

ADITYA PHARMACY COLLEGE

(Formerly known as Aditya Institute of Pharmaceutical Sciences & Research)

(An AUTONOMOUS Institution)

- Approved by PCI, New Delhi - Accredited by NAAC "A" Grade
- Permanently Affiliated to JNTUK, Kakinada



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Title: Learning by Teaching: Strengthening Conceptual Clarity and Clinical Communication through Reverse Classroom and Clinical Seminar Peer Teaching Model

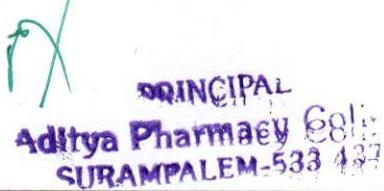
Introduction:

In the evolving landscape of pharmacy education, traditional didactic teaching methodologies are no longer sufficient to meet the dynamic demands of clinical and patient-centered care. Modern pedagogical approaches emphasize **student engagement, critical thinking, and competency-based learning**. Recognizing this shift, **Aditya Pharmacy College (A)** has adopted a forward-thinking approach to redefine learning experiences through a unique institutional distinctiveness initiative titled "**Learning by Teaching: Reverse Classroom and Clinical Seminar Teaching Model**".

This innovative model integrates two powerful pedagogical strategies — **peer teaching within classroom environments and student-led clinical seminars at Trust Multispeciality Hospitals, Kakinada**. It is built on the educational philosophy that **teaching is one of the most effective ways to learn**, and that **exposing students to real clinical audiences sharpens their academic, communicative, and professional competencies**.

The initiative actively involves **III, IV, V, and VI Pharm. D students and interns**, who not only conduct peer teaching sessions within academic settings but also deliver **case-based presentations and clinical seminars to multidisciplinary teams of doctors, physicians, and healthcare professionals in hospital settings**. This dual-level engagement reinforces learning through teaching and simultaneously prepares students for real-world professional roles.

By implementing this practice, the institution has created a learning ecosystem where students evolve from passive recipients of knowledge to **active contributors in the academic, and clinical dialogue**, aligning seamlessly with the objectives of **Outcome-Based Education (OBE)** and **National Education Policy (NEP) 2020**. The practice is a true reflection of the college's commitment to **holistic student development, clinical excellence, and innovation in teaching-learning processes**.



Objectives:

- To promote **active learning, higher-order thinking, and concept internalization** through student-led teaching approaches.
- To empower students with **presentation, leadership, and communication skills** essential in clinical and academic contexts.
- To enable **cross-level mentorship**, academic support, and collaborative learning among peer groups.
- To enhance **clinical articulation and therapeutic reasoning skills** by encouraging students to present in front of healthcare professionals.
- To foster **interdisciplinary respect and dialogue** through student-led clinical seminars in hospital settings.
- To prepare students for **teaching-oriented roles**, medical writing, patient education, and healthcare team interactions.

The Context:

In a traditionally instructor-centric curriculum, students often function as passive recipients of information. Although this model delivers subject matter effectively, it does not encourage critical questioning, articulation of knowledge, or pedagogical development. Recognizing these limitations, Aditya Pharmacy College (A) designed a **hybrid reverse teaching framework**—beginning with **peer-led classroom teaching sessions** and extending to **real-time clinical seminar presentations at Trust Multispeciality Hospitals, Kakinada**.

This extended model has not only strengthened student learning but also added immense **institutional distinctiveness by integrating clinical academia with pedagogy**. The college has been a pioneer in empowering Pharm. D students and interns to **present case-based seminars, treatment protocols, and drug-related topics** directly to physicians, resident doctors, clinical pharmacists, and multidisciplinary hospital teams.




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The Practice: Implementation and Model

The Reverse Teaching Practice was designed to function in **two integrated domains**:

A. Reverse Peer Teaching in Classroom Setup

- Students from III to V Pharm. D were assigned topics from Clinical pharmacy, Pharmacotherapeutics, and Hospital Pharmacy.
- Students created **interactive lesson plans, case presentations, flowcharts, and visual aids** under faculty mentorship.
- Teaching sessions were conducted for peers using various modalities such as:
 - Mini-lectures
 - Case discussions
 - Quizzes and role-play
 - Visual mind maps and concept reinforcement exercises
- Post-session reflection journals and peer feedback forms helped in **self-assessment and teaching refinement**.

