

# NEWSLETTER SASPI



#### SOCIETY OF ANTIMICROBIAL STEWARDSHIP PRACTICES IN INDIA

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### FROM THE EDITOR'S DESK >>>

Dear Readers,

Dear Readers Welcome to the First SASPI Newsletter.

As you may have already gathered the Society for Antimicrobial Stewardship Practices in India is an organization that is a conglomerate of Physicians, Surgeons, Diagnosticians like Clinical Microbiologists, Clinical Pharmacologists, Infection Preventionists, and Infectious Diseases Specialists. The mandate of SASPI is to integrate various Stewardship Practices under one umbrella. With an Integrated Stewardship approach, the outlook toward Infectious Diseases Management must comprise all the stewardship components. I am very confident that the SASPI will play a critical role as an organization in guiding toward better diagnosis and management of various infectious disease syndromes in times to come. and Infection. We would welcome and solicit articles around the "Integrated Stewardship" theme with all infectious conditions.

Thank You Happy Reading DR. SUMIT RAI
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#### **IRRATIONAL ANTIBIOTIC FDCS: BE AWaRe**

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Emerging Antimicrobial Resistance (AMR) is a global public health crisis. Overuse of antibiotics is one of the key drivers of rising antimicrobial resistance. Antibiotics are available both as a single entity as well as fixed-dose combination (FDC) formulations. FDCs are pharmaceutical preparations that contain two or more active drugs in a fixed dose ratio to be administered in a single dosage form. FDCs are deemed rational only if the components of FDCs are combined on the basis of sound scientific justification; compatible pharmacokinetic-pharmacodynamic characteristics; claims of improved efficacy and tolerability are substantiated by robust clinical evidence and there is a defined population in which these FDCs are indicated. For instance, FDCs have proven tremendously useful in improving adherence and clinical outcomes in patients of tuberculosis, malaria, and HIV.



However; not all antibiotic FDCs fulfill the above criteria and are deemed irrational.

World Health Organization (WHO) has published a list of "Not Recommended Antibiotic combinations" which are not evidence-based and therefore should not be used in the clinics. The presence and growing sales of irrational fixed-dose combinations of antibiotics in low- and middle-income countries is thus a matter of grave concern. One such example is the FDC of ampicillin and cloxacillin. This combination lacks regulatory approval and there is no scientific rationale behind combining extended-spectrum penicillin(ampicillin) with anti-staphylococcal penicillin(cloxacillin) at subtherapeutic doses (250mg each). Further, there is a lack of wellconducted clinical studies demonstrating the superiority of the FDC compared to FDC components alone in terms of improved efficacy, decreased toxicity, and or prevention of drug resistance. There are numerous such examples across different antibiotic groups. Availability of these combinations encourages upfront use of antibiotic FDCs when only one component would suffice leading to misuse and overuse. Therefore, this issue needs urgent address. The recent regulatory ban over the sale of irrational FDCs and the publication of a draft policy for the approval of FDCs in India is a welcome step in this regard. Continued surveillance and strict implementation of these policy measures are the need of the hour to curb the manufacture, import, and sales of irrational FDCs.



# SETTING UP DIAGNOSTIC FACILITY AT A PRIMARY HEALTH CARE (PHC) LEVEL

Dr.T Karuna, Department of Microbiology, AIIMS Bhopal karuna.microbiology@aiimsbhopal.edu.in



Diagnostic facilities are paramount to providing quality healthcare services as making correct diagnosis is the very first step in management of a disease state.

There is undebatable need for establishing diagnostic facilities at primary health care level as the communicable and non-communicable diseases impacting the rural population are proportionate to the urban counterpart. There has been paradigm shift in prevalence of infectious diseases and non-communicable diseases such as cancers being diagnosed in almost every village nowadays.

To begin with; ICMR's: National Essential Diagnostic Test List (NEDL) 2019 can serve as ready reference document to create such facilities. Subsequently, assessment of prerequisites and filling of gaps by providing point of care tests and auto analysers with adequate manpower training these facilities can be upgraded to include more tests.

As per NEDL 2019 the samples for antibiotic culture sensitivity are tested at level of district hospital only. The role of CHC is currently limited to sample collection only. This needs immediate attention in view of growing AMR. These antimicrobial susceptibility tests should be made available at both CHC and PHC levels by capacity building at the earliest.



