. Hispanic ethnicity was reported for 8.6% of cases (n=2101), while Hispanics represented 15.8% of the county population in 2023. Most patients with MDROs were ≥60 yo (60.1%). That age group was 55.5% male compared to the 42.5% male ≥60 yo county population. Most MDRO cases, 1846/2436 (75.8%), matched to Philadelphia zip codes and 1515/2436 (62.2%) matched to a census block ADI ranking. Three zip codes had a prevalence rate of >20 (M = 12, SD = 8; range 2-53) per 10,000 persons. Home address history for 356/2436 (14.6%) cases matched one or more congregate facilities, the majority of which matched a long-term care facility (286/2436, 11.7%). ADI percentiles and deciles positively correlated with the number of MDRO cases, r(86) = .62, p <.0001 and r(8) = .82, p = .0036, respectively. There was a significant effect of ADI percentiles and deciles on number of MDRO cases, F1,86 = 53.4, p **Conclusion:** There is a significant positive relationship between ADI ranking and MDROs in Philadelphia. The findings suggest a critical need for equitable outreach and interventions to address MDROs in both congregate facilities and communities experiencing greater deprivation.

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Presentation Type:
Oral Presentation - Top Poster Abstract
Subject Category: Public Health

Impact of Optimized IV to PO Antibiotic Conversion on Carbon Emissions

Amulya Mallu

Background: Antimicrobials are among the most prescribed medications in the hospital setting and intravenous antimicrobial use is associated with increased carbon emissions due to use of single-use disposable products for packaging, preparation, and administration. IV to PO antibiotic switch has been associated with lower waste and emissions and lower healthcare costs. This project aims to assess the effectiveness of pharmacist interventions in switching from intravenous to oral antibiotics and estimate emissions reductions. **Methods:** Our study population included adult patients hospitalized between October 1, 2023 and September 30, 2024 in one of twelve medical centers operating within a large, integrated healthcare system in Northeast Ohio. The primary intervention phase involved reinforcement of a pre-existing policy within our hospital system allowing pharmacists to convert certain highly bioavailable agents from IV to PO based on clinical criteria. The second intervention phase occurred as part of the hospital response to the nationwide IV fluid shortage beginning at the end of September 2024. We determined the rate of interventions occurring within the pre-intervention period and applied this rate to the intervention cohorts to determine what the expected number of interventions would be during these periods if the interventions would have had no effect.

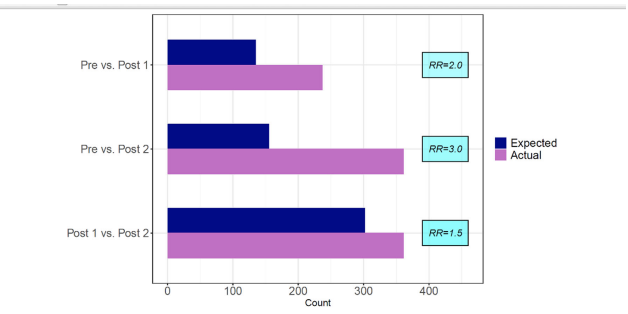

Figure 1. Number of actual pharmacy interventions performed versus number of interventions expected in the first and second intervention phases based on the rate in the baseline group, either pre-intervention or first intervention phase.