B. Clinical Seminar Presentation at Trust Multispeciality Hospitals

- As a unique addition, students of IV, V, VI Pharm. D and interns presented **live seminars, case studies, and clinical reviews** in front of:
 - Senior Consultants
 - Physicians and Intensivists
 - Clinical Pharmacologists
 - Medical Officers and Nursing Educators
- Topics included:
 - Rational Antibiotic Use and AMSP
 - Drug-Drug Interactions in ICU Setting
 - Clinical Guidelines on Diabetes and Hypertension




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- ADR Reporting Systems
- Novel Drug Delivery Systems
- Case Discussions on Rare Diseases and Polypharmacy Challenges
- Students demonstrated high professionalism and clarity, often followed by **interactive Q&A sessions and clinical reflections** from physicians.

This extension from classroom peer teaching to clinical seminar delivery **deepened academic integration** and projected the Pharm. D curriculum as a **practical, evidence-based, and patient-centered program**.

Evidence of Success

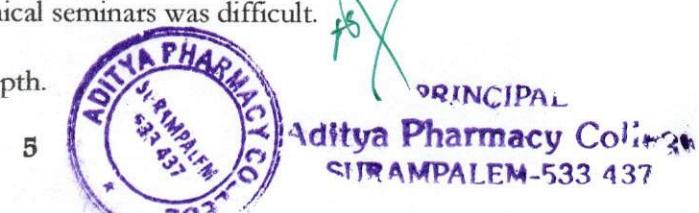
Outcome Indicator	Value Achieved (2024–25)
Peer Teaching Sessions Conducted	20
Clinical Seminars Delivered at Hospital	18
Total Students Participated in Teaching Roles	44
Average Faculty Evaluation Score	9.1/10
Physician Feedback on Student Presentations	96% rated as “Excellent”

- Students displayed significantly improved **confidence in medical discussions, case presentations, and clinical dialogue**.
- **Low-performing students showed improvement**, encouraged by collaborative, low-pressure peer-led sessions.
- Students now proactively participate in **clinical audits and hospital discussions**, thanks to this experiential exposure.

Problems Encountered and Solutions Adopted

Challenges Faced:

- Some students initially faced stage fear, especially during hospital presentations.
- Coordination between class schedules and clinical seminars was difficult.
- Variability in presentation quality and topic depth.



Solutions Implemented:

- Mock seminar rehearsals and individual mentoring for hesitant students.
- Pre-defined presentation slots aligned with hospital and college timings.
- Faculty support with templates, references, and case-building materials.

Resources that has been utilized

- LCD projectors, seminar halls, digital whiteboards.
- Peer Teaching Diaries and Reflective Logs.
- Presentation Rubrics and Peer Evaluation Templates.
- Faculty mentorship hours for coaching and pre-reviewing content.
- Clinical permissions and coordination support from Trust Multispeciality Hospitals.

