NEWS LETTER

JULY-SEPTEMBER 2022

CMR COLLEGE OF PHARMACY

Kandlakoya (V), Medchal Road, Hyderabad - 501401

VISION

- To be the most preferred institution for education in pharmacy in this state.

MISSION

- To foster professional graduates with consistent quality education, training and research to serve the needs of industry, environment and society.
- To inculcate leadership qualities, team work and professional ethics.
- To make the students globally competitive.

CONTENTS IN THE ISSUE

LATEST INTERNATIONAL UPDATES

Advancements in Alzheimer's Disease Research and Treatment

Researchers at King's College London have developed a blood test capable of predicting Alzheimer's disease up to 3.5 years before symptoms appear. The test identifies biomarkers linked to neurogenesis in the hippocampus, a brain region critical for memory and learning. This breakthrough enables early diagnosis, allowing for timely interventions that could slow disease progression. Unlike PET scans or spinal taps, the test is non-invasive and accessible, making it a promising tool for widespread screening. Additionally, it offers potential for new treatment strategies by helping researchers understand Alzheimer's progression. While further validation and clinical integration are needed, this discovery represents a significant step toward improving early detection and patient care

Progress in Vaccine Development

In a groundbreaking move, the WHO established an mRNA technology transfer hub in South Africa in 2022-23. This initiative was part of a broader effort to address global vaccine inequity, a problem highlighted during the COVID-19 pandemic.

The hub focuses on training local scientists and developing capabilities to produce mRNA vaccines independently, reducing reliance on imports from high-income countries.

Several African nations, including South Africa, Rwanda, and Senegal, have collaborated in this effort, with the aim of producing vaccines. The U.S. Food and Drug Administration (FDA) approved the first vaccine for respiratory syncytial virus (RSV), Arexvy, developed by GSK Biologicals, for use in individuals over 60. This approval marked a significant milestone in preventing RSV-related illnesses among older adults for diseases like COVID-19, TB, and malaria. This step is seen as a leap forward in empowering low- and middle-income countries to combat infectious diseases on their own terms.

The World Health Organization (WHO) recommended a new malaria vaccine, R21/Matrix-M, for children. This is the second malaria vaccine endorsed by WHO, following RTS,S/AS01 in 2021, aiming to reduce malaria incidence among children.

Addressing Antimicrobial Resistance (AMR)

Scientists at McMaster University and the Massachusetts Institute of Technology (MIT) discovered a new antibiotic, abaucin, using artificial intelligence. This compound shows promise against drug-resistant 'superbugs', representing a potential breakthrough in combating AMR. The European Parliament voted overwhelmingly in favor of measures to combat AMR, including implementing 'National Action Plans' to address antimicrobial consumption, support research, and prevent medicine shortages across EU countries.

Developments in COVID-19 Treatments

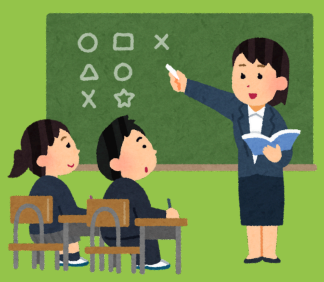
The FDA approved Paxlovid, the first oral antiviral treatment for mild-to-moderate COVID-19 in adults at risk of severe disease. This approval provided a new therapeutic option for managing COVID-19.

Pharmaceutical Recalls and Safety Measures

Lupin Pharmaceuticals Inc. voluntarily recalled two batches of Tydemy, an oral contraceptive, due to 'out of specification' results at the 12-month stability checkpoint, highlighting the company's commitment to product safety.

