

DigiDose

The Quarterly Dispense

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EDITOR'S INK



October 2023 is being heralded as Breast Cancer month. In these days of rapid advancements in technology and cancer care, we find ourselves in a prognostic revolution. Breast cancer outcomes have never been more hopeful. Tumour heterogeneity is being tackled in effective ways, leading to a much better clinical response. We have seen a rapid increase in the number of cancer cases in the last few years in India and all over the globe. This is widely attributed to more prudent reporting and increased awareness among the younger population, which leads to faster diagnosis.

This edition of DigiDose gives a sneak peek into the latest advancements in cancer diagnosis and management. We also discuss the National Medical Council guidelines on generic drug prescriptions with striking clarity. Our editors maintain exceptional work standards to bring the latest updates and research, ensuring scientific accuracy. We deal with the facts without sensationalising them. We have enforced stricter policies to bring you original content with facts, news, and research originating from respected sources and peer-reviewed journals.

The last quarter saw gregarious work being put in by every committee of PLC, and we have so many of those beautiful success stories to tell. Let us know your suggestions, and critique, as its very important for our growth. Also, do enjoy the Wordle while you are at it!!

NEW HORIZONS IN BREAST CANCER CARE

Ashna Shah, 2nd Year PharmD

Breast cancer remains a pervasive and devastating disease, affecting both women and men worldwide.

Despite substantial progress in comprehending its aetiology and pathology, the precise causes remain enigmatic, obscured by intricate genetic factors. October 2023 marks Breast Cancer Awareness Month, an international campaign aimed at raising awareness, fundraising for research, and reducing the stigma surrounding the disease. This annual initiative emphasises the importance of early detection and timely access to high-quality treatment.

In 2023, we stand on the cusp of a revolutionary change in the diagnosis and therapy of breast cancer. Notably, the ASCO (American Society of Clinical Oncology) conference in Chicago presented a series of studies, including advancements in various breast cancer drugs. The NATALEE trial demonstrated the benefits of CDK 4/6 inhibitors (Ibrance, Kisqali, and Verzenio) in early-stage post-surgery breast cancer when used in combination with an aromatase inhibitor in patients with hormone receptor-positive and HER2-negative status. While Kisqali awaits approval for early-stage treatment, Verzenio offers improved clinical outcomes. It is encouraging that Verzenio was found to be equally effective in treating older patients as well as younger ones. This gains significance in the current setting, where drug efficacy studies on the geriatric population are limited. Even lower doses of the drug produced the same benefits.



Recently, years of research into a breast cancer vaccine have finally shown promise. The first recipient of a vaccine aimed at preventing breast cancer recurrence reported a life-changing experience. breast cancer (TNBC, a form wherein chances of remission are very high) received the last of three doses of the vaccine as a part of a study conducted by the Cleveland Clinic. This ongoing research targets alpha-lactalbumin, a protein present in both lactation and triple-negative breast cancer (TNBC). The vaccine trains the immune system to target cells producing this protein, thus enabling immune cells to attack tumour cells similarly.

Male breast cancer (MBC), though rare, is a growing concern. It constitutes less than 1 percent of breast cancer cases but is on the rise due to factors like increased longevity, obesity, testicular diseases, and tumors. A Dutch study revealed that trans women had a 46-fold higher risk of MBC compared to cis men. Additionally, MBC is more common in black African American men and Israelis, as indicated by some studies.

The World Health Organization introduced the Global Breast Cancer Initiative 2023, with a goal to save 2.5 million lives from breast cancer by 2040. The initiative urges countries to enhance early detection strategies to identify 60 percent of cases in the early stages and initiate breast cancer diagnosis within 60 days of presentation.

The ultimate objective is for 80 percent of patients to complete their treatment regimen, which could save countless lives. Breast cancer takes a toll not only on the body but also on the mental well-being of patients. Post-treatment aftercare is crucial, especially for women who often experience lasting body image issues. Healthcare workers play a vital role in providing support and guidance to help patients adjust to their normal routines. With advancing technology in detection and treatment, patients can be assured of a fighting chance to lead healthy, normal lives, emphasising their status as survivors, not victims.

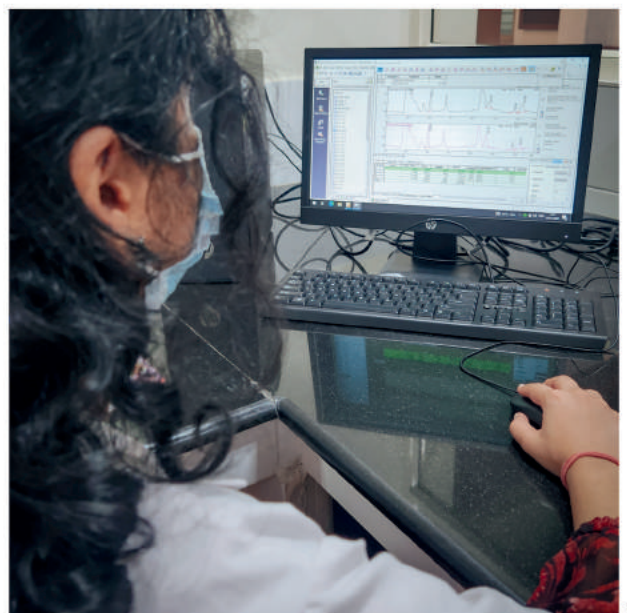
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राष्ट्रीय आयुर्विज्ञान आयोग
NATIONAL MEDICAL COMMISSION

A Prescription for Change : NMC Guidelines Spark Debate on Generic Drug Prescriptions in India

Adrian Rex Coutinho, 4th year PharmD;

Karthikeya Hegde, J Siyam Taj, Tanvi Ambekar, 3rd year PharmD

Introduction

India has long been a unique landscape for drug prescriptions, with a preference for branded drugs that are often unaffordable to the average Indian. However, skepticism surrounds generic drugs due to concerns about their quality, often attributed to their lower prices. The National Medical Commission (NMC) guidelines, introduced in August 2023, propose to reshape this landscape. These guidelines compel doctors to prescribe generic drugs, putting pressure on physicians while empowering pharmacists to dispense more affordable medications.

Part I: NMC Guidelines in Detail

The NMC's landmark move, detailed in the National Medical Commission Registered Medical Practitioner (Professional Conduct) Regulations, 2023, mandates doctors to prescribe drugs with generic, non-proprietary, or pharmacological names, specifically barring them from prescribing 'branded' generic drugs. Failure to comply can result in penalties, including license suspension. The goal is to enhance healthcare affordability, as generic drugs are typically 30%–80% cheaper than their branded counterparts. The NMC also encourages the purchase of generic medications from Jan Aushadhi Kendras and other generic pharmacy outlets to highlight their equivalence with branded drugs.

