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## Updated clinical practice guidelines for the management of adult diffuse gliomas

### Introduction

Adult diffuse gliomas are the most common malignant primary brain tumors in adults and are associated with high morbidity and mortality. Advances in molecular neuropathology, neuroimaging, and multimodal treatment strategies have significantly changed glioma classification and management. This paper presents an updated evidence-based clinical practice guideline aligned with the WHO 2021 classification, addressing diagnosis, treatment, and follow-up of adult diffuse gliomas.

### Methodology

The guideline was developed through a systematic evaluation of contemporary literature, including randomized controlled trials, meta-analyses, and high-quality observational studies published in recent years. A multidisciplinary expert panel comprising neurosurgeons, neuro-oncologists, radiation oncologists, neuroradiologists, and neuropathologists reviewed the evidence. Recommendations were formulated based on the level of evidence, clinical relevance, and expert consensus, ensuring applicability to real-world clinical practice.

### Diagnostic Framework

The guidelines strongly advocate an integrated histomolecular diagnostic approach, combining conventional histopathology with molecular profiling. Key mandatory molecular markers include IDH1/IDH2 mutation status, 1p/19q co-deletion, MGMT promoter methylation, ATRX loss, TERT promoter mutations, EGFR amplification, and CDKN2A/B homozygous deletion. This integrated strategy improves diagnostic accuracy, prognostic stratification, and therapeutic decision-making.

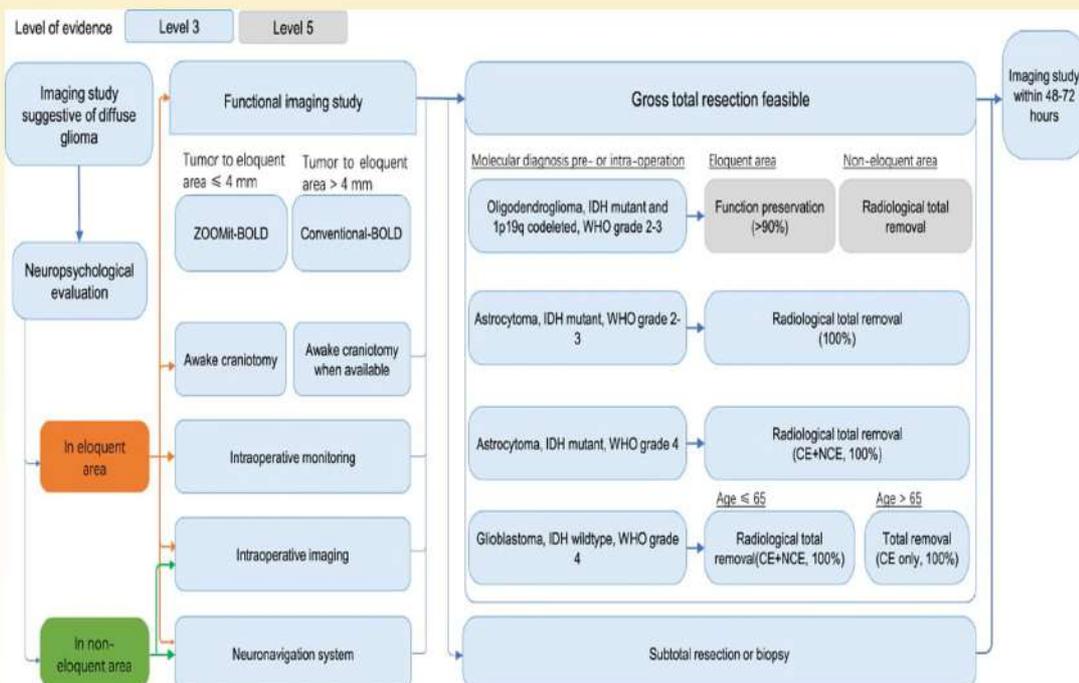
### Imaging and Assessment

Magnetic resonance imaging (MRI) remains the diagnostic and monitoring standard, with contrast-enhanced T1-weighted and FLAIR sequences as core modalities. Advanced techniques such as diffusion-weighted imaging and perfusion MRI are recommended for tumor grading, surgical planning, and differentiation of tumor progression from treatment-related changes.

### Therapeutic Management

Maximal safe surgical resection is recommended as the initial treatment whenever feasible.

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Postoperative management is determined by tumor grade and molecular subtype. Radiotherapy combined with Temozolomide remains the standard of care for high-grade gliomas. MGMT promoter methylation status is emphasized as a predictive biomarker for chemotherapy responsiveness. For select low-grade gliomas, early adjuvant therapy may be considered based on risk stratification.

