



DigiDose

The Quarterly Dispense

Age of Adeline –
Closer to Reality
Than Ever Before?
PAGE 6

Eternal Youth-
Fiction or
Reality ?

PAGE 4

CONTENTS

Editors Ink	03
Spotlight	04
Featured Article	06
Outreach Program	07
Hall of Fame	09
Publications	11
Event Reports	13
Alumni Column	14
DigiPlay	15

EDITOR'S INK

THE QUARTERLY NEWSLETTER OF THE PHARMACY LITERACY CLUB

Hey faithful readers, Merry Christmas, and a Happy New Year from the PLC, hope you all had a great one. We had a busy quarter with tons of events to talk about, the highlight being Antibiotiko' 2022, a series of competitions and community outreach programs on World Antimicrobial Awareness Week 2022. As a part of the outreach program, school visits were conducted. The volunteers of PLC educated the school students on the judicious use of antibiotics, antimicrobial resistance, and its consequences. The students were also given health education on menstrual health and hygiene. It was a grand success, thanks to the PLC members who defied all logic by making a profound learning experience fun and exciting. We also hosted Dr. William Gerard Newman, Professor of Translational Genomic Medicine, University of Manchester, United Kingdom. He blew our minds with a riveting talk on "Implementing pharmacogenetics in clinical practice to improve drug effectiveness and safety," leaving us with a much deeper understanding of the clinical applications of pharmacogenetics.

As the chapter of 2022 ends and we cautiously step into the new year, we should reflect on how far we have come as a race. From throwing pointy sticks at animals to launching satellites into space, we have come a long way. The growth of technology and medicine has been exponential, and we are on the cusp of a new age. Scientists and researchers are working tirelessly on a cure for old age. The "war on old age" has begun, and we have landed the first blow with the groundbreaking discovery that ageing can be slowed with the help of sulphonamides, explained clearly and concisely by Soumyajeet Paul, in his article, "Can Sulphonamides Fend off Ageing?" The future looks great, with many promising therapies that can technically stop ageing altogether. More details on attaining immortality can be obtained from "The Age of Adeline" by Skanda N. We also have a fun comic strip from the winner of the comic strip competition, Bhavyatha Shettigar published in DigiPlay. As always, feel free to share your thoughts and opinions. Thank you.



Can sulphonamides fend off AGEING?

SOUMYAJEET PAUL
(PHARM D INTERN)

For many centuries, the fantasies of youth maintenance and rejuvenation have intrigued scientific curiosity. In recent decades, this has accelerated the establishment of an anti-ageing industry and the development of several interventions that delay ageing and prevent the onset of age-related diseases. However, this remains to be a controversial area in biomedical research. According to recent data, the global anti-ageing market is expected to reach around 120 billion US\$ by 2030, with China and USA leading the way. Thus, it is evident that the discovery of new targets to delay ageing and age-related diseases denotes a colossal opportunity for healthcare and pharmaceutical industries.



Ageing could be described as a complex physiological process involving a progressive decline in body functions and an increased risk of several diseases like cancer, diabetes, cardiovascular disorders, bone disorders, and neurodegenerative disorders like Alzheimer's. Age-related conditions are the leading causes of death and healthcare expenditures worldwide.

However, with the advancement of modern medicine, longevity has increased considerably and it is now possible to delay ageing and prevent age-related diseases through various genetic, dietary, and pharmacological interventions. Several genes and signalling pathways are known to regulate ageing, implying that such strategies for slowing ageing and increasing health span are feasible. Many natural and synthetic molecules have been shown to increase the lifespan of several model organisms.

Since its discovery in 1932, sulphonamides have continued to be promising antibacterial agents for treating various infections. They exhibit excellent bacteriostatic activity by inhibiting bacterial folic acid synthesis. Surprisingly, scientists are currently investigating the development of sulphonamides as anti-ageing agents. Our indigenous microbiome is a complex ecology of organisms that varies significantly between individuals and over time. Several studies have already demonstrated the association of our gut microbiota with ageing and age-related diseases.