Opposition and Concerns

In a letter addressed to Union Health Minister Shri Mansukh Mandaviya, Dr. Sharad Kumar Agarwal, President of IMA, pointed out that less than 0.1% of drugs manufactured in India are tested for quality. They advocated for delaying the regulations until the government could ensure the quality of drugs on the market, citing that "patient care and safety are non-negotiable." Manufacturers of branded generic drugs conduct research and maintain drug safety on par with the United States Food and Drug Administration (USFDA), in stark contrast to manufacturers of generic drugs that need only adhere to Schedule M, ascribing to good manufacturing process. The IMA proposed a "one drug, one quality, one price" system, or the exclusive sale of generic drugs in India, to maintain high-quality standards.

Also, confidence in diagnosis and treatment is vital for a physician's effectiveness. The regulations also restrict RMPs and their families from participating in educational activities like seminars, workshops, conferences, symposiums, etc. sponsored pharmaceutical companies. This move, while curbing potential conflicts of interest, has raised concerns within the medical community about the funding of vital seminars, conferences, and workshops, as these are major channels for dissemination of information, future innovations, and learning.

Part II: Current Status and Future Prospects

Following protests and rising uncertainty, the NMC temporarily halted the new regulations on August 23, 2023, acknowledging the need for further review. It has, however, immediately implemented the Indian Medical Council (Professional Conduct, Etiquette, and Ethics) Regulations, 2002, immediately. This is a positive step toward maintaining ethical standards among RMPs and their patients.

The pharmacist and the patient

Pharmacists are integral to the implementation of generic drug prescriptions. They can reduce medication costs, ensure regulatory compliance, and manage their inventory more efficiently. However, patient trust in brand names remains a challenge, and pharmacists must educate patients on the advantages of generics. Generic medicines offer affordability and transparency to patients, aligning with government initiatives for accessible healthcare.

The NMC's regulations have triggered significant debate and uncertainty within the Indian healthcare system. The hold on the regulation suggests that more discussions are needed before implementing such a significant change. Striking a balance between affordability, quality, and the interests of the pharmaceutical industry remains a challenging task for the government. It is a fine line to traverse and a utopian society to strive towards, but one that India will surely reach in the foreseeable future.

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Mental Health Awareness in Youth

Vismaya Ross Emmanuel, 3rd year PharmD

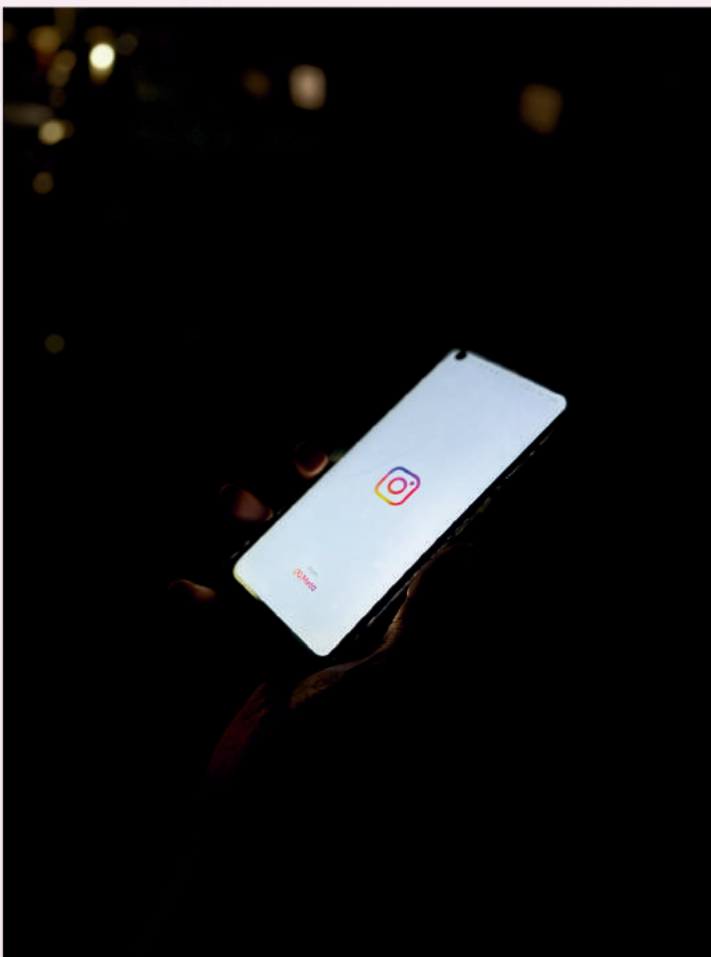
The World Health Organisation (WHO) defines the state of good mental health as “the state of well-being in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community”(1). The progression of time has brought along with it an increased importance being placed on the state of an individual’s mental wellbeing. Its importance has been so well acknowledged that it has been included in WHO Sustainable Development Goals and 10 October of every year has been declared as World Mental Health Day.

In 2017, India had a population of 197.3 million people who had been diagnosed with a mental health condition (around 14.3%) of the country’s total population at the time (2). Among the population that had mental illness was most prevalent in the youth (age group 18- 25). In a country like India with its mélange of cultures and conservative societal norms, mental health has become synonymous with shame and taboo. It is to be seriously discussed, how this silent epidemic shaves away youthfulness, passion and energy that marks this country’s population.

The onset of the COVID-19 pandemic brought about a steady increase in the population affected by the symptoms of various mental disorders. Prolonged isolation from society, economic instability, a global pandemic and losing jobs, may have led to the rapid mental decline of the people.

The Diagnostic and Statistical Manual of Mental Disorders, Fifth edition (DSM-5) categorises all mental health conditions as anxiety disorders, bipolar and related disorders, depressive disorders, feeding and eating disorders, obsessive-compulsive and related disorders, and personality disorders. The most common, and sometimes the only ones which are known are the ones that fall under anxiety disorders and mood related disorders (bipolar disorder and depression). When educating the general population, it should be a priority to provide them with the knowledge of the different mental disorders and their clinical manifestations.