#### TYPES OF STEWARDSHIP PRACTICES REQUIRED TODAY

R.I.P: Conventional Approach
Welcome Infectious Disease Stewardship

Courtesy:
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#### **Antimicrobial Steward**

- Drug choices
- Drug dosing
- PK PD Mx
- TI/TE Reports
- Footnotes
- Intrinsic R
- Extended Panels
- Prescription audit
- ADE

#### Diagnostic Steward

- Active reporting
- Automation
- Accreditation
- Emergency reporting
- Critical Alerts
- Interaction with clinics
- Patient follow up
- Pre Analytical
- Sunday/Holiday reporting

## Hospital Infection control Steward

- HAI Surveillance
- Hand Hygiene
- Training of HCW and ICNs
- Disinfection Policy
- CSSD
- Sharp Mx
- BMW
- Misc (STP/ETP)

PK/PD: Pharmacokinetic/Pharmacodynamics, R: Resistance, HCW: Healthcare worker
TE: latent period TI: Infectious period, BMW: Biomedical waste, ICN: Infection Control Nurse
CSSD: Central sterile supply department, ADE: Adverse drug event
STP/ETP: Sewage treatment plan/ Effluent treatment plan. Mx: Management

# NURSES: THE MISSING LINK OF AMSP WORKFORCE

The Antimicrobial stewardship program includes concerted team efforts that aim to promote rational use of antibiotics to optimize patient outcomes with least toxicity in a cost-effective manner. AMSP team is typically multidisciplinary and includes Infectious disease physicians, microbiologists, pharmacologists and hospital administrators. We call nurses the missing link in AMSP workforce as their role in AMSP has not been explicitly stated





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However, nurses are well-trained, independent professionals competent to administer the prescribed medication to patients including antibiotics. If the nurses are adequately trained in key aspects of antibiotic use; they can help promote prudent antibiotic use at multiple steps of drug administration. Some of these aspects include recording an accurate antibiotic allergy; ensuring appropriate samples for culture sensitivity are collected prior to giving the first dose of antibiotics; optimizing antibiotic infusion times and encouraging prompt transition from intravenous (IV) to oral (PO) antibiotics. Since nurses provide 24\*7 care to patients, they can build rapport with patients more easily. This rapport can be of great value in educating the common masses about more responsible antibiotic usage which can ultimately translate into a widespread behavioral change where patients stop pressing for antibiotic prescriptions when not needed.

Besides hospital wards, nurses play crucial role in the efficient delivery of healthcare services at other levels of healthcare as well as in community. Thus, in view of many interventions that the nurses can very effectively apply at the patient bedside; it is prudent to include them as partners in AMSP team and their contribution be duly acknowledged.



#### INTERVIEW WITH VINAYAK: AMR FROM PERSPECTIVE OF A STUDENT

#### 1. Tell me a brief about yourself and your family background.

**Reply:**I grew up in a family of doctors, with both my grandparents being professionals in the field. This helped me understand the value clinical medicine holds for the society at a very tender age. I have strong desire to pursue career in medicine.

## 2. What was your motivation to talk about the Antibiotic Resistance issue?

**Reply:** Having suffered from diseases like typhoid, dengue and chickenpox, I have had the opportunity to experience dramatic relief with antimicrobials. When I realized that the possibility of a 'Post-Antibiotic' era is real one; a fear and resolve were ignited in me to investigate this issue and spread awareness.



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## 3. You have talked about over-the-counter (OTC) sales and the use of antibiotics without a prescription. According to you, what are the reasons for this?

Reply:The lack of knowledge among both the consumers (patients themselves) as well as the drug providers(Chemists) about the harms of antibiotic overuse is the root cause.

4. Physicians are often seen with indiscriminate and irrational prescribing of antibiotics both at their private OPDs and in peripheral centres. In your view, how can we minimize this? Should the sensitization of such Physicians also be done?

Reply:Improving the training of physicians in "rational use of antibiotics" and organising sensitization programmes at regular intervals would certainly be a step in the right direction.

# 5. What is the role and impact of the Antibiotic resistance awareness campaign at the school level? Which class of students should be targeted for such programs? Should we include parents also?

