Volume 6, Issue 1, January-June 2025

Pharma Insight

Newsletter

A Biannual Newsletter from Department of Pharmacy Practice, KLE College of Pharmacy, Bengaluru

About College

KLE College of Pharmacy, Bengaluru is the constituent unit of KLE Academy of Higher Education & Research (Deemed to be University), Belagavi which is Re-Accredited by NAAC "A Plus" grade by UGC. We are running D.Pharm, B.Pharm, M.Pharm, Pharm.D and PhD courses in a spacious well-equipped building of its own with hostel, library and sports facilities. The pharmacy curriculum is approved by Pharmacy Council of India (PCI).

Department of Pharmacy Practice

KLE Academy of Higher Education and Research (KAHER), Belagavi has started Doctor of Pharmacy course in its constituent college, KLE College of Pharmacy, Bengaluru in the year 2014. To impart education, the pharmacy practice department is having adequate infrastructure and facilities as per the requirement of statutory bodies for the students from Doctor of Pharmacy course and PhD programme. All the faculty members have rich experience to make the student excel in her/his studies and to suit the professional opportunities in the hospital, clinical research and pharmaceutical industries.

Our department is associated with Aster RV Hospital, JP Nagar, Bengaluru, which is located 12 kilometres away from the college premises. In addition, it is associated with Prakriya Hospital, Nagasandra, Bengaluru, which is 10 kilometres away from the institution. Moreover, KLE bus facility is available from KLE Hostel, College and Hospital.

The department is keen to have collaboration with other hospitals, clinical research organizations and pharmaceutical industries towards the pharmacy practice related research projects and services.

REVOLUTIONIZING DRUG DELIVERY: THE AI-ENABLED 3D-PRINTED MEDICINE ERA

The convergence of Artificial Intelligence (AI) and 3D printing technology is redefining the future of pharmaceutical sciences, offering unprecedented opportunities for personalized medicine and precision drug delivery. Traditionally, mass drug manufacturing has relied on “one-size-fits-all” formulations, which can lead to issues such as underdoing, overdosing, or reduced patient adherence. However, AI-powered 3D printing allows for the on-demand production of medications tailored to a patient’s unique physiology, disease state, and pharmacokinetic profile.

Recent research by Mishra and Dasari (2025) highlights how AI algorithms can optimize drug–excipient compatibility, control release profiles, and predict drug stability even before production begins. Machine learning models process vast datasets on molecular structure, solubility, and bioavailability, enabling pharmacists and pharmaceutical scientists to design formulations with unparalleled accuracy. This not only reduces the trial-and-error process in drug development but also accelerates time-to-market for new therapies.

The 3D printing process itself enables complex dosage forms such as polypills (multiple drugs in a single tablet), layered drug-release systems, and even orally disintegrating tablets with precise drug placement. For patients with chronic conditions—especially those on multiple medications—this means improved adherence, reduced pill burden, and more consistent therapeutic outcomes. The FDA’s approval of the first 3D-printed drug, Spritam (levetiracetam), marked a significant milestone, demonstrating the clinical viability of this technology.

AI’s role extends beyond formulation into quality control and manufacturing scalability. Deep learning models continuously monitor print quality, detect structural defects, and ensure uniformity in drug content. Advanced reinforcement learning techniques further adapt the printing process in real time, optimizing temperature, humidity, and extrusion parameters to maintain product integrity.

For Pharm.D professionals, these advancements are particularly relevant. The skillset now extends beyond pharmacotherapy expertise to include digital health literacy, data interpretation, and collaboration with engineers and data scientists. Imagine a future where a hospital pharmacist can print a customized chemotherapy pill on-site, adjust drug dosage for renal impairment in real time, or create paediatric formulations in flavours and textures suited to each child—all guided by AI analytics.

However, challenges remain. Regulatory frameworks must evolve to address AI-driven manufacturing, standardize validation processes, and ensure patient safety. Data privacy, intellectual property rights, and the cost of implementation are other barriers that require collaborative solutions between healthcare providers, industry leaders, and policymakers.

The fusion of AI and 3D printing is not just a technological advancement—it represents a paradigm shift toward truly individualized patient care. For the next generation of pharmacists, embracing this technology will be the key to staying at the forefront of clinical innovation.

- https://www.pharmacyjournal.org/archives/2025.v7.i2.A.188/artificial-intelligence-and-3d-printing-in-pharmaceuticals-a-new-frontier-in-personalized-drug-manufacturing.

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Research Associate I
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Section Editor : Dr. Usha D.S.

