

that focus on drug de-escalation and incorporation of laboratory data into prescription choice should be implemented.

Table 1: Characteristics of patient cases with requests for carbapenem therapy

Cases with PARA requests	Total n = 183	Definitive, n = 56	Empiric, n = 127	P-value
Age (median, years)	75.5	78.4	72.7	0.09
Gender (% male)	44.8	53.6	40.9	0.11
Duration of carbapenem therapy (days)	6.5	7.0	5.0	0.13
Mortality (% deceased)	23.0	17.9	25.2	0.28
Recurrent infection (%)	7.65	3.57	9.45	0.17
Guideline-based carbapenem therapy (% concordant)	59.0	69.6	54.3	0.05

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1783. Implementation of New Strategy for Real-time Antimicrobial Stewardship (ASP) in a Secondary Healthcare Hospital, in Mexico City

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Session: 216. Antimicrobial Stewardship: Global Perspectives
Saturday, October 6, 2018: 12:30 PM

Background. Real-time antimicrobial stewardship programs are associated with improved time to optimal an effective therapies and decreased unnecessary antimicrobial use. However, these programs are often expensive and need special hardware or software for their implementation. Real-time communication technologies based on smartphones and texting media applications have not been used previously as a tool that emulates these clinical decision support programs (CDSP). We evaluated the clinical impact of implementing this technologies as fundamental part of an ASP in a Secondary Healthcare Hospital. Preauthorization, prospective audit, and feedback interventions were combined into a texting media group alert, composed by infectious diseases physicians, pharmacists, microbiologist and epidemiology department, which evaluated and decided the best treatment option in a real-time period consisting of 2 hours for each patient. Preauthorization rules included carbapenems, glycopeptides, quinolones, clindamycin, Linezolid, and amphotericin.

Methods. We conducted an observational and descriptive study for the total number of interventions in a 3-year period. Data collection included hospital service for application, authorization or restriction, consumption in terms of defined daily dose, economic outcomes, nosocomial bacteria's resistance patterns, and overall mortality rates.

Results. A total of 8,004 interventions were carried out; only 7.7% (636) were unanswered within the 2 hour period. Emergency department (34.35%) and Internal Medicine (24.6%) were the most monitored services. The most restricted ones were Surgery and Intensive Care Unit with at least 25% of prescriptions. The most restricted antibiotics were piperacillin/tazobactam, clindamycin and quinolones, restraining up to 80%. Saving cost represents US\$130,000.00 for colistin and US\$64,800.00 for carbapenems. The isolates of *P. aeruginosa* and *A. baumannii* resistant decreased by 75% and the overall mortality rate for nosocomial infections, were not increased.

Conclusion. This is the first report in Mexico of an ASP that incorporates mobile phone technology as a part of real-time surveillance program that emulates CDSP and allows to know in detail the correct use of antibiotics, saving costs and decreasing bacterial resistances

Disclosures. All authors: No reported disclosures.

1784. Impact of a Novel Multidisciplinary Anti-Tubercular Stewardship Program in a Tertiary Care Center in India

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Session: 216. Antimicrobial Stewardship: Global Perspectives
Saturday, October 6, 2018: 12:30 PM

Background. Inaccurate diagnosis of tuberculosis (TB) and inappropriate anti-tubercular therapy (ATT) contribute majorly to the emergence of drug-resistant TB

in India, particularly in the private healthcare sector. Our study evaluated the appropriateness of ATT as per Revised National TB control Program at our institution, a large private tertiary center in Kerala, India, after establishment of an Anti-Tubercular Stewardship program (ATTSP).

Methods. The ATTSP was implemented as part of a recently developed Antimicrobial Stewardship Program (ASP). A multidisciplinary team including an administrative physician champion, pulmonologist, infectious disease specialist, and clinical pharmacists met twice weekly to review all patients initiated on ATT and to assess each case for appropriateness in terms of right indication, right drug, right dose, right frequency, and right duration. For each patient who had an inappropriate ATT prescription, appropriate recommendations based on standard treatment guidelines were filed in the charts and communicated to the primary team via email and phone. Compliance to recommendations was monitored. The clinical pharmacists followed up patients after discharge

Results. Eight (52%) patients were prescribed ATT appropriately among the 153 patients reviewed from July 2017 to April 2018. Ninety-six interventions were recommended for the 73 cases with inappropriate ATT. Of these inappropriate ATT, 16 were for wrong indication, 27 for wrong drug, 52 for wrong dose and 1 for wrong frequency. Among the 137 accurately diagnosed cases of TB, 52% (71) were definite cases of TB while the rest were presumptive. Pulmonary, extra pulmonary and disseminated TB cases accounted for 45% (62), 50% (69) and 4% (6), respectively. ATT was appropriate in 63% (39) of pulmonary TB, and 54% (37) of extra pulmonary TB.

Among 23 pulmonary TB patients with inappropriate ATT, 48% (11) were for wrong drug, 78%(8) for wrong dose and 17%(4) for wrong frequency. The 32 inappropriate extra-pulmonary TB cases included 19% (6) for inappropriate drug selection and 81% (26) for inappropriate dose. Compliance to ATTSP recommendations was 34%.

Conclusion. TB in India is a vital target for ATT stewardship (10% of patients in this cohort had an inaccurate diagnosis of TB). ATTSP may be a worth initial target for novel ASPs in India.

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1785. Regional Variation of Antimicrobial Use in Japan From 2013 to 2016

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Session: 216. Antimicrobial Stewardship: Global Perspectives
Saturday, October 6, 2018: 12:30 PM

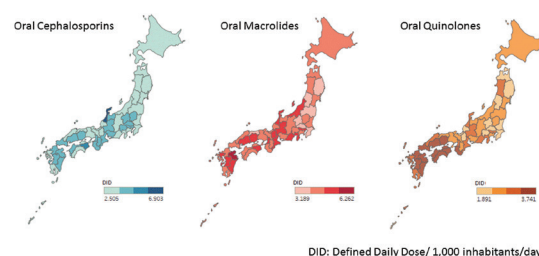
Background. Since antimicrobial resistance (AMR) is a global threat, judicious antimicrobial usage is required. Compared with European countries, antimicrobial use (AMU) is relatively low in Japan; however, the use of oral broad-spectrum antimicrobials is relatively high. Although the Japanese national action plan on AMR targets a 50% reduction in use of these oral broad-spectrum antimicrobials by 2020 from the level in 2013, regional variation in AMU in Japan is not well known.

Methods. National antimicrobial sales data from 2013 to 2016 was obtained from IQVIA Japan (Tokyo, Japan), which captures 99% of total sales in Japan. Antimicrobials were classified by the World Health Organization (WHO) defined Anatomical Therapeutic Chemicals (ATC) classification. WHO measures the number of antimicrobial use by Defined Daily Dose per 1,000 inhabitant-days (DID). From 2013 to 2016, the difference in DID amongst each prefecture was analyzed, and comparison amongst the three major regions of East, Central, and West Japan was performed using Mann-Whitney U test.

Results. From 2013 to 2016, the median (max, min) AMU (DID) change was -0.4 (2.8, -1.6). During the study period, 34 prefectures showed increasing trends and 13 prefectures showed decreasing trends. Median (max, min) AMU (DID) for total antimicrobials, oral cephalosporins, macrolides, and quinolones in 2016 was 14.4 (18.7, 11.2), 3.5 (6.9, 2.5), 4.5 (6.3, 3.2), and 2.8 (3.7, 1.9), respectively. The median total AMU (DID) in East, Central, and West Japan in 2016 was 13.2, 14.4, and 15.8, respectively. Median oral cephalosporins AMU (DID) in Central Japan (3.69) was significantly higher than that in East Japan (3.33) ($P = 0.025$). Median oral macrolides AMU (DID) in East Japan (4.11) was significantly smaller than that in Central (4.61) and West Japan (4.70) ($P < 0.01$). Median oral quinolones AMU (DID) in West Japan (3.28) was significantly higher than that in East (2.29) and Central Japan (2.73) ($P < 0.01$) (figure).

Conclusion. From 2013 to 2016, significant regional variations of oral AMU were observed in Japan. Further studies are needed to specify the appropriate targets of antimicrobial stewardship intervention to reduce oral broad-spectrum AMU in Japan.

Figure: Antimicrobial Use Density per Prefecture in 2016



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1786. Safety, Efficacy, and Clinical Impact of Penicillin Allergy Skin Testing in Immunocompromised Cancer Patients at a Comprehensive Cancer Center

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Session: 217. Antimicrobial Stewardship: Impact of Allergy
Saturday, October 6, 2018: 12:30 PM

Background. Patients reporting penicillin (PCN) allergies often receive alternative antibiotic therapy associated with significant health and economic disadvantages. The use of penicillin allergy skin testing (PST) to rule out PCN allergies is safe and effective in immunocompetent patients, yet data in immunocompromised patients are limited.

Methods. A quality improvement process using PST to clarify PCN allergies and guide antibiotic therapy was implemented at MD Anderson Cancer Center (April-October 2017). Patients admitted to Leukemia and Genitourinary Medical Oncology (GUMO) services with a history of Type 1 reactions to PCN were eligible.

Results. A total of 218 consecutive patients with reported PCN allergies were screened; 100 met inclusion criteria, were consented, and underwent PST (67 Leukemia, 33 GUMO). Sixty-one percent of tested patients reported cutaneous reactions, and 79% reported reactions >20 years ago. The most common reported allergy was to penicillin V/G (64%). Forty-eight percent were on steroids and 49% were on immunosuppressive therapy at the time of PST. For leukemia patients the median absolute neutrophil count was 0.78 (0-64.88 K/ μ L) and absolute lymphocyte count was 0.81 (0-116.71 K/ μ L). Ninety-five percent patients tested negative for PCN allergy and 4% were positive (three Leukemia, one GUMO). One test was indeterminate (negative histamine control). After PST, 25 of 67 (37%) patients receiving antibiotic therapy were changed to PCN-based antibiotics (PBA) (Figure 1). During the follow-up period (median: 177; range: 3-316 days), 65 patients who tested negative were readmitted (total 185 readmissions) and PBAs were prescribed in 58 of those readmissions (Figure 2). The most common indications for PBAs included neutropenic fever, pneumonia, and bacteremia. No patients given PBAs after negative PST experienced allergic reactions.

Conclusion. PST is safe and effective to rule out PCN allergies in immunocompromised patients, with 95% of patients testing negative for PCN allergy, suggesting that patient-reported allergy is unreliable. The rate of negative tests is comparable to data in immunocompetent patients. The use of PST in cancer patients allows for optimization of antimicrobial therapy and stewardship, which is vital in this patient population at increased risk for infections and infectious complications.

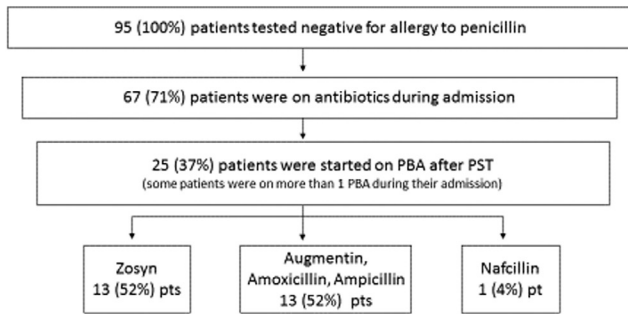


FIG. 1 PST admission: Antibiotic changes after PST. Abbreviations: PBA, penicillin-based antibiotics; PST, penicillin skin testing.