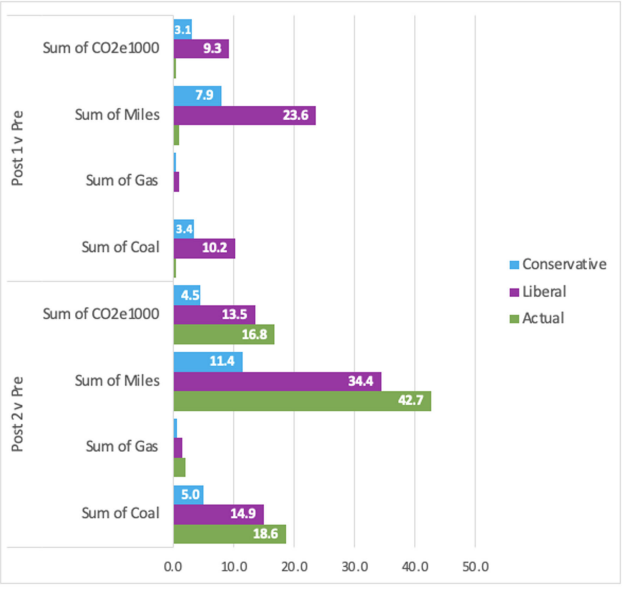

Figure 3. Additional estimated carbon dioxide equivalents (in metric tons) which would have been saved if each pharmacy intervention was equivalent to 1 day (conservative estimate) or 3 days (liberal estimate) of antimicrobial therapy saved, for the post-intervention phases compared to the pre-intervention phase rate, and actual emissions and equivalents saved. Emission equivalents provided refer to equivalent miles driven by an average gasoline-powered passenger vehicle, gallons of gasoline consumed, pounds of coal burned, and fully depleted phone batteries charged and maintained at full charge throughout the day. Carbon dioxide equivalents provided in 1000ths in order to show on same scale.

Total days of therapy administered for each agent stratified by study intervention phase. Days of therapy per day rate are shown in parentheses.

Agent	Pre-Intervention	Post-Intervention 1	Post-Intervention 2
Azithromycin	17805 (56)	2422 (48)	2052 (40)
Ciprofloxacin	4823 (15)	849 (17)	717 (14)
Clindamycin	3726 (12)	587 (12)	587 (12)
Doxycycline	5500 (17)	907 (18)	872 (17)
Fluconazole	2764 (9)	512 (10)	483 (9)
Isavuconazonium	123 (0)	32 (1)	65 (1)
Levofloxacin	3606 (11)	567 (11)	568 (11)
Linezolid	1448 (5)	189 (4)	233 (5)
Metronidazole	11249 (36)	1821 (36)	1742 (34)
Minocycline	121 (0)	66 (1)	36 (1)
Rifampin	115 (0)	4 (0)	8 (0)
Voriconazole	116 (0)	26 (1)	40 (1)
Total	51396 (163)	7982 (160)	7403 (145)

From the total days of therapy for each agent for each period, we estimated the total carbon emissions for each period, using our antimicrobial carbon emissions calculator. **Results:** Compared to the pre-intervention group, the rate ratio for the second intervention phase was 2.97 (95% CI 2.61 to 3.37). The second intervention group rate versus the first intervention rate was 1.49 (95% CI 1.26 to 1.77). Using the difference between the actual and expected number of pharmacy interventions, the potential DOT saved using conservative (assuming 1 pharmacy intervention saves 1 DOT) and liberal (assuming 1 pharmacy intervention saves 3 DOT) estimates was determined, as well as the actual DOT saved based on the antimicrobial administration data. These values were used to calculate the carbon dioxide emissions and equivalents potentially and actually saved (Figure 2). The total actual emissions saved was less than both conservative and liberal estimates for post-intervention phase 1 versus pre-intervention phase, but it surpassed both estimates for post-intervention phase 2 versus pre-intervention phase. **Conclusion:** This is one of the first projects to estimate carbon emission reductions associated with IV to PO antibiotic switching. Future research should focus on identifying further opportunities to promote sustainable policies and measuring their impact.

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Oral Presentation - Top Poster Abstract
Subject Category: Public Health
Infection Prevention and Control Content Inclusion in Graduate Public Health Curricula