Recent studies have shown that inhibiting bacterial folate synthesis is a conserved mechanism to extend longevity in several pre-clinical models. Metagenomic studies comparing the gut microbial populations of children and adults found that genes involved in folate synthesis were upregulated in the microbiomes of the adult and the elderly population compared to children. It has also been observed that old age is often associated with a bloom of Proteobacteria, which can perform de novo synthesis of folates. This may result in increased folate-dependent toxicity that may damage host tissues, cause inflammation and accelerate ageing. Furthermore, in the nematode *C. elegans*, it was observed that inhibition of folic acid synthesis in *E. coli* with the sulphonamide sulphamethoxazole extended the nematode's lifespan without affecting bacterial growth. Besides that, another study found that sulphadiazine increased the lifespan of rodents and that adding the bacterial folate precursor, p-aminobenzoic acid (PABA), reversed the effect, implying that bacterial folate synthesis could be a regulator of longevity. Sulphasalazine is also of clinical benefit for reducing inflammation in patients with Crohn's disease and ulcerative colitis. This finding is significant given the link between these disorders, dysbiosis and Proteobacteria enrichment.

“
*A healthy gut is the
secret to ageing without
growing old*
”



To summarize, bacterial folic acid synthesis could be a potential driver of ageing, and the pathway could be used as a promising target to slow down ageing without having any detrimental effects. However, due to a lack of human studies, it is still being determined whether sulphonamides could be clinically used to delay ageing and age-related diseases, necessitating further research. Clinical trials must be conducted in a diverse population to confirm this hypothesis.

Age of Adeline - Closer to Reality Than Ever Before?

SKANDA NARAYAN
(V PHARM D)



Ageing is a complex and multifaceted process characterized by a gradual decline in function and an increased risk of age-related diseases. The prospect of immortality, ever sought after in history and tales of witchcraft and wizardry, while conceptually daring, is within humanity's reach. Would it be, or not be, desirable to be Forever21? While the ageing process is ultimately inevitable, significant progress has been made in recent years in understanding the biological mechanisms underlying ageing and developing interventions that may help to slow or reverse the ageing process. Key advancements in the ageing research field include senolytic drugs, telomerase activators, regenerative medicine, and caloric restriction.

Senescent cells are damaged cells that no longer divide and accumulate with age. These cells secrete pro-inflammatory molecules and growth factors that can contribute to age-related diseases and a decline in function.

Another area of study in the field of ageing research is the role of telomeres, which are the protective caps on the ends of chromosomes. Telomeres shorten with each cell division, and their length is associated with cellular ageing. Some researchers are investigating the use of telomerase activators, enzymes that help maintain telomere length. Telomerase activators may have potential as anti-ageing interventions, although more research is needed to understand their safety and effectiveness.

In the field of regenerative medicine, scientists are using stem cells to regenerate damaged or lost tissue. Stem cells can develop into different types of cells and can be used to repair or restore damaged tissue. Researchers have made significant progress in this area, with the ability to regrow blood vessels, heart tissues and nerve

cells in animals. While these studies are still in the early stages, they hold promise for the future treatment of a wide range of conditions.

Caloric restriction, or reducing calorie intake while still getting enough nutrients, has also been shown to have anti-ageing effects in animals. In animal studies, caloric restriction has been shown to extend lifespan, improve health span, and reduce the risk of age-related diseases such as cancer and cardiovascular disease. However, the long-term effects of caloric restriction in humans still need to be clarified, and it is not a practical or sustainable strategy for most people.

In conclusion, significant progress has been made in understanding the biological processes underlying ageing and developing potential interventions to slow or reverse the ageing process. While more research is needed to fully understand the complexity of ageing and develop effective interventions that can extend human health and lifespan, the current advancements in the field offer hope for the future.

One promising area of research in ageing is the use of senolytic drugs like Dasatinib, Quercetin, Fisetin, and Navitoclax, which were discovered using a hypothesis-driven approach that targets and eliminates senescent cells.