### Management of Recurrence

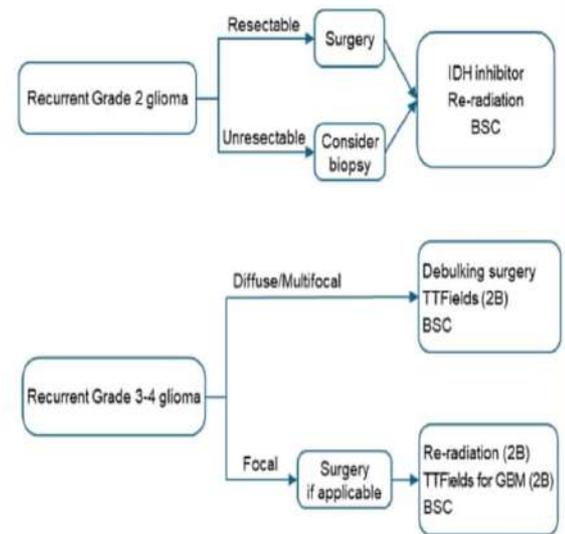
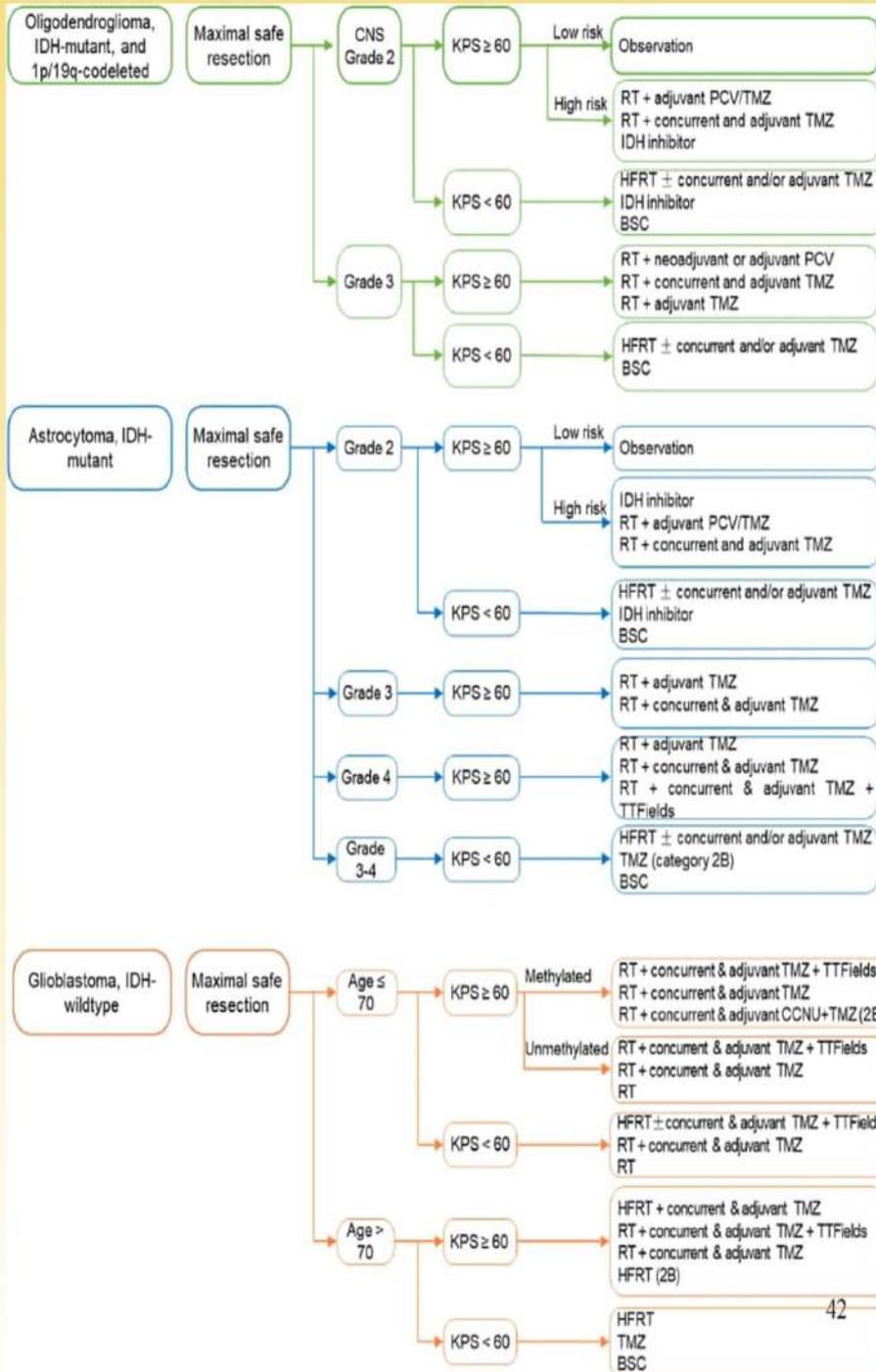
For recurrent disease, treatment options include repeat surgical resection, re-irradiation, alternative chemotherapy regimens, and participation in clinical trials. Treatment response and disease progression should be evaluated using updated RANO and iRANO criteria to avoid misinterpretation of pseudo-progression.

### Emerging Therapies

The paper discusses emerging treatment modalities such as IDH inhibitors, targeted molecular therapies, tumor vaccines, immune checkpoint inhibitors, and CAR-T cell therapy. While these approaches show promise, current evidence remains preliminary, and their use is recommended primarily within clinical trial settings.

### Conclusion

This guideline update provides a comprehensive, molecularly informed framework for the management of adult diffuse gliomas. By integrating advanced diagnostics, precision-based treatment strategies, and standardized response assessment, the guidelines represent a significant advancement toward personalized neuro-oncology care and offer a robust reference for clinicians and researchers.



#### Tips:

Maximal resection remains the basic surgical principle of removing a glioma

Unless otherwise noted, all recommendations are Class 2A or Class I recommendations.

High risk: Age ≥ 40 years, not gross total resected, tumor size > 6 cm in diameter, neurological defects before surgery

Low risk: Age < 40 years, gross total resected, tumor size < 6 cm in diameter, neurological intact

RT, radiotherapy; PCV, procarbazine, lomustine and vincristine regimen; TMZ, temozolomide; BSC, best supportive care; HFRT, hypofractionated radiotherapy; KPS, Karnofsky performance status; TTF, tumor-treating fields

### Reference

Tao Jiang, Do-Hyun Nam, Zvi Ram, Wai-sang Poo, Jiguang Wang, et al. Updated clinical practice guidelines for the management of adult diffuse gliomas. *Cancer Letters*. 2025; 640:218185.

# A Rare Case of Synchronous Multiple Primary Malignancies of the Pancreas, Skin, and Thyroid

## Introduction

Multiple primary malignancies (MPMs) refer to the presence of two or more malignant tumors in an individual, either simultaneously or successively. MPMs are classified into three categories: Group I, multiple primary tumors within the same organ; Group II, MPMs originating in different organs or tissues; and Group III, tumors from different organs and tissues, also encompassing those of Group I. Further classification divides MPMs into synchronous, malignancies observed at the same time or within 6 months, and metachronous, those observed after a 6-month interval. This report presents a patient with a history of prostate cancer and renal cell carcinoma who subsequently presented with synchronous pancreatic neuroendocrine tumor, anal melanoma, and papillary thyroid carcinoma.