“Mental Disorders should be diagnosed and treated without stigma or judgement, just like any other disease”

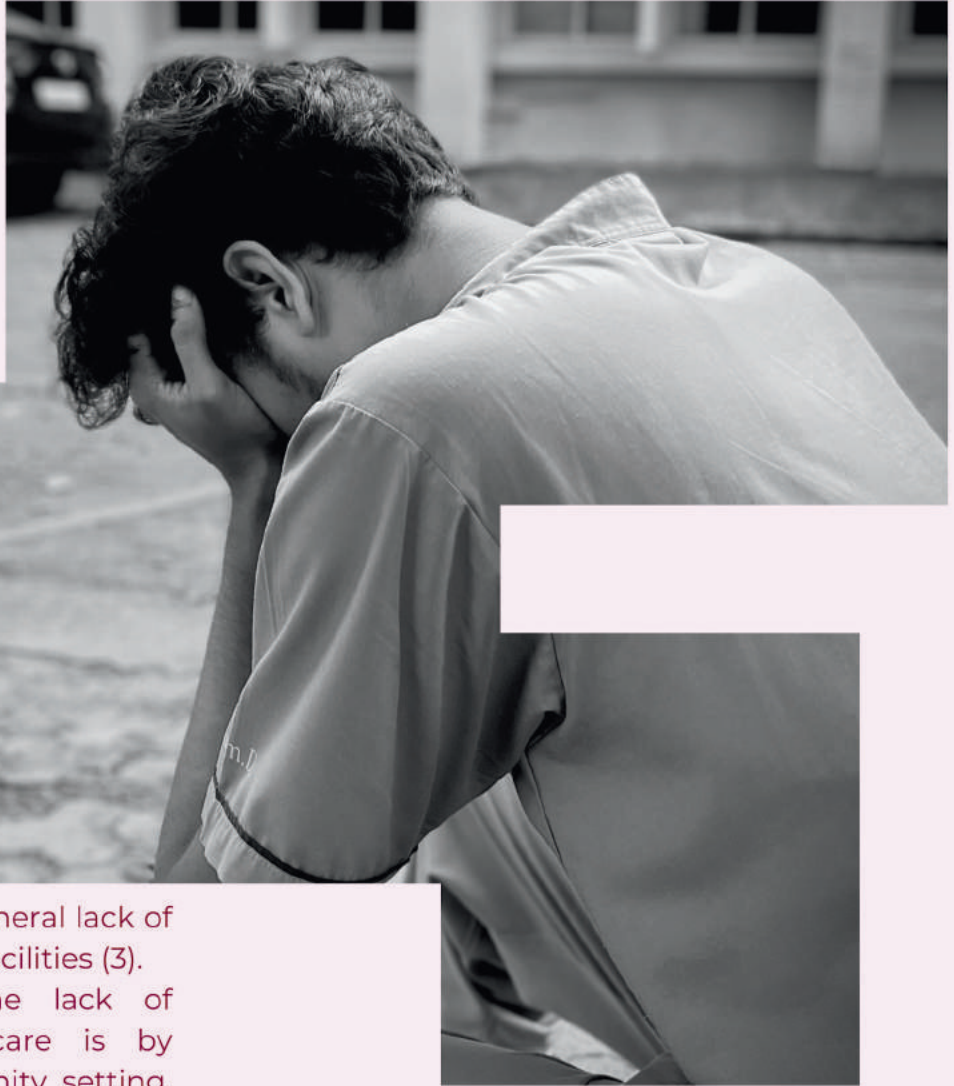


We often underestimate the burden that mental health disorders come with, because of a lack of investigation into the fact that a decline in mental well-being manifests its symptoms in an individual's physical health. In most low and middle-income countries, barriers to making

mental health related services and treatment available to the general population include poor allocation of funds—an average of only 2% of the health budget is allocated to the cause; lack of medication, lack of

research, scarce workforce and a general lack of accessibility to treatment and care facilities (3). The simplest way to tackle the lack of accessibility to mental health care is by increasing awareness in a community setting, particularly targeted towards the youth. The most common manifestations of mental disorders in the population are depression and anxiety. The increasing prevalence of these conditions, combined with a lack of access to treatment and care, has led to suicide being the second leading cause of death in 15–29-year-olds.

Awareness must begin at the community level—workshops and community outreach programs conducted by health professionals with knowledge and experience in this field can, with time, help to reduce societal stigma surrounding mental wellbeing. Establishment of counselling centers in academic institutions and conducting regular workshops and seminars, utilisation of the internet, social media and by making information from reliable sources easy-access to the public are also some steps that can be taken to raise awareness especially in the youth (4). There is hope, however, in the younger generations, who have awareness and seem to prioritise their mental wellbeing.



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Q

Breast Cancer : Expert view

& A



Dr. Ananth Pai

is a leading cancer specialist at Kasturba Hospital, Manipal. Hailing from Udupi, he completed his M.B.B.S. and M.D. from Kasturba Medical College, Manipal, and his D.M. in Medical Oncology from Shri Venkateshwara Institute, Tirupathi. Having extensive experience of over 14 years in cancer care, he speaks to us about breast cancer and its treatment.

Q: Good afternoon, sir. As you are aware, October 2023 is being heralded as Breast Cancer Awareness Month. Could you share your thoughts on breast cancer as a disease burden, especially in the southern part of Karnataka?

A: Breast cancer is one of the most common cancers in India. Kasturba Hospital is one of the biggest hospitals in southern Karnataka, and it sees patients from all over the state and northern Kerala. We have been seeing an ever-increasing number of breast cancer cases in the hospital. Nearly 30% of cancer cases in the hospital are breast cancer in various stages. I would say that the biggest reason for this increase in numbers is because of the increased awareness among people, especially the younger generation, who are more tech-savvy. They push their parents and relatives to get regular checkups.

Q: Could you tell us how breast cancer starts and who is at risk?

A: Breast cancer can affect any adult woman, as young as 20 years old, and sometimes even 90 year-olds. In young women with breast cancer, there is a high chance that there is a genetic background. Some patients have a strong family history of breast cancer or ovarian cancer. There is a syndrome called 'hereditary breast-ovarian cancer syndrome'. The members of such families are prone to developing breast or ovarian cancers. In my interviews with patients, I inquire about the duration of breast cancer or lump presence and any family history of breast cancer, which helps determine hereditary factors. Some patients lack a family history but have genetic mutations predisposing them to breast cancer. Genetic testing reveals these cancer-related genes. Nulliparous women, who haven't had children, face a higher risk. Conversely, multiparous women and those who achieve early menopause are less vulnerable due to fewer hormonal changes. It appears that women who have more children, as seen in our elderly population, are less prone to breast cancer. Therefore, a very small number of children, or not having any children at all, poses a risk.

Q: Sir, you mentioned genetic screening to check if the patient has cancer-related genes. Is this testing done at Kasturba Hospital?

A: Yes, we offer genetic screening, but I must emphasise that it's not for the general population. We primarily provide it to individuals diagnosed with cancer or those who are at risk of developing cancer.

Q: How can we detect breast cancer as early as possible?