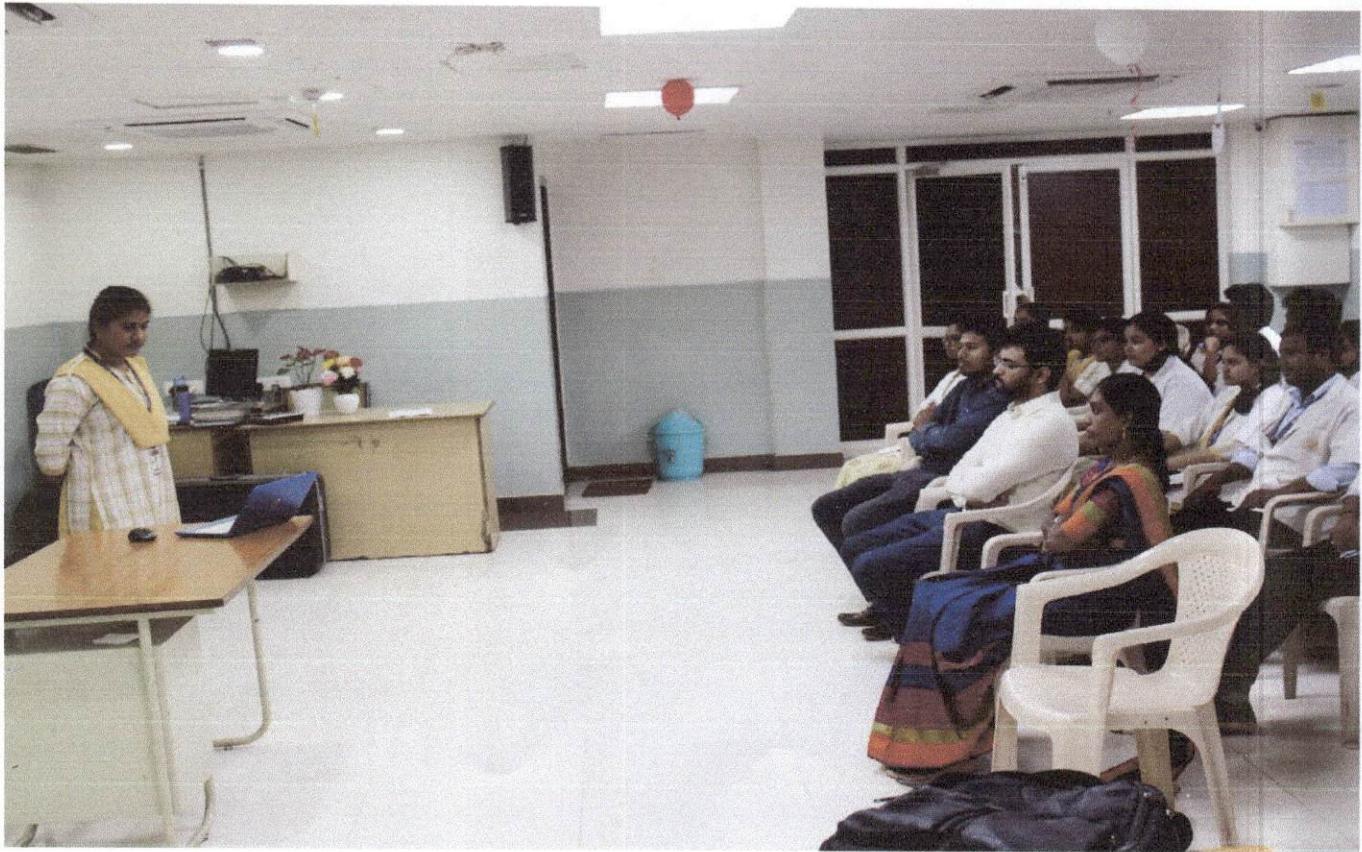
Student Perspective and Career Readiness

- Many final-year students stated that **presenting in front of physicians boosted their confidence** more than any theoretical class.
- Students now **handle patient counseling sessions more effectively**, with improved voice modulation, vocabulary, and topic relevance.
- This initiative **closely mirrors actual roles** students will encounter as clinical pharmacists, educators, medical writers, or healthcare consultants.

Conclusion

The extended **Reverse Classroom and Clinical Seminar Teaching Model** is one of the most innovative pedagogical approaches introduced at Aditya Pharmacy College (A). It seamlessly blends **academic excellence with real-world hospital exposure**, making students not only learners but also **peer educators, communicators, and clinical thinkers**. This institutional distinctiveness practice is a **blueprint for experiential and competency-based learning**, setting a benchmark in Pharmacy education.

