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A: Invited Faculty

Promoting Critical Thinking, Creativity, and Innovation in Medical Students

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Medical education is changing from knowledge-centric to behaviour-centric. Medical students lack critical thinking, systematic problem-solving ability, and effective clinical decision-making. We also have a paucity of awareness in the field of medical innovations and entrepreneurship in India. It has been recommended that physicians of tomorrow must develop coping skills to system-based problems they would encounter in an interdisciplinary and collaborative environment. To achieve this, critical thinking is essential. Critical thinking can be defined as the ability to identify and analyse problems as well as seek and evaluate relevant information in order to reach an appropriate conclusion. It can be fostered through relevant teaching, learning, brainstorming, mind mapping, and reflections. Creativity is a cognitive exercise, similar to inspiration. Creativity can be promoted in classrooms through choosing a flexible classroom layout, creating a classroom library, making students visualize ideas and goals, and creating opportunities for reflection and analytical skills. Great educator Peter Drucker Said, 'Innovation is the specific function of entrepreneurship, whether in an existing business, a public service institution, or a new venture started by a lone individual in the family kitchen. It is the means by which the entrepreneur either creates new wealth-producing resources or endows existing resources with enhanced potential for creating wealth. End result of true Innovation is something that can be marketed as a product or service. Various types of Innovation are: a) Incremental Innovation: Adding features or capabilities to an existing product one at a time, b) Architectural Innovation: Applying existing technology or expertise to a new market. c) Disruptive Innovation: Applying new technologies, processes, or business models to existing industries. d) Radical Innovation: The rarest of all innovation types, entirely new technologies or products are created for entirely new markets. With unique problems of an overburdened public health care system, it is medical entrepreneurship that guarantees the best of both worlds. One of the moral dilemmas faced by the medical entrepreneur is the need to establish a profitable business while maintaining their social responsibility to the general public's health. To conclude, creativity, Critical thinking, and innovation are important skills. Medical colleges must use various methods to develop these skills among tomorrow's physicians.

Entrustable Professional Activities: Clarifying the Concept

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Entrustable Professional Activities (EPAs) and their importance in professional training and assessment is key concept. EPAs are key indicators of competency, defining the responsibilities trainees can be entrusted with after demonstrating proficiency. The discussion will clarify the criteria for trusting a trainee's abilities, the contexts for EPA application, and their role in ensuring education quality and patient safety. Ultimately, this session aims to enhance understanding of how EPAs contribute to developing competent professionals ready to meet industry demands. Entrustable Professional Activities (EPAs) represent a fundamental framework used in various professional education contexts, particularly in healthcare, to define and assess the competencies required for specific roles. An EPA encompasses a set of tasks and responsibilities that can be assigned to a trainee once they demonstrate the necessary skills, knowledge, and judgment. Key Components of an EPA: 1. Defined Tasks: Each EPA includes specific activities aligned with a professional's responsibilities, such as conducting patient assessments in medical training. 2. Levels of Supervision: EPAs require varying supervision levels based on trainee proficiency, allowing for gradual trust in more complex tasks. 3. Assessment Criteria: Clear criteria are needed to evaluate readiness for an EPA, encompassing technical skills, professional behavior, decision-making, and ethics. 4. Contextual Relevance: EPAs must be relevant to specific contexts to ensure training is applicable in real-world settings, tailored to different specialties. 5. Trust and Accountability: Trust in a trainee's competence fosters accountability, emphasizing responsibilities in patient care and professional standards. The benefits of EPAs include: 1. Standardization:

They create a consistent framework for training and assessment across programs. 2. Focus on Competency: EPAs shift from time-based training to competency-based education, enhancing learning. 3. Improved Patient Safety: They ensure trainees can perform tasks effectively, boosting patient safety and care quality. 4. Better Feedback: EPAs provide a structured method for targeted feedback, aiding trainees in professional growth. EPAs contribute significantly to the development of effective professionals who are prepared to meet the challenges of their fields, thereby enhancing both educational outcomes and the quality-of-service delivery in various professions.

The Evolving Role of Medical Schools in India

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India is home to the largest number of medical schools in the world. It is important that our system of medical education evolves with time. The pressures to change come from society, local needs, global trends, advances in technology, changing patient profile and the newer generation of learners. Medical schools need to be socially accountable and ensure that their graduates are socially responsible and responsive. The educational system needs to be congruent with the public health systems. This means a whole new rethink on the processes we follow. The following questions will be answered:

- How will the role of medical schools be different?
- How will we select our medical students?
- What methods will we use to teach our students?
- Will we assess our students differently?
- How will our roles as faculty change?
- How will we regulate the quality of our schools?