A: Guidelines recommend that women start breast cancer screening at the age of 35. Those with a family history should consider mammograms or MRIs. Mammograms are best at age 35, but they should be done annually for early detection. Additionally, daily self-breast examinations are crucial. Every day, while taking a bath, you can perform a self-breast examination to check for lumps, nipple distortion, or any puckering or swelling in the breasts. This is the best practice to detect breast cancer early. Maintaining a healthy lifestyle, avoiding obesity, practicing yoga, having a good diet, and avoiding smoking and alcohol are all important factors to consider.

Q: Is it common here? I mean alcohol consumption amongst women in the community.

A: Yes, not just in the younger generation but in the elderly as well. Especially in the Christian and fisherwoman communities, women consume alcohol routinely. Also, many older women chew or consume tobacco in one form or another. This is a risk factor for not just breast cancer but all cancers.

Q: If a breast cancer patient is pregnant or going to be a mother very soon, can she breastfeed?

A: There are two aspects to consider regarding breast cancer during and after pregnancy. If it's detected after pregnancy, the treatment is similar to that for other patients, but the patient must stop lactating. If a pregnant woman is diagnosed with breast cancer, the treatment depends on the trimester and whether she has children. In the first trimester, imaging and chemotherapy may not be possible, so decision-making also depends on the medical termination of the pregnancy if the mother opts for it. If it's the woman's first pregnancy and she does not have children, surgery for breast cancer can be performed, followed by completing the pregnancy and further treatment.

Q: Is this because the anti-cancer medicines would pass through breast milk?

A: Yes, and most chemotherapy agents are very harmful to the foetus inside the womb. They also cause significant myelosuppression, which can in turn affect the mother as well as the foetus.

Q: I have heard that lactation helps reduce the risk of breast cancer. Is that true?

A: Yes, it is true. Extended breastfeeding can delay regaining the menstrual cycle, which in turn helps protect against breast cancer. If a woman starts her menstrual cycles early or has a lot of them due to a late menopause, she is more susceptible to breast cancer. This is why being multiparous and breastfeeding for longer durations can help prevent breast cancer.

Q: We have spoken about women so far. Is male breast cancer relevant in Udupi, Karnataka?

A: Yes, we do see male breast cancer cases, although the cases are relatively few compared to female patients. Any male with a breast lump should be evaluated for breast cancer. Additionally, males with genetic mutations like BRCA2 are at a higher risk for various cancers and should consider regular screenings and precautions.

Q: Sir, you spoke about breast reconstruction surgery. Are such treatments stigmatised even today?

A: No, I beg to differ on that. More patients are inquiring about breast conservation surgery that leaves some breast tissue for reconstruction, often using flaps to achieve symmetry with the unaffected breast. Younger patients, typically between 30 and 60, are more open to this approach, while those over 60 are less concerned about conservation or reconstruction. This is due to increased awareness and aesthetic needs in the younger population.

Q: Following up on that, are there differences of opinion when it comes to couples?

A: Yes, to an extent. Many young married couples, especially the younger population who are sexually active, prefer breast conservation therapy. Both men and women opt for this. However, there is a lot of stigma and fear about recurrence, leading many in rural or suburban areas to choose total mastectomy due to this fear. There is a trend in which educated individuals often choose breast conservation surgery. But still, all patients show a fear of recurrence.

Q: Many people are afraid of chemotherapy. What side effects does it have?

A: The biggest fear for women is losing hair due to alopecia, but we assure them that their hair will grow back after treatment. Many people can donate their hair for wigs or purchase them. The fear of alopecia has decreased from 40–50% to 10–20%. However, there can be life-threatening side effects, like febrile neutropenia, so we provide counselling and precautions for cancer patients. People understand that cancer treatment is different from routine treatments requires education.

Q: So, is special counselling given to these patients to help them understand these terminologies and the importance of follow-up?

A: Yes, in our department, we have two important components. First, we have a well-equipped genetic team that specialises in genetic counselling, genetic testing, post-test counselling, and genetic analysis. Second, we also have a dedicated genetic counsellor who provides pre-test and post-test counselling to patients.

Q: In KMC, are there particular groups or associations for breast cancer patients their therapy?

A: We collaborate with organisations like IMA, the Lions Club, and the Rotary Club to conduct various awareness programs. Recently, we organised a breast cancer awareness event, providing screening mammograms to hospital staff and faculty, emphasising our commitment to awareness and screening. These efforts extend both inside and outside the hospital, reaching the broader public.

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Q: What are some helpful packages that a breast cancer patient could access or register for when they come to KMC? Are there government-level schemes that would benefit these patients?

A: We are highly society-centric and aspire to fulfil social responsibilities well. We offer free treatment under the Aayushman Bharath scheme, as well as philanthropic support from various sources. Patients receive support from schemes like Aayushman Bharath, ESI, Sampoorna Suraksha, and hospital CSR funding. Additionally, the Prime Minister's Relief Fund, Chief Minister's Relief Fund, and Shankar Fund, along with online fundraising through Milap and Impact Guru, provide support. We also offer dormitories for patient accommodation and plan to open a hospice centre for palliative care soon.

CDSCO approves import of Palivizumab for RSV prevention

Palivizumab, a potent preventive drug for Respiratory Syncytial Virus (RSV) developed by AstraZeneca Pharma India Ltd., has been approved for import and marketing by the CDSCO. RSV is a virus that affects the respiratory tract causing mild cold like symptoms. In India, it is the leading cause of hospitalisation in children under a year of age.

Sustainability on the rise: Development of pharmaceuticals and food products from tea waste

Researchers from Indian Institute of Technology (IIT) Guwahati have developed pharmaceutical and food products from wasted tea leaves obtained from tea factories. The spent tea leaves obtained after the processing of tea is converted into activated carbon which the researchers been able to utilise for various food and drug related applications – diluents in solid dosage forms, adsorbents, deodorants, moisture absorbers etc, paving way for sustainability in the pharma industry.

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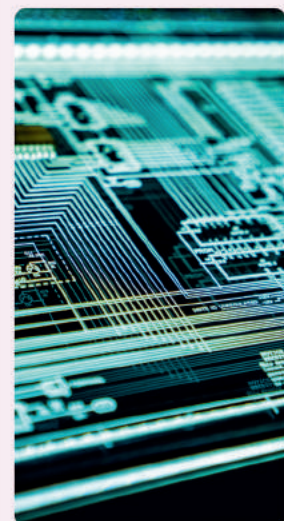


iPlacenta: Novel Model Revolutionizes Pregnancy Healthcare

In collaboration with tissue model experts MIMETAS, researchers at the University of Dundee have succeeded in developing a placenta on a chip model, iPlacenta, allowing for examination of the inner workings of an organ in 3D without risk to the mother or foetus. The iPlacenta can be used to research interactions between the drug and the placenta by utilizing stem cells obtained from the skin to grow human placentas in an organ-on-a-chip platform consisting of 40 micro placentas. This could revolutionize studies into pathologies like pre-eclampsia and placental drug transfer, as few drugs pregnant women use have excellent safety data.

