an increase in the consumption of other GNBS. The total use of GNBS dropped by 54% from 288 DDD/1000PD in 2015 to 132 DDD/1000PD by August 2019. Currently, SGH serves a yearly average of 82,000 patient-days. Hence, this reduction in total GNBS consumption corresponds to 12,792 fewer daily defined doses of antimicrobial therapy per year.

The average annual cost of all antibacterials at SGH is 1,100,000 $ (U.S. Dollars), ranging from 955679 $ to 1340109 $ for the period 2015–2019. (Table 1)

Consumption of Gram-negative Broad-Spectrum Antimicrobial Agents and Cost of Antibiotics at Saint George Hospital, Lebanon

Table 1: Consumption of Gram-negative Broad-Spectrum Antimicrobial Agents and Cost of Antibiotics at Saint George Hospital, Lebanon

	2015	2016	2017	2018	August 2019
Imipenem - Meropenem - Ertapenem	205	164	80	56	33
Piperacillin Tazobactam – Cepefime - Ceftazidime – Tigecycline	69	80	48	92	78
Amikacin - Colistin	14	15	9	6	11
Ceftolozane/Tazobactam	0	0	5	13	10
Total (DDD/1000 PD)	288	259	142	167	132
Carbapenems proportion out of GNBS Antibiotics (in percent)	71	63	56	34	25
Yearly Cost of All Antibiotics (in U.S. Dollars)	1,237,216	1,127,513	955,679	1,340,109	766,670

Conclusion: The striking decrease in GNBS consumption, namely carbapenems, was not mirrored with a reduction of total antibacterial cost. Although novel antimicrobials carry great potential, they come at a significant increase in overall cost. Modeling ASP interventions solely around cost-effectiveness will limit the better placement of these new agents in institutional therapeutic guidelines. Strict continuous analysis of consumption, antimicrobial resistance, and cost within an ASP provides a proactive and vigilant approach to navigate through the complexity of difficult to treat bacterial infections.

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245. The impact of patient safety report and sentinel events on the prescribing and practice habits of infectious disease physicians

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Infectious Disease Physicians

Session: P-8. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background: Adverse events associated with antimicrobials range from mild to severe and may cause distress or harm to patients, and anxiety for prescribers. The basic tenets of prescribing antimicrobials are based on knowledge of the disease, pharmacokinetics, and pharmacodynamics of the prescribed agent, and effectiveness of the therapy. Inappropriate prescribing can increase costs and may cause reactions or the emergence of resistance. There is a paucity of published data on the prescribing habits of physicians after a sentinel event or patient safety report. Thus, we carried out this study to ascertain whether patient safety reports and sentinel events influence physician antimicrobial prescribing practices

Methods: We invited Infectious Disease physicians at the University of Florida to participate in a survey of their perception of risks and prescribing habits after a sentinel event. Participants were interviewed using a standardized questionnaire. Data were analyzed using Epi Info statistical software. Thematic analyses were performed on the open-ended interview questions.

Results: Of 17 faculty and fellows who participated in the survey, 5 (29.4%) had been practicing infectious disease for 1–3 years, 3 (17.6%) for 4–6 years, 2 (11.7%) for 7–9 years, and 7 (41.1 %) for >nine years. Two (11.7%) had a patient safety report filed against them. All participants had experienced at least one sentinel event involving an antimicrobial agent. Sixteen (94%) changed their practice after sentinel events; 8 (47%) increased the frequency of ordering laboratory tests, and 7 (41%) indicated they might change to more expensive antimicrobials with better safety profiles. Eight (47%) participants endorsed hypervigilance when using antibiotics

Conclusion: We found that sentinel events affect physicians' prescribing practices and monitoring of antimicrobial therapy. The most frequent changes included closer follow-up and obtaining more laboratory tests. However, some participants avoided certain antimicrobial agents or used more expensive therapies with better safety profiles. Although physicians use evidence-based medicine to alter their prescribing habits, serious adverse events can have an impact on the way we practice

Disclosures: Jonathan J. Cho, MD, Novartis (Shareholder)

246. Antibiotic Prescribing Patterns for Residents in Assisted Living Facilities

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Session: P-8. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background: Knowledge about antibiotic utilization in Assisted Living Facilities (ALFs) is limited. Studies have primarily focused on aggregate prescribing patterns, clinical indications for antibiotics, and the types of antibiotics prescribed. Information about individual resident prescribing patterns is limited. This project addresses the gap by using data from a convenient sample of ALFs.

Methods: Data on antibiotic prescriptions from 3 ALFs in Wisconsin were collected for a one-year period. Information included start and stop dates, clinical indication, and antibiotic prescribed. Antibiotic orders for the same resident were categorized as distinct events to capture treatment courses if 1) the days between the end date of the prior antibiotic and the initiation date of subsequent antibiotic orders were > 4 days, or 2) if the identified indications for the prior and subsequent antibiotic were different. Event-level indication was further defined based on (2). Descriptive statistics were used to understand antibiotic prescribing patterns at the individual and event level.

