



Supplementary Article



Proceedings of the Experience Sharing in Antimicrobial Stewardship in ASPICON 2023-2024

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Society of Antimicrobial Stewardship Practices (SASPI) in India is registered under the Society Registration Act in Uttarakhand with registration no. UK0600872022008924 in the year 2022. ASPICON is the annual SASPI conference hosted by the Institutes of National Importance (INIs) across India on a rotational basis. A very interesting activity held at ASPICON every year is the “Integrated Antimicrobial Stewardship Experience Sharing” session. In this session, all the INIs and other Indian institutes are invited to share their stewardship activities and vision for the future. The advantages of this unique session are manifold. First and foremost, it provides a snapshot of stewardship activities at various premier medical institutes in India. This helps one visualise what has been achieved so far what more needs to be done, and in which direction to tackle the menace of emerging antimicrobial resistance effectively. Secondly, this session serves as a “practice-based” hand-holding tool, especially for newly started institutes yet to begin Antimicrobial Stewardship Programs (ASPs).

These relatively younger institutes can identify the bottlenecks and address them better by learning from the troubleshooting experience of other Institutes that have surpassed these challenges. Thirdly, this session also holds promise for established ASP programs by helping them expand their ASPs based on new strategies being followed at other institutes based on their ideation, expertise and resources. Most importantly, this activity allows institutes to periodically self-assess their performance against the goals set out at previous ASPICONS. For instance, about ten years after the inception of AMSP activities at PGIMER Chandigarh, PGI-trained second-generation AMSP stewards have set up institute-specific AMSPs in the new institutes where they work.

The AMSP initiatives presented at ASPICON 2024 held at PGIMER, Chandigarh, were summarised in Table 1 below. Some unique ideas at ASPICON 2024 include an administrative “not push” order for time-dependent antibiotics and the provision of 100% Outpatient Parenteral Antimicrobial Therapy (OPAT) in the

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Department of Medicine at AIIMS Rishikesh. AIIMS Bibinagar showcased the various “One Health” activities being conducted at the human, plant, animal, and environmental interface under their recently inaugurated “One Health regional coordinator centre. PGIMER Chandigarh stood unique in providing therapeutic drug monitoring services for optimizing antimicrobial doses besides the active engagement in handholding of regional institutes to facilitate them in setting up their ASPs. Orientation programme for ASHA workers at AIIMS Kalyani, pathogen-directed clinical microbiology rounds at AIIMS Patna, periodic integrated multidisciplinary rounds, initiation of holiday reporting and drug consumption audit in addition to AMR surveillance at AIIMS Manglagiri, AMSP-case based discussions at NIZAM, Hyderabad and “rotating best trophy” award for best IPC activities

at AIIMS Nagpur were some other unique activities shared at ASPICON 2024.

Similarly, table 1 also describes the AMSP activities presented during the ASPICON 2023 sessions. The lack of uniformity in presentations at ASPICON 2023 and 2024 reflects the differing infrastructure and resources at each participating institute and SASPI being a newly established society. Despite these limitations, the enthusiastic participation of various institutes is a testimony to their commitment to fighting emerging antimicrobial resistance jointly. In a recent significant development, SASPI has released 42 practice statements comprising all three sections of Integrated Antimicrobial Stewardship practices. The degree of adherence to these statements could standardise the presentation format for the subsequent ASPICONS.

Table 1. Summary of Integrated Antimicrobial Stewardship Activities adopted by various institutes across India

Sr. no.	Name of Institute & foundation year	AMSP strategies adopted in 2023	AMSP strategies adopted in 2024	Vision for future
1.	Nizam's Institute of Medical Sciences (NIMS), Hyderabad (1961)	NA	• Introduction of Antibiotic justification form • AMSP ICU rounds – including Infectious diseases (ID) physician / Clinical pharmacologist	• Diagnostic stewardship • Real time culture report reviews • Strict Infection control practices for HAI • Formulary restriction and adherence to hospital antibiotic policy
2.	PGIMER, Chandigarh (1962)	NA	• Therapeutic drug monitoring for dose optimisation (Vancomycin, Voriconazole, Amikacin, Posaconazole, Itraconazole) • Antibiotic rounds in Paediatrics dept. • 24 X 7 On call Clinical Pharmacology resident: to solve any clinician queries • Online training module: Surgeons for Rational Use of Antimicrobials (w.e.f. 5th Sept 2024)	• Continued hand holding institutes and healthcare setups in designing antimicrobial stewardship intervention • Advocacy and evidence generation
3.	BV(DU)MC Pune (1989)	NA	• Mobile App- Hand hygiene monitoring • State of the art Central Sterile Supply Department (CSSD) -CAHO ACE Certified • Collaborative project with CDC-JHU for better environmental cleaning surveillance	• Reduction in antimicrobials for dual anaerobic cover • Cohorting of MDRO patients