OUTREACH PROGRAM

World Antimicrobial Awareness Week 2022



On the occasion of World Antimicrobial Awareness Week 2022, the Pharmacy Literacy Club (PLC), Centre for Public Health Pharmacy, Department of Pharmacy Practice, MCOPS conducted Antibiotiko' 2022, a series of competitions and community outreach programs from 18th to 24th November 2022. As a part of the outreach program, school visits were conducted in Board High School, Udupi, Christ School, Manipal, and Green Park Central School, Hiriyadka, on the 21st, 22nd, and 24th of November 2022, respectively. The volunteers of PLC educated the school students on the judicious use of antibiotics, antimicrobial resistance and its consequences. The students were also given health education on menstrual health and hygiene. The sessions were very informative and eye-opening for the school children. They even pledged to use antibiotics judiciously and to spread the message to all their friends and family.

The PLC also conducted a plethora of online competitions, such as a quiz, a comic strip, and a poster presentation. In addition to Manipal Academy of Higher Education, various institutions, including M S Ramaiah University of Applied Sciences, Bengaluru; Kampala International University, Uganda; Jawaharlal Nehru Technological University, Anantapur; Charotar University of Science and Technology, Changa, Gujarat; IQRAA International Hospital and Research Centre, Kozhikode; Geetanjali University, Udaipur; Dr. A.P.J. Abdul Kalam Technical University, Lucknow; Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon and Amrita Vishwa Vidyapeetham, Kochi also participated in the competitions. An offline quiz and puzzles solving competition were also conducted on the 22nd of November 2022 at the Department of Pharmacy Practice, MCOPS. It was a fun event; both staff and students participated with great enthusiasm. Overall, Antibiotiko'2022 was a very fulfilling event and was memorable for all involved.

OUTREACH PROGRAM

Health Education and Donation Drive at Suraksha Ashrama, Karkala



On 15th October 2022, the Pharmacy Literacy Club (PLC), Centre for Public Health Pharmacy, Department of Pharmacy Practice, MCOPS organized a Community Outreach activity in association with Chosen Generation Charitable Trust, Ajjarkad, Udupi at Suraksha Ashrama, Suraksha Charitable Trust, Karkala. The volunteers of the program provided education on antibiotic use awareness and infection control measures at the community level. In addition, clothes were distributed to the residents of the Ashrama, with the support received from various corners of the MAHE campus and through a clothes donation drive. Overall, the health camp was a very successful, memorable, and fulfilling experience for all the attending PLC members. Suraksha Charitable Trust awarded a certification of appreciation to PLC and Chosen Generation Charitable Trust for their contributions to humanity. The PLC thank all those who supported the health education program.



HALLOF FAME

Faculty Achievement- NITTE University Program Award



Dr. Radhakrishnan Rajesh, Assistant Professor-Selection Grade, Dept of Pharmacy Practice, MCOPS, has secured the First Prize in E-Poster Presentation for the topic entitled “Comparative Study of Anti-Tubercular Therapy Induced Hepatitis in HIV-Sero-Positive Patient versus HIV-Sero-Negative Patient in a Tertiary care Hospital” in the National Conference on Pharmacovigilance and Outcomes Research (NCPOR-2022). The Department of Pharmacy Practice Jointly organized the conference along with NGSIM Institute of Pharmaceutical Sciences and ISPOR Student Chapter, NITTE University, Mangalore, Karnataka, India from 2nd to 3rd December 2022.

Dr. Girish Thunga has been appointed as an academic editor for the PLoS One journal. PLoS One is a peer-reviewed open-access scientific journal with high-quality articles and visibility, published by the Public Library of Science (PLoS) since 2006 (Impact factor: 3.752; Quartile: Q1).

Dr. Thunga has been selected as an academic editor for the area of Drug safety, education, and Clinical Toxicology. The PLoS One Editorial Board is powered by academic experts and established scientists from all over the world. Dr. Thunga will be directly involved in the peer review process for the journal, including evaluating submissions, selecting reviewers and assessing their comments, and making editorial decisions. All the editorial board members of PLoS One are usually affiliated with the Centre for Disease Control and WHO. Dr. Thunga has published more than 77 research articles, including 4 in PLoS One, and has 10 book chapters to his credit. MCOPS congratulates Dr. Girish Thunga for this achievement.