Results: A total of 207 antibiotic events among 110 assisted-living residents were identified. The patterns of antibiotic use at the resident and treatment course levels are described in tables 1 and 2, respectively. On average, each resident was received 1.9 (range:1 to 10) antibiotic treatment courses for an average of 24.8 (range: 1 to 237) total antibiotic days. The treatment duration of each treatment course averaged 14.5 days (range: 1 to 306). About 10 % of residents had 4 or more antibiotic events and days of therapy over 56 days. 43% of residents were prescribed an antibiotic without a clinical indication and 26% of the antibiotic events were not indicated. UTI was the most common indication for antibiotic treatment (31%) and ciprofloxacin was the most commonly prescribed antibiotic (22%).

Table 1. Characteristics of antibiotic use at individual level (per resident)

No. Event	N	%
1	66	60.0
2	22	20.0
3	10	9.1
4+	**12**	**10.9**
Days of Therapy		
≤7	32	29.1
8-14	41	37.3
15-28	12	10.9
29-56	13	11.8
>56	**12**	**10.9**
Days of Therapy (identified)		
≤7	53	48.2
8-14	29	26.4
15-28	8	7.3
29-56	10	9.1
>56	10	9.1
Indications (Ever had)		
Prophylaxis	4	3.6
UTI	39	35.5
RTI	12	10.9
SSTI	6	5.5
Dental	19	17.3
UTI Prophylaxis	2	1.8
Other	18	16.4
Unknown	**47**	**42.7**

Table 2. Characteristics of antibiotic events.

No. Abx per event	N	%
1	147	71.0
2	46	22.2
3+	14	6.8
Treatment duration per event		
≤7	83	40.1
8-14	98	47.3
15-28	10	4.8
>28	16	7.7
Indication [a]		
UTI	64	30.9
Not Indicated (Unknown)	54	26.1
Dental	24	11.6
Other	19	9.2
SSTI	19	9.2
RTI	16	7.7
Prophylaxis	9	4.4
UTI Prophylaxis	2	1.0
Antibiotics [b]		
1. Ciprofloxacin	45	21.7
2. Cephalexin	38	18.4
3. Amoxicillin	33	15.9

[a] defined by using the indication of the antibiotics that is not "unknown" in the same antibiotic event
[b] only includes events with the same antibiotic order throughout the entire event.

Conclusion: The current study demonstrates multiple opportunities to improve antibiotic use in ALFs, including: 1) specification of indication for the antibiotic; 2) reducing unnecessary antibiotic treatments; 3) shortening durations of treatments; and 4) reducing use of broad-spectrum antibiotics. Studies on interventions that target these areas are needed.

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247. Validation of the Use of Oral Vancomycin Following Positive Admission Screening Testing for *C. difficile*

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Session: P-8. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background: *Clostridioides difficile* can cause a severe infectious colitis and is often associated with significant morbidity and mortality. *C. difficile* infection (CDI) is defined as the presence of diarrhea plus a positive stool test, whereas *C. difficile* colonization is defined as a positive stool test in the absence of diarrhea or the presence of diarrhea attributable to causes other than CDI. Widespread use of stool polymerase chain reaction (PCR) testing, especially within the first 3 days of admission, has become common at our institution and has been associated with increased number of positive *C. difficile* tests results. However, *C. difficile* colonization rates may be 15% or higher. Oral (PO) vancomycin (vanc) is first line therapy for the treatment of CDI. We sought to evaluate the appropriateness of use of PO vanc in patients who tested positive for *C. difficile* via stool PCR within 3 days of admission.

Methods: We reviewed the clinical history, presence of diarrhea, risk factors for diarrhea, treatment and use of an infectious disease (ID) consultation for all patients 18 years of age or older found to test positive for *C. difficile* by PCR on stool assays during the first 3 days of admission from 07/01/18 to 12/31/18.

Results: A total of 228 patients met inclusion criteria. 183 (80%) received PO vanc while 45 (20%) did not. 131 (71.6%) of patients who received PO vanc had diarrhea, 39 (21.3%) did not have diarrhea, 13 (7.1%) the presence of diarrhea was unknown. 41 of 143 (28.7%) of patients without ID consults received PO vanc despite not having diarrhea, while 11 of 40 (27.5%) patients seen by ID received PO vanc despite not having diarrhea (p=0.888).

Conclusion: Most patients who tested positive for *C. difficile* received PO vanc had documented diarrhea, meeting the definition of CDI. However, over 1 in 5 (21.3%) of patients who received PO vanc did not have diarrhea and may have been colonized rather than have true CDI. ID consultation did not decrease the number of patients without diarrhea who received PO vanc or prevent treatment of colonized patients. This work reveals there may be an opportunity for improvement regarding management of CDI vs. *C. difficile* colonization which may enhance antibiotic stewardship and the appropriate use of PO vanc.