Our selection process needs to be more rigorous and transparent. To find the students with the right aptitude and attitude along with being inclusive so that students of all socioeconomic backgrounds and geographical locations have equal access to medical education. A diverse student body will eventually provide healthcare to a diverse population. The ways we teach need a drastic makeover. Students of this generation can no longer be treated as customers, but they are partners in the learning process. Use of MOOCs, flipped classrooms and blending learning approaches will take the lead. Teachers will be expected to create learning experiences rather than teach from the stage, and create individualized flexible learning pathways. Comprehensive assessment of all competencies will require development of new assessment tools. Meticulous recordkeeping to record the learning trajectory of each student, provision of individual supervision, feedback and remedial action will be essential when programmatic assessment is adopted. Overall, the quality of these medical schools needs to be monitored. This will require a great deal of teacher autonomy and flexibility. Institutions with a quest for excellence will be recognized and survive, while those who do not evolve will die a natural death.

Gamification in Medical Education

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The swift advancement of modern technologies, coupled with evolving educational concepts, is expanding the range of unconventional approaches to education. The advent of COVID-19 has significantly impacted medical education, prompting educators to explore new pedagogical models. Among these emerging approaches, game-based learning (GBL) stands out as a captivating and innovative method. Medical education has witnessed an upsurge in the use of games, largely due to the receptiveness of medical students to modern technologies. In contrast to traditional teaching methods, GBL primarily involves integrating game-like thinking and mechanics to engage users and solve problems in a safe environment. Recent evidence indicates that integrating game elements into education makes learning engaging and enjoyable, ultimately improving study outcomes. Therefore, gamified educational elements have immense potential to create an enriching and engaging educational experience, often complimenting traditional teaching methods. This talk provides an overview of recent trends that have been employed GBL in medical education, its effectiveness/ limitations and offers insights into future directions for its development and application.

Clinical Audit as an Educational Tool: Bridging Health Professions Education and Patient Safety

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In the evolving landscape of litigation prone, conflict ridden healthcare, the integration of clinical audit as an educational tool holds significant promise in enhancing patient safety. This presentation will explore the vital role of clinical audit within health professions education (HPE), highlighting its potential to create a culture of continuous improvement and accountability among healthcare professionals - present and future and equipping them with the skills and mindset needed for lifelong learning and quality improvement. Clinical audit, a systematic process of reviewing and improving patient care by comparing current practices against established standards, is more than just a quality improvement tool; it serves as a powerful educational strategy. By involving students and trainees in clinical audits, educators can provide them with hands-on experience in assessing and refining

clinical practices. This experiential learning fosters critical thinking, teamwork, a deep understanding of evidence-based medicine and its application to clinical practice and a greater appreciation of systems based practice, all of which are essential for delivering safe and effective patient care. The presentation will delve into the methodologies for incorporating clinical audit into the UG and PG curriculum, including the design of audit cycles that align with educational outcomes. A few case studies will be cited to demonstrate how clinical audits have been effectively used to improve clinical practices while simultaneously enhancing the learning experience of health professions' students. Additionally, the talk will address the challenges and ethical considerations in involving learners in clinical audits. By linking clinical audit with patient safety education, we can cultivate a new generation of healthcare professionals who are not only clinically competent but also committed to the continuous improvement of healthcare systems. Hence, educational activities for health professions' trainees need to be clinically focused, relevant, and ideally have the capacity to change practice and patient outcomes.

B: Oral Paper Presentation

First Prize: Faculty

Association between Severity of Sensorineural Hearing Loss and Serum Levels of Vitamin B12, Folic Acid, and Homocysteine in Middle-aged Adults

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Introduction: Age-related hearing loss is most prevalent auditory disorder. Decreased Serum B12, folic acid and increased homocysteine levels are known preventable risk factors for early hearing loss. Screening at an early age by audiometry may prevent age related neuropathy. **Objective:** To assess severity of SNHL using audiometry and to analyse association between serum vitamin B12, folic acid, and homocysteine levels with severity of SNHL. **Materials and Methods:** Prospective case control study of 1.5 years duration, from July 2023 to January 2025 was carried out in tertiary care teaching hospital.134 participants of both genders between 40-60 years were included in study. All patients were subjected for audiometry and estimation of serum B12, folic acid & homocysteine levels were done by Chemiluminescence Microparticle immunoassay method. Data was analysed and P-value less than 0.05 was considered significant. **Results:** Decreased serum vitamin B12 levels were significantly associated with increased hearing thresholds in high frequencies. Homocysteine levels were much higher in SNHL compared to controls. No significant association with folic acid levels with SNHL was found. SNHL was more prevalent in females. **Conclusion:** We found positive association between vitamin B12 deficiency and increased homocysteine levels with severity of SNHL with no significant folic acid association.