DEPARTMENT SERVICES

Adverse Drug Reactions Reported*

Generic name	Dosage form	Adverse Drug Reactions
Cefoperazone and Sulbactum	Injection	Anaphylactic reaction (Redness over face, Itching, Bilateral limbs edema)
Oxazolidinone	Injection	Decrease in platelets count
Enoxaparin	Injection	Ecchymosis
Acetaminophen	Oral	Itching, Rashes
Fentanyl+ Propofol+ Augmentin	Injection	Hypotension
Atorvastatin	Oral	Suddenly developed muscle pain with black discoloration of urine, suspected to have rhabdomyolysis
***January to June 2025**		

Case Presentation, Journal Club and New Drug / Medical Device Club Presentations*

Type of Presentation	College
Case Presentation	43
Journal Club Presentation	55
New Drug Presentation	72
***January to June 2025**	

Department Publications*

SN	Type	Published	Accepted	Communicated
1	**Research article**	**03**	**00**	**01**
2	**Review article**	**01**	**00**	**03**

Workshops and Short Term Courses Attended*

Type of workshop	Number
Webinar	18
Workshop	17
Guest talk	02
Short term program	12
Conference attended	11
***January to June 2025**	

NEW DRUGS / DRUG FORMULATIONS APPROVED IN INDIA

SN	Generic Name, Dosage form, Route & Strength	Indications	Approved Date
1	Letermovir Tablets, PO 240mg and 480 mg	Prophylaxis of cytomegalovirus infections	17-01-2025
2	Fexuprazan hydrochloride Tablets, PO 40mg	Treatment of erosive esophagitis	10-02-2025
3	Edoxaban Tosylate Tablets, PO 15mg, 30mg and 60mg	Treatment of deep vein thrombosis and pulmonary embolism	20-02-2025
4	Sodium Zirconium Cyclosilicate Suspension, PO 5g and 10g	Treatment of hyperkalaemia	05-03-2025
5	Rimegepant Disintegrating tablets, PO 75 mg	Treatment of acute migraine with or without aura Insufficient response to triptans	27-03-2025
6	Doravirine Tablets, PO 100mg	Treatment of HIV-1 infection	28-03-2025
7	Tucatinib hemiethanolate Tablets, PO 50 mg and 150 mg	Treatment of patients with advanced unresectable or metastatic HER2-positive breast cancer, and brain metastases	08-04-2025
8	Zanubrutinib Capsules, PO 80mg	Treatment of patients with: 1. Mantle cell lymphoma 2. Waldenstrom's macrogloubulinemia 3. Relapsed or refractory marginal zone lymphoma who have received at least one anti-CD20-based regimen. 4. Chronic lymphocytic leukaemia or small lymphocytic lymphoma. 5. Relapsed or refractory follicular lymphoma, in combination with obinutuzumab, after two or more lines of systemic therapy.	08.04.2025
11.	Linaclotide Bulk Drug & Linaclotide Capsule 72 mcg & Linaclotide Capsule 145 mcg	Indicated in adults for the treatment of Chronic idiopathic constipation.	21.04.2025
12.	Siponimod Hemifumarate Bulk Drug & Siponimod Tablets 0.25 mg, 1mg and 2mg	For the treatment of patients with secondary progressive multiple sclerosis with active disease as evidenced by relapses or imaging features of inflammatory activity.	09.05.2025
13.	Ivosidenib 250mg filmcoated tablet	It is indicated 1. In combination with Azacitidine for the treatment of adult patients with newly diagnosed acute myeloid leukaemia with an isocitrate dehydrogenase-1 R132 mutation who are not eligible to receive standard Induction chemotherapy. 2. As a monotherapy for the treatment of adult patients with locally advanced or metastatic cholangiocarcinoma with an IDH1 R132 mutation who were previously treated by at least one prior line of systemic therapy.	14.05.2025
14.	TegoprazanTablet50mg	Indicated for: • Erosive Gastroesophageal Reflux Disease • Non-erosiveGastroesophagealReflux Disease • Gastric Ulcer	28.05.2025

- https://cdsco.gov.in

Ms. Boomika S.B.
V Pharm D.

Section editor : Dr. Kavya M.