Dr. Girish Thunga becomes the Academic Editor of PLoS One



HALLOF FAME

Dr. Vijayanarayana K, Dr. Rajesh V, Associate Professors; and Dr. Sonal Sekhar M, Assistant Professor-Selection Grade of Department of Pharmacy Practice received International Society for Pharmacoepidemiology (ISPE) 's partial scholarship and attended the ISPE 14th Asian Conference on Pharmacoepidemiology conducted from 21st to 23rd October 2022 at Tainan, Taiwan. Mr. Lipin Lukose (Pharm D-Intern), Ms. Rifa Shareen, and Ms. Amulya Bhatkal (Vth Pharm D) students received a full scholarship. Ms. Gursimran Kaur, Ms. Sephy Ann Alex, Mr. Soumyajeet Paul, Ms. Ananya Rudra, Ms. Femida Rashid M, Mr. Shrey Seth, Ms. Suparna Bhattacharjee (Pharm D-Interns), Ms. Roopa Acharya (Vth Pharm D); Ms. Mithili Narayan Sherigar (M.Pharm) student; Ms. Shilia Jacob Kurian, Mr. Elstin Anbu Raj, Ms. Puspita Sahu, Ms. Tejaswini Baral, Mr. Muhammed Rashid P.P, Ms. Asha K Rajan and Mr. Prashant Chandra (Ph.D. research scholars) received a partial scholarship.

ISPE's full scholarship covers one-year membership of ISPE, travel expenses, and complimentary registration fees to attend the conference. The partial scholarship covers one-year membership of ISPE and complimentary registration fees to participate in the conference.

ISPE's Scholarship for Faculty and Students to attend ACPE 2022 at Tainan, Taiwan



Dr. Mahadev Rao and Mr. Levin Thomas attended 8th Global TB Portals meeting held at Munich, Germany

Dr. Mahadev Rao and Mr. Levin Thomas attended the 8th Global TB Portals meeting held in Munich, Germany, from December 5 to 8, 2022. As a member of the TB portal steering committee and the principal investigator of the NIH/NIAID/CRDF-funded project entitled "Establishing TB Portal of Mycobacterium tuberculosis patients from tertiary care hospital in Southern India," Dr. Rao presented the Manipal centre TB Portals update, India, on Day 1, December 5, 2022. Several other scientific sessions, such as data science, deep security problems in the deep learning era, virtual screening of potential inhibitors of drug-resistant forms of tuberculosis, human whole genome sequencing for tuberculosis patients, and data quality updates, were presented by eminent researchers working in the TB Portals research during December 5-8, 2022. Dr. Rao and Mr. Thomas received full sponsorship from NIH/NIAID for participation in the meeting.