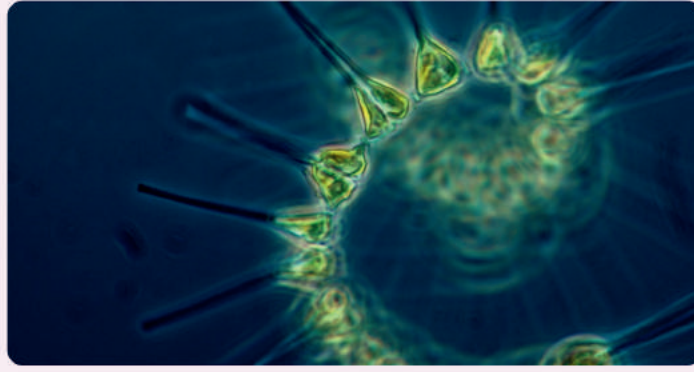


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Synthetic toxic plankton to aid in cancer treatment



Scientists at Scripps Research, California used dinoflagellates to produce cyclic imine toxins which have an anti-cancer effect. These toxins named protamine A



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and B, are produced by a marine plankton known as *Vulcanodinium rugosum*. The testing was done on human and mouse cell lines, to show activity against Jurkat leukemia, fibrosarcoma cells, glioblastoma and even triple negative breast cancer. The results showed clear anti-cancer activity for every cell line tested using protamine-A, whereas protamine-B was found to have a lower efficacy.

Liquid biopsy: A new era in cancer diagnosis?

Liquid biopsy is a blood test that helps detect circulating tumor cells (CTC), circulating tumor DNA (ctDNA), circulating exosomes, and other analytes in multiple body fluids to evaluate and monitor current and future gene mutations. This method has a higher accuracy rate and is cost-effective, making it favourable. Due to cost concerns in India, this method must be localized to fit our unique disease landscape.



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Scared of needles? Suction-cups might just be what you need!

This novel technology could eliminate painful injections, by utilizing a miniature suction cup which aids in the pain-free administration of drugs into the body. This simple mechanism works by administering drugs through mucosal lining of the cheek. Developed by a team of scientists based in ETH Zurich, this painless technology could replace painful injections, including Insulin.



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Lab-on-Chip: Messiah of Breast Cancer Research?

Stuti Khatuka, 4th year BPharm



breast cancer is a global health concern, claiming 685,000 lives in 2020, as per WHO estimations. It is also very prevalent in India, causing 12.7 deaths per 100,000 women.

A recent Lancet report titled 'Women, Power, and Cancer'- on gender inequity in cancer care, states that nearly 69 lakh cancer deaths among Indian women were preventable. This shows the importance of awareness, early screening, and quality treatment. Breast cancer being highly heterogeneous in nature, manifests as distinct subtypes based on the expression patterns of hormone receptors such as ER, PR, Ki67, and HER2. Early detection is key, as it's curable in 70–80% of cases if treated promptly.

Metastasis can occur in different organs, with distinct tendencies among subtypes. Breast cancer research and detection have seen significant advancements with Lab-on-Chip (LOC) technology, which integrates sample manipulation and detection using microfluidics, enabling high-throughput screening and controlled delivery of nutrients, gases, and drugs while also reducing reagent consumption. Traditional research models, like in vitro cell cultures and in vivo animal models (2D and 3D), are limited in replicating the complex tumour microenvironment and often exhibit species-specific differences that hinder accurate predictions. Organ-on-a-chip devices, combining microfluidic technology and 3D cell culture, offer a promising solution by mimicking the complexity of native organs, improving reproducibility, and reducing costs. Researchers from Imperial College London and the University of Leicester have developed a 'lab-on-a-chip' for early breast cancer detection and monitoring. This technology analyses circulating tumour DNA (ctDNA) in the blood, providing a fast, affordable, and non-invasive method.

Liquid biopsies facilitated by LOC technology represent a potential paradigm shift in breast cancer screening.

A notable LOC model is the EV-CLUE (Extracellular Vesicle Capture Chip for Liquid Ultrahigh-sensitivity Assay of Exosomes), which uses nanotechnology to analyse blood samples less invasively. Testing for MMP14, an enzyme linked to cancer progression, offers real-time insights into disease progression and early recurrence, potentially reducing the need for frequent mammograms.

The 'Tumor-on-a-Chip', a subtype of Organ-on-a-Chip, is a promising innovation for simulating tumour cells' structure and function. In a recent study, 3D microfluidic models accurately replicated tumour invasion and cell migration, aligning with in vivo results. Going further, 3D-cultured 'Breast Tumor Chips' mimic cancer cells more accurately and predict antitumor drug responses more reliably, as compared to traditional 2D cultures. Researchers have also developed a 3D 'bone chip' with naturally grown mineralized collagen and bone tissue, offering insights into bone metastases in breast cancer.

These technologies will certainly be the standard of care in the upcoming years. Lab-on-a-chip technology, especially liquid biopsies, revolutionize screening and monitoring by analysing circulating tumour DNA and providing real-time insights into disease progression. Organ-on-a-chip technologies advance our knowledge of breast cancer, its metastasis, and therapeutic responses, offering more potent therapies and improved patient outcomes.

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Basic Life Skills Workshop

On the momentous occasion of the Diamond Jubilee celebrations of Manipal College of Pharmaceutical Sciences (MCOPS) and the 125th birth anniversary of our visionary founder, Dr. T.M.A. Pai, the Pharmacy Literacy Club (PLC), Centre for Public Health Pharmacy, Dept. of Pharmacy Practice, MCOPS, MAHE, Manipal, organized a 'Basic Life Skills Workshop' in association with Tempus Pretioso: Emergency Medicine Enthusiast Club of Kasturba Medical College at 4.30 pm on July 21, 2023, at MCOPS.

Tempus Pretioso volunteers and PLC volunteers demonstrated and provided hands-on training on CPR (cardio-pulmonary resuscitation), Heimlich manoeuvres (in choking), splinting, hypoglycemia and dehydration management, the automatic external defibrillator (AED), and gastric lavage. In the demo rounds, the participants could practice the demonstrated life skills on dummies in simulations of real-life situations. The demonstrations were followed by very interactive presentations on first aid for dehydration and hypoglycemia, compression bandaging, and seizures. The event was attended by 90 students and staff of the MCOPS and other institutions. The participants were equipped with skills that could potentially help them save a life if the situation arose.