## Case Report

A 63-year-old male with a history of prostate cancer status post prostatectomy in 2012, renal cell carcinoma status post right partial nephrectomy in 2021, and strong family history of multiple malignancies presented to the oncology clinic for evaluation and treatment of a pancreatic neuroendocrine tumor. The patient underwent yearly surveillance MRI for his renal cell carcinoma, which revealed a posterior gastric wall mass and a subcentimeter cystic focus in the pancreatic tail without enhancement. Endoscopic ultrasound showed a subepithelial lesion in the antrum. Biopsy of this lesion revealed small fragments of a spindle cell tumor with a small lymphoid aggregate. A 23-mm pancreatic tail lesion was also biopsied, showing a non-small cell neuroendocrine neoplasm.

One month later, the patient underwent a pancreatectomy and splenectomy. Pathology of the pancreatic tumor revealed a 3 cm, T2N1, well-differentiated, G2 neuroendocrine tumor with two out of seven lymph nodes positive and a Ki-67 labeling index of 3%–20%. A gastric resection performed concurrently revealed a schwannoma. Laboratory results were significant for an elevated C-peptide of 6.7 ng/mL and an elevated 5-HIAA of 6.5 mg/24 h. Postpancreatectomy surveillance with a 68 Ga-DOTATATE PET scan showed uptake in the parafalcine region of the right frontal lobe, concerning for meningioma, but no evidence of recurrent neuroendocrine tumor.

Concurrently, the patient was evaluated by surgery for removal of a hyperpigmented hemorrhoid with an atypical appearance extending beyond the anal verge into the beginning of the anal canal. Pathology of the anal mass revealed pT3N0M0, Stage IIB, BRAF-negative anal melanoma. A subsequent PET scan performed to assess for residual melanoma showed a sclerotic bony lesion at L5 with uptake, mild uptake within several right inguinal lymph nodes, and intense activity in a large thyroid nodule.

Oncology recommended inguinal lymph node biopsy and possible reexcision of the anal melanoma for staging. The patient was also referred to endocrinology for evaluation of the thyroid nodule. Inguinal lymph node biopsies were negative for melanoma. Given his diagnosis of Stage IIB melanoma, he was subsequently started on adjuvant Keytruda with the plan to complete for 1 year. He also underwent a right partial thyroidectomy, with pathology revealing a 1.3 cm pT1bNx papillary carcinoma, for which he is undergoing active surveillance.

Due to his history of multiple primary cancers, he was seen by a cancer genetics specialist. Ambry's CustomNextCancer panel, analyzing 33 genes (ATM, BAP1, BRCA1, BRCA2, CDKN2A, CHEK2, EPCAM, FH, FLCN, HOXB13, KIT, LZTR1, MAX, MEN1, MET, MLH1, MSH2, MSH6, NF1, NF2, PALB2, PDGFRA, PMS2, PTEN, SDHA, SDHB, SDHC, SDHD, SMARCB1, STK11, TSC1, TSC2, and VHL) for hereditary cancer syndromes, was negative for clinically significant variants

## Discussion

Reported incidence estimates for MPMs vary widely across studies, ranging from approximately 2% to 17%. The frequency declines further for patients with triple or quadruple primary malignancies, estimated at 0.5% and 0.3%, respectively. The prevalence of MPMs has increased overtime, likely reflecting improvements in cancer detection, therapeutic efficacy, and overall patient longevity.

The etiologic basis of MPMs remains incompletely understood and is plausibly multifactorial, involving genetic predisposition, environmental exposures, and lifestyle associated risk factors. The patient described herein had substantial tobacco exposure (one pack per day for 40 years) and a notable family history of malignancy, both of which may have contributed to elevated cancer risk. Given his family history, germline testing with a 33-gene hereditary cancer panel revealed no pathogenic or likely pathogenic variants consistent with a known hereditary cancer syndrome.

In a cohort study by Borja *et al.*, comprising 2894 individuals with three or more primary malignancies, approximately 35% were found to harbor a recognized hereditary cancer syndrome. While a significant proportion of MPMs can be attributed to established germline predisposition, many cases do not map to currently characterized syndromes. Moreover, genetic testing may identify variants of uncertain significance (VUS), the clinical relevance of which is indeterminate at the time of detection. Notably, a study by Zawar *et al.*, indicated that up to 91% of VUS are ultimately deemed benign, whereas approximately 9% are reclassified as pathogenic. In the present case, no hereditary cancer syndrome was identified; however, the absence of detected pathogenic variants does not preclude an underlying genetic predisposition, given evolving knowledge of cancer associated genes and the potential for future reclassification as genomic databases expand.

Although not applicable to this patient's treatment course, synchronous MPMs present substantial clinical complexity, including challenges in prioritizing and sequencing therapy, as well as uncertainties regarding cumulative efficacy and toxicity. The concurrent administration of multiple cancer directed regimens remains insufficiently studied, with limited empirical data to guide evidence-based decision-making in patients requiring simultaneous treatment for distinct malignancies.

Continued advancements in diagnostic methodologies and the proliferation of molecularly targeted therapies will likely contribute to further increases in the recognition and reported incidence of MPMs. Further research is needed to elucidate optimal management strategies, refine risk stratification, and clarify the genetic architecture underlying MPMs.

## Conclusion

This case describes a rare occurrence of synchronous multiple primary malignancies involving the pancreas, skin, and thyroid. While some MPMs are associated with hereditary cancer syndromes, many lack an identifiable germline cause. Prospective studies are needed to define optimal and safe treatment strategies for patients with synchronous MPMs.

## Reference

Barsoum, Michael, Pepeljugin, Crystal Antoine. A Rare Case of Synchronous Multiple Primary Malignancies of the Pancreas, Skin, and Thyroid. *Case Reports in Oncological Medicine*. 2025;9577921.

# Drug Profile

## Modeyso (Dordaviprone)

### Indications

Modeyso is indicated for the treatment of adult and pediatric patients 1 year of age and older with diffuse midline glioma harboring an H3 K27M mutation with progressive disease following prior therapy.