PUBLICATIONS

OCTOBER TO DECEMBER 2022

- Shilia Jacob Kurian, Sonal Sekhar M. Reply to: Probiotics for the Prevention of COVID-19 Sequelae. Archives of Medical Research. 2022; 53(6):644. (Q1; IF: 8.323)
- Vaidehi Dipesh Bhatia, Poonam Batuk Khant, Inguva Vyshnavee, Mohammed Shiyaf, Girish Thunga, Sankar Prasad Gorthi, Vijayanarayana Kunhikatta. Identification of factors affecting outcomes in patients with Guillain Barre syndrome. Medicine and Pharmacy Reports. 2022; 95(4):400-409. (Q2)
- Himani Powle, Ashvitha Shet, Arline Mendonca, Lakshmi Thulasi, Pooja Poojaril, Girish Thunga, Ravindra Munoli, Vijayanarayana Kunhikatta. Identification of risk factors associated with hyponatremia in psychiatric patients: a case control study. Medicine And Pharmacy Reports. 2022; 95(4):430-437. (Q2)
- Jeffrey Pradeep Raj, Nithya Jaideep Gogtay, Avaneesh Pandey, Ashish Kumar Kakkar, Nusrat Shafiq, Padmaja Mekala, Usharani Pingali, Arun Prasath Raju, Surulivelrajan Mallayasamy, and Nilima Arun Kshirsagar. Population Pharmacokinetics of Hydroxychloroquine Sulfate in Healthcare Workers, Given for Prophylaxis Against Coronavirus Disease 2019 (COVID-19) in India. Journal of Clinical Pharmacology. 2022; 62(11):1403-1411. (Q2; IF: 2.860)
- Sanjana Aditya Shastri, Raveena Kantamneni, Muhammed Rashid, Viji Pulikkel Chandran, Ramadugula Suhita, Izwath Begum, Sreedharan Nair, Girish Thunga. Proton pump inhibitors use and risk of inflammatory bowel diseases: a meta-analysis of observational studies. Medicine and Pharmacy Reports. 2022; 95(4):357-369-409. (Q2)
- Viji Chandran, S. Khan, K. G. Pai, Athira B, Elsa Sanatombi Devi, K. Khera and G. Thunga. Attitude, Skills and Barriers in Practice of Evidence Based Medicine. Indian Journal of Pharmaceutical Sciences. 2022; 84(5): 1328-1333. (Q3; IF: 0.664)
- Mohammed Farhan, Prathvi Rani, Fatimazahra Moledina, Thomas George, Hari Prabhath Tummala and Surulivelrajan Mallayasamy. Application of Physiologically Based Pharmacokinetic Modeling of Lamotrigine Using PK-Sim in Predicting the Impact of Drug Interactions and Dosage Adjustment. Journal of Pharmacology and Pharmacotherapeutics. 2022; 13(2): 160-166. (Q4;)
- Navya Vyas, Rakhi Punchathidil, Ansuman Swain, Irfan Shakeer, Badikol Shrikar Reddy, Mohan Kamalanivas Manu, Sonal Sekhar Miraj. Repurposing of Metformin for the prevention and treatment of Tuberculosis. Brazilian Journal of Pharmaceutical Sciences. 2022; 58: e20422. (Q2; IF: 1.214)
- Ramadugula Suhita, Izwath Begum, Muhammed Rashid, Viji Pulikkel Chandran, Sanjana Aditya Shastri, Raveena Kantamneni, Asha K. Rajan and Girish Thunga. Systematic review and meta-analysis of global prevalence of neurotoxic and hemotoxic snakebite envenomation. EMHJ. 2022; 28(12); 53-60. (Q2; IF: 2.087)
- Prajakta Harish Patil, Puralae, Channa Basavaiah Jagadish, Faje elath Fatima, Sumit Birangal , Guru pur Gautham Shenoy, Mahadev Rao, Junaid Farooqui, Himanshu Ra stogi, Tarun Sharma, and Jakir Pinjari. Inhibition of Cytochrome P450 Enzyme and Drug-Drug Interaction Potential of Acid Reducing Agents Used in Management of CDK Inhibitors for Breast Cancer Chemotherapy. Current Drug Metabolism. 2022; 23;137-147. (Q2; IF: 3.408)
- Jong Cheol Jeong, Isaac Hands, Jill M. Kolesar, Mahadev Rao, Bront Davis, York Dobyons, Joseph Hurt-Mueller, Justin Levens, Jenny Gregory, John Williams, Lisa Witt, Eun Mi Kim, Carlee Burton, Amir A. Elbiheary, Mingguang Chang and Eric B. Durbin. Local data commons: the sleeping beauty in the community of data commons. BMC Bioinformatics. 2022; 23:386; 2-20. (Q1; IF: 3.327)