Second Prize: Faculty

Assessment of Change in Knowledge and Attitude of Individuals Visiting a Tertiary Care Hospital Regarding Chronic Pain – An Interventional Study

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Introduction: Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, as per the International Association for the Study of Pain. Recognising the gap regarding awareness of the subject, this study aims to evaluate the impact of a standardised educational intervention on the knowledge and attitudes of individuals accompanying patients regarding chronic pain and its management. **Objectives:** To assess whether information provided by a chronic pain physician leads to an increase in knowledge and a change in participants' attitudes. **Materials and Methods:** Following institutional ethical approval, a self-structured questionnaire was administered to 400 patients aged 18 to 80 years visiting a tertiary care hospital. The questionnaire assessed knowledge (categorized as poor or good) and attitude (positive or negative) regarding chronic pain. Participants were reassessed after an informative talk by a chronic pain physician. **Results:** The mean age of participants was 42.54 ± 13.40 years, including 211 males (52.75%) and 189 females (47.25%). Initially, 312 (78%) had poor knowledge, while 88 (22%) had good knowledge. Post-intervention, only 61 (15.25%) retained poor knowledge, whereas 339 (84.75%) had good knowledge ($p = 0.00001$). Attitudinal assessment revealed that 221 (55.25%) had a positive attitude pre-intervention, increasing to 320 (80%) post-intervention ($p = 0.00001$). **Conclusion:** Educating patients about chronic pain significantly improves knowledge and attitude.

First Prize: Postgraduate Student

Assessing the Effectiveness of Autologous PRP in Patients Undergoing Myringoplasty and comparing it with Conventional Techniques

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Introduction: In the specialty of Otolaryngology (ENT), one of the most common conditions is chronic suppurative otitis media

(CSOM). Tympanoplasty is still the cornerstone of surgical treatment for CSOM. **Objectives:** To assess the effectiveness of Autologous PRP in patients undergoing myringoplasty and to compare it with conventional techniques. **Materials and Methods:** Following ethical committee approval, the study included 45 patients in Group A (Autologous PRP) and 45 patients in Group B (Conventional method. Both groups were re-evaluated one and three months post-surgery based on two outcome variables: Audiological outcomes, Graft uptake. **Results:** Audiological outcome: At 1 month, Group A (PRP): Mean hearing loss was 17.18 dB, speech discrimination was 6.82%, while in Group B (Conventional): Mean hearing loss was 20.86 dB, speech discrimination was 9.87%. There was a significant difference ($P = 0.044$). At 3 months: Group A (PRP): Mean hearing loss was 13.52 dB, speech discrimination was 4.41%, while in Group B (Conventional): Mean hearing loss was 16.04 dB, speech discrimination was 6.94%. There was a significant difference ($P = 0.043$) Graft Uptake: At 1 Month: Successful graft uptake was observed in 41 patients from group A (PRP), whereas 36 in Group B (conventional group). At 3 months, 44 patients in the PRP group had successful graft uptake compared to 36 in the conventional group. **Conclusion:** The findings suggest that incorporating PRP in myringoplasty may lead to improved audiological outcomes and enhanced graft stability. PRP appears to be a promising adjunct in myringoplasty, offering significant advantages over conventional methods in both hearing improvement and graft integration.

First Prize: Postgraduate Student
Effect of Neodymium Yttrium Aluminium Garnet Laser Capsulotomy on Intraocular Pressure, Anterior Chamber Depth and Macular Thickness

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Introduction: Posterior capsular opacification (PCO) is a common sequela of cataract surgery, which causes diminution of vision. This opacification has to be removed by doing Laser Nd: YAG capsulotomy. The laser procedure may lead to desirable results (improved visual acuity) and non-desirable results (increased IOP, Cystoid macular edema, IOL decentration). This study aims to assess the incidence of both the desirable and non-desirable results. **Aim:** To assess the effect of NdYAG capsulotomy on intraocular pressure, anterior chamber depth and macular thickness. **Objectives:** To assess the change in intraocular pressure, anterior chamber depth and central macular thickness pre and post-procedure. **Materials and Methods:** Patients who have undergone uncomplicated cataract surgery with BCVA <=6/12 due to PCO having fundus examination WNL who underwent NdYAG laser Capsulotomy were evaluated for IOP, Anterior chamber depth and Central macular thickness Pre and Post procedure and changes in them were recorded. **Results:** The IOP post-procedure showed significant increase immediately after 1 hour but dropped back to near baseline value after 1 month. There was an increase in ACD immediately 1hour post-procedure as compared to baseline and remained same after 1 month. CMT couldn't be recorded pre-procedure due to poor signaling in OCT and hence post-procedure 1hour CMT was recorded and compared with one month post procedure. This showed insignificant increase in macular thickness. **Conclusion:** Ndyag Capsulotomy causes a transient rise in IOP and reverts back to normal eventually. Also causes a change in ACD and remains permanent. CMT shows no change.