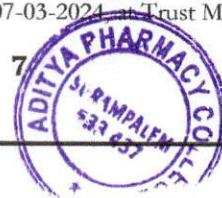




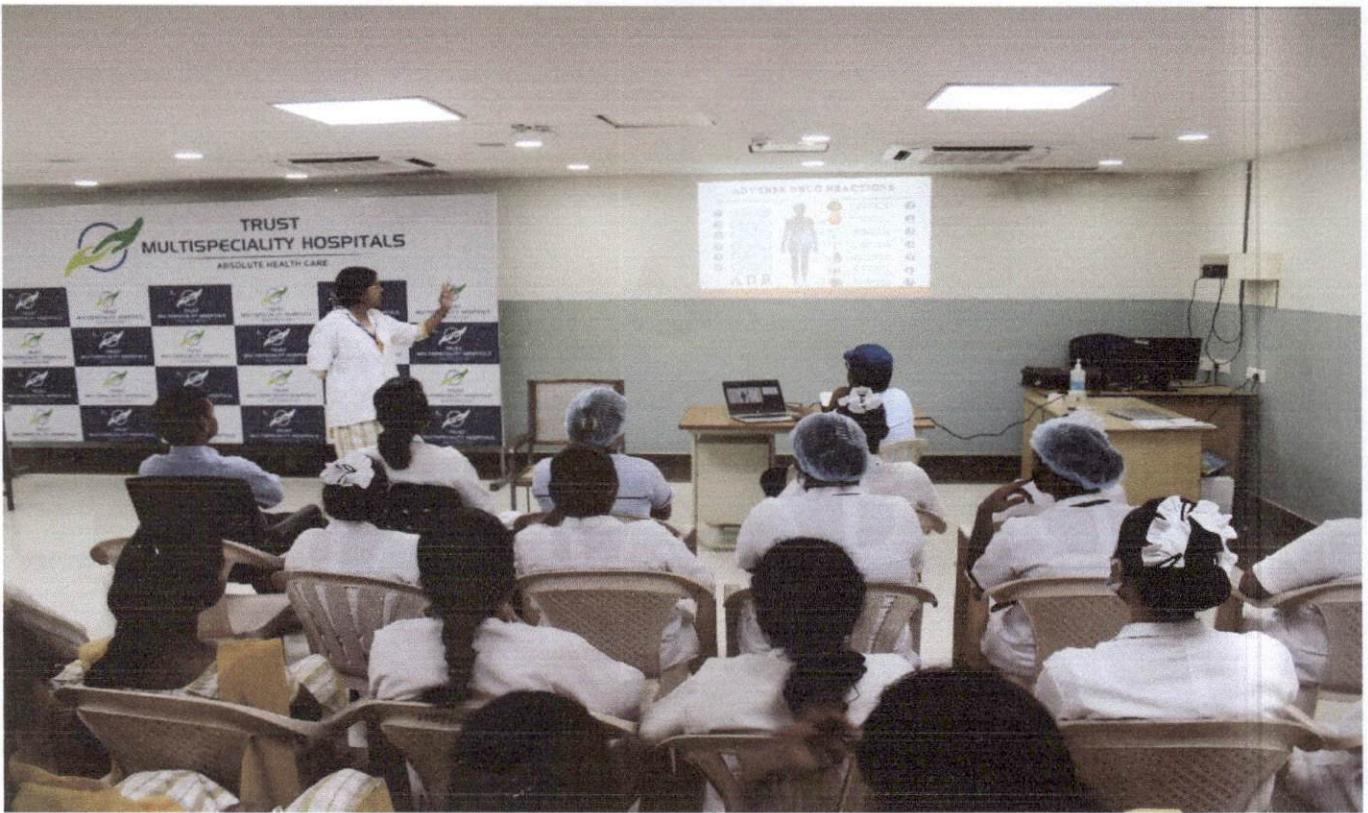
P. Dhanya, III/VI Pharm. D Student presenting on Medical Nutrition Therapy for Hypertension and Diabetes in the Presence of Dr. B. Sriram, Dr. J. Bhargav Narendra, and Mrs. P. Ratna Kumari on 05-03-2024, at Trust Multispeciality Hospitals, Kakinada.