Reply:The next generation of healthcare professionals are currently receiving their primary and secondary education in our schools. As such, beginning early will be prudent. Antibiotic resistance campaigns at the school level should include all middle and senior school students. Science textbooks should talk in detail about antibiotic resistance; its dangers and preventive approaches.

## 6. What are your future career plans and would you like to keep continuing your interest and efforts in spreading awareness in this field?

I want to pursue a career in clinical medicine. As I make my way through university and my own knowledge about AMR increases, I hope to make my future writings on the subject more advanced and take part in public awareness campaigns.

Reference: Antibiotic resistance must be seen as a global health emergency. It will define our future (theprint.in)



## Trial of the Month>>>

#### THE INTREST (INTRAVENOUS TREATMENT FOR SCRUB TYPHUS)

#### Introduction:

- The original article titled "Intravenous Doxycycline, Azithromycin or Both for Severe Scrub Typhus" was published on March 2, 2023 in volume 388 of NEJM.
- It details the findings of the INTREST Trial by Varghese GM, et al.



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There were no significant differences in the occurrence of Adverse Events or of Severe Adverse Events among the groups.

#### **Key Findings:**

- This multi-centric, three-arm, parallel-group, randomized controlled trial involving 794 patients compared the efficacy and safety of combination therapy with intravenous azithromycin and doxycycline in comparison with monotherapy of either anti-microbial (doxycycline/ azithromycin) in patients suffering from severe scrub typhus.
- The combination group performed significantly better in contrast to monotherapy groups [risk difference of -13.3 (p=0.002) and -14.8 (p<0.001) percentage points, compared to the doxycycline and azithromycin groups respectively] with respect to the composite primary outcome of mortality due to any cause at day 28; persistent complications at day 7; and persistent fever at day 5 defined by oral temperature ≥37.5°C.
- There were no significant (p>0.05) between-group differences in the secondary outcomes of death at day 28, median time till defervescence, need for inotropes, duration of ventilation, hospital stay duration, and ICU stay duration.
- Duration of dialysis and return to normal sensorium (in patients with GCS < 15) were marginally lower in the combination group.
- Time until PCR negativity of O. tsutsugamushi was significantly longer (p<0.05) compared to monotherapy with doxycycline or azithromycin.

#### **Limitations:**

- The trial had to be done without blinding owing to the challenges involving treatment of severe scrub typhus patients.
- Children and pregnant women were excluded from the trial. Thus, the safety findings cannot be extrapolated to these groups, however the efficacy findings can be extrapolated.
- The trial was done exclusively in Indian patients and healthcare settings. Therefore, study findings may not be applicable to other populations and healthcare settings.

  Clinical Implications:
- There is a paucity of evidence from clinical trials about the most appropriate treatment for severe Scrub Typhus.
- The results of this trial provide robust evidence in favor of using combination therapy with intravenous azithromycin and doxycycline compared to monotherapy of either anti-microbial.



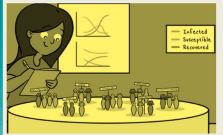
#### SNIPPET OF THE MONTH

## DETECTING INFECTIOUS DISEASES SPREAD BY MATHEMATICAL MODELLING INTRODUCING....... ID DETECTIVE!

Gathered & edited by: Dr. Samiksha Bhattacharjee Assistant professor, Pharmacology, AllMS, Deoghar samagmc@gmail.com

A simplified explanation of something using mathematical principles and terminology is called a mathematical model. Mathematical modeling is the process of creating, analyzing, and improving such a model. Scientists sought different approaches to improve the specificity of forecasting by different models.

Mathematical Epidemiologist:  $\uparrow$  A scientist who studies infectious diseases using mathematical modeling and computation.



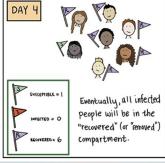
Using a compartmental model is one method for quantitatively simulating the spread of an infectious disease

A population is divided into compartments that are susceptible (S), infected (I), and recovered (R) in a sort of mathematical model known as a SIR model.