KATHA: A book donation drive

On the momentous occasion of the 125th birth anniversary of our visionary founder, Dr. T.M.A. Pai, the Pharmacy Literacy Club (PLC), Centre for Public Health Pharmacy, Manipal College of Pharmaceutical Sciences, MAHE, Manipal, conducted 'Katha: A Book Donation Drive: Moulding Minds and Igniting Imaginations', in collaboration with the Chosen Generation Charitable Trust, Udupi. The event occurred from July 31 to August 2, 2023.

'Katha' was an initiative to bridge the gap in access to educational resources for underprivileged children. While millions of students in India cannot afford the books they wish to read, there are privileged people who have the same books lying on their shelves. "With this campaign, we aimed to collect books that could help children in need, ranging from children's novels to textbooks, to establish a library in Yeshwantpur Railway Depot, Bangalore" said Mr. Skanda N, President of PLC. The event was inspired by the fact that education and cognitive stimulation of the brain through reading improve cognitive performance in children.

Collection kiosks were set up in two different locations for the drive: OPD, Kasturba Hospital, Manipal, and the MCOPS front gate. The event proved to be a resounding success, as many books were collected and donated. A total of 471 books were collected, covering various subjects, including academics (up to 12th grade), non-academic novels, and children's literature in English, Hindi, and Kannada. Moreover, it helped foster a sense of shared responsibility among the students participating in the event about the importance of giving back to the community. God TV Kannada provided media coverage on the second day of the event, wherein they interviewed the volunteers present.



Community Outreach Event: 'MIDITHA'

The event was sponsored by Sai Social Service, Santhekatte and F3 Marine Foods World-Wide. Tonse Grama Panchayat, Kemmannu and Government Urdu Higher Primary School, Hoode; extended their support. Overall, 200 participants attended the events, which included nursing students, school students and teachers, Asha workers, Panchayat members, and the local community.

On the momentous occasion of the 125th birth anniversary of our visionary founder, Dr. T.M.A. Pai, the Pharmacy Literacy Club (PLC), Centre for Public Health Pharmacy, and MCOPS organized a large-scale public health event, "Miditha," at Government Urdu Higher Primary School, Hoode, Udupi, on September 29, 2023, to commemorate World Heart Day. The event was in collaboration with Chosen Generation Charitable Trust (R.), Udupi; Tempus Pretioso, KMC Manipal; Rotary Club, Kallianpur; Primary Health Care Center, Kemmannu; Health and Wellness Center, Gujjarbettu; and in association with Udupi Dhanvantari College and School of Nursing; Hari Prasad Rai College of Paramedical, Manipal; and Tonse Kandige Higher Primary School, Kemmannu.

World Heart Day 2023

The event commenced at 9:30 AM, with a walkathon starting from Shree Guru Raghavendra Bajana Mandali, Gujjarbettu. Mrs. Nisha Vasudeva, Community Health Officer, Sub-Center Gujjarbettu, flagged off the walkathon. Participants included students and faculty from Dhanvantari College of Nursing, Udupi, and Asha workers, who carried posters and placards to raise awareness about World Heart Day, ending at Government Urdu Higher Primary School.

Dr. Vasudev Acharya, Taluk Health Officer, Udupi; Prashanth Shetty, Senior Treatment Supervisor, TB Unit, Udupi District; Smt. Kusuma, President, Tonse Grama Panchayat; Sri. Arun Fernandes, Vice President, Tonse Grama Panchayat; Mrs. Abigail S. Anchan, Managing Trustee, CGCT (R.); Rotarian Divakar, President, Rotary Club, Kallianpur; Rotarian Bran, Rotary Club, Kallianpur, were guests at the event. Ms. Chaitra from PLC delivered a comprehensive talk on hypertension, its causes, the impact of Omega 3 and cholesterol, stress responses in the human body, and the benefits of practicing yoga for a healthy lifestyle. Students from Udupi Dhanvantari College of Nursing performed a skit highlighting the adverse effects of smoking and alcohol consumption. Following this, a detailed CPR demonstration was provided by Ms. Shreya Shenoy from PLC and Mr. Vishnu Vardhan Raju Kallepalli, President of Tempus Pretioso, explaining the proper steps to follow in emergency situations. Blood and urine tests for community members aged 30–60 were conducted, along with the creation of Ayushman Cards. Simultaneously, hands-on CPR training was provided to Asha workers, panchayat members, and the students and faculty of Udupi Dhanvantari College of Nursing. They were allowed to practice CPR on Little Annie (CPR dolls), assisted by the team of Tempus Pretioso and PLC members. Dr. Vasudev Acharya, Taluk Health Officer, Udupi, expressed that this was the most impactful part of the program, as hands-on training in CPR was something very new in the local community. "Direct training corrects faulty techniques and myths that people think are correct"- he quoted. Certificates were distributed to everyone who received the training. On this occasion, nebulizers and respules were provided free of charge to the Health and Wellness Center, Gujjarbettu, sponsored by Sai Social Service Group, Santhekatte, Udupi. World Heart Day proved highly enlightening and engaging for students, community members, and event personnel, addressing crucial awareness topics, including lifestyle changes and CPR in emergencies.



Community Outreach Event: 'MIDITHA' World Heart Day 2023



National Pharmacovigilance Week Celebration 2023

On the momentous occasion of the 125th birth anniversary of our visionary founder, Dr. T.M.A. Pai, the National Pharmacovigilance Week (NPW) celebration 2023 was jointly organized by the Department of Pharmacy Practice and the Centre for Pharmaceutical Care, MCOPS, MAHE, and Manipal. Events like quiz competitions, poster competitions, and public speech competitions were conducted on this occasion. The quiz was based on current affairs related to pharmacovigilance. The event was conducted in the seminar hall of the Department of Pharmacy Practice, MCOPS, MAHE, at 12:30 p.m. on September 21, 2023. Dr. Muhamed Salim, Assistant Professor, Department of Pharmacy Practice, was the quiz master. Mr. Muhammed Rashid PP and Ms. Pooja Gopal Poojari bagged the first prize in the quiz competition. The poster presentation was organized on the second day of the celebration.

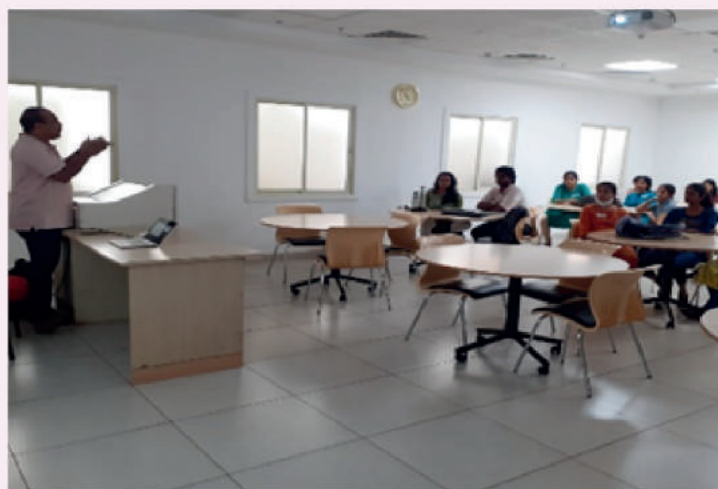
The theme of the NPW celebration, "Boosting Public Confidence in Pharmacovigilance," was the theme for the competition.



