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臺灣醫學教育中創新科技與人文關懷之現況與未來展望

Innovative Technology and Humanistic Care in Taiwan's Medical Education: Present Status and Future Directions

時間：115 年 6 月 27 日(星期六) 08:25~12:00
地點：臺北榮民總醫院 致德樓第 6、7 會議室

08:25-08:30	Opening Remarks	楊盈盈主任 Ying-Ying Yang
	座長：楊盈盈 主任 (Ying-Ying Yang)	
08:30-08:55	創新科技在醫學教育之研發與運用 Research, Development, and Application of Innovative Technologies in Medical Education	楊智傑主任 Albert C. Yang
	座長：陳俞琪 教授 (Yu-Chi Chen)	
08:55-09:20	人工智慧輔助疼痛評估護理教學方案之發展與評值 Development and Evaluation of an AI-enhanced Teaching Program for Pain Assessment in Nursing Education	林承霈副教授 Cheng-Pei Lin
	座長：楊令瑀 教授 (Ling-Yu Yang)	
09:20-09:45	重構社會契約：AI 時代下醫學勝任力的治理轉型與人文領導 Reconstructing the Social Contract: Governance Transformation of Medical Competency and Humanistic Leadership in the AI Era	陳建宇教授 Chien-Yu Chen
09:45-09:50	Panel discussion: 科技與人文如何平衡?	All speakers and moderators
09:50-10:00	Coffee Break	
	座長：蘇建維 主任 (Chien-Wei Su)	
10:00-10:20	醫學生暑期臺北榮總參訪計畫 The Summer Pre-Clerk Camp of Medical Students in Taipei Veteran General Hospital	張景智主任 Ching-Chih Chang
	座長：黃惠君 主任 (Hui-Chun Huang)	
10:20-10:40	臺北榮總內科住院醫師訓練養成制度的挑戰與展望 Internal Medicine Residency Training in Taipei Veterans General Hospital - Challenge and Perspective	莊喬琳醫師 Chiao-Lin Chuang

座長：凌憬峯 副院長 (Jiing-Feng Lirng)

10:40-11:10

醫學教育研究如何推動
Strategies for Advancing Medical Education Research

張玉喆教授
Yu-Che Chang

座長：侯明志 副院長 (Ming-Chih Hou)

11:10-11:40

基層醫療的人文關懷
Humanistic Care in Primary Healthcare

洪德仁理事長
Te-Jen Hung

11:40-12:00

Closing Remarks

侯明志副院長
Ming-Chih Hou

Research, development, and application of innovative technologies in medical education

創新科技在醫學教育之研發與運用

Albert C. Yang

楊智傑

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Innovative technologies, including artificial intelligence, digital medicine, and engineering-based solutions, are rapidly reshaping medical education and redefining the competencies required of future physicians. From the perspective of National Yang Ming Chiao Tung University, this presentation highlights a curriculum reform strategy designed to prepare future physicians for a technology-enabled healthcare environment. Key initiatives include the integration of AI and digital medicine into required and elective courses, the development of smart healthcare micro-programs and interdisciplinary graduate pathways, and the use of problem-based learning to strengthen critical reasoning beyond knowledge retrieval and summarization. The presentation further explores how engineering medicine and translational research can connect clinical needs with innovations in biosensing, neuroengineering, tissