2022. Antibiotic Prescribing Behavior Among Surgeon
Anucha Apasriantararak, MD, PhD1; Kitiya Janarathameewat, PharmD1; Sirindhorn Chansanom, MD2; Nattapon Tidwong, PharmD1; Linda Mundy, MD, PhD1; Thammasat University Hospital, Pathum Thani, Thailand; Bryn Mawr, Pennsylvania, Pennsylvania

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Background. A comparative study was conducted to evaluate prescribed antibiotic (AB) use in surgical patients with the Transtheoretical Model of Behavior (TTM) and Theory of Planned Behavior (TPB). Methods. A survey was conducted at Thammasat University Hospital from January 1 to 31, 2019. We evaluated the appropriateness of AB uses in the surgical department reported per the hospital’s Drug Use Evaluation (DUE) form. After review of the DUE forms, 64 prescribers were conducted to explore antibiotic prescribing behavior based on TTM vs. TPB, using a standardized data collection tool. Data collected included demographics, indications, appropriateness of AB uses, the individual prescriber’s behavior based on TTM and TPB. The five TTM stages of change were categorized precontemplation, contemplation, preparation, action, and maintenance. In TPB assessment, we evaluated attitude toward AB uses, subjective norm to AB uses behavior, and perceived behavior control of AB uses behavior.

Results. There were 92 AB uses from 64 prescribers; 70 (70/92; 76%) used antibiotics appropriately. The majority of AB uses (62/92; 67%) were for treatment of infections. The most common reasons for inappropriate AB uses included inappropriate AB choices for treatment and prophylaxis of SSIs (n = 11, 50%) and inappropriate duration (n = 8, 36%). Physicians categorized in higher stages of TTM (action and maintenance) were strongly correlated with appropriate AB uses, while there was no correlation between the total TPR and appropriate use of AB uses. By multivariate analysis, the TTM action and maintenance (OR = 7.95; P = 0.02) and self-reported prescribers who considered patients as first priority (OR = 4.02; P = 0.04) were associated with appropriate AB uses, while nonsurgical procedures (OR = 0.13; P = 0.003) and antibiotic prescriptions for surgical prophylaxis (OR = 0.15; P = 0.003) were associated with inappropriate AB uses.

Conclusion. Antibiotic prescribers categorized by TTM stages strongly correlated with appropriate AB uses. Additional studies to assess appropriate AB prescribing behavior, based on TTM stages ofchange, offer an opportunity to optimize surgical care.

Disclosures. All authors: No reported disclosures.

2023. Antimicrobial Resistance and Stewardship Knowledge and Perception among Medical and Pharmacy Students in Nigeria
Chukwuemeka Michael Ubaka, PhD1; Natalie Schelack, PhD2; Benedict Nwoeme, MD, MPH1; Debra A. Goff, PharmD3; University of Nigeria, Nsukka, Enugu, Nigeria; Federico University, Medinna, Gauteng, South Africa; National Children’s Hospital, Columbus, Ohio; The Ohio State University Wexner Medical Center, Columbus, Ohio

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Background. Nigeria is the most populous country in Africa and has high rates of antimicrobial resistance (AMR). The practice of antimicrobial stewardship in Nigerian hospitals is very limited and the subject is rarely included in undergraduate medical and pharmacy curriculums. To further acceptance and implementation of antimicrobial stewardship programs (ASP) in Nigeria health system, baseline measurements of the knowledge and perceptions held by graduating medical and pharmacy students was deemed essential. This study evaluated the knowledge and perceptions of a cohort of Nigerian medical and pharmacy students in concepts of AMR and ASP.

Methods. This was a cross-sectional questionnaire-based study of final year medical and pharmacy students from the two largest schools in the southeastern region of Nigeria. A previously published 20-items questionnaire measuring knowledge and perceptions toward AMR and ASP was adopted for the study. Results were expressed in frequencies and percentages.

Results. Completed questionnaires were received from 79.3% (361 of 455 students), over half (60%) were male, and mostly between 22 and 25 years old (68.7%). More pharmacy students had formal training on ASP compared with medical students (41.3% vs. 27.5%; P = 0.05). Pharmacy students (n = 84.3% and 90.5%) were significantly more knowledgeable of factors that promote the spread of AMR and interventions to combat resistance than medical students (n = 73.9% and 82.3%); P = 0.05, respectively. Interestingly, 23.3% of medical students thought pharmacists should lead ASP teams, while 5.8% of pharmacy students thought doctors should lead ASP. However, both held the same perceptions of each other’s actions.

Conclusion. Knowledge of AMR and ASP among medical and pharmacy students in Nigeria is lacking. Inter-professional collaboration to change perceptions and drive ASP in urgently needed.

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2024. A Multifaceted Intervention to Improve Oral Antimicrobial Prescription at the Emergency Department at a Japanese Tertiary Care Center
Yasuyuki Tagashira, MD; Hitoshi Horida, MD, PhD; Tokyo Metropolitan Tama General Medical Center, Fuchu City, Tokyo, Japan

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Background. The emergency department (ED) is one of the most important settings where antimicrobials are frequently prescribed in developed countries, and at least 30% of antimicrobials prescribed at the ED are inappropriate. Some studies revealed that various factors, especially the physician-related factors were associated with inappropriate antimicrobial prescription, implementing multiple strategies to modify prescribing practice is needed to optimize antimicrobial therapy at the ED.

Methods. We implemented a multifaceted intervention to patients discharged with oral antimicrobials in the ED at a Japanese tertiary care center from October 2018 to March 2019. The intervention included (1) an educational didactic session to physicians, (2) a evidence-based tool book regarding antimicrobial use for common diagnoses, (3) antimicrobial order sets for common diagnoses, (4) monthly reports of the appropriate use of antimicrobial use, and (5) post-prescription review and feedback by an infectious disease resident. The proportion of appropriate discharge oral antimicrobial prescription at ED, and changes in the prescription density, measured as the number of prescription per 1,000 patient visits between pre- and post-intervention were evaluated.

Results. The total number of patient visits at the ED during the study period was 592,274. With the intervention, the mean monthly discharge oral antimicrobial prescription decreased from 42.7 to 34.2 per 1,000 visits (proportional reduction 0.20; P < 0.01). Overall, appropriate prescription rate significantly increased from 47.7% (742/1,555) to 77.4% (421/544) (P < 0.01). The rate of unnecessary and inappropriate discharge antimicrobial prescription accounted from 27.5% (428/1,555) and 21.7% (337/1,555) to 8.5% (46/544) and 10.7% (58/544), respectively. A substantial improvement in discharge antimicrobial prescription against intra-abdominal infections and odontogenic infections during the intervention period was observed (changes in the proportion of appropriate prescription was 0.37 [P < 0.01] and 0.51 [P < 0.01], respectively).

Conclusion. An evidence-based, multifaceted intervention led to decreasing unnecessary prescription and optimizing physicians’ antimicrobial prescriptions at the ED.

Disclosures. All authors: No reported disclosures.

2025. Evaluation of the Impact of an Antimicrobial Stewardship Program in a Tertiary Hospital in Northern Italy: Efficacy of a Persuasive Approach on Antibiotics Consumption and Rate of Clostridium difficile Infection
Erika Chiari, MD; Davide Mangioni, MD1;2;3; Estera Pollastri, MD1;4;5; Giuseppe Paranno, MD1; Giovanni Miolesi, MD1; Giuseppe Paranno, MD1; Davide Bertelli, MD1; Elena Festa, Pharmacists1; Armardo Caruso, MD1; Roberto Stellini, MD1; Francesca Castelli, MD1; Department of Infectious and Tropical Diseases, Spedali Civili, Brescia, Italy; Infectious Diseases Unit, Department of Internal Medicine, Fondazione IRCCS Ca Granda Ospedale Maggiore Policlinico, Milano, Italy; Infectious Diseases Unit, Department of Internal Medicine, Fondazione IRCCS Ca Granda Ospedale Maggiore Policlinico, Brescia, Lombardia, Italy; Department of Microbiology and Virology, Spedali Civili, Brescia, Lombardia, Italy

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Background. Antibacterial resistance (AMR) situation in Italian hospitals and regions represents a major public health threat [ECDC, 2017]. Antimicrobial stewardship programs (ASPs), particularly when based on local epidemiology, have been beneficial in optimizing antibiotic therapy as well as reducing hospital rates of Clostridium difficile infection (CDI) and AMR [Akpan MR, Antibiotics 2016]..