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The field of public health is facing greater demand, significant staff turnover, and an increasing number of public health emergencies and threats. This is further compounded by an unprecedented unmet need for infection preventionists (IPs) in the workforce. The integration of infection prevention and control (IPC) material into existing public health (PH) academic programming could bridge this gap. There are very few IPC-concentrated Masters of Public Health (MPH) programs and the extent of IPC focused content in existing graduate PH programs is unknown. This project seeks to define the extent to which graduate public health courses include IPC concepts and identify potential inclusion points for these topics.
Syllabi for core PH courses were requested from all Council on Education for Public Health (CEPH) accredited graduate schools, of which there were 137 at the time of retrieval. Received syllabi (n = 245) were reviewed and coded for inclusion of IPC topics such as antibiotic resistance and antibiotic stewardship (AR) and healthcare acquired infections (HAIs). These syllabi represented 54 programs (39%) and 34 states. An additional six (6) states had no applicable programs.
Seventy-six (31%) syllabi had specific IPC content, while an additional 119 (49%) had potential inclusion points for IPC content. Seventy-two courses (30%) had neither IPC content nor potential inclusion points; these courses tended to be biostatistics, health policy and management, or environmental health classes. All analyzed MPH academic programs had at least one area within the core courses that served as a potential inclusion point for IPC content, supporting the argument that public health core competencies naturally align with IPC domains outlined in the Association for Professionals in Infection Control and Epidemiology (APIC) Infection Preventionist competency model.
Observations from this review indicate both the capability to seamlessly integrate IPC material into MPH programs and the existing deficit where this opportunity is unrealized. These findings can guide the development of tool kits to integrate the outlined inclusion points into existing graduate public health curricula guiding future workforce development to address current limitations.

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Subject Category: Quality Improvement
Evaluation of head elevation and oral care enhancement activity in intensive care units to prevent ventilator-associated pneumonia

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Background: Ventilator-associated pneumonia (VAP) primarily occurs due to the aspiration of secretions containing microorganisms from the oropharynx or stomach into the lungs. Preventing aspiration is a critical strategy for reducing VAP incidence. This study analyzed the impact of aspiration prevention measures—head-of-bed elevation (HOBE) and enhanced oral care—on VAP rates in adult intensive care units (ICUs). **Method:** This interventional study was conducted in the adult ICU of a 2,734-bed tertiary care hospital. A total of 8 ICUs (medical, surgical, cardiology, cardiovascular, neurology and neurosurgery) with 112 beds observed an increase in VAP incidence from January to April 2023, prompting enhanced measures in May 2023. The first intervention involved revising and reinforcing indications for head-of-bed elevation (HOBE) while strengthening monitoring and on-site feedback. During clinical procedures such as positional changes requiring a supine position, oropharyngeal suctioning was performed before lowering the head of the bed, and staff were trained to ensure prompt restoration of the HOBE to the appropriate position afterward. The second intervention improved oral care by replacing chlorhexidine and gauze with tooth brushing. A protocol was developed requiring 2 minutes of brushing teeth, artificial airways, tongue, and palate using a silicone toothbrush moistened with saline or sterile water, excluding patients with contraindications such as bleeding risks. Monitoring revealed missed areas during brushing, necessitating additional simulation training using dental models and colored toothpaste to confirm plaque removal. The pre-intervention period was conducted over 9 months (August 2022 to April 2023), while the intervention period lasted 17 months (July 2023 to November 2024). VAP incidence rates were compared before and after the intervention. Additionally, the incidence of VAP associated with pathogens such as Klebsiella pneumoniae, Acinetobacter baumannii, or Pseudomonas aeruginosa, often isolated from dental plaques of ICU patients, were analyzed. **Results:** The incidence rate of VAP per 1,000 ventilator days among adult ICU patients decreased from 3.9 (66/16,849) before the intervention to 2.4 (78/32,185) after the intervention (IRR, 0.62, 95% CI, 0.45-0.86; P = 0.007). Similarly, the incidence rate of VAP associated with pathogens K. pneumoniae, A. baumannii, or P. aeruginosa were 1.6 (27/16,849) before the intervention, and 1.0 (31/32,185) after the intervention (IRR, 0.60, 95% CI, 0.36-1.01; P = 0.07). **Conclusion:** As a result of implementing enhanced head-of-bed elevation and oral care protocols for ventilated patients in the adult ICU, the incidence of VAP significantly decreased. Further multicenter studies are needed to validate our findings.

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Figure. Trends in Ventilator-Associated Pneumonia Rates During the Pre- and Post-Intervention Periods