Public Health Initiatives

The WHO's report on the global tobacco epidemic commended India's efforts in tobacco control, noting that 85% of cigarette packs in India carry warnings on both sides. The report also highlighted Bengaluru's 27% decrease in smoking rates, attributing it to effective communication strategies and campaigns



FACULTY CORNER

DID YOU KNOW? AI CAN PREDICT HEART ATTACKS BEFORE THEY HAPPEN

Artificial Intelligence (AI) is transforming cardiology by enabling the early prediction of myocardial infarction (heart attacks), often before clinical symptoms emerge. Traditional diagnostic tools such as electrocardiograms (ECG) or stress tests detect abnormalities after significant cardiac damage has already occurred. However, AI-powered ECG analysis utilizes deep learning algorithms to detect micro-patterns in electrical signals that indicate future risk. These models are trained on vast datasets from thousands of patients, identifying trends invisible to the human eye. For example, AI can recognize subtle T-wave and QRS complex abnormalities that signal early ischemia or arrhythmic potential. Clinical studies from institutions like the Mayo Clinic have demonstrated that AI-enhanced ECGs can detect conditions like left ventricular dysfunction with over 85% accuracy—weeks or months before clinical diagnosis. This innovation allows physicians to intervene early with preventive measures such as lifestyle modifications, medication adjustments, or diagnostic imaging. AI in cardiology exemplifies the transition from reactive to proactive care, enhancing outcomes, reducing hospitalizations, and lowering healthcare costs. With further integration into wearable devices, continuous monitoring using AI could become a standard in preventive cardiology within the next decade.

Submitted by: Dr. P. Kishore Kumar , Associate Professor

DIGITAL PILLS: A SMART LEAP IN MEDICATION ADHERENCE MONITORING

Medication adherence—defined as the degree to which a patient correctly follows prescribed therapeutic regimens—remains a critical factor in the success of chronic disease management. Non-adherence is associated with increased morbidity, treatment failure, hospitalization, and escalated healthcare costs. Traditional methods to monitor adherence, such as self-reporting, pill counting, and pharmacy refill records, often lack real-time accuracy and are susceptible to manipulation or forgetfulness. In response to these challenges, the field of digital health has introduced a revolutionary innovation: digital pills.

Digital pills, also known as ingestible sensors or smart pills, are pharmaceutical formulations integrated with miniature electronic sensors designed to track ingestion events from inside the body. These pills contain biocompatible materials—typically a combination of magnesium, copper, and silicon—that react with stomach fluids upon ingestion to generate a detectable signal. This signal is received by a wearable patch or sensor placed on the patient's body, which then transmits the data to a secure mobile application or cloud-based platform accessible to healthcare providers or caregivers.

The first FDA-approved digital pill, Abilify MyCite®, combines aripiprazole (used in psychiatric conditions) with a digital sensor, enabling real-time adherence tracking in patients with schizophrenia and bipolar disorder. This system allows clinicians to detect patterns of missed doses, non-compliance, or irregular usage, enabling timely interventions.

From a theoretical standpoint, digital pills embody the intersection of biomedical engineering, pharmacology, and information technology, offering a novel, objective method for medication monitoring. They represent a shift from passive to active, data-driven patient management and support personalized medicine, especially in populations where adherence is critical, such as in organ transplantation, tuberculosis, HIV/AIDS, and mental health.

While promising, the widespread adoption of digital pills requires ethical consideration concerning patient privacy, autonomy, data security, and consent. Nonetheless, as healthcare evolves toward remote monitoring and smart therapeutics, digital pills offer a pioneering solution to one of medicine's most persistent problems.

Submitted by: Dr. G. S. Sharma, Professor

STUDENTS CORNER

COCKTAIL THERAPY TO HIV

The Discovery of Human mmune-deficiency virus (HIV) as a causative organism of Acquired mmune deficiency syndrome (AIDS) and the inability of modern medicine to find the cure for it has placed HIV as one of the most dreaded pathogens of the 21st century. With millions of people infected with HIV it was once thought to result in "Medical Apocalypse". The Acquired mmune deficiency syndrome was first discovered in 1981 in US. AIDS in India is an epidemic. The National AIDS Control Organization (NACD) estimated that 2.4 million people live with HIV in India (2019). The HIV epidemic has an overall decrease in trend in country with estimated annual new HIV infections declining by 37% between 2010 and 2019. HIV is transmitted through Blood transfusion, Sexual intercourse and HIV positive pregnant women. The first therapy was the nucleoside reversed transcriptase inhibitor (zidovudine) which was given as mono therapy in the early 1990's but the standard of HIV – 1 care evolved to include the administration of "cocktail therapy" or combination of anti-retroviral agents (ARVS). The Advent of combination therapy also known as HAART. The major barrier that the country has faced in its battle against HIV is the inadequate and inaccurate information about it among the population. The best way to fight against HIV is by providing general awareness among people with the help of centers like ICTC. This review emphasizes on the causes of AIDS, prevention, Diagnosis and their treatment.