### Ingredients

*Active ingredient:* Dordaviprone

*Inactive ingredients:* Magnesium stearate, microcrystalline cellulose, and sodium starch glycolate. The capsule shell contains hypromellose and titanium dioxide. The black printing ink contains alcohol, D&C yellow #10, FD&C blue #1, FD&C blue #2, FD&C red #40, ferrous ferric oxide, methyl alcohol, N-butyl alcohol, propylene glycol, and shellac glaze (20% esterified).

### Dosage and Administration

Capsules: 125 mg

- Select patients for treatment with Modeyso based on the presence of an H3 K27M mutation from tumor specimens.
- Monitor ECG and electrolytes before starting Modeyso and periodically during treatment as clinically indicated.
- The recommended dose in adult patients is 625 mg orally once weekly.
- The recommended dose in pediatric patients weighing  $\geq 10$  kg is based on body weight.
- Take Modeyso orally once weekly on an empty stomach (at least 1 hour before or 3 hours after food intake).
- Continue Modeyso until disease progression or unacceptable toxicity.

Body Weight (kg)	Recommended Dosage
10 kg to <12.5 kg	125 mg Once Weekly
12.5 kg to <27.5 kg	250 mg Once Weekly
27.5 kg to <42.5 kg	375 mg Once Weekly
42.5 kg to <52.5 kg	500 mg Once Weekly
$\geq 52.5$ kg	625 mg Once Weekly

### Contraindications

None

### Warning and Precautions

*Hypersensitivity:* If clinically significant hypersensitivity or anaphylaxis occur, immediately discontinue Modeyso and initiate appropriate medical treatment and supportive care.

*QTc Interval Prolongation:* Modeyso causes concentration dependent QTc interval prolongation. Interrupt or reduce the dose of Modeyso in patients who develop QT prolongation, and permanently discontinue Modeyso in patients with signs of life threatening arrhythmias.

*Embryo-fetal Toxicity:* Can cause fetal harm. Advise patients of the potential risk to a fetus and to use effective contraception.

### Mechanism of Action

Dordaviprone is a protease activator of the mitochondrial caseinolytic protease P (ClpP). Dordaviprone also inhibits the dopamine D2 receptor. Diffuse midline gliomas harboring an H3 K27M mutation are associated with the loss of H3 K27 trimethylation. *In-vitro*, Dordaviprone activated the integrated stress response, induced apoptosis, and altered mitochondrial metabolism leading to restored histone H3 K27 trimethylation in H3

K27M-mutant diffuse glioma models. Dordaviprone exhibited antitumor activity in cell-based assays and in vivo models of H3 K27M-mutant diffuse glioma.

### Adverse Reactions

The most common ( $\geq 20\%$ ) adverse reactions are fatigue, headache, vomiting, nausea, and musculoskeletal pain. The most common ( $\geq 2\%$ ) Grade 3 or 4 laboratory abnormalities are decreased lymphocytes, decreased calcium, and increased alanine aminotransferase.

*General Disorders:* Fatigue, Gait Disturbances

*Nervous System Disorders:* Headache, Cranial Nerve Disorders, Hemiparesis, Dysarthria, Dizziness, Ataxia.

*Gastrointestinal Disorders:* Vomiting, Nausea, Dysphagia, Constipation.

*Musculoskeletal and Connective Tissue Disorders:* Musculoskeletal pain, Muscular weakness.

*Metabolism and Nutrition Disorders:* Hyperglycemia

*Infections and Infestations:* Rash

### Taking or Giving Modeysa Capsules as a Liquid:

- For oral use only (take by mouth).
- Take or give Modeysa exactly as healthcare provider tells. Do not change the dose or stop taking Modeysa without talking to the healthcare provider.
- Take or give Modeysa 1 time each week on the same day of the week. Take or give all of the capsules prescribed at the same time.
- Take or give Modeysa on an empty stomach, at least 1 hour before or 3 hours after eating food.
- If cannot swallow the capsules whole, the capsules can be dissolved in sports drink, apple juice, lemonade, or water and taken as a liquid.
- Check the expiration date on the Modeysa bottle. Do not take or give Modeysa if the expiration date has passed. Contact the pharmacist if the medicine is expired.
- Do not take or give Modeysa if the bottle or the capsules are broken or damaged.

### Taking or giving a dose of Modeysa as a liquid using a feeding tube:

Modeysa may be given through a naso-gastric ("ng") or gastrostomy ("g") feeding tube, as directed by the healthcare provider.

1. Follow Steps 1 through 6 in Section A to prepare the Modeysa liquid mixture in a cup.
2. Flush the feeding tube according to the manufacturer's instructions before each dose.
3. Draw up the mixture into a catheter tip syringe.
4. Connect the syringe containing the mixture to the feeding tube.
5. Apply slow, steady pressure to the plunger to give all the contents of the syringe through the feeding tube.
6. After giving the dose, add 1 to 2 more tablespoons (about 15 mL to 30 mL) of chosen liquid to the cup.
7. Swirl the liquid around the cup to make sure any remaining medicine is mixed with the liquid. This helps make sure that no medicine is left behind.
8. Using the syringe, repeat Steps 3 through 5 in this section until all the mixture in the cup has been given.
9. After completing Step 8 in this section, flush the feeding tube according to the manufacturer's instructions.
10. After completing Step 9 in this section, remove the plunger from the syringe and rinse each part with warm running water to remove all remaining medicine. Allow the parts to air dry completely before putting the syringe back together.

