

Figure 2. Antimicrobials consumption according to KONAS classification between 2018 and 2021. (A) Tertiary care hospitals, (B) secondary care hospitals, (C) primary care hospitals. DOT, Days of therapy.

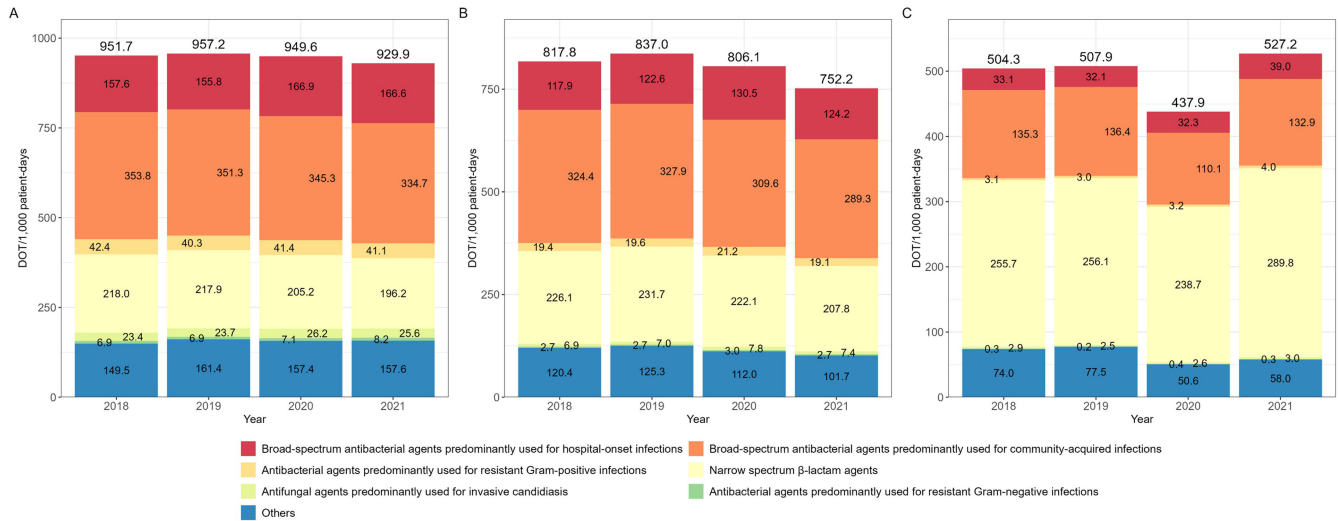
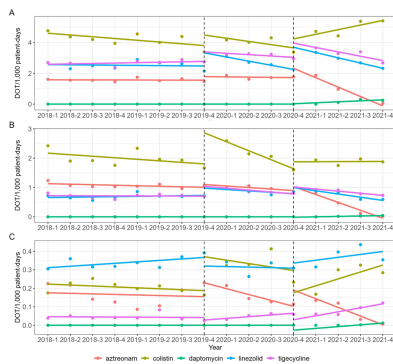


Figure 3. Reserve antimicrobials consumption between 2018 and 2021. (A) Tertiary care hospitals, (B) secondary care hospitals, (C) primary care hospitals. DOT, Days of therapy.



decreased from 951.7 to 929.9 days of therapy (DOT)/1,000 patient-days in TCHs and from 817.8 to 752.2 DOT/1,000 patient-days in SCHs during study period, but not in PCHs (from 504.3 to 527.2 DOT/1,000 patient-days). Moreover, in 2021, while use of reserve antimicrobials has decreased from 13.6 to 10.7 DOT/1,000 patient-days in TCHs and from 4.6 to 3.3 DOT/1,000 patient-days in SCHs, it has increased from 0.7 to 0.8 DOT/1,000 patient-days in PCHs. **Conclusion:** This study confirms that antimicrobial use differs by hospital type in Korea. Recent increases of use of antimicrobials, including reserve antimicrobials, in PCHs reflect the challenges that must be addressed.