Submitted by: Akula Vaishnavi, B. Pharm 3rd Year

WHIPPLE'S DISEASE

Whipple disease is a rare bacterial infection that most often affects your joints and digestive system. Whipple disease interferes with normal digestion by impairing the breakdown of foods, and hampering your body's ability to absorb nutrients, such as fats and carbohydrates. Symptoms include – Diarrhea, Stomach cramping and pain, which may worsen after meals Weight loss, associated with the malabsorption of nutrients. Diagnosis- Biopsy, Physical examination, Blood tests.Treatment of Whipple disease is with antibiotics, either alone or in combination, which can destroy the bacteria causing the infection. In most cases, Whipple disease therapy begins with two to four weeks of ceftriaxone or penicillin given through a vein in your arm. Following that initial therapy, you'll likely take an oral course of sulfamethoxazole-trimethoprim (Bactrim, Septra) for one to two years. Possible side effects of ceftriaxone and sulfamethoxazole-trimethoprim include allergic reactions, mild diarrhea, or nausea and vomiting.

Submitted by: A. Abhishek Sai, B. Pharm 2nd Year

ROLE OF THE MICROBIOME IN INTERSTITIAL LUNG DISEASES

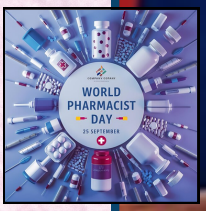
There are trillions of microorganisms in the human body, consisting of bacteria, viruses, fungi and archaea; these collectively make up the microbiome. Recent studies suggest that the microbiome may serve as a biomarker for disease, a therapeutic target, or provide an explanation for pathophysiology in lung diseases. Studies describing the impact of the microorganisms found in the respiratory tract on lung health have been published and are discussed here in the context of interstitial lung diseases. The gut-lung axis postulates that alterations in gut microbial communities may have a profound effect on lung disease. Dysbiosis in the microbial community of the gut is linked with changes in immune responses, homeostasis in the airways, and inflammatory conditions in the gastrointestinal tract itself. The impact of the microbiome on human physiology is substantial. Studies evaluating the composition of the lung and the gut microbiome in patients with interstitial lung diseases suggest that dysbiosis in the communities of either body site are correlated with disease. Enhancement of the immune response is likely the mechanism by which the gut microbiome is capable of impacting lung homeostasis, as considerable evidence has shown that recognition of gut flora is key to regulating immune responses. Targeting the gut microbiome is an attractive target for therapeutic intervention in lung diseases.

Submitted by: A. Kovidha, Pharm.D 2nd Year

NATIONAL PHARMACOVIGILANCE WEEK

CMR College of Pharmacy, Hyderabad conducted one week celebrations on the occasion of National Pharmacovigilance Week from 17th to 23rd September 2022 with the theme of 'Emerging Adverse Drug Reaction Reporting By Patients' A step towards patient safety. College has organized various competitive programs like Essay Writing, Quiz and Debate. Students participated with full enthusiasm.

WORLD PHARMACIST DAY



World Pharmacist Day 2022 has been conducted on 25th September with the theme "Pharmacist united in action for healthier world"

EXPLORE TO INVENT

CMR COLLEGE OF PHARMACY

(Approved by PCI, New Delhi and Affiliated to JNTUH, Hyderabad)

B.Pharm-NBA Accredited

Recognized under section 2(f)& 12(B) of the UGC Act, 1956

Sponsored by MGR Educational Society

Kandlakoya(V), Medchal Road, Hyderabad-501401

Website: www.cmrcp.ac.in E-mail: principal@cmrcp.ac.in