4.	AIIMS Jodhpur (2012)	• Ward and ICU rounds using electronic forms • Dose optimization • Formulary restriction and preauthorization for few drugs (Ceftazidime avibactam, Caspofungin, Liposomal amphotericin B, Anidulafungin) • Decreasing turn-around time for all microbiological diagnosis • De-escalation of WHO watch and reserve drugs	• Ward and ICU rounds using electronic AMS forms • Dose optimization • Formulary restriction and preauthorization for few drugs (Ceftazidime avibactam, Polymyxin group, Caspofungin, Liposomal amphotericin B, Anidulafungin) • Decreasing turn-around time for all microbiological diagnosis	• To decrease mortality due to HAIs by improvising IPC practices • To decrease DDD and DOT of WHO reserve antimicrobials • To decrease the empirical use of WHO reserve drugs • To increase compliance with our hospital antibiotic policy • To increase formulary restriction • To gain further support, power, expertise and credibility to support AMS activities
5.	AIIMS Patna (2012)	• Critical alerts for timely initiation of antimicrobials • Cascade reporting to promote appropriate antibiotic use • Inclusion of AMS in Junior Resident Foundation Course	• Pathogen directed clinical microbiology rounds • Antimicrobial use audit in ICUs	• Pharmacy driven antibiotic consumption audit
6.	AIIMS Rishikesh (2012)	• Reminders of hand hygiene by using bell system • Dose optimization by Clinical Pharmacology team • Use of dept specific clinical antibiogram • Use of Reserve group of antimicrobials with dept specific policies	• 100% use of Outpatient Parenteral Antimicrobial Therapy (OPAT) in dept. of Medicine • To fill form on “List of antimicrobials with daywise utilization (must be for each patient if hospital stay > 10 days)” • Office order to use time-dependent antimicrobials in 3-hour infusions (NOT push/10-20 min) to enhance drug efficacy	• Zero HAI by 2025 • 6 Vaccinations of each HCW (SARS-CoV-2, H1N1, HBV, Tdap, MMR, & Varicella) by 2025 • Source Control for all MDRO patients • Cumulative Antibiogram for real MDR pathogens • 100% use of OPAT in AIIMSR • Pharmacy and Nursing driven/reminder of ‘IV to Oral switch’ and ‘timing out’ • Community stewardship reach out to local pharmacy shops • Implementation of auto ID/AMSP consultation for XDR and PDR organisms and for continuing high-end antimicrobials like Colistin, Tigecycline, etc • Mandatory e-prescription of inpatients • Constitution of a Hospital Pre-Authorization Committee (Similar to a Tumor Board)

7.	AIIMS Mangalagiri (2018)	• Complete filled up test requisition form (TRF) • Sunday and Holiday Reporting	• Sunday and Holiday Reporting • Personalized Culture and susceptibility reporting • Drug consumption audit	• Antimicrobial Policy. • Surgical Antimicrobial Prophylaxis (SAP) • Separate Antimicrobial chart (WHO-AWArE based classification color coded) to be maintained in the patient's file • Real Time Antimicrobial Consumption Audit
8.	AIIMS Nagpur (2018)	NA	• Hand Hygiene audit and feedback system • Initiation of 'Rotating Best Ward Trophy' award for best IPC practices • "GO BLUE" campaign for WAAW, 2023	• 80% reduction of HAIs by 2025 • Vaccinations of each Healthcare worker (HCW)-HBV, Tdap • Source Control for all MDRO patients • Cumulative Antibigram for MDR pathogens
9.	AIIMS Bathinda (2019)	• Bed side antimicrobial review and feedback • Restriction, Pharmacy alerts and audit of antimicrobial indent of reserve group of antimicrobials from Central Pharmacy	• NA	• NA
10.	AIIMS Bibinagar (2019)	NA	• Inauguration of AIIMS Bibinagar as Regional co-ordinator for One Health (RCOH) • Creation of One Health Demographic Surveillance System (OHDSS) around AIIMS Bibinagar in Yadadri Bhuvanagiri District- data collection using "Epicollect5" application • AMR Surveillance in the environment-India-Rockefeller Pandemic Prevention Initiative • Rural wastewater surveillance	• Advocacy and training of community health centers and district hospitals under Steward against Anti-Microbial Resistance in Action and Thought (SAMRAT) initiative • Prevention of AMR in hospital under Preventing Resistance against Anti-microbial agents through Awareness, Accountability and Networking (PRAMAAN) initiative • Continued community AMR surveillance under Curbing Resistance against Antibiotics at Human-Animal-Plant-Environment Interface (CRAB at HAPE) initiative
11.	AIIMS Deoghar (2019)	NA	• Integrated AMSP committee • Prescription audits • Culture and sensitivity testing	• Plns to expand prescription audits and CST coverage. • Implementation of targeted interventions based on audit findings.
12.	AIIMS Kalyani (2019)	NA	• Community involvement by: -Orientation programme for ASHA workers -Raise awareness among 100+ residents on impact of antimicrobial resistance • World Antimicrobial Awareness Week (WAAW), 2023 -Online course on AMR was launched in collaboration with London School of Hygiene	• Form hospital antimicrobial stewardship committee • Hand hygiene audit • Identification and prevention of HAI with bundle care approaches • Hospital antibiotic policy • Standard treatment guidelines for common disorders

13.	AIIMS Rae Bareli (2019)	- Initiation of OT Commissioning and Infection control Surveillance by the Department of Microbiology - Reducing the TAT required for Microbiology reports	NA	NA
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***NA:** not applicable meaning AMSP activities not shared by INIs at ASPICON 2023, 2024

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NK: Data Collection; Data curation; Manuscript writing
PK: Data Collection; Data curation; Manuscript writing
PKP: Conceptualization; Data resources; Critical review; Approval
NS: Conceptualization; Data resources; Critical review; Approval

AI DECLARATION

No AI tool was used to generate research data, perform data analysis, interpret findings, formulate scientific conclusions, or make editorial decisions. All AI-assisted content was critically reviewed, verified, and revised by the authors. The authors take full responsibility for the accuracy, originality, integrity, and final content of the manuscript.