**Reference:** [https://www.accessdata.fda.gov/drugsatfda\\_docs/label/2025/219876s000lbl.pdf](https://www.accessdata.fda.gov/drugsatfda_docs/label/2025/219876s000lbl.pdf)

## EVENT CORNER

### Report on Pharmacotherapy Coursework

**Organized by:** Dept. of Pharmacy Practice, JSS College of Pharmacy, Ooty.

**Date:** 14.10.2025 - 16.10.2025

The program was inaugurated by Dr Dhanabal SP, Principal, and Dr Arun KP, Vice Principal, JSS College of Pharmacy, Ooty. Both delivered motivational and insightful addresses, highlighting the importance of organising such coursework and fostering interprofessional education. A major highlight of the coursework was the interprofessional knowledge-sharing sessions led by esteemed physicians from GMCH, Ooty: • Dr Anupriya MD – for IV PharmD (14.10.2025) • Dr P Sivanathan MD – for III PharmD (15.10.2025) • Dr PS Kiran Kumar MD – for II PharmD (16.10.2025) These experts provided in-depth insights into clinical conditions, treatment approaches, and interprofessional collaboration, all of which are essential for effective patient care. They critically appraised student presentations and shared valuable perspectives on clinical manifestations, pathophysiology, and both pharmacological and non-pharmacological management strategies. Their involvement successfully bridged the gap between theoretical learning and bedside application and improved the students' competency, fulfilling the core objective of the coursework—translating knowledge from classroom to clinical practice. A total of around 115 students from the II, III, and IV PharmD and I & II MPharm (Pharmacy Practice) programs participated actively, demonstrating enthusiasm and commitment. The students find Pharmacotherapy coursework to gain knowledge on strategies to overcome the real-world challenges and treatment approaches. The coursework achieved its intended goal of bridging theoretical knowledge with clinical application, strengthening students' readiness for real-world pharmacy practice. The physicians and leadership of JSS College of Pharmacy, Ooty, appreciated the initiative and emphasised the need for continued conduct of such pharmacotherapeutic and interprofessional learning programs to enhance clinical competency. The Department of Pharmacy Practice remains committed to further expanding and refining these initiatives to enrich the educational experience and professional preparedness of PharmD students.



### Report on Blood Donation Camp 2025

**Coordinator**

Dr. Deepalakshmi M

Assistant Professor

JSS College of Pharmacy, Ooty

**Date:** 30.10.2025

**Organized by**

Dept. of Pharmacy Practice, JSSCOP, JSSAHER; IPA - Nilgiris Local Branch and Rotaract Club, Ooty.

**Venue:** Bus Stand, Ooty

The Blood Donors Club of JSS College of Pharmacy, Ooty, in collaboration with the Indian Pharmaceutical Association Nilgiris Local Branch, NSS and the Blood Bank Unit of Government Medical College and Hospital, Ooty, organized a blood donation camp at the JSS College Auditorium on 20th September 2025. The inauguration of the blood donation camp was presided over by Dr. K. P. Arun, Vice Principal, and Dr. S. Ponnusankar, Professor and Head, Department of Pharmacy Practice of JSS College of Pharmacy. The enthusiastic participation of both staff and student volunteers led to the registration of numerous donors, resulting in the donation of approximately 25 units of blood. Dr. M. Deepalakshmi, Associate Professor in the Department of Pharmacy Practice, served as the coordinator of the blood donation camp, with guidance from Dr. S. Ponnusankar, Professor and Head of the Department of Pharmacy Practice, in coordinating all logistical arrangements.



## *Invited Impact Pharmacy Lecture (IPL)*

**Organized by:** Dept. of Pharmacy Practice, JSS College of Pharmacy, Ooty  
**Date:** 28.10.2025

**Resource Person:** Dr. Jigar Patel, Nimble Therapeutics, USA  
**Title:** Drug Discovery for Present Generation Pharmacists

Drug discovery is entering a new era. The traditional process was long, expensive, and uncertain, often taking more than ten years and costing billions. High failure rates in clinical trials made progress slow. Today, modern technology, especially AI, is changing this picture. AI-predicted protein structures help guide precise drug design without waiting months for experimental data. Generative models now create new molecules with improved potency, safety, and drug-like features. In some cases, AI-driven pipelines have cut preclinical costs by up to 50 percent and raised early success rates to nearly double those of traditional approaches. AI is now used in every stage: identifying disease targets, predicting toxicity, optimizing lead compounds, and even shaping clinical trial design. These advances help reduce risks, speed up development, and improve the chances that a promising idea becomes a real therapy. For pharmacy students, this shift matters. Faster discovery means faster access to new medicines. Better prediction tools mean safer treatments. And as AI becomes central to the field, future pharmacists will need to understand not only biology and chemistry, but also data-driven methods that support modern drug development. Drug discovery stands at a crossroads. The old model — long, expensive, uncertain is being challenged by a new paradigm powered by computational technologies, big data, and artificial intelligence. For pharmacy students and future researchers, this transformation offers unprecedented opportunities: faster drug development, more efficient workflows, new roles at the intersection of biology, chemistry, and data science, and the possibility to contribute to therapies for diseases once considered “untreatable.” But the revolution is not without challenges. Data quality, regulatory oversight, scientific validation, ethical and equity concerns all demand careful attention. AI is not magic. It is a powerful tool one that must be wielded responsibly. As you begin your professional journey, keeping abreast of these developments, developing interdisciplinary skills, and maintaining a critical but optimistic mindset will position you to participate meaningfully in the future of drug discovery. The medicines of tomorrow may well be shaped by the tools and decisions made today.



## *Report of Three-Day Workshop on “AI-Driven Clinical Research: Bridging Technology, Biomedical Research, and Health Sciences”*