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248. Why so Much Vancomycin and Piperacillin/Tazobactam Usage Given Known Risks of Nephrotoxicity

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Session: P-8. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background: Despite years of published data describing the increased risk of nephrotoxicity with use of vancomycin and piperacillin/tazobactam (VPT), this combination remains one of the most utilized antibiotic combinations at our institution. There is limited data describing the appropriateness of empiric use of this broad-spectrum regimen. Our primary objective was to evaluate the appropriateness of the anti-methicillin resistant *Staphylococcus aureus* (MRSA), anti-pseudomonal, and anti-anaerobic spectrum of activity for patients empirically treated with this combination. Our secondary objective was to evaluate the appropriateness of diagnostic evaluation in patients started on this combination.

Methods: A retrospective cohort study was performed on a random sample of unique patients prescribed the combination of VPT from October 2019 through March 2020. Demographic and clinical data were abstracted from the electronic medical record. Based on predetermined criteria, we evaluated the appropriateness of the spectrum of activity of empiric therapy and the diagnostic evaluation.

Results: Of 100 patients evaluated, 96 patients (96%) received VPT as empiric treatment. The indications for use are shown in Table 1. Pneumonia and soft tissue/bone/joint infections were the most common indications. The appropriateness of anti-MRSA, anti-pseudomonal, and anti-anaerobic therapy is shown in Table 2. In only 35% of patients was the full spectrum of activity appropriate. Of 47 patients treated empirically for pneumonia, 35 (74%) had an order for a respiratory culture and 7 (15%) for a nasal MRSA surveillance culture. Of 30 patients treated empirically for soft tissue// joint infections, wound cultures were obtained in 22 (73%). Nineteen patients underwent surgical intervention, of whom 17 (89%) had cultures obtained.

Table 1. Indications for Empiric Vancomycin and Piperacillin/tazobactam Combination Therapy

Table 1: Indications for Empiric Vancomycin and Piperacillin/Tazobactam Combination Therapy

Indication	n
Pneumonia	47
Community Acquired Pneumonia	25
Hospital-/ Ventilator Acquired Pneumonia	19
Empyema	3
Skin and Soft Tissue/ Bone/ Joint Infection	30
Osteomyelitis	8
Non-Purulent Cellulitis	6
Ulcer/ Wound Infection	6
Abscess/ Perirectal Abscess	5
Necrotizing Soft Tissue Infection	2
Hardware Infection	1
Preseptal Cellulitis	1
Cat Bite	1
Bacteremia	10
Intra-abdominal Infection	5
Sepsis	2
Fever	5
Urosepsis/ Pyelonephritis/ Urinary Tract Infection	3
Central Nervous System Infection	2
Sinusitis	2
Implantable Cardioverter Defibrillator Infection	1

* Some patients had more than 1 indication

Table 2: Appropriateness of Spectrum of Activity for Empiric Vancomycin and Piperacillin/tazobactam Combination Therapy

Table 2: Appropriateness of Spectrum of Activity for Empiric Vancomycin and Piperacillin/Tazobactam Combination Therapy

	MRSA + PSDA[a] + Anaerobes	MRSA	PSDA	Anaerobes
Appropriateness of spectrum of activity, N (%)	34 (35.4%)	65 (67.7%)	71 (74.0%)	43 (44.8%)

[a]*Pseudomonas aeruginosa*

Conclusion: At our institution VPT use was usually empiric and unnecessarily broad for the syndrome being treated. Microbiologic testing was suboptimal and may have resulted in prolonged therapy. Although interventions aimed at de-escalating VPT are useful, interventions aimed at ensuring appropriate empiric use of this combination and ensuring appropriate diagnostic testing may be just as important.

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249. A metabolomic study of patients with A. baumannii bacteremia

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Session: P-9. Bacteremia

Background: *A. baumannii* has become an emerging pathogen of healthcare-associated infection with significant mortality. The present study aimed to identify specific biomarkers to predict patient survival of *A. baumannii* bacteremia by metabolomics.

Methods: From July 2011 to November 2014, a total of 60 patients with *A. baumannii* bacteremia and available blood samples within 4 days of the onset (Day 0) of bacteremia were included for analysis. They were categorized into two groups depending on their survival at Day 14. Metabolomic profiles of the blood specimens collected at Day 0–4 of survival and death groups were compared to identify specific biomarkers to predict patient survival at Day 14. The patients were divided in the training (n=40) and validation (n=20) sets, and the logistic regression-based receiver-operation characteristic (ROC) was used to find the potential markers.

Results: The Day 14 mortality of the included patients was 20.0% (12/60). The partial least square-discriminate analysis (PLS-DA) scores plot separated the survival and death groups (Figure 1). Thirteen metabolites, L-Isoleucine, Ofloxacin, P-Hydroxybenzaldehyde, Hippurate, Indolelactic acid, Kynurenate, N-Acetyl-L-alanine, Sebacic acid, N-Acetylaspartylglutamic acid, Hematoporphyrin IX, and Urocanic acid reached the statistical significance ($p < 0.05$) and the accuracies of training and validation sets were greater than 0.8 and 0.6, respectively (Figure 2 and Table 1). Moreover, the Wilcoxon rank sum test results of those metabolites reached the statistical significance (Table 1).