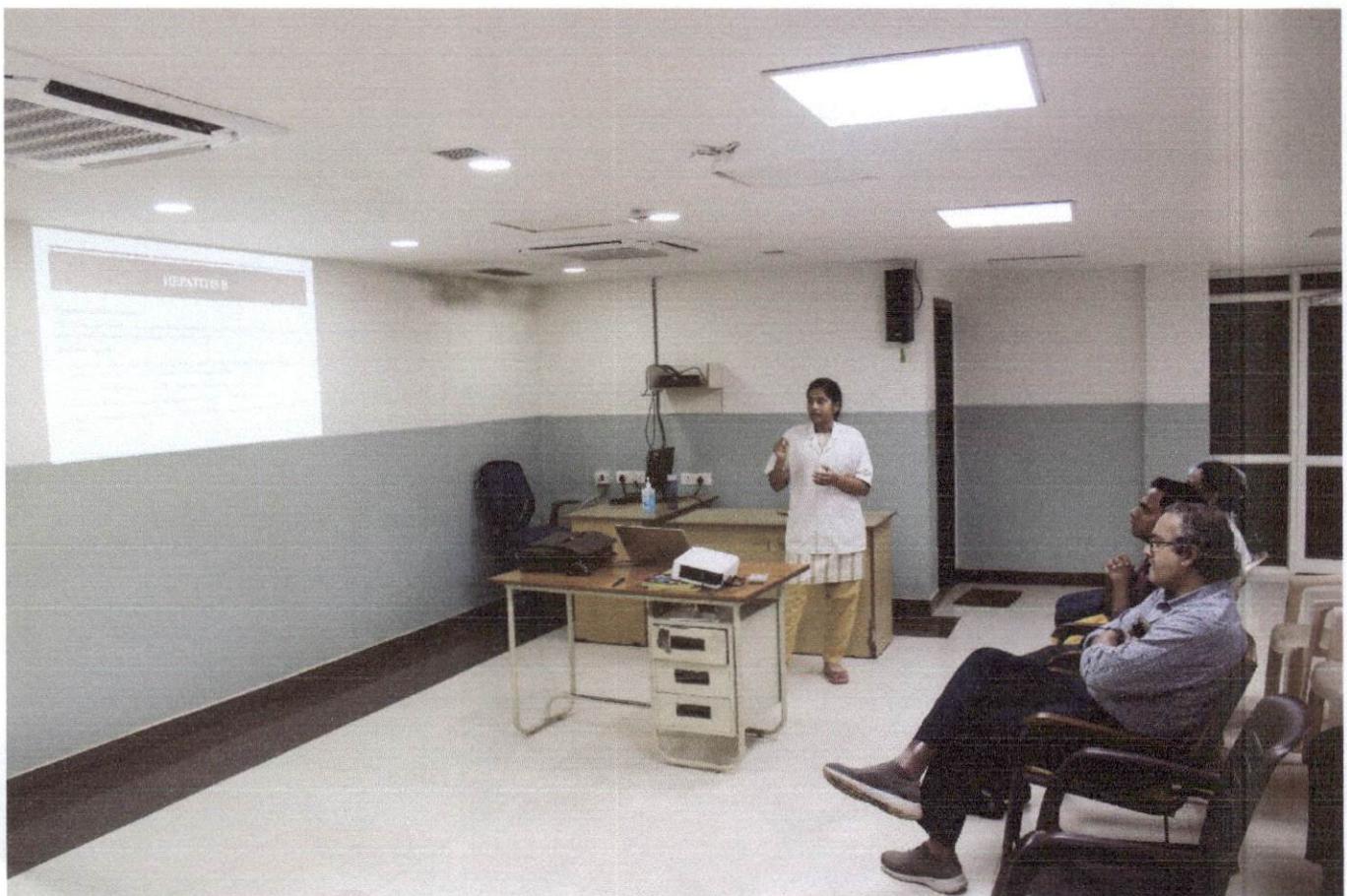
Nirmalya Roy, Pharm. D Intern presenting on Drug Induced Nephrotoxicity in the Presence of Dr. B. V. R. H. Sastry, Dr. Pavan Kumar Yanamadala, and Mrs. P. Ratna Kumari on 07-03-2024 at Trust Multispeciality Hospitals, Kakinada.



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Yati Raj, Pharm. D Intern presenting on Role of Clinical Pharmacist in Managing and Monitoring Adverse Drug Reactions in the Presence of Dr. Praveen Sana, and Dr. Pavan Kumar Yanamadala on 21-09-2024, at Trust Multispeciality Hospitals, Kakinada.