Methods. Our ASP program has been conducted at Spedali Civili General Hospital of Brescia, Northern Italy (1300-bed tertiary hospital), between the beginning of 2016 and the end of 2017. A preliminary analysis of local epidemiological data was performed (Table 1). Seven groups (“districts”) were identified according to microbiological and clinical similarities. This was a persuasive-based ASP. First, we trained physicians on general principles of ASP, then guidelines for the management of “difficult-to-handle” infections were drafted based on international guidelines and local microbiological data (Table 2).

Results. Here we show the results of pre-ASP (2015 vs. post-ASP (2018) analysis on antibiotic consumption (AC) and CDI rates. AC is expressed in DDD/100 bed-days. The overall hospital AC decreased from 84.31 to 76.84 (−9%), consistently with national recommendations [Italian National Plan against AMR, 2017]. In accordance with the local guidelines developed within our ASP, carbapenem consumption decreased from 5.77 to 4.87 (−16%) and fluoroquinolones (FLQ) from 14.45 to 9.94 (−31%). At the same time piperacil/tazobactam use increased from 5.53 to 8.46 (53%). 3°–4°G cephalosporins and glycopeptides consumption slightly reduced from 11.78 to 11.42 (−3%) and from 4.07 to 3.83 (−6%), respectively. AC of the different districts involved is reported in Table 3. CDI rates decreased from 0.0434/100 bed-days in 2015 to 0.0315/100 bed-days in 2018 (−27%) (Figure 1).

Conclusion. Our ASP was a persuasive-based program in a setting of high AMR rate. In short term, it has shown a positive impact in improving AC (in particular of broad-spectrum antibiotics with a high risk of resistance selection and CDI) and CDI rates. Audits for local guidelines adherence and the evaluation of AC, AMR and CDI rates are ongoing as long-term quality measures for assessing the impact of our ASP.
Disclosures. All authors: No reported disclosures.

2026. A Current Status of Antimicrobial Stewardship Programs in Korean Large Hospitals: A Nationwide Survey in 2018

Bongyung Kim, MD, PhD1; Myung Jin Lee, MD, MSc2; Song Mi Moon, MD, PhD3; Se Yoon Park, MD, MSc4; Kyong-Ho Song, MD, PhD5; Hyunjoo Lee, MD, PhD6; Jeong Su Park, MD, PhD7; Mi Suk Lee, MD7; Su-Mi Choi, MD, PhD8; Joong Sup Yeom, MD, PhD9; Jin Yong Kim, MD, MPH10; Chung Joon Kim, MD, PhD11; Hyun Ha Chang, MD, PhD12; Eun Suk Kim, MD, PhD13; Tae Hyong Kim, MD, PhD14; Hong Bin Kim, MD, PhD15; 1Department of Internal Medicine, Hanyang University College of Medicine, Kyoungsung-gu, Republic of Korea; 2Division of Infectious Diseases, Department of Internal Medicine, Inje University Sanggye-Paik Hospital, Seoul, Seoul-t'ukpyolsi, Republic of Korea; 3Department of Internal Medicine, Seoul National University College of Medicine, Seoul, Seoul-t'ukpyolsi, Republic of Korea; 4Division of Infectious Diseases, Department of Internal Medicine, Soonchunhyang University Seoul Hospital, Soonchunhyang University College of Medicine, Seoul, Seoul-t'ukpyolsi, Republic of Korea; 5Department of Internal Medicine, Seoul National University Bundang Hospital, Seongnam, Kyonggi-do, Republic of Korea; 6Department of Laboratory Medicine, Seoul National University Bundang Hospital, Seongnam, Kyonggi-do, Republic of Korea; 7Department of Pediatrics, Seoul National University Bundang Hospital, Seongnam, Kyonggi-do, Republic of Korea; 8Department of Internal Medicine, Kyung Hee University School of Medicine, Seoul-t'ukpyolsi, Republic of Korea; 9Division of Infectious Diseases, Department of Internal Medicine, Yonsei University College of Medicine, Seodaemun-gu, Seoul, South Korea; 10Division of Infectious Diseases, Department of Internal Medicine, The Catholic University of Korea, Seoul, Seoul-t'ukpyolsi, Republic of Korea; 11Department of Internal Medicine, Ewha Womans University College of Medicine, Seoul-t'ukpyolsi, Republic of Korea; 12Division of Infectious Diseases, Department of Internal Medicine, School of Medicine, Kyungpook National University, Daegu, Taegu-t'ukpyolsi, Republic of Korea; 13Division of Infectious Diseases, Department of Internal Medicine, Seoul National University Bundang Hospital, Kyonggi-do, Republic of Korea.