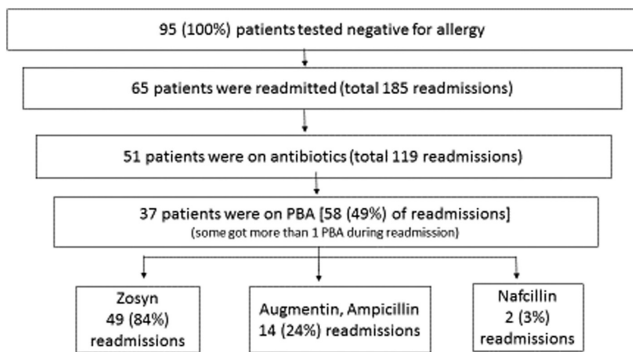


FIG. 2 PST readmissions: PBA prescribed on readmissions.

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1787. The Safety and Efficacy of an Oral Penicillin Rechallenge Program in Cancer Patients: A Pilot Multicenter Study

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Session: 217. Antimicrobial Stewardship: Impact of Allergy
Saturday, October 6, 2018: 12:30 PM

Background. Patient-reported antibiotic allergies (so-called antibiotic allergy labels [AALs]) are found in one in four cancer patients and significantly impact patient outcomes. Whilst 85% of AALs can be removed by skin testing, the role of simple point-of-care oral penicillin rechallenge in this cohort remains unknown. We report on a novel penicillin rechallenge program in cancer patients.

Methods. An oral penicillin rechallenge program was implemented at Austin Health (Melb, Aus) and Peter MacCallum Cancer Centre (Melb, Aus) on May 31, 2017. Patients were prospectively identified by Infectious Diseases and antimicrobial stewardship (AMS) services at both sites and reviewed by the conjoint Antibiotic Allergy Service for suitability as per the criteria outlined in Figure 1. Patients underwent supervised challenge with oral penicillin VK 250 mg or amoxicillin 250 mg, dependent on reported index allergy, and observed for 2-hours post. Patients were followed for up to 12 months post for adverse events and antibiotic usage.

Results. Twenty-nine patients underwent penicillin oral challenge between May 31, 2017 to April 30, 2018, 15 with cancer. Of those with cancer, 8 (53%) were male, median age 56 years (IQR 44, 67), 15 (100%) avoiding penicillin, and 7 (47%) penicillins and cephalosporins. The penicillin-amoxicillin AAL phenotypes were "rash" in 73% (11/15) and "unknown" in 27% (4/15). Patients were challenged with penicillin VK or amoxicillin, based on their reported penicillin allergy with no positive challenges or adverse events noted in those with (n = 15) and without (n = 14) cancer. In the follow-up period, 88% (14/16) patients that were prescribed antibiotics received a narrow-spectrum β -lactam.

Conclusion. A pilot penicillin oral rechallenge program was safe in cancer patients. This program serves as a future model for active "de-labelling" in carefully selected cancer patients, without formal allergy services, aiding AMS programs.

Figure 1. Selection algorithm for oral penicillin rechallenge program.

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1788. Cost-Effectiveness of Penicillin Skin Testing Among Patients With Methicillin-Sensitive *Staphylococcus aureus* Bacteremia and Reported Penicillin Allergy

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Session: 217. Antimicrobial Stewardship: Impact of Allergy
Saturday, October 6, 2018: 12:30 PM

Background. Methicillin sensitive *Staphylococcus aureus* (MSSA) bacteremia is a highly lethal infection; first-line therapy with a β -lactam, commonly cefazolin, provides a significant mortality benefit over the second-line therapy, vancomycin, which is often used in patients reporting β -lactam allergy.

Methods. We designed a simulation model of inpatients aged 55-75 years with MSSA bacteremia and a self-reported history of β -lactam allergy. The model adopted a US health-system perspective, a lifetime horizon, and a willingness-to-pay threshold of \$100,000 per quality-adjusted life year (QALY). We compared routine care (vancomycin), history screening (questionnaire assessing anaphylaxis history), and bedside penicillin skin testing. Incremental cost-effectiveness ratio (ICER) was measured using 2017 US dollars per QALY. Baseline co-morbid states (diabetes, malignancy, and end-stage renal disease [ESRD] requiring dialysis) were also modeled. Future costs and benefits were discounted at 3% per year.