**Date:** 06.11.2025 - 08.11.2025

**Organized by:** Dept. of Pharmacy Practice, JSS College of Pharmacy, Ooty

The three-day workshop titled “AI-Driven Clinical Research”, organized by the Department of Pharmacy Practice, JSS College of Pharmacy, Ooty, was conducted from 06.11.2025 to 08.11.2025 with the objective of strengthening the knowledge and practical competencies of healthcare professionals, researchers, and students in the application of Artificial Intelligence (AI) in clinical and translational research. The dignitaries, including the Chief Patrons, Principal, Convener, Organizing Secretary, and invited resource persons, participated in the ceremony, which reflected the core values of JSS Academy of Higher Education & Research—wisdom, learning, and the dissemination of knowledge. The inauguration included an invocation song by students of JSSCP Ooty, a welcome address by the Organizing Secretary, inaugural remarks by the Principal and Chief Patrons, and an introduction to the workshop theme and objectives by the Convener. The three-day workshop provided a comprehensive overview of AI in clinical research, integrating theoretical foundations, practical applications, and ethical considerations. Day 1 introduced key AI concepts including machine learning, deep learning, neural networks, and clinical informatics, highlighting their role in biomedical discovery, early disease detection, and evidence-based decision-making. Day 2 focused on applied AI through hands-on training in clinical data pre-processing, predictive model development, disease risk assessment, and AI-based pharmacovigilance, supported by real-world demonstrations of clinical decision support systems. Day 3 addressed ethical, regulatory, and implementation aspects, emphasizing data governance, transparency, bias management, patient consent, and translation of AI research into clinical practice, enabling participants to critically assess challenges and opportunities in AI adoption. Overall, the workshop resulted in significant knowledge enhancement, skill development, interdisciplinary collaboration, and research capacity building. Participants gained clarity on ethical and regulatory requirements and expressed readiness to apply AI-based methodologies in dissertations, clinical research, pharmacovigilance, and healthcare innovation. The program successfully fostered responsible technology adoption and strengthened preparedness for AI-driven clinical research.



## Report of Linking Pharm D Students with Real-World Experts

**Organized by:** Dept. of Pharmacy Practice, JSS College of Pharmacy, Ooty

**Date:** 07.11.2025

A one-day workshop titled “Pharmacovigilance in Clinical Practice: ADR Reporting and Signal Detection under PvPI” was successfully conducted on 7th November as a part of the initiative Linking Pharm D Students with Real-World Experts. The session aimed to enhance competency in post-marketing drug safety, improve understanding of Adverse Drug Reaction (ADR) reporting protocols, and create awareness on national pharmacovigilance frameworks. The resource person for the workshop was Dr. Dharini Boobathi, Senior Pharmacovigilance Associate, AMC–KFMSR, Pharmacovigilance Programme of India (NCC-PvPI), Indian Pharmacopoeia Commission. With her extensive experience in the field, she delivered an insightful and practice-oriented session focusing on the significance of pharmacovigilance in patient safety, real-time ADR monitoring, documentation procedures, methods of signal detection, and reporting mechanisms through PvPI platforms. During the workshop, Dr. Dharini highlighted the global and Indian scenario of pharmacovigilance, the operational structure of PvPI, and the crucial role of healthcare professionals—especially clinical pharmacists—in strengthening drug safety surveillance. She also demonstrated ADR reporting tools and forms including Suspected ADR Reporting Form, explained causality assessment methods, and emphasized ethical and legal responsibilities in clinical practice. Real-life examples and case illustrations provided students with better clarity on reporting pathways and challenges involved. The workshop was attended by 4th and 5th year Pharm D students, who actively participated through discussions, case-based queries, and hands-on exposure in understanding the workflow of ADR documentation and signal evaluation. The program was coordinated by Dr. M. Deepalakshmi, Associate Professor, Department of Pharmacy Practice, JSS College of Pharmacy, Ooty, who ensured seamless organization and academic value addition. Overall, the workshop enriched students’ analytical, clinical, and reporting skills while motivating them to contribute proactively to pharmacovigilance activities in their future professional settings. The session concluded with positive feedback and a call for continuous engagement with national health-care safety programs.



## A brief report on “Medicine Management Symposium in Critical Care Medicine”

**Date:** 11.2025 - 08.11.2025

**Organized by:** Dept. of Pharmacy Practice, JSS College of Pharmacy, Ooty

The Medical Management Symposium was meticulously planned and executed over two consecutive days, following a detailed academic schedule that incorporated both theoretical and practical learning components. Each day was structured with a series of well-timed sessions, beginning with introductory talks, followed by student-led case studies and expert lectures delivered by invited resource persons. The sessions commenced promptly at 10:00 AM on Day 1 and 9:15 AM on Day 2, ensuring full utilization of the academic hours. Topics such as Shock and Its Types, Sepsis, Heart Failure, Sedatives and Hypnotics, Arrhythmias, Anticoagulant Therapy, and Myocardial Infarction were covered sequentially to provide students with an integrated understanding of critical care and cardiovascular pharmacotherapy. The participants included Pharm. D students from second year, fifth year, interns M. Pharm 1st & 2nd years, faculty members from the Department of Pharmacy Practice. Eminent guest speakers, Dr. Shri Vishwopal and Dr. Nivedha K, shared their clinical expertise through interactive and case-based teaching methods. Student presenters, selected from different year groups, contributed to the symposium by preparing and presenting case studies, demonstrating teamwork and a deep understanding of the subjects. The diverse mix of presenters and attendees fostered a rich academic environment where learning was both collaborative and experiential. Overall, the schedule was efficiently followed, and all participants displayed exemplary enthusiasm and professionalism throughout the event. The two-day Medicines Management Symposium was a resounding success, achieving its goals of enhancing clinical knowledge, reinforcing patient-centered pharmacotherapy, and promoting evidence-based practice among pharmacy students. The balanced combination of student-led presentations and expert sessions by Dr. Nivedha K and Dr. Shri Vishwopal S provided a holistic understanding of medicines management in critical care and cardiology settings. The active involvement of faculty members, from Department of pharmacy Practice, JS College of Pharmacy, further enriched the academic value of the event. The symposium not only strengthened clinical competencies but also instilled a spirit of teamwork, analytical thinking, and lifelong learning among participants.