NEW DRUGS APPROVED BY FDA

Brand Name	Generic Name	Route and Dose	Indications	Approval Date
Datroway	Datopotamab Deruxtecan-dlnk	IV infusion: 6 mg/kg once every 3 weeks	Hormone receptor - positive, human epidermal growth factor 2 -negative metastatic breast cancer after prior therapies	Jan 17, 2025
Grafapex	Treosulfan	IV infusion: 10 g/m² once daily for 3 days before Hematopoietic Stem Cell Transplantation (with fludarabine)	Prepare for stem cell transplant in Acute Myeloid Leukemia/ Myelodysplastic Syndrome	Jan 21, 2025
Journavx	Suzetrigine	PO: 100 mg once (empty stomach) then 50 mg every 12 hrs for 14 days	Moderate to severe acute pain	Jan 30, 2025
Gomekli	Mirdametinib	PO: 2 mg/m² twice daily from day 1–21 of each 28-day cycle. Maximum 8mg	Neurofibromin1 with symptomatic plexiform neurofibromas	Feb 11, 2025
Romvimza	Vimseltinib	PO: 30 mg twice weekly	Symptomatic Tenosynovial giant cell tumor not amenable to surgery	Feb 14, 2025
Blujepa	Gepotidacin	PO: 750 mg twice daily for 5 days.	Uncomplicated urinary tract infections	Mar 25, 2025
Qfitlia	Fitusiran	SC: Start 50 mg every 2 months; adjust dose to maintain AT activity 15–35%	Prevent bleeding in hemophilia A or B	Mar 28, 2025
Vanrafia	Atrasentan	Oral: 0.75 mg once daily	Reduce proteinuria in IgA nephropathy	Apr 2, 2025
Penpulimab - kcqx	Penpulimab kcqx	IV infusion: 200 mg; q2w monotherapy (Maximum 24 months) or q3w with chemo (Maximum 24 months)	Nasopharyngeal carcinoma (monotherapy or combo)	Apr 23, 2025
Imaavy	Nipocalimab aahu	IV infusion: 30 mg/kg once, then 15 mg/kg every 2 weeks.	Generalized myasthenia gravis	Apr 29, 2025

- https://www.fda.gov/drugs

Ms. Sakshi M.J.
VII B. Pharmacy

NEW MEDICAL DEVICES APPROVED BY FDA

DEVICE NAME	CATEGORY & APPLICATIONS	APPROVAL DATE
Match X	It is an optional accessory to antibody detection kits	Jan 02, 2025
Complement Control Cells	They are intended for use in confirming reactivity of the anti-C3 component of Anti-Human Globulin.	Jan 08, 2025
Echo Lumena	It is a microprocessor-controlled instrument designed to fully automate immunohematology in vitro diagnostic testing of human blood.	Jan 08, 2025
Galileo Echo	It is microprocessor-controlled instrument designed to fully automate immunohematology in vitro diagnostic testing of human blood.	Jan 08, 2025
AHC Platelet Concentrate Separator	It is used for preparation of autologous platelet rich plasma from a small sample of peripheral blood for mixing with autograft and/or allograft bone prior to application to a bony defect for improving handling characteristics.	Jan 10, 2025
Cobas pro-serology solution for a) Elecsys Syphilis b) Elecsys Anti-CMV	It is used for Syphilis Assay and Anti-CMV Assay	Jan 10, 2025
Aurora Xi Plasmapheresis System Software Version 2.0	It is intended for the automated collection of plasma by the membrane filtration to be processed as Source Plasma.	Jan 24, 2025
Lookback Notification System version 2.0	It is intended to generate and maintain electronic lookback records and allows for the automated creation, distribution and updating of applicable consignee notifications to assist in effectively identifying and removing unsuitable units prior to manufacturing.	Feb 20, 2025
Adaptive Nomogram Bottle	It is used for the collection, storage, and shipment of plasma prior to fractionation.	Feb 21, 2025
Giotto Monza (BCS03)	It is intended as an automated blood component separator used for blood components separation and preparation.	Mar 26, 2025
Skin Disc™ Skin Disc™ Lite	The SkinDisc™ is used at point-of-care for the safe and rapid preparation of platelet rich plasma and platelet poor plasma from a small sample of a patient's own peripheral blood.	Mar 28, 2025

- https://www.fda.gov/drugs

Mr. Parvesh R.
VII B. Pharmacy

INVITED ARTICLE

THE PSYCHOLOGY BEHIND MEDICATION ADHERENCE: THE CRITICAL ROLE OF PATIENT COUNSELLING

Introduction

Medication adherence is not solely a medical concern—it is a psychological one. Despite the availability of effective treatments, many patients fail to take medications as prescribed, undermining outcomes across a wide range of chronic conditions. Behavioural, emotional, and cognitive factors all play a role in how patients perceive their illness, treatment, and the necessity of adhering to long-term regimens. One of the most effective tools for addressing this issue lies not in the medicine itself, but in the way it's communicated. Patient counselling, when rooted in psychological understanding and personalized communication, has been shown to significantly improve adherence and, by extension, health outcomes.