B. Pradeepthi, Pharm. D Intern presenting on the Different types of Hepatitis in the presence of Dr. R. Srinivasa Murty, Dr. Praveen Sana, Mrs. D. Mahalakshmi and Dr. Pavan Kumar Yanamadala on 02-08-2024 at Trust Multispeciality Hospitals, Kakinada



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Title: Promoting Clinical Excellence through Evidence-Based Practice (EBP) Journal Club: Cultivating Analytical, Academic, and Scientific Reasoning Skills among Pharm. D Students

Introduction:

Aditya Pharmacy College (A), through its Department of Pharmacy Practice, has always strived to offer learning practices that transcend conventional academics and equip students with practical, research-oriented, and globally relevant skills. One of the most distinctive practices of the institution is the Evidence-Based Practice (EBP) Journal Club, a structured academic activity designed to develop critical clinical reasoning, literature evaluation capabilities, and scientific communication skills among Pharm. D students.

This initiative uniquely distinguishes our institution by bridging the gap between theoretical knowledge and real-world clinical applications. It fosters a culture of inquiry, dialogue, and evidence-based decision-making, aligning students with modern pharmaceutical care standards. V and VI Pharm. D students, as well as Pharm. D Interns, actively present journal articles, facilitating a peer-led learning environment and academic mentorship for younger cohorts. These presentations are especially beneficial for 5th-year students in developing their project work and also for Interns who aspire to pursue research-based careers or positions in evidence-based practice domains.

Objectives of the Practice:

- To instill a strong foundation in evidence-based clinical practice among Pharm. D students.
- To enhance competency in scientific literature search, review, and critical appraisal techniques.
- To familiarize students with systematic review methods, clinical trial interpretation, and biostatistical tools.
- To develop academic writing, presentation skills, and research communication techniques.
- To promote research-oriented learning and strengthen preparedness for higher studies and international licensure examinations.
- To empower students in formulating project proposals and scientific manuscripts with confidence and clarity.



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The Context:

In an era where clinical pharmacy practice is increasingly driven by scientific evidence and data-informed decisions, it is essential for budding pharmacists to master the art of interpreting clinical literature. However, students often encounter barriers such as difficulty in understanding research methodology, unfamiliarity with critical appraisal tools, and insufficient exposure to systematic data interpretation.

The Department of Pharmacy Practice, recognizing these challenges, introduced the EBP Journal Club to cultivate analytical aptitude, enrich students' academic experience, and promote professional readiness. The initiative is designed to provide an experiential learning platform where students critically analyze real-time clinical studies and translate their findings into clinical decision-making frameworks.

Additionally, this initiative plays a pivotal role in preparing students for their Fifth year project work, with Journal Club discussions often sparking ideas for research topics and enabling clarity in study design and methodology selection. It also significantly enhances the research orientation of Pharm. D Interns who are preparing for evidence-based roles in clinical trials, pharmacovigilance, medical writing, and regulatory affairs.

The Practice:

The Evidence-Based Practice (EBP) Journal Club at Aditya Pharmacy College (A) is systematically designed and implemented through a well-structured, phased approach to ensure progressive learning and holistic development of Pharm. D students. This practice not only aims at strengthening academic rigour but also fosters a research-oriented mindset among students. It enhances the integration of theoretical knowledge with real-world clinical applications through interactive learning strategies.

Orientation Sessions:

The Journal Club initiative begins with foundational orientation sessions wherein students are introduced to the core principles of research methodology. The sessions cover essential aspects such as the formulation of clinical questions using the **PICO framework** (Population, Intervention, Comparator, and Outcomes), types of study designs (e.g., randomized controlled trials, cohort studies, case-control studies), and the structure of clinical



research articles. Additionally, students are trained to navigate and explore standard scientific databases like **PubMed, Cochrane Library, DELNET, and Science Direct**. These sessions are critical for building a base-level understanding of how to identify, retrieve, and interpret high-quality clinical evidence.