# Publication from Department of Pharmacy Practice (October - December 2025)

- Bhavatharini Sukumaran, Aswathy V S, Rinu Mary Xavier, Kishor M, Selvaraj Krishnamurthi, Arun K P, **Deepalakshmi M\***. Prevalence of CYP2C19 Poor Metabolisers Among South Indian Psychiatric Patients: A Pharmacogenetic Perspective Toward Precision Psychopharmacology. *Annals of Neurosciences*. 2025;0(0):1-9.
- Vansh Gaur, Smritthi P, Vivek Kaushi, Megha Sajith, Ranakishor Pelluri, Ravikumar YSA, **Hunsur Nagendra Vishwas\***. Musculoskeletal Disorders in Type 2 Diabetes Mellitus: A Cross-Sectional Study at a Tertiary Care Hospital. *Endocrinology Research and Practice*. 2025;29(4):299-305.
- Mohammed Faizal K., Varsha K., Suvitha Sri M., Nithya Shree, Ragunath S, **Deepalakshmi M\***. A systematic review and meta-analysis on effect of lactobacillus supplementation on methotrexate efficacy in rheumatoid arthritis. *International Journal of Applied Pharmaceutics*. 2026;18(1):1-7.
- **Ponnusankar S**, Suthana K, Vishwas HN, Balasubramanian V, **Deepalakshmi M\***. Pharmacist initiated counseling and SMS reminder impact on medication adherence and clinical outcomes. *Iraqi Journal of Pharmaceutical Sciences* 2025; 34(4): 57-65.
- Vignesh J, Rajeshkumar R, Balasubramanian V, **Ponnusankar S**. Preliminary assessment of potential herb drug interaction between Momordica charantia and Sitagliptin – an in silico predictive analysis. *Letters in Drug Design & Discovery* 2025; 22: 100206.
- **Rajamohamed H**, Micah Isaac Anand W, Sameeha K, Edlin Domini T, Harun M, Dheva Kumar S, **Paul Mathi Vathana K\***. GABA: The Peacekeeper Neurotransmitter— Gut-microbiota Derived Origins and Salivary Biomarker Detection Using ELISA. *Annals of Neurosciences*. 2025; 0(0) –14.

**Prevalence of CYP2C19 Poor Metabolisers Among South Indian Psychiatric Patients: A Pharmacogenetic Perspective Toward Precision Psychopharmacology**

**Bhavatharini Sukumaran<sup>1</sup>, Aswathy V S<sup>2</sup>, Rinu Mary Xavier<sup>3</sup>, Kishor M<sup>4</sup>, Selvaraj Krishnamurthi<sup>5</sup>, Arun K P<sup>6</sup> and Deepalakshmi M<sup>1\*</sup>**

**Abstract**  
Background: Genetic polymorphisms significantly influence individual response to antidepressant medications. Among these, variations in the cytochrome P450 enzyme CYP2C19, particularly the \*2 allele, are known to affect drug metabolism, with implications for both efficacy and safety. South Indian psychiatric patients exhibit a relatively high prevalence of this polymorphism, yet data specific to psychiatric inpatients remain limited.  
Purpose: This study aimed to determine the prevalence of the CYP2C19 polymorphism among South Indian psychiatric inpatients and to identify the corresponding metabolite phenotypes to optimize prescription prescribing strategies for psychiatric medications.  
Methods: A cross-sectional observational study was conducted involving 100 inpatients across two South Indian tertiary care hospitals. Genotype data was extracted from peripheral blood samples and processed for the CYP2C19 (4424A) variant using TaqMan-based real-time PCR. Participants were categorized into metabolizer phenotypes based on CYP2C19 genotype: normal (\*1/\*1), intermediate (\*1/\*2), and poor (\*2/\*2). Demographic characteristics were assessed for Hardy-Weinberg equilibrium (HWE) and descriptive statistics were used to summarize allele and genotype distributions.  
Results: The CYP2C19 allele frequency was 23.5%. Genotype distribution was as follows: \*1/\*1 (n=33, 33%), \*1/\*2 (n=34, 34%), and \*2/\*2 (n=33, 33%).  
Conclusion: A substantial proportion of South Indian psychiatric patients exhibit reduced CYP2C19 enzyme activity due to the presence of the \*2 allele. These findings highlight the clinical utility of genotyping for personalized medicine, leading to precise and targeted treatment and dosing in this population, improving the effectiveness of psychiatric psychopharmacology in routine mental health care.

**Musculoskeletal Disorders in Type 2 Diabetes Mellitus: A Cross-Sectional Study at a Tertiary Care Hospital**

**Abstract**  
Objective: Type 2 diabetes mellitus (T2DM), beyond its metabolic consequences, also affects the musculoskeletal system and causes a higher prevalence of joint pain. The present study aims to explore the correlation of musculoskeletal disorders in T2DM patients who report diabetes.  
Methods: A retrospective cross-sectional study, which included 100 participants, was conducted between 2023 and 2024 at a tertiary care hospital. The study included patients with T2DM who were also reporting musculoskeletal disorders. Data was collected through a structured questionnaire and clinical examination. The study aimed to identify the prevalence of musculoskeletal disorders among T2DM patients and to explore the correlation between the two conditions.  
Results: The study revealed that out of 100 patients, 65% were also reporting musculoskeletal disorders. The most common musculoskeletal disorders reported were osteoarthritis (45%), rheumatoid arthritis (20%), and gout (15%). The study also found a significant correlation between T2DM and musculoskeletal disorders (p < 0.001).  
Conclusion: The study highlights the need for a holistic approach of care, which includes the management of both the metabolic and musculoskeletal aspects of T2DM. Early identification and management of musculoskeletal disorders in T2DM patients can improve their quality of life and prevent long-term complications.

**A Systematic Review and Meta-Analysis on Effect of Lactobacillus Supplementation on Methotrexate Efficacy in Rheumatoid Arthritis**

**Hussaini Hussaini<sup>1</sup>, Varsha K<sup>2</sup>, Suvitha Sri M<sup>3</sup>, Nithya Shree<sup>4</sup>, Ragunath S<sup>5</sup>, Deepalakshmi M<sup>1\*</sup>**