Second Prize: Postgraduate Student
An Open-label Randomized Controlled Trial to compare the Efficacy of Red Cell Concentrate Transfusions by Conventional Weight-based Method versus Formula-based Method in Transfusion-dependent Thalassemia Children

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Introduction: There is limited evidence comparing the clinical outcomes of conventional weight-based versus formula-based red cell transfusion methods in transfusion-dependent thalassemia children. Most current practices rely on empirical dosing, lacking standardized, evidence-based protocols tailored to individual thalassemic patient needs. **Aim:** To compare the efficacy of RBC transfusions by conventional weight-based method versus formula-based method in transfusion dependent thalassemic children. **Objectives:** Estimation of Post-transfusion hemoglobin, Volume of PRBC transfused with donor exposure and interval between successive transfusions, Incidence of alloimmunization and transfusion transmitted infection in this patient population. **Materials and Methods:** A total of 40 Thalassemia patients between the ages of 3 and 12 years were recruited and divided into two groups randomly. Group A received PRBC transfusion volume based on the weight of the patient, while Group B received transfusion according to the formula-based method for 12 months. **Results:** The mean post-transfusion hemoglobin as well as the mean PRBC volume transfused in consecutive visits over 12 months were not significantly different in the two groups. The interval between successive transfusions was relatively more in the group B as compared to the group A, though not statistically significant. **Conclusion:** In our study, we found no significant difference in the mean post-transfusion hemoglobin levels and PRBC volume transfused between the two groups. Therefore, we conclude that both transfusion modalities are equally effective for thalassemic patients and can be selected as per the institution's protocol and convenience.

First Prize: Undergraduate Student

Waking up to Road Safety: A Call for Mandatory OSA Screening and Fatigue Management in India's Long Distance Bus Drivers

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Introduction: Poor-quality sleep along with sedentary lifestyle can have significant biological ramifications. This is particularly relevant for professional bus drivers who are at risk of sleep disturbances due to nature of their work. **Objectives:** To assess sleep quality and fatigue among long-distance public bus drivers in Pune. **Materials and Methods:** This cross-sectional study is carried out in Pune city. Total 209, intercity bus drivers of public transport buses were screened using a standardised questionnaire and clinical examination. **Results:** The drivers, with an average 19-years' experience had a mean age 44 years and an average BMI of 25kg/m2. A high prevalence of overweight (55.5%) and snoring (38.7%) was observed, indicating the substantial risk of OSA. Higher STOP BANG score (>3), indicating higher risk of OSA, was found in 45.5%. It was significantly associated with older age, comorbidities (hypertension and diabetes), excessive daytime sleepiness, insomnia, and fatigue. 14.83% of drivers had clinically significant fatigue. Drivers with a history of RTAs also exhibited higher BMI and STOP-BANG scores. 72% reported reliance on stimulants like tea, coffee, and chewing tobacco to maintain alertness. This finding underscores the pervasiveness of fatigue countering behaviours. **Conclusion:** Findings highlight the high prevalence of suspected OSA among bus drivers. There is urgent need to address the causes of driver fatigue and mandatory OSA screening to enhance road safety.

Second Prize: Undergraduate Student

Growing Inclination towards Energy Drinks: Quality of Sleep and Physiological Responses in Medical Students

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Introduction: The consumption of energy drinks has increased significantly in the recent years, with a continuously growing market. Energy drinks are beverages that are used to elevate mood and boost energy. Evidence shows that the consumption of energy drinks tends to be higher among medical students, where perceived stress and the need to concentrate for better performance are reasons. This study is planned to evaluate the impact of energy drinks on sleep quality and other physiological responses, thereby providing awareness and safety. **Aim:** To assess the Pittsburgh sleep quality index and Epworth sleepiness scale in medical students consuming energy drinks. **Materials and Methods:** A cross-sectional study was conducted using a web-based survey along with a pretested and validated questionnaire. Similarly, one on sleep quality using the Pittsburgh and Epworth sleepiness scale was filled out. Pulse and respiratory rate for a whole one minute, and arterial blood pressure were recorded using a digital sphygmomanometer. **Results:** No significant difference was observed between systolic, diastolic blood pressure, and pulse rate between the study and control groups. However, the Pittsburgh Sleep Quality Index(PSQI), and Epworth Sleepiness Scale are significantly worse in energy drink consumers (study group) with p value<0.01 respectively. There is a small increase in SBP and DBP of the study group though not statistically significant (p value=0.59). **Conclusion:** Findings of our study suggest that energy drink consumption may negatively sleep quality with increased daytime sleepiness, among medical students. Given the demanding nature of medical education, awareness, and interventions should be implemented to mitigate the effects of energy drinks on sleep quality and overall health.