Antimicrobial Stewardship & Healthcare Epidemiology 2024;4(Suppl. S1):s38–s40
doi:10.1017/ash.2024.150

Presentation Type:

Poster Presentation - Poster Presentation

Subject Category: Antibiotic Stewardship

Guideline-unjustified inpatient therapy for non-ICU patients with community-acquired pneumonia (CAP) at 105 Veterans Affairs

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Background: CAP is often inappropriately treated with agents active against multidrug-resistant organisms (MDRO; methicillin-resistant *S. aureus* [MRSA] and *P. aeruginosa* [PSA]) and for prolonged duration. We assessed the relationship between antibiotic use with ATS/IDSA guideline-unjustified empiric and definitive MDRO therapy and prolonged duration in non-ICU inpatients with CAP at 105 VA Medical Centers. **Methods:** From VA Corporate Data Warehouse data, we identified patients with discharge ICD-10-CM codes consistent with CAP from 1/2022-3/2023, excluding cases with 14 days of antibiotic therapy, ICU admission, concurrent infections, or severe immunocompromise. We considered as justified empiric (\leq third day of hospitalization) therapy: anti-MRSA therapy for patients with prior positive MRSA cultures, anti-PSA therapy for patients with prior positive PSA cultures, and both anti-MRSA & anti-PSA therapy in patients with severe pneumonia and intravenous antibiotics in the prior 3 months. Definitive ($>$ third day of hospitalization) anti-MDRO therapy was considered unjustified in patients who had achieved clinical stability and whose cultures did not grow MRSA or PSA. Prolonged duration ($>$ 6 days of therapy) was unjustified if patients were clinically stable or discharged by day 5. **Results:** The median age of the 29,260 patients was 75 (IQR 69,81); 4.6% were women. While 33% and 22% of patients received empiric or definitive MDRO therapy, such therapy was justified in 12% and 0.5%, respectively. Median facility use of empiric and definitive MDRO therapy was 31% (IQR 25%,38%) and 20% (15%,23%), respectively (Figure 1); this use was unjustified in 89%

Prescribed versus Unjustified MDRO Therapy

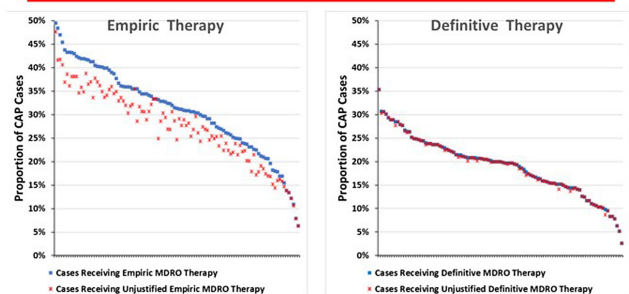


Figure 1: In this and all subsequent figures, each tick on the x-axis represents a separate facility

Unjustified MDRO Therapy vs MDRO DOT/1000 DP

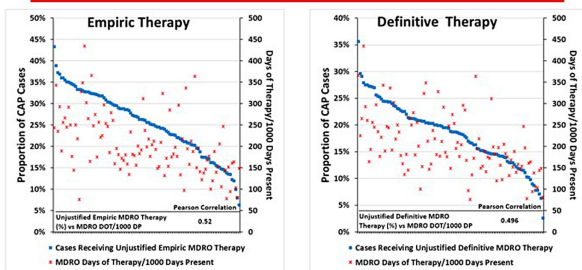


Figure 2: The Pearson correlation between unjustified empiric and definitive therapy with MDRO days of therapy (DOT) per 1000 days-present (DP) was 0.54 and 0.61 respectively; the correlation with total DOT/1000 DP was 0.24 and 0.36, respectively (data not shown on the figure). MDRO DOT represent the same agents predominantly used for resistant Gram-positive infections (e.g., MRSA), broad spectrum antibacterial agents predominantly used for hospital-onset infections, and agents predominantly used for extensively antibiotic resistant bacteria. Antibiotic DOT and DP were limited to patients receiving care on acute medical and surgical units.

Unjustified Extended Duration of Therapy vs Antibiotic DOT/1000 DP

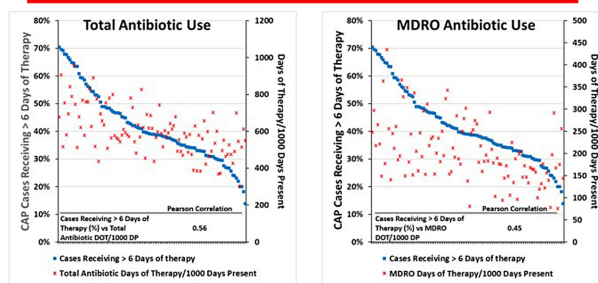


Figure 3: The Pearson correlation between the percentage of cases receiving greater than 6 days of therapy with total antibiotic DOT/1000 DP and MDRO antibiotic DOT/1000 DP was 0.56 and 0.46, respectively. Data definitions are the same as in Figure 2.