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OCTOBER TO DECEMBER 2022

- Mohammed Salim K, Shabeer Ali Thorakkattil³, Shamna Machanchery, Sainul Abideen Parakkal, Rajiah Thangaraj Saravanakumar⁵, Saad Saeed Alqahtani, Dilip Chandrasekha. Indian Pharmacists Contemplation on Board of Pharmacy Specialties Certification: A Multi-Centric Survey. Indian Journal of Pharmaceutical Education and Research. 2022; 56(3): 570-580. (Q3; IF: 0.843)
- Mehta Vedant Kamal, Mahadev Rao, Rama Rao Damerla, Ananth Pai, Krishan Sharan, Akhil Palod, Preethi S. Shetty, Nawaz Usman & Naveena A.N. Kumar. A Mechanistic Review of Methotrexate and Celecoxib as a Potential Metronomic Chemotherapy for Oral Squamous Cell Carcinoma. Cancer Investigation. 2022; 9:1-11. (Q3; IF: 2.368)
- Naveena A. N. Kumar, Anmi Jose, Nawaz Usman, Keshava Rajan, Murali Munisamy, Preethi S. Shetty, Mahadev Rao. Signet ring cell cancer of stomach and gastro-esophageal junction: molecular alterations, stage-stratified treatment approaches, and future challenges. Langenbecks Archives of Surgery. 2022; 407(1):87-98. (Q3; IF: 2.895)
- Mohamed Hassan E, Naeem Mubarak, Mohammed Salim K. T, Muna Barakat, Doaa H. Abdelaziz, Noha O. Mansour, Abrar K. Thabit, Diana Laila Ramatillah, Ali Azeez Al-Jumaili, Nabeel Kashan Syed, Mohammed Fathelrahman Adam, Md. Sanower Hossain, Mohamed A. Baraka, Jimmy Jose, Ramadan Elkalmi, Sarath Chandran, Inderpal Singh Dehele, Mahmoud Elrggal and Ahmed Ibrahim Fathelrahman. Assessment of mental wellbeing of undergraduate pharmacy students from 14 countries: The role of gender, lifestyle, health-related, and academic-related factors. Frontiers in Public Health. 2022; 10: 1011376; 1-12. (Q2; IF: 6.461)

- Mohammed Salim K, Shabeer Ali Thorakkattil, Suhaj Abdulsalim, Sathvik Belagodu Sridhar, Sainul Abideen Parakkal, Savera Arain, Hafees Madathil, Ajmal Karumbaru Kuzhiyil, Mamdouh Mohammed Ahmed Ageeli and Mazhuvanchery Kesavan Unnikrishnan. The Pharmacist's Role in Manageing COVID-19 in Chronic Kidney Disease Patients: A Review of Existing Strategies and Future Implications. Pharmacy. 2022; 10;94: 3-11.
- Levin Thomas, Shilia Jacob Kurian, Nayonika Mukherjee, Thomas RB, Keerthanaa B, Chaithra, Sonal Sekhar M, Subeesh K Viswam, Mithu Banerjee, Muralidhar Varma, Mahadev Rao. Potential drug-drug interactions among hospitalised TB patients. The International Journal of Tuberculosis and Lung Disease.2022;26(12): 1137-1143. (Q2; IF:3.4)

Book Chapters

1. Bidita Khandelwal, Chamma Gupta, Levin Thomas, Sonal Sekhar Miraj, Mahadev Rao, Rubi Dey, Karma Gurmey Dolma, Rinchen Doma Bhutia and Vijay Pratap Singh. Chapter 1: Free Radical Biology of Diabetes Mellitus. Book: Free Radical Biology of Endocrine, Metabolic & Immune Disorders.2022; Page 1-40. (Publisher : Bentham Science Publishers)
2. Tejaswini Baral, Shilia Jacob Kurian, Sonal Sekhar M., Murali Munisamy, Chandrashekar Udyavara Kudru, Bidita Khandelwal, Mithu Banerjee, Chiranjay Mukhopadhyay, Kavitha Saravu, Jitendra Singh, Sarman Singh and Mahadev Rao. Chapter 25: Role of the gut microbiome and probiotics for prevention and management of tuberculosis. Microbiome, Immunity, Digestive Health and Nutrition Epidemiology, Pathophysiology, Prevention and Treatment. 2022; Page: 361-371 (Publisher: Elsevier- Academic Press)
3. Nilesh Yadav , Aditi Shah , Roseline George , Tejaswini Baral, and Sonal Sekhar Miraj. Chapter 63: Role of nutrients in combating infection. Viral, Parasitic, Bacterial, and Fungal Infections: Antimicrobial, Host Defense, and Therapeutic Strategies. 2022: pp; 815-826. (Publisher : Academic Press, Elsevier)
4. Levin Thomas , Tejaswini Baral , Sonal Sekhar Miraj , Muralidhar Varma , B. Shrikar Reddy , Murali Munisamy , Karma Gurmey Dolma , Prakash Koirala, Rinchen Doma Bhutia , Bidita Khandelwal , and Mahadev Rao. Chapter 44: Nutritional status in tuberculosis: A comprehensive problem to be addressed. Viral, Parasitic, Bacterial, and Fungal Infections: Antimicrobial, Host Defense, and Therapeutic Strategies. 2022: Page: 223-236. (Publisher : Academic Press, Elsevier)