Weekly Presentations:

Every week, a rotating schedule ensures that selected **V and VI Pharm. D students and Interns** take turns in presenting journal articles. These articles are carefully curated from peer-reviewed journals to ensure relevance, quality, and alignment with current clinical practices. Topics typically relate to ongoing patient cases, drug therapy updates, disease management protocols, or recent advances in pharmacotherapy. The presentations are structured, involving a deep dive into various article components such as background rationale, study hypothesis, inclusion/exclusion criteria, methodology, key findings, and conclusions. The process enhances students' public speaking skills and helps them develop scientific presentation etiquette.

Critical Discussions:

Following each presentation, a **comprehensive group discussion** is conducted to encourage critical thinking and peer learning. Participants are guided to examine the article using structured criteria including the robustness of study design, appropriateness of sample population, clarity of objectives, validity of statistical analysis, interpretation of results, potential biases, ethical considerations, and applicability of evidence in patient care. This collaborative dialogue encourages students to question evidence critically and appreciate the nuances of clinical literature interpretation. The discussions often draw parallels with real-time patient cases from hospital postings, thus reinforcing practical relevance.

Faculty Facilitation:

The Journal Club sessions are closely supervised by experienced faculty members from the Department of Pharmacy Practice who serve as academic facilitators. Their role is to provide structured mentoring, ensure academic rigour, and bridge theoretical knowledge with practical application. Faculty members offer **constructive feedback** using **standardized rubrics**, encourage reflective thinking, and support students in identifying



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knowledge gaps. They also help students relate journal findings to current hospital scenarios, medication therapy problems, and patient counseling strategies. This mentoring process enhances confidence and nurtures evidence-based decision-making in clinical practice.

Documentation & Reflection:

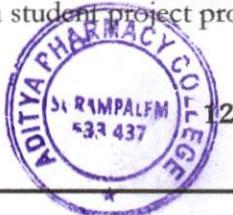
A key component of the Journal Club is **academic documentation and reflective practice**. Each student maintains a **Reflective Journal Logbook**, where they summarize key learning outcomes, critical observations, personal insights, and action plans based on each journal article. This encourages metacognitive learning and self-evaluation. Students also utilize structured appraisal tools like **CASP (Critical Appraisal Skills Programme)** and **PRISMA checklists** to systematically evaluate articles. This structured approach allows students to build a portfolio of critical appraisals that contribute significantly to their academic development and professional preparedness.

Interlinking with Academic Projects:

One of the most impactful aspects of this initiative is its strong correlation with academic project work. **5th-year Pharm. D students**, who are in the phase of selecting their **final project topics**, often derive inspiration and clarity through Journal Club presentations and discussions. These sessions expose students to trending research domains, clinical challenges, evidence gaps, and methodological approaches. With guidance from faculty and peers, students are better equipped to formulate research questions, design feasible study protocols, draft literature reviews, and select appropriate study outcomes. For **Pharm. D Interns**, the Journal Club acts as a platform to sharpen research interpretation skills—skills that are increasingly valued in research-based job roles such as **clinical research coordinators, medical writers, Pharmacovigilance specialists, and evidence synthesis analysts**.

Outcomes of the Practice:

- Marked improvement in critical thinking, analytical skills, and scientific writing.
- Better quality and originality in student project proposals and academic assignments.



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- Enhanced student confidence in presenting clinical data in national-level conferences and seminars.
- Increased contribution to poster and oral presentation competitions at scientific forums.
- Stronger orientation of Pharm. D Interns toward research-based employment opportunities.
- Readiness for higher education programs and international licensing exams involving evidence-based medicine (EBM) principles.
- Emergence of a collaborative learning culture, fostering peer mentoring and inter-batch academic engagement.

Challenges Faced and Institutional Support Utilized:

Challenges Faced:

While the implementation of the Evidence-Based Practice (EBP) Journal Club has significantly enriched the academic environment and learning experience at Aditya Pharmacy College (A), a few initial challenges were encountered during its rollout. These challenges, however, were proactively addressed through structured mentoring, curriculum support, and strong institutional backing.