(85%,93%) and 100% (100%,100%), respectively. Pearson's correlation coefficient between MDRO therapy and rates of unjustified empiric and definitive MDRO therapy for CAP was 0.54 and 0.61, respectively (Figure 2). Although 99% of patients were discharged or stable by day 5, 42% received prolonged therapy. The median frequency of prolonged therapy was 39% (33%,48%); facility rates of prolonged therapy had a correlation of 0.56 with total antibiotic use and 0.46 with MDRO therapy (Figure 3). **Discussion:** Based on electronic documentation, we identified 1) substantial opportunities to reduce unjustified anti-MDRO therapy and the duration of therapy in hospitalized non-ICU patients with CAP; 2) a moderate correlation of unjustified anti-MDRO therapy with increased MDRO antibiotic use and of prolonged duration of therapy with increased total and MDRO antibiotic use. The correlation of lower quality prescribing with increased antibiotic use provides further impetus for tools such as dashboards (Figure 4) to assist antibiotic stewards in designing and monitoring interventions to reduce unjustified therapy.

Antimicrobial Stewardship & Healthcare Epidemiology 2024;4(Suppl. S1):s40-s41
doi:10.1017/ash.2024.151

Presentation Type:

Poster Presentation - Poster Presentation

Subject Category: Antibiotic Stewardship

Patient and Community Perspectives on Antibiotics and Antimicrobial Resistance: Fertile Grounds for Antimicrobial Stewardship

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Background: Antimicrobial resistance is a serious public health threat. Overuse of antibiotics leads to the development and spread of antibiotic

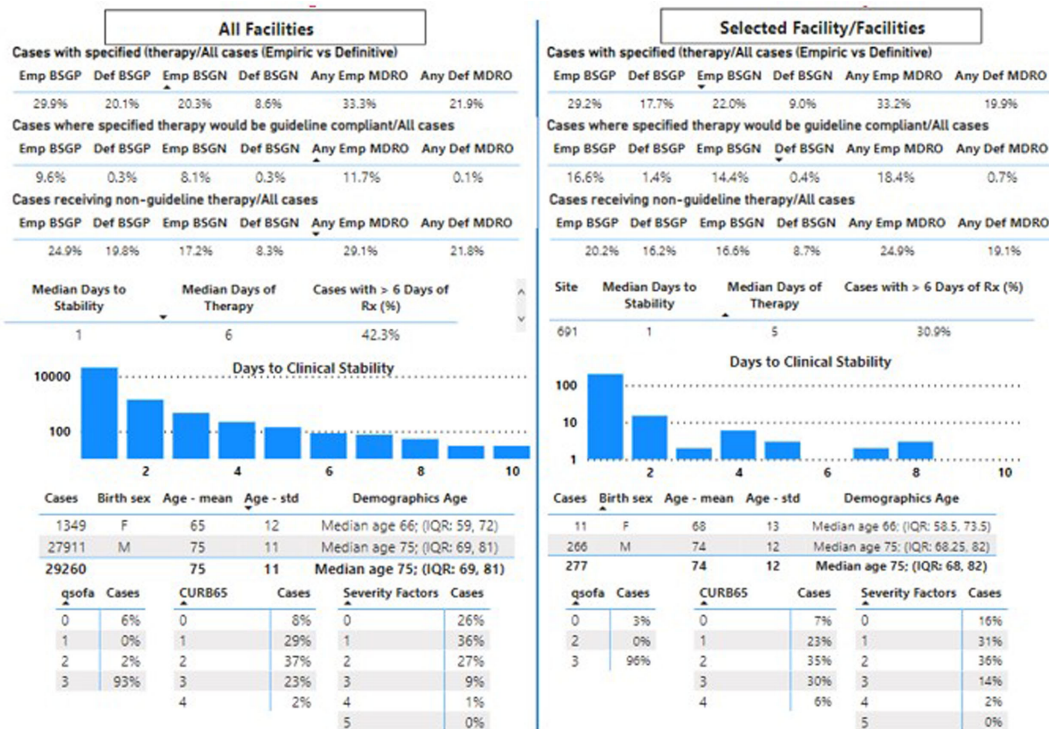


Figure 4: In this figure BSGP agents represent agents predominantly used for resistant Gram-positive infections and BSGN represent agents predominantly used for hospital-onset infections or extensively antibiotic resistant bacteria.