Adherence in Practice: What a Recent Study Revealed

A recent observational study assessed medication adherence using the Modified Morisky Adherence (MMA) scale, a validated psychological tool that measures intentional and unintentional non-adherence based on patient behaviour and motivation. In this study, patients were stratified by cardiovascular risk status. Interestingly, medication adherence was highest among those with established cardiovascular disease (CVD). These patients, having already experienced serious health events, appeared more motivated and conscious of their medication routines. In contrast, patients without diagnosed CVD but with high risk factors (such as hypertension, diabetes, or high cholesterol) demonstrated significantly lower adherence. This finding highlights a psychological barrier often seen in preventive care: patients tend to underestimate risks when symptoms are absent. As a result, they may view medication as unnecessary or burdensome. This pattern reveals a key insight—adherence is not just a matter of information, but perception. Without intervention, these low-adherence individuals remain vulnerable to future cardiovascular events, despite the availability of preventive therapies.

Understanding the Psychological Drivers of Non-Adherence

Research in health psychology points to several behavioural factors that influence medication adherence:

- **Perceived severity:** Patients who do not feel sick may downplay the need for medication.
- **Health beliefs:** Misconceptions about medication side effects or dependency can deter consistent use.
- **Motivational barriers:** Lack of immediate benefits can reduce the motivation to continue therapy.
- **Forgetfulness or daily routine disruptions:** Unintentional non-adherence is common when habits are not reinforced.

These issues are especially prevalent in chronic, asymptomatic conditions like hypertension or early-stage diabetes, where patients do not "feel" ill.

Patient Counselling as a Psychological Intervention

Patient counselling is more than clinical instruction—it is a psychological engagement that addresses beliefs, fears, and behavioural patterns. When delivered effectively, it can:

- Build trust and rapport making patients more receptive to advice
- Clarify misconceptions through simple, empathetic communication
- Reframe the value of medication, thus helping patients understand long-term benefits
- Use motivational interviewing techniques to empower self-management
- Offer behavioural strategies (e.g., reminders, habit stacking) to reinforce consistency

Counselling sessions that acknowledge individual experiences and emotional states are far more effective than generic advice. Whether conducted by pharmacists, nurses, psychologists, or trained counsellors, this approach can transform passive recipients into active participants in their care.

Conclusion: Education is Prevention, Counselling is Cure

The example of adherence disparities in patients with and without CVD serves as a powerful reminder: the absence of symptoms does not mean the absence of risk. Low adherence among at-risk individuals highlights a preventable failure—one that psychology is well-equipped to address. Incorporating patient counselling as a core component of healthcare strategy is essential. It brings the human element back into medicine, recognizing that behavioural change, not just clinical direction, drives outcomes. As healthcare systems move toward holistic care models, the role of psychology—and patient education—will be more important than ever. Improving medication adherence is not just a clinical goal but a psychological mission. Through personalized, empathetic counselling, we can bridge the gap between medical advice and patient behaviour—ensuring that the treatment plans are not only prescribed, but followed.

- Lammila Escalera E et al. Br J Gen Pract. 2024.
- Mahesh DM et al. IJEM 2025.
- Int J Clin Pharm. 2025.

Dr. Rohith A.
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ALUMNI EXPERIENCE

I, Aiswarya S. Pillai outgoing Pharm D. batch of 2024 from KLE College of Pharmacy, Rajajinagar, Bengaluru, would like to reflect on my journey over these six years. Stepping into the college as a new person with limited knowledge and plenty of questions, I had no idea how much this place would shape me. Throughout the course, the supportive faculty, interactive learning environment, and diverse opportunities helped me build confidence and develop a stronger sense of purpose. This journey has had a significant impact on my character, personal growth, and communication skills. Hospital postings and community outreach initiatives gave me practical exposure and taught me the importance of empathy and professionalism. The seminars, workshops, and case discussions allowed me to connect classroom learning with real-world situations and enhanced my critical thinking abilities. KLE College of Pharmacy encouraged holistic development, balancing academics with cultural events, sports, and other co-curricular activities. These experiences created lifelong memories and valuable skills. I also appreciated the chance to collaborate with my peers on projects, which strengthened my teamwork and leadership qualities. The friendships and bonds I formed here are truly unforgettable. I feel grateful for the guidance, encouragement, and motivation I received throughout my journey, which has laid a strong foundation for my future.

Dr. Aiswarya S. Pillai
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Joining KLE College of Pharmacy was both exciting and intimidating. Like many students, I stepped in with dreams, but also with a lot of uncertainty about the future. Those early worries soon disappeared as I experienced the warmth, dedication, and expertise of our faculty. Their constant guidance not only helped me excel academically but also shaped my confidence as a healthcare professional. The college's well-equipped, advanced laboratories and strong academic resources provided me with every tool needed to learn without limitations. What I valued most was the opportunity to bridge the gap between theory and practice, applying classroom knowledge to real-life situations. KLE has always been a hub of activity and growth. Along with academic excellence, the institution offers its students opportunities to engage in cultural fests, sports events, and other extracurricular activities—making the campus lively and enriching for everyone. My clerkship and internship were among the most transformative parts of my journey. The exposure to hospital settings, along with the chance to work under outstanding mentors, doctors, and guides broadened my knowledge especially in pharmacology, which strengthened my skills in pharmacy practice.