Capacity Building Workshop: A Multidisciplinary Healthcare Team Initiated Antimicrobial Stewardship Training Program for Emerging Clinical Pharmacists, 2022

Department of Pharmacy Practice, Manipal College of Pharmaceutical Sciences (MCOPS) and Center for Antimicrobial Resistance and Education, Kasturba Medical College (KMC), Manipal, in association with Manipal-bioMerieux Center of Excellence in Antimicrobial Stewardship, organized a one-day Capacity Building Workshop: A Multidisciplinary Healthcare Team Initiated Antimicrobial Stewardship Training Program for Emerging Clinical Pharmacists on 23rd November 2022 at Dept. of Medical Education, MAHE. The workshop was organized during World Antimicrobial Awareness Week 2022 (18-24 November). There were two panelists from KMC, two from MCOPS, and a panelist from Dr. TMA Pai Hospital, Udupi. The major topics covered were "Antimicrobial resistance and drug selection updates," "Interpreting clinical microbiology reports relevant to clinical pharmacists," "PK/PD for precision therapy of antibiotics," "Multidisciplinary team-initiated case-based learning programs and interactive sessions," followed by a panel discussion on AMSP issues. A total of 37 participants from MAHE and other universities attended the workshop. Dr. Vandana KE, Professor & Head, Department of Microbiology, KMC, Manipal was the convenor, and Dr. Mahadev Rao, Professor, MCOPS, Manipal was the organizing chair.



Guest Talk by Dr. William Gerard Newman, University of Manchester, UK



Dr. William Gerard Newman, Professor of Translational Genomic Medicine at The Manchester Centre for Genomic Medicine at the University of Manchester, United Kingdom, delivered a guest talk on "Implementing pharmacogenetics in clinical practice to improve drug effectiveness and safety" on the 29th of November 2022, 9.00 am at MCOPS, Manipal. The event was organized by the Pharmacy Literacy Club (PLC), Department of Pharmacy Practice, MCOPS, in association with the Department of Medical Genetics, KMC. Dr. Newman is also the clinical director of N W Genomic Medicine Service Alliance and is the chair of the NHSE Clinical Reference Group Genomic Medicine and European Society of Human Genetics. His research focused on pharmacogenetics, defining the genetic factors influencing how patients respond to their medications and rare inherited conditions. He has discovered several genes responsible for various conditions and complex mutational mechanisms that lead to these. Dr. Newman is an avid researcher with an H-index of 59 and has authored more than 285 papers throughout his career, notably in Nature, Nature Genetics, NEJM, AJHG, Lancet, etc. In his talk, he gave insight into the basic concept of pharmacogenetics. In addition, he explained the importance of Implementing pharmacogenetics in clinical practice to improve patient care.