- **Initial Difficulty in Comprehending Medical Terminologies and Biostatistics:** Students initially faced difficulties in understanding complex medical terminologies, statistical concepts, and technical vocabulary used in research articles. Interpreting terms such as p-values, odds ratios, relative risks, hazard ratios, and confidence intervals posed a learning curve for many, especially for those unfamiliar with clinical research methodologies.
- **Lack of Confidence in Public Speaking and Scientific Expression:** A common challenge among students was hesitation in presenting scientific content confidently. This was particularly evident in early sessions, where anxiety around public speaking and the fear of making errors affected participation. However, with continuous exposure and guided feedback, students gradually developed presentation skills and gained self-assurance.
- **Time Constraints Due to Clinical Postings and Examination Schedules:** The rigorous schedule of clinical postings, academic assessments, and project work often created time management challenges for



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students. Balancing clinical responsibilities with Journal Club preparation required careful coordination and faculty support.

- **Limited Familiarity with Critical Appraisal Tools in the Initial Phases:** Although structured appraisal tools such as **CASP, PRISMA, and CONSORT** were introduced, students initially found it challenging to apply these tools effectively. Repeated practice and mentorship were essential to build confidence and proficiency in using standardized evaluation frameworks.

Institutional Support and Infrastructure Utilized:

To overcome the aforementioned challenges and ensure the effective execution of the EBP Journal Club initiative, Aditya Pharmacy College (A) has strategically leveraged its academic infrastructure, digital resources, and faculty expertise. The following institutional measures were implemented to support the success and sustainability of this distinctive practice:

- **Robust Digital Infrastructure and Internet Access:** The institution provides continuous high-speed internet connectivity, ensuring seamless access to global scientific databases such as **PubMed, Cochrane Library, ScienceDirect, and DELNET**. This infrastructure empowers students to perform literature searches, retrieve articles, and stay updated with current clinical research.
- **Access to Reputed Scientific Journals and Databases:** Students benefit from institutional subscriptions to various peer-reviewed journals and digital libraries. This facilitates full-text access to a wide range of clinical articles, review papers, and evidence-based guidelines essential for journal presentations and critical appraisals.
- **Well-Equipped Academic and Presentation Facilities:** Dedicated seminar halls and classrooms are equipped with **LCD projectors, smart boards, sound systems, and presentation tools** that create an interactive and professional setting for Journal Club sessions. These facilities enhance the quality of student presentations and engagement.
- **Deployment of Standardized Appraisal Templates and Evaluation Rubrics:** The Journal Club presentations are structured and evaluated using internationally recognized tools such as the **CASP**



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Checklist (Critical Appraisal Skills Programme), PRISMA Flow Diagrams, and CONSORT

Guidelines. These tools ensure consistency in article evaluation and promote critical thinking.

- **Effective Faculty Mentorship and Academic Guidance:** The institution has deployed a team of dedicated faculty members from the Department of Pharmacy Practice who serve as **academic facilitators and mentors**. Their guidance in topic selection, methodological interpretation, and real-time clinical correlation has played a vital role in enhancing student learning outcomes.
- **Provision of Learning Resources and Skill-Building Modules:** Additional academic handouts, clinical research methodology guides, self-learning e-modules, and video tutorials are made available to supplement the students' understanding. These resources serve as a continuous learning support system for both project development and scientific appraisal.
- **Structured Planning and Academic Scheduling:** The Journal Club activities are well-integrated into the academic calendar to ensure optimal participation without interfering with clinical postings or examination schedules. Strategic planning allows students to prepare thoroughly and engage in meaningful learning without additional burden.

Conclusion:

The EBP Journal Club has become a cornerstone of institutional distinctiveness at Aditya Pharmacy College (A), exemplifying our commitment to excellence in pharmacy education. By cultivating a spirit of scientific inquiry, research readiness, and clinical interpretation skills, this practice is producing pharmacy professionals who are not only academically proficient but also equipped to contribute meaningfully in patient-centred, evidence-driven healthcare environments. The involvement of V and VI Pharm. D students and Interns have further enhanced the quality and reach of this practice, making it a benchmark for peer-led academic growth and research empowerment.




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