Today, I am proud to be working as a Clinical Pharmacologist in a reputed hospital. Looking back, I feel immense gratitude towards my alma mater for providing me with the right platform to learn, grow, and succeed. My heartfelt thanks go to the faculty of the Pharmacy Practice Department and my hospital mentors for walking with me on this journey. For me, KLE College of Pharmacy will always be more than an institution—it is where I discovered my path, found my confidence, and built the foundation for my career.

Dr. Poovarasan A.
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DAPAGLIFLOZEN MAY DECREASE FATAL RISKS OF HEART FAILURE ASSOCIATED WITH HIGHER EJECTION FRACTION

Heart failure has been a major reason of demise and threat of around 26 million population around the globe. The causes of high fatality rate and short survival period of heart failure are complex, among which, the most important one is type 2 diabetes. Sodium–glucose cotransporter-2(SGLT-2) inhibitors are a class of hypoglycemic agents with novel cardiovascular benefits. SGLT-2 inhibitors block the sodium-glucose co-transporter in the proximal convoluted tubule of the kidney, thereby halting glucose reabsorption and reducing blood glucose by increasing the excretion of urinary glucose. Dapagliflozin, one of the SGLT-2 inhibitors classes showed significant cardiovascular benefits. Dapagliflozen is suggested to reduce the risk of worsening heart failure and cardiovascular death in patients with heart failure and a mildly reduced or preserved ejection fraction. Currently, this risk is considered to increase for patients who have higher ejection fraction at greater than 40%.

Patients with heart failure and preserved ejection fraction (HFpEF) have a high burden of symptoms and functional limitations, and have a poor quality of life. By targeting cardio metabolic abnormalities, sodium glucose co-transporter 2 (SGLT2) inhibitors may improve these impairments. Patients with HFpEF experience an especially high burden of debilitating symptoms and physical limitations. Improving health status (symptoms, functional status and quality of life) is therefore a key goal of HFpEF management, and is increasingly emphasized by practice guidelines and regulators. To date, the wide ranges of pharmacotherapies tested have had minimal impact on these key outcomes, highlighting a critical unmet need.

SGLT2 inhibitors target cardio-metabolic conditions through a variety of mechanisms, and have been shown to reduce the risk of cardiovascular (CV) death or worsening HF, and to improve health status in patients with HF with reduced ejection fraction (HFrEF), regardless of diabetes status. The magnitude of these benefits was clinically meaningful, statistically significant and consistent across all pre-specified subgroups, including patients with and without T2D and those with ejection fraction above and below 60%. Sodium-glucose co-transporter 2 inhibitors, once reserved for type 2 diabetes, have been found to treat chronic heart failure and a reduced ejection fraction at less than 40%. However, for moderate to higher ejection fraction, SLGTs are not proven to be an effective treatment. Sodium–glucose co-transporter 2 inhibitors, originally developed as glucose-lowering agents, have been shown to reduce heart failure hospitalizations in patients with type 2 diabetes without established heart failure, and in patients with heart failure with and without diabetes. Their role in patients with heart failure with preserved and mildly reduced ejection fraction remains unknown. Dapagliflozen is suggested to reduce the risk of worsening heart failure and cardiovascular death in patients with heart failure

- Wiviott SD et al. N Engl J Med 2019;380:347-357.
- Docherty KF et al. JACC Heart Fail 2022;10:104-18.
- Pfeffer, MA et al. Circ. Res. 124, 1598–1617 (2019).

Dr. Shubranil D.R.
Pharm D Intern

ANTI-AGING THERAPIES AND CARDIOMETABOLIC COMPLICATIONS: MECHANISMS AND EVIDENCE

In recent years, anti-aging therapies have become a booming field, attracting attention not only from the cosmetic industry but also from clinical and pharmaceutical sciences. These therapies aim to delay the biological aging process, improve vitality, and extend healthspan. However, as the popularity of these interventions grows, concerns regarding their cardiometabolic side effects have also emerged. While some anti-aging strategies may offer cardiovascular and metabolic benefits, others may disrupt hormonal balance, increase oxidative stress, or alter lipid and glucose metabolism. This article explores the mechanisms and evidence linking anti-aging agents with cardiometabolic complications.

1. Hormone-Based Therapies: A Double-Edged Sword

A. Hormone Replacement Therapy is used to manage menopausal symptoms and prevent osteoporosis, also gained traction as an anti-aging intervention. Estrogen has vasodilatory effects, improves lipid profiles, and supports endothelial function. However, large trials found that combined estrogen-progesterone therapy increase the risk of thromboembolism, stroke, and coronary heart disease. Estrogens influence hepatic synthesis of coagulation proteins, increase C-reactive protein and may promote plaque instability in atherosclerotic vessels.