On the third day, a workshop on "Practicing Pharmacovigilance in Industrial and Community Settings" was organized at Prof. P. Gundu Rao Hall, MCOPS, MAHE, Manipal. Dr. Surulivel Rajan M., Professor and Head, Dept. of Pharmacy Practice, MCOPS, addressed the gathering with his welcome address. Prof. (Dr.) C. Mallikarjuna Rao, Principal, MCOPS, MAHE, Manipal, inaugurated the day officially. The workshop was conducted by Dr. Alkesh Kumar Lokhande, Senior Medical Writer, GSK, Bangalore, and Dr. Sonal Sekhar M., Associate Professor, Department of Pharmacy Practice, MCOPS, MAHE, Manipal. The importance of practicing pharmacovigilance in industrial and community settings was explained by these experts. Dr. Alkesh elaborated on the importance and ever-increasing career opportunities in the field. Dr. Sonal explained the patient- and public-centered approach to pharmacovigilance. The workshops were followed by the prize distributions. Dr. Rajesh V, Coordinator, ADR Monitoring Centre, Dept. of Pharmacy Practice, MAHE, Manipal, gave the vote of thanks.

Research in Pharmacy Practice, Challenges and Opportunities: A Pragmatic Approach by Jimmy Jose

On July 17, 2023, Dr. Jimmy Jose, a Ph.D. holder from Manipal University who has previously worked in Malaysia and is currently associated with the University of Nizwa, Oman, delivered a talk on "Research in Pharmacy Practice, Challenges, and Opportunities: A Pragmatic Approach" at the Pharmacy Practice Department, Manipal



Dr. Jose's talk focused on the significance of research in the field of pharmacy practice. He discussed the challenges faced by researchers and emphasized the importance of adopting a pragmatic approach to address these challenges effectively. Additionally, he highlighted the various opportunities available for growth and development in pharmacy practice research.

The event provided an opportunity for the attendees to gain insights into the current research landscape, learn from Dr. Jose's expertise, and engage in a productive discussion. The talk served as a catalyst for motivating and inspiring the participants to pursue research endeavours in the field of pharmacy practice.

Overall, the talk delivered by Dr. Jimmy Jose was informative and inspiring, encouraging attendees to overcome challenges and seize opportunities in pharmacy practice research. The event provided an opportunity for the attendees to gain insights into the current research landscape, learn from Dr. Jose's expertise, and engage in a productive discussion. The talk served as a catalyst for motivating and inspiring the participants to pursue research endeavours in the field of pharmacy practice.

Overall, the talk delivered by Dr. Jimmy Jose was informative and inspiring, encouraging attendees to overcome challenges and seize opportunities in pharmacy practice research

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JULY - SEPTEMBER 2023

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- Mrunal Pradeep Desai , Prajakta Harish Patil , Sai Krishna Anand Vullendula , Sumit Birangal , G Gautham Shenoy , Mahadev Rao , Swapnil Jayant Dengale , Krishnamurthy Bhat , Jagadish Puralae Channabasavaiah. Molecular Insights into the Mechanism of Modulatory Effects of Proton Pump Inhibitors on P-glycoprotein Mediated Drug Transport of Palbociclib and Ribociclib. *Current Drug Metabolism*. 2023. (Q2; IF: 2.3)
- Mahadev Rao , Kurt Wollenberg , Michael Harris , Shrivathsa Kulavalli , Levin Thomas , Kiran Chawla , Vishnu Prasad Shenoy , Muralidhar Varma , Kavitha Saravu , H Manjunatha Hande , Chidananda Sanju Shanthigrama Vasudeva , Brendan Jeffrey , Andrei Gabrielian , Alex Rosenthal. Lineage classification and antitubercular drug resistance surveillance of *Mycobacterium tuberculosis* by whole-genome sequencing in Southern India. *Microbiology Spectrum*. (Q1; IF: 3.7)

Hall Of Fame



Dr. Sonal Sekhar M

DHR-Grant-in-Aid (GIA) grant for Dr. Sonal Sekhar M

Dr. Sonal Sekhar M, Associate Professor, received a DHR-Grant-in-Aid (GIA) grant of INR 34,06,368/- from the Department of Health Research, New Delhi, for the study entitled "Effect of vitamin D supplementation on vitamin D receptor gene expression and wound healing in diabetic foot ulcer patients infected with biofilm-forming organisms: a prospective cohort study" for three years.

Mr. Gaurav Girish, PharmD-Intern, was selected for the ICMR Health Communications Internship.

Mr. Gaurav Girish, PharmD-Intern, Department of Pharmacy Practice, MCOPS, has been selected for the ICMR Health Communications Internship Program 2023 at the ICMR-Vector Control Research Center, Pondicherry. This offline internship in Pondicherry is for a duration of 3 months (September–November 2023). During the internship, he will work under the supervision of the Nodal Communications Officer (NCO) of the institute. He will be assigned an individual Health Communications Capstone Project based on the health research specialization of his allotted institute. He will get the opportunity to present his projects at the Valedictory Program in New Delhi, scheduled at the end of the internship period. He will receive a stipend of INR 10,000 per month from the ICMR.

Best wishes to Mr. Gaurav Girish for his successful completion of the internship!



Mr. Gaurav Girish



Ms. Zeel Chaudhari

First Prize Quiz Competition for Ms. Zeel Chaudhari

Ms. Zeel Prahladbhai Chaudhari, 5th year PharmD student, Dept. of Pharmacy Practice, Manipal College of Pharmaceutical Sciences (MCOPS) won first prize in a quiz competition during the Second Capacity Building Workshop on "A Multidisciplinary Healthcare Team Initiated Antimicrobial Stewardship Training Program for Emerging Clinical Pharmacists" on September 30, 2023. The workshop was organized by the Center for Antimicrobial Resistance and Education (CARE), Kasturba Medical College, Manipal, and the Department of Pharmacy Practice, MCOPS, in association with the Manipal-bioMérieux Center of Excellence in Antimicrobial Stewardship.