Methods. The questionnaire was designed based on the “Seven Core Elements of Hospital Antimicrobial Stewardship Programs” from Centers for Disease Control and Prevention of the U.S. and modified from the questionnaire of the previous survey on ASP in Korea, 2015. The survey targeted all the hospitals with 500 beds or more in South Korea in 2018. The online survey was conducted from June to July 2018. Only one ASP-associated physician per hospital participated in the survey.

Results. The response rate to the survey was 88.4% (84/95). The median number of medical personnel participating in ASP was 4 (interquartile range [IQR] 2.25–5), most of which were infectious diseases specialists (median 2, IQR 1–2). Besides, some pediatric infectious diseases specialists, pharmacists, etc. were participating in the ASPs. Only 6.0% (5/84) of hospitals had full-time workers for ASP. Restrictive measures for designated antibiotics was a widely accepted ASP strategy among Korean hospitals (88.1%, 74/84) and the median number of designated antibiotic classes was 16 (IQR 11–19). An 11.9% (10/84) of hospitals introduced monitoring and intervention program against inappropriate antibiotic combination therapy. The proportion of hospitals which had interventions for inappropriate long-term antibiotic use and parenteral to oral conversion strategy were 9.5% (8/84) and 1.2% (1/84), respectively. Lack of time, personnel, and appropriate reward were perceived as the major barriers to establishing ASP in Korean hospitals.

Conclusion. ASP in Korean hospitals were mainly carried out by 1–2 infectious diseases specialists and it heavily depended on restrictive measures for designated antibiotics. Supporting manpower and establishment of the appropriate reward system is necessary for improvement of ASP in Korean hospitals.

Table 1: Characteristics of response hospitals

| Variable | Total (n=84) | Hospital with ASP (n=74) | Hospital without IRS (n=10) |
|----------|-------------|-------------------------|---------------------------|
| Total (n=84) |             |                         |                           |
| Hospital with ASP (n=74) |             |                         |                           |
| Hospital without IRS (n=10) |             |                         |                           |
| Restrictive measures for designated antibiotic (%) | 73 (98.1) | 72 (97.3) | 1 (10.0) | 0.001 |
| Prospective audit and feedback (%) | 41 (55.3) | 39 (52.7) | 2 (20.0) | 0.009 |
| For-patient using specific antibiotic (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| For-patients having specific diseases (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| For-patients in specific departments or wards (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Frequency of prospective audit and feedback (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Every-day | 16 (100.0) | 15 (100.0) | 1 (10.0) | 0.000 |
| Every-2-3 days | 16 (100.0) | 15 (100.0) | 1 (10.0) | 0.000 |
| Monitoring and intervention on antibiotic use (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Inappropriate antibiotic combination therapy (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Inappropriate long-term antibiotic use (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Inappropriate peri-operative antibiotic (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Inappropriate antibiotic administration (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Inappropriate antibiotic dosage (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Inappropriate antibiotic for community acquired (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Inappropriate antibiotic for nosocomial (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Inappropriate antibiotic for overall (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Automatic step order (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Titratory criterion (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Automated intervention system linked with antimicrobial susceptibility results (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Computed clinical decision support program (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Intervention on oral conversion strategy (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |
| Antibiotic rotation (%) | 61 (82.4) | 59 (80.5) | 2 (20.0) | 1.000 |

Abbreviations: IRS: Infectious diseases specialist

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Background. The aim of this study was to examine the current status of antimicrobial stewardship program (ASP) in large hospitals in South Korea, identifying problems and hurdles for implementation of proper ASP, and providing a reference for the proposal of ASP policies.

Methods. The questionnaire was designed based on the “Seven Core Elements of Hospital Antimicrobial Stewardship Programs” from Centers for Disease Control and Prevention of the U.S. and modified from the questionnaire of the previous survey on ASP in Korea, 2015. The survey targeted all the hospitals with 500 beds or more in South Korea in 2018. The online survey was conducted from June to July 2018. Only one ASP-associated physician per hospital participated in the survey.

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Conclusion. ASP in Korean hospitals were mainly carried out by 1–2 infectious diseases specialists and it heavily depended on restrictive measures for designated antibiotics. Supporting manpower and establishment of the appropriate reward system is necessary for improvement of ASP in Korean hospitals.