B. Testosterone Therapy is used in aging men to improve libido, energy, and muscle mass. This therapy has been associated with increased hematocrit, hypertension, and adverse cardiovascular events, especially in individuals with pre-existing conditions. Androgens stimulate erythropoiesis, increase blood viscosity, including vasoconstriction and raise in LDL cholesterol levels.

2. Human Growth Hormone is used off-label for anti-aging due to its role in promoting lean body mass, skin tightening, and metabolic function. However, supraphysiological doses may increase insulin resistance, water retention, and cardiac hypertrophy. This therapy antagonizes insulin signaling, increases IGF-1 and influences cardiac remodeling, potentially leading to hypertrophy.

3. Metformin has shown promise not only for managing type 2 diabetes mellitus but also as a longevity-promoting agent. It improves insulin sensitivity, reduces hepatic glucose production, and decreases oxidative stress. Metformin activates AMP-activated protein kinase (AMPK), reducing inflammation and improving endothelial function, mechanisms beneficial for both aging and cardiometabolic health.

4. Nicotinamide adenine dinucleotide and its precursors: Nicotinamide adenine dinucleotide (NAD) is essential for mitochondrial function and DNA repair. With aging, NAD levels decline, contributing to metabolic dysfunction. Supplements like nicotinamide riboside (NR) and nicotinamide mononucleotide (NMN) aim to restore NAD levels. By restoring NAD, these agents support sirtuin activation and mitochondrial efficiency, which are the key factors in metabolic and cardiovascular health.

5. Antioxidants and Polyphenols: Agents such as resveratrol, vitamin E, and coenzyme Q10 have been studied for their anti-aging and cardioprotective roles. While they combat oxidative stress, clinical evidence for cardiovascular benefits is inconsistent. High doses of vitamin E have been associated with increased risk of hemorrhagic stroke. Resveratrol may interfere with platelet function and hormone-sensitive conditions.

6. Lifestyle Mimetic Therapies: Safer Alternatives

Certain anti-aging strategies mimic the effects of calorie restriction, a proven method to delay aging and improve cardiometabolic outcomes. These include

Sirtuin activators (e.g., resveratrol), AMPK activators (e.g., metformin, berberine), and exercise and fasting mimetics. These approaches tend to support cardiovascular health but should still be used cautiously.

Conclusion

Anti-aging therapies are no longer confined to beauty clinics; they are becoming mainstream in preventive and regenerative medicine. However, cardiometabolic complications remain a significant concern, particularly with hormonal and growth factor-based therapies. While agents like metformin and NAD+ precursors hold promise, long-term human studies are essential to confirm their safety and efficacy.

As healthcare professionals and future pharmacists, it is vital to assess the risk-benefit ratio of any anti-aging intervention. Personalized approaches, routine monitoring, and lifestyle-based strategies should be prioritized over aggressive pharmacological therapies. After all, healthy aging is not just about looking young—it's about preserving the heart, mind, and metabolism for the long haul.

- Harman SM et al. J Clin Endocrinol Metab. 2005
- Barzilai N, et al. Cell Metab. 2016.
- Laron Z. Growth Horm IGF Res. 2005.
- Martens CR, et al. Nat Commun. 2018.
- Rossouw JE, et al., JAMA. 2002.

Ms. Deeksha N.
V Pharm D.

DEPARTMENTS PROFESSIONAL ACTIVITY

Date	Topic	Type & Speaker Name
17/01/2025	Clinical Pharmacy Services at Tertiary Care Hospital	Guest talk Dr. Rahul Babu C.
07/02/2025	Regulatory Affairs	Guest talk Dr. Premnath Shenoy
08/02/2025	Synthesis of Peptides (Industry Prospects)	Guest talk Dr. Narashima Murthy Javali
21/02/2025	Advanced Molecular Techniques in Pharmaceutical research: An Overview	Dr. Suman Samaddar Guest talk
22/02/2025	Analytical Toolkit for Early Phase Drug Development	Guest talk Dr. Karthik Jayaram
28/02/2025-01/03/2025	Novel Pedagogical Initiatives in Teaching	UDEHP workshop Department of Pharmaceutics
13/03/2025	Hands on Training on HPLC	Workshop Dr. P.V Murali Krishna
20/03/2025	Training on NMR	Workshop by BSRC
29/03/2025	Design Thinking & Marketing Strategy	Workshop Ms. Priyanka Tiwari
19/04/2025	Analytical Method Validation	Guest talk Dr. J Ayyappan
22/04/2025	Current Approaches in Production and Pharmaceutical Analysis	National Workshop Department of Pharmaceutical Analysis
29/04/2025	Unlocking the Power of Plants-The art & Science of Botanical Standardization	Guest talk Mr. Samachariya Tupsakri
06/05/2025	Pharmaceutical Product Development	Guest talk Dr. Vijay Kulkarni
14/06/2025	Innovation Development Technology	Workshop Dr. Omprakash C