Research Scholar Achievement

Mr. Muhammed Rashid, Research Scholar, won Best Pharmacist of the Year 2023 Award

Mr. Muhammed Rashid, Research Scholar, Dept of Pharmacy Practice, MCOPS has been honoured with the award "Best Pharmacist of the Year 2023" by Adichunchanagiri University, BG Nagara, as part of the World Pharmacist Day Celebration 2023. This award is presented by considering his outstanding contribution to the Clinical Pharmacy through academic and research excellence. Currently Mr. Rashid serve as ISPOR Student Network - Asian Regional Lead and ISPE Student Council - Networking & Communication Lead



Mr. Muhammed Rashid

Hall Of Fame

ISPE's Scholarship for Faculty and Students, MCOPS to attend ACPE 2023 at Bengaluru



Dr. Rajesh V, Associate Professors, and Dr. Sonal Sekhar M, Assistant Professor-Selection Grade, Department of Pharmacy Practice, MCOPS, received the International Society for Pharmacoepidemiology's (ISPE) partial scholarship to attend the ISPE's 15th Asian Conference on Pharmacoepidemiology (ACPE) during October 26–28, 2023, at the Sheraton Grand, Bengaluru, Karnataka. Ms. Ashna Chackochan, Ms. Asha K Rajan, and Mrs. Santosha Vooradi (Research Scholars); Ms. Aadrika Baranwal (Pharm D-Intern) students received full scholarship. Mrs. Swetha R Reghunath, Mrs. Sowmya Pujari, Ms. Malakapogu Pravachana, Ms. Harsimran Kaur, Ms. Shravya C, Ms. Shwetha Somakumar, Ms. Irene Lalhruaimawii, Mr. Muhammed Rashid PP (Research Scholars), Ms. Elvira Dsouza, and Ms. Joylin Suares (Pharm D-Interns) received partial scholarships. ISPE's full scholarship covers one-year membership in ISPE, travel expenses, and complimentary registration fees to attend the conference, whereas the partial scholarship covers one-year membership in ISPE and complimentary registration fees to attend the conference.



Dr. Rajesh V



Dr. Sonal Sekhar M



Ms. Ashna Chackochan



Ms. Asha K Rajan



Mrs. Santosha Vooradi



Ms. Aadrika Baranwal



Mrs. Swetha R Reghunath



Mrs. Sowmya Pujari



Ms. Malakapogu Pravachana



Ms. Harsimran Kaur



Ms. Shravya C



Ms. Shwetha Somakumar



Ms. Shwetha Somakumar



Mr. Muhammed Rashid PP



Ms. Elvira Dsouza



Ms. Joylin Suares

Alumni Column

Dr. Vaidehi Bhatia is a proud alumna of Manipal College of Pharmaceutical Sciences (MCOPS), having graduated in 2021. She is currently working as a clinical pharmacist at the Aga Khan Hospital, Dar-es-Salaam, which is the only Joint Commission International Accredited (JCIA) hospital in Tanzania. In her current role, she ensures appropriate and safe medication management and use, involving medication therapy management, medication counselling, drug therapy monitoring, and clinical research.

Dr. Bhatia joined MCOPS in 2015 and successfully graduated as the Best Outgoing Student of PharmD (2015–2021) in 2021. As a part of her PharmD internship, she was involved in various clinical and research activities, both in Manipal and Tanzania. Her research interests include antimicrobial resistance and antimicrobial stewardship programs in Tanzania, after discovering gaps in these areas within the country. On completion of her PharmD in 2021, she returned to her home country, Tanzania, and enrolled in a 1-year internship as a requirement for a license to practice in Tanzania. She got the opportunity to intern at Ocean Road Cancer Institute (ORCI), which is the only comprehensive specialized facility for cancer care in Tanzania. This broadened her interests in the field of cancer care. To advance her knowledge on the same, she attended the 12-week BVGH's 2023 Oncology Pharmacy Digital Lecture Series, which covered basic and advanced oncology pharmacy concepts including cancer chemotherapy, waste management, palliative care, and clinical research. She got the opportunity to attend the Tanzania Breast Cancer Symposium earlier this year, which focused on disease burden and unmet needs related to breast cancer in Tanzania, prognostic and predictive markers for breast cancer management, evolving treatment options, and the role of immunotherapy.

Parallel to fulfilling her ambition to serve patients as a clinical pharmacist, Dr. Bhatia is focused on sharpening her research skills. She has currently registered herself for a capacity-building course for health professionals on Advancing Research Excellence organized by Aga Khan University. This course covers concepts such as research methodology, data analysis, manuscript writing, grant writing, and ethical review. This course also requires completion of online self-paced BMJ Learning on 'Research to Publication'. She has also been nominated to be a part of Good Clinical Practice (GCP) training facilitated by the National Institute of Medical Research (NIMR), which endeavours to achieve research excellence in health research by providing scientific evidence that will improve health outcomes and services to the Government of Tanzania and stakeholders worldwide. As a requirement of the training, she has successfully completed a course on GCP through the National Institute of Drug Abuse (NIDA) Clinical Trials Network.

Dr. Bhatia believes that the multi-faceted nature of the PharmD course curriculum, along with the innovative teaching methodologies adopted by the faculty, provided an excellent launchpad to diversify into a variety of opportunities as a clinical pharmacist.



Dr. Vaidehi Bhatia

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DIGIPLAY

How To Play

Guess the Wordle in

6 tries

- Each guess must be a valid 5-letter word.
- The colour of the tiles will change to show how close your guess was to the word.



SCAN ME TO
START THE GAME

Examples

WEARY

W is in the word and in the correct spot.

VAGUE

U is not in the word in any spot.

PILLS

I is in the word but in the wrong spot.

UPCOMING EVENTS

- **7th Annual Conference of the Society for the Study of Xenobiotics (SSX-2024)**
 - Theme: Advancing ADMET Science to Accelerate Drug Discovery and Development
 - Date: February 1-3, 2024
 - Venue: 3rd Floor, Dr. TMA Pai Auditorium, KMC, Manipal
- **9th International Conference on Clinical Pharmacy (CPCON 2024)**
 - Date: 05-07 Jan 2024
 - Venue: 3rd Floor, Dr. TMA Pai Auditorium, Kasturba Medical College, MAHE, Manipal
 - The Centre for Pharmaceutical Care, Department of Pharmacy Practice, Manipal College of Pharmaceutical Sciences (MCOPS), MAHE, Manipal is conducting a Three-day Conference 9th International Conference on Clinical Pharmacy (CPCON 2024) at 3rd Floor, Dr. TMA Pai Auditorium, Kasturba Medical College, MAHE, Manipal during 5-7 Jan 2023. The theme of the conference is "Advancing Patient Centric Medication Optimization".
 - The conference's highlights include one day Pre-conference workshop of 2 parallel themes, educational symposiums, conference scholarship and research presentations, etc.
 - For more details, View/download the brochure at: <https://cpcon.manipal.edu>



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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