Dr Jagadeswara Rao Earla
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Dr. Jagadeswara Rao Earla is a proud alumnus of Manipal University College of Pharmaceutical Sciences (MCOPS). He is currently working as an Associate Director, Outcomes Research, Oncology division at the Center for Observational Research and Real-World Evidence (CORE) at Merck & Co., New Jersey, USA. In his current role, Dr. Earla leads the health economics and outcomes research (HEOR) and real-world evidence (RWE) generation efforts optimizing global market access of Merck's breast cancer products. He also serves as a critical member in scientific activities and co-chair of member engagement activities at the International Society of Pharmacoeconomics and Outcomes Research (ISPOR) - Digital Health Special Interest Group (DH SIG).

Dr. Earla joined MCOPS in 2009 after completing his bachelor's in pharmacy from Acharya Nagarjuna University (ANU), Andhra Pradesh, and successfully graduated as a Best Outgoing Student of PharmD (2009-2012) in 2012. Parallel to PharmD, he also pursued MBA in Health Care Services (HCS) from Sikkim Manipal University at Manipal Institute of Technology (MIT). During his PharmD days at Manipal, Dr. Earla has been an avid learner and got himself involved in various clinical and research activities.

Manipal days are golden days in my life and Manipal greatly shaped me both at a personal and a professional level.

Post-PharmD, Dr. Earla gained 2-years of experience as a medical writer (2012-2014) for health consultancies supporting pharmaceutical companies with promotional medical writing and worldwide physician community with patient education and advocacy writing. Later, to fulfill his ambition to serve patients, Dr. Earla accepted to take a clinical pharmacist role overseas in the Cayman Islands. Dr. Earla has been instrumental in the initial set-up of a range of pharmacy services from scratch, from the outpatient pharmacy, inpatient pharmacy, surgical pharmacy, pharmacy warehouse, and clinical pharmacy. He facilitated the JCI pharmacy audit, implemented a clinical pharmacy health management information system (HMIS) at Health City Cayman Island (HCCI), and enabled e-prescription approval by a clinical pharmacist before

dispensing to patients. At HCCI, Dr. Earla fulfilled his dream of being a clinical pharmacist and contributed to patient care by providing pharmaceutical care and therapeutic drug monitoring services for patients.

After his tenure as a clinical pharmacist (2014-2016), Dr. Earla pursued a Ph.D. in Pharmaceutical Health Outcomes and Policy Research (PHOP) at the University of Houston. During his Ph.D. at UH (2016-2020), he worked as a teaching assistant, research assistant at the UH, and visiting research scholar at Huston Methodist Hospital, supporting EMR-based research. His research at the UH focused mainly on conducting retrospective observational studies in neurology, oncology, cardiology, and mental health using various big data sources available in the United States. Dr. Earla's research works, presented at international conferences such as ISPOR, ISPE, and AMCP, brought him several awards and accolades, including, Best Podium Presenter.

After graduating with Ph.D., Dr. Earla worked as a post-doctoral researcher at the UH for a brief period, where he served as a primary contributor in securing an NIH/AHRQ-funded R03 grant in evaluating 'adherence trajectories and clinical outcomes in multiple sclerosis.' Later, he started his industry career by joining as a senior manager, HEOR at Incyte, where he supported real-world evidence-generation efforts for Ruxolitinib (Jakafi/Jakavi) for myeloproliferative disorders and graft versus host disease (GVHD).

Dr. Earla comprehensively understands various health systems, and his passion is to support healthcare decision-making and policy development by contributing valuable evidence.

Every long journey entails several smaller steps. Take an ounce of learning every day!

CONSEQUENCES OF IMPROPER ANTIBIOTICS DISPOSAL ☹️



Winner of comic strip - Antibiotiko 2022
Ms. Bhavyatha Shettigar

Best Wishes



Batch of 2016-22



Pharmacovigilance Programme of India (PvPI)

National Coordination Centre,
Indian Pharmacopoeia Commission, Ghaziabad



The Department of Pharmacy Practice, Manipal College of Pharmaceutical Sciences is an ADR Monitoring Centre (AMC) under Pharmacovigilance Programme of India (PvPI), Indian Pharmacopoeia Commission - National Coordination Centre (NCC), under Ministry of Health & Family Welfare (MoHFW), Government of India.

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