SCHOLAR'S DESK

The Role of Clinical Pharmacists in Managing Household Poisoning: A Product-Wise First Aid & Education Guide

Household poisoning is a common emergency, particularly in homes with young children. Clinical pharmacists play a vital role in both the prevention and management of poisoning incidents by providing first aid guidance, public education, antidote support, and coordination with poison control centers. This guide outlines common household items, their toxic components, first-aid measures, and how clinical pharmacists contribute to harm reduction through education and early intervention.

Common Household Poisons: Quick Reference Table

Product	Poisonous Ingredient(s)	First Aid / Remedy	Patient Education
Mosquito Repellents	Diethyltoluamide	Wash skin with soap and water if applied excessively. Seek medical care if ingested or if it contacts eyes.	Avoid overuse; keep away from the mouth and hands of children.
Mosquito Coils/Vaporizers	Pyrethroids	Move to fresh air; rinse eyes or skin if exposed. Do not induce vomiting if ingested.	Use in well-ventilated rooms. Keep out of children's reach.
Anti-Termite /Insecticides	Organophosphates, Chlorinated Hydrocarbons	Emergency visit required. Atropine administered in hospitals. Wash skin thoroughly.	Use gloves. Avoid indoor use when children are present.
Mothballs/ Camphor Balls	Camphor, Naphthalene	Ingestion may cause seizures. Emergency visit. Do not induce vomiting. Use milk/water only if advised.	Store securely. Teach children they are not toys.
Rodenticides	Anticoagulants, Phosphine pellets	Risk of internal bleeding. Vitamin K is the antidote. Phosphine ingestion requires immediate ER visit.	Never leave bait exposed. Educate children about pellet danger.
Anti-Lice Products	Permethrin, Lindane, Benzyl Benzoate	Rinse for skin irritation. Ingestion may cause seizures followed by emergency visit.	Use as directed. Avoid contact with eyes and mouth.
Lizard/Snake Killers	Corrosives	Rinse skin/eyes for 15 minutes if exposed. Do not induce vomiting; give water/milk if advised.	Even trace residue is harmful. Handle carefully.
Surma	Lead	Chronic use can cause lead poisoning. Stop usage and check blood lead levels.	Avoid unverified traditional products.
Nail Polish / Remover	Acetone, Toluene, Xylene	Fresh air for inhalation. Wash skin. Ingestion followed by emergency visit. CNS effects possible.	Apply in ventilated areas. Store safely.
Hair Color	Isopropyl Alcohol, Paraphenylenediamine	Rinse and apply cold compress for burns or allergies. Ingestion followed by emergency visit.	Do a patch test. Keep out of children's reach.
Perfumes	Alcohol	Rinse mouth and give fluids. Emergency visit if large quantity ingested.	Store securely as sweet smell may attract children.
Thermometer (Old Types)	Mercury	Do not touch spilled mercury. Ventilate area. Use gloves to clean.	Prefer digital thermometers. Avoid panic in case of breakage.
Shoe Polish	Turpentine, Hydrocarbons	Ingestion followed by emergency visit. Risk of aspiration. Fresh air for inhalation.	Keep tightly closed. Store away from food and toys.

Clinical Pharmacists Contribution:

A. Pharmacists counsel families on:
- Safe storage and usage of household chemicals.
- Avoidance of hazardous traditional remedies like lead-based Surma.
- Correct usage of OTC products such as repellents and lice treatments.

B. First Aid Advice & Early Intervention :
- Provide over-the-counter or triage guidance when toxicologists aren't immediately available.
- Instruct on what not to do—e.g., avoid inducing vomiting for certain poisons.
- Help assess the urgency for hospital visits.

C. Antidote & Toxicology Support:
- Stocking and administering antidotes (e.g., atropine for organophosphates, Vitamin K)
- Ensuring dosing accuracy—especially critical in pediatrics.
- Collaborating with toxicologists on treatment plan

D. Protocol & Policy Development in clinical settings, pharmacists:
- Develop SOPs for poisoning emergencies.
- Maintain poison management kits.
- Contribute to toxic exposure response guidelines.
- Monitor and document poison-related adverse drug reactions.

E. Poison Control Coordination:
- Pharmacists act as a bridge to Poison Control Centers
- Communicate cases and receive expert guidance.
- Maintain toxicology databases for accurate reporting.
- Train healthcare staff in emergency responses and poison handling.