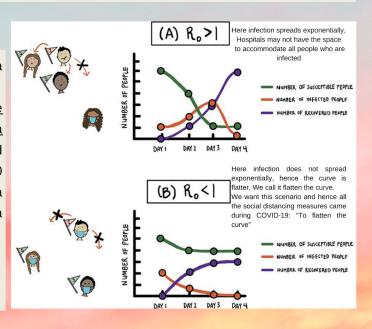
These three factors allow scientists to estimate a quantity called the <u>basic reproduction number</u>

The number of infections, on average, that are generated by a single infected person in a population of susceptible people. which is denoted by R0 (pronounced "R naught"). The value of R0 indicates the average number of people to whom a single infected person spreads a disease in a population of susceptible people

coursey, Brooks H, Kanjanasaratool U, Kureh Y and Porter M (2021) Disease Detectives: Using Mathematics to Forecast the Spread of Infectious Diseases. Front. Young Minds. 9:577741. doi: 10.3389/frym.2020.577741

Let's understand the modeling of the spread of an infectious disease with an SIR model. For that we must know (or estimate) a few important factors:

- 1. The amount of time that a person is infectious. This tells us how long infected people can infect other people.
- 2. The rate of in-person contact in a population. This indicates how often people are close enough to each other for a disease to spread from person to person.
- 3. The chance that an in-person contact leads to an infection.





## ORIGIN AND TIME STORY OF SASPI: FROM THE DESK OF THE SECRETARY

Antimicrobial Resistance (AMR) is rising; throttling mankind day by day. Integrated Antimicrobial Stewardship (IAS) represents a promising strategy to tackle this menace. Integrated Stewardship practices encompass integrating three pillars i.e., Infection prevention stewardship, Diagnostic stewardship, and antimicrobial stewardship at the same time. Although antimicrobial stewardship practices (AMSP) to promote prudent antimicrobial use are being carried out across India; the practice is largely restricted to Institutional levels.

It all started with the quest of a young researcherclinician at AIIMS Rishikesh to find an answer as to "How can Integrated Antimicrobial Stewardship practices (IAS) be practiced Pan-India?". Around that time, World Antimicrobial Awareness Week (WAAW) 2018 was nearing. It was decided to celebrate the event by creating much-needed awareness about IAS practices among the Indian Physicians.



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This was done through the conduct of an online Pan-India quiz titled "Antimicrobial Management Practices-The Right Recipe" on 15th November 2018. Further, under the guidance of the honorable director, AIIMS Rishikesh, Prof. (Dr.) Ravikant, All India Institutes of National Importance (INIs) and major pharmaceutical companies were invited to send their antimicrobial stewardship member to attend a National Conference-cum-Workshop named "ASPICON – Conference for Antimicrobial Stewardship Practices in India" held on 3-4th December 2018.

The title of the conference was "The Right Diagnosis and the Right Antibiotic". The aim of bringing all the stewards together was to share knowledge and join hands in developing a policy framework on "how to go ahead with the emerging AMR problem". First ASPICON meet was attended by experts from various INIs who unanimously decided to handle the crisis through a society named "Society of/for Antimicrobial Stewardship Practices in India (SASPI)". A team of pan-India antimicrobial stewards was created with nominees from PGIMER Chandigarh, AIIMS New Delhi, JIPMER Pondicherry, AIIMS Rishikesh, AIIMS Patna, AIIMS Bhopal, AIIMS Jodhpur, NEIGRIHMS and few other INIs. The team started carrying out IAS activities at National Level through ASPICON which has been held every year continuously since 2018 except year 2020 owing to pandemic. ASPICON has been held in rotation among various INIs till now (2019- AIIMS Bhopal; 2021 – AIIMS Patna, 2022 - AIIMS Raipur, 2023 - AIIMS Jodhpur). Each year ASPICON maintained uniqueness by focusing on different aspect of IAS practice. Activities included workshops, symposia, seminars, debates, oral and poster presentations etc. Similarly, the National Antimicrobial Stewardship Quiz Competition that started in 2018 is continuing to be held every year with a local round before the conference and a national round during ASPICON. The SASPI is registered under the Societies Registration, State of Uttarakhand in 2022.At present, the society is headed by a President, Vice-President, Secretary, Joint Secretary, Treasurer, and 40 directors with more than 200 members under various membership categories. There are 15 core executive members from various INIs.