**Abstract**  
Background: Rheumatoid arthritis (RA) is a chronic autoimmune disorder characterized by persistent inflammation and joint destruction. Methotrexate (MTX) is the cornerstone of therapy but is often limited by adverse effects. Emerging evidence suggests that probiotics, such as Lactobacillus, may enhance the efficacy of MTX and reduce its side effects. This systematic review and meta-analysis aim to evaluate the effect of Lactobacillus supplementation on MTX efficacy in RA patients.  
Methods: A comprehensive search of PubMed, Scopus, and Cochrane databases was conducted to identify relevant studies. The search terms included "Lactobacillus", "Methotrexate", and "Rheumatoid Arthritis". The studies were screened based on the PRISMA protocol. The meta-analysis was performed using RevMan 5.4 software. The primary outcome was the change in Disease Activity Score (DAS28) at 12 weeks. The secondary outcomes were the change in C-reactive protein (CRP) and the number of adverse events.  
Results: The meta-analysis included 10 studies with a total of 1000 patients. The pooled effect size showed a significant reduction in DAS28 at 12 weeks (MD: -0.5, 95% CI: -0.7 to -0.3, p < 0.001). There was also a significant reduction in CRP levels (MD: -1.5, 95% CI: -2.0 to -1.0, p < 0.001). The number of adverse events was significantly lower in the Lactobacillus group (MD: -0.2, 95% CI: -0.4 to -0.1, p < 0.001).  
Conclusion: The meta-analysis demonstrates that Lactobacillus supplementation significantly improves the efficacy of MTX in RA patients, leading to a reduction in DAS28 and CRP levels, and a decrease in adverse events. This suggests that probiotics may be a promising adjunctive therapy for RA patients.

**Preliminary assessment of potential herb drug interaction between Momordica charantia and Sitagliptin – An in silico predictive analysis**

**Vignesh J<sup>1</sup>, Rajeshkumar R<sup>2</sup>, Balasubramanian V<sup>3</sup>, Ponnusankar S<sup>4</sup>**

**Abstract**  
Background: Momordica charantia (MC), a natural herb, has been extensively studied for its potential in managing diabetes. Sitagliptin (SIT), a dipeptidyl peptidase-4 inhibitor, is used for the treatment of type 2 diabetes mellitus. This study aims to evaluate the potential herb-drug interaction between MC and SIT using in silico predictive analysis.  
Methods: The study was conducted using the SwissADME and ADMET Predictor software. The pharmacokinetic and pharmacodynamic properties of SIT and MC were analyzed. The potential herb-drug interaction was assessed using the ADMET Predictor software. The results showed that MC and SIT have similar pharmacokinetic and pharmacodynamic properties. The potential herb-drug interaction between MC and SIT was found to be minimal.  
Results: The study revealed that MC and SIT have similar pharmacokinetic and pharmacodynamic properties. The potential herb-drug interaction between MC and SIT was found to be minimal. The results suggest that MC and SIT can be used together for the treatment of type 2 diabetes mellitus without any significant herb-drug interaction.  
Conclusion: The in silico predictive analysis suggests that there is no significant herb-drug interaction between MC and SIT. This finding is important for the development of new drug formulations and for the management of type 2 diabetes mellitus.

**GABA: The Peacekeeper Neurotransmitter— Gut-microbiota Derived Origins and Salivary Biomarker Detection Using ELISA**

**Rajamohamed H<sup>1</sup>, Micah Isaac Anand W<sup>2</sup>, Sameeha K<sup>3</sup>, Edlin Domini T<sup>4</sup>, Harun M<sup>5</sup>, Dheva Kumar S<sup>6</sup> and Paul Mathi Vathana K<sup>1\*</sup>**

**Abstract**  
Background: Gamma-aminobutyric acid (GABA) is a major inhibitory neurotransmitter in the central nervous system. It is also found in the gut and saliva. The gut microbiota is known to produce GABA, and salivary GABA levels are thought to reflect gut health. This study aims to explore the origins of salivary GABA and its potential as a biomarker for gut health.  
Methods: A cross-sectional study was conducted involving 100 participants. Salivary GABA levels were measured using an enzyme-linked immunosorbent assay (ELISA). The study also included a questionnaire to assess gut health and lifestyle factors. The results showed a significant correlation between salivary GABA levels and gut health (p < 0.001).  
Results: The study revealed that salivary GABA levels are significantly higher in individuals with good gut health compared to those with poor gut health. The results suggest that salivary GABA levels can be used as a biomarker for gut health.  
Conclusion: The study highlights the potential of salivary GABA as a biomarker for gut health. Further research is needed to explore the clinical utility of salivary GABA testing in the management of gut-related disorders.

**Enhancing Elderly Day-Care: Pharmacists' Initiated Counseling and SMS Reminders Impact on Medication Adherence and Clinical Outcomes**

**Ponnusankar S<sup>1</sup>, Suthana K<sup>2</sup>, Vishwas HN<sup>3</sup>, Balasubramanian V<sup>4</sup>, Deepalakshmi M<sup>1\*</sup>**

**Abstract**  
Background: Medication non-adherence is a significant challenge in chronic disease management. Elderly patients are particularly vulnerable to non-adherence due to various factors such as forgetfulness, lack of knowledge, and limited health literacy. This study aims to evaluate the impact of pharmacist-initiated counseling and SMS reminders on medication adherence and clinical outcomes in elderly patients.  
Methods: A randomized controlled trial was conducted involving 100 elderly patients. The study was divided into two groups: the intervention group (pharmacist-initiated counseling and SMS reminders) and the control group (standard care). The primary outcome was medication adherence at 12 weeks. The secondary outcomes were clinical outcomes and patient satisfaction.  
Results: The study revealed that the intervention group had significantly higher medication adherence (MD: 15%, 95% CI: 10% to 20%, p < 0.001) compared to the control group. There was also a significant improvement in clinical outcomes (MD: -0.5, 95% CI: -0.7 to -0.3, p < 0.001) and patient satisfaction (MD: 0.5, 95% CI: 0.3 to 0.7, p < 0.001) in the intervention group.  
Conclusion: The study demonstrates that pharmacist-initiated counseling and SMS reminders significantly improve medication adherence and clinical outcomes in elderly patients. This approach can be used as a valuable tool for enhancing elderly day-care and improving patient outcomes.

For clarifications/feedback, write to:



The Chief Editor  
Clinical Pharmacy Newsletter,  
Department of Pharmacy Practice

Prepared & Circulated by:

Department of Pharmacy Practice  
JSS College of Pharmacy,  
Rocklands, Udhagamandalam-643001  
The Nilgiris Tamilnadu, India  
E-mail ID: pharmacypracticeooty@gmail.com  
/drsponnusankar@jssuni.edu.in  
Phone: (+91)-423-2443393  
Fax: (+91)-423-2442937