Conclusion

Clinical pharmacists are crucial, yet often underutilized, in preventing and managing household poisonings. Their role spans from education to clinical decision-making, making them key players in safeguarding public health especially children. As poisoning risks in domestic settings continue to rise, pharmacists must remain proactive in emergency readiness, antidote management, and public awareness campaigns.

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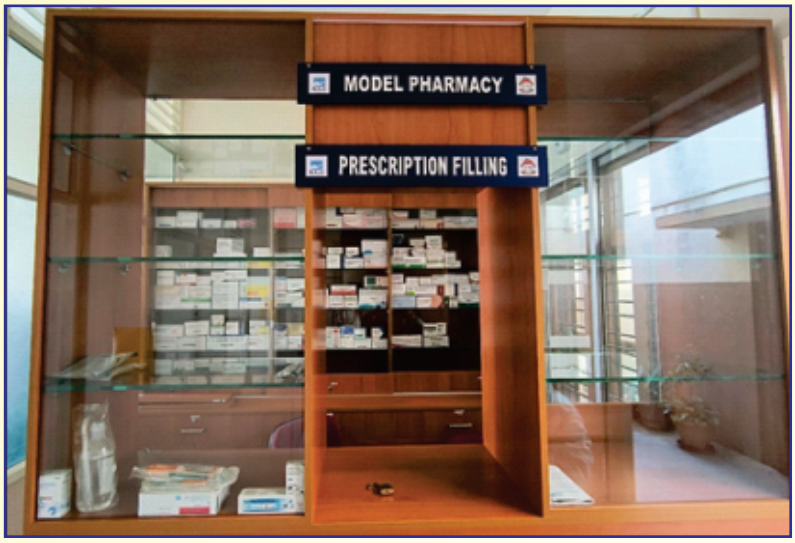

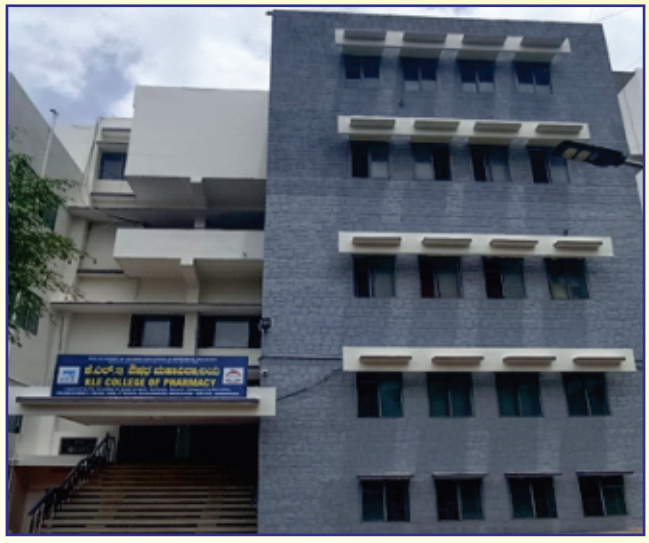

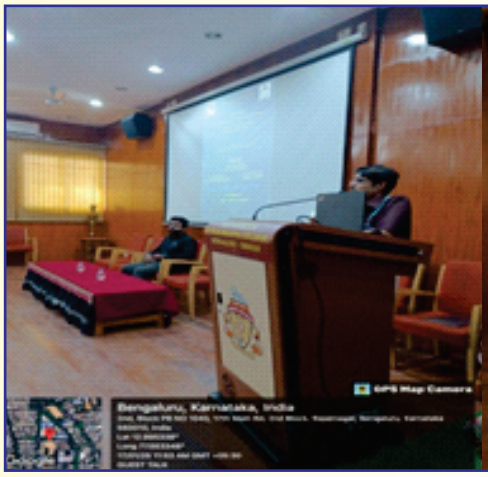

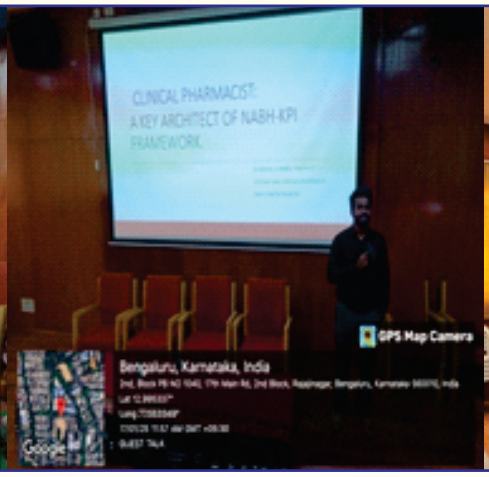

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