## ORIGIN & TIME STORY OF SASPI FROM THE DESK OF THE SECRETARY CONTD..

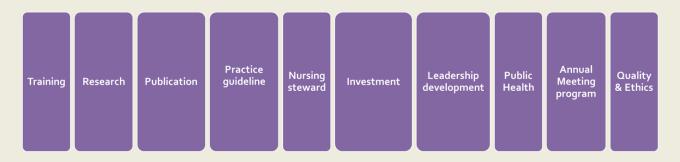
Society has grown and achieved success in various dimensions since the beginning. In line with the society's goal of establishing IAS practices pan-India through knowledge sharing and capacity building; ten different committees have been formed to function with decentralized actions. The committees (refer to box below) have been finalized after brainstorming online meetings by SASPI executives in 2022. SASPI's first online webinar for practice guidelines was organized by the Training Committee with experts from PGIMER Chandigarh. The first SASPI Newsletter of which this writing is a part is also releasing this September. The practice Guideline Committee has developed one IAS practice statement through the Delphi survey, which will be released soon. The research committee completed the first pan-India multicentric point prevalence survey (PPS, ASPIRE II) of antimicrobials, AMR, and rational antimicrobial therapy; which will soon be published. The publication committee finalized its journal 'JASPI - Journal of the Antimicrobial Stewardship and Infectious Diseases and aims to bring the first issue by the end of 2023. In addition; the Training Committee plans to roll out Online Certification courses with three independent certifications: antimicrobial stewardship, diagnostic, and infection prevention. One IAS foundation course for post-graduates was developed and in plan of execution.

Further, the society strives to promote research and develop national benchmarks on key IAS indicators; prepare and update guidance documents on IAS; establish collaboration with pertinent societies at national and international levels to enable a one-health approach and to advocate center and state governments on the status of AMR and how to tackle it effectively.

SASPI has a long way to go and the list of activities will grow on and on till India practices IAS with perfection in all corners and AMR is controlled. In this populace country, it looks impossible, but if every healthcare worker and the public are stewards with regard to the 8D's of IAS practices i.e. right Do's, right Don'ts of infection prevention, right Diagnosis, right Drug, right Dose, right Delivery, right Decision on follow-up, and right Duration, then it is achievable.

Regards,

Secretary, SASPI



## SASPI committees



#### FROM INVITED EDITORS.....

DR. NAVJOT KAUR ASSOCIATE PROFESSOR PHARMACOLOGY GMC, PATIALA



DR. SAMIKSHA BHATTACHARJEE
ASSISTANT PROFESSOR
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"We'd like to extend our deepest thanks to our contributors; who have generously shared their expertise, insights and experiences with us. Your contributions have enriched the newsletter by providing valuable information that helps healthcare professionals and policymakers worldwide in their efforts to combat antimicrobial resistance.

AND

Looking ahead, our commitment to promoting responsible antimicrobial use remains steadfast. We are excited about the upcoming content and initiatives we have in store for you. Together, we will continue to raise awareness, drive change and make a meaningful difference in the fight against antimicrobial resistance. "

Hope you enjoy the newsletter reading as much as we did in pulling it together for you. Happy Reading. "



#### THE PRESIDENT'S NOTE...

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"I would like to congratulate the editorial team which has brought out the first newsletter of SASPI. I wish that this endeavor is sustained for times to come and the newsletter becomes a feature looked forward to for interesting bytes of information related to Antimicrobial Stewardship."

#### **SASPI EXECUTIVE MEMBERS**



Prof. Nusrat Shafiq, MD, DM President, SASPI Professor, Department of Pharmacology, PGIMER, Chandigarh, India.



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# ANNOUNCEMENTS ASPICON-2023 5TH NATIONAL CONFERENCE OF SASPI AIIMS, JODHPUR SAVE THE DATES: SEPTEMBER 29THOCTOBER 1ST, 2023



## SASPI & AIIMS JODHPUR PRESENTS



## ASPICON 2023

SEP

**29** 

#### **WORKSHOPS**

Precision Antifungal Stewardship – Ensuring the Right Diagnosis & Treatment

SEP

30

#### CONFERENCE - DAY 1

Antifungal stewardship Antimicrobial stewardship Debate

OCT

1

## **CONFERENCE - DAY 2**

Experience sharing - ASP practices in India PK PD in clinical practice National Quiz

**ORAL & POSTER Presentation** 

National Quiz

Preliminary round - April 7th Stage Round - Oct 1st

For Further information Contact us at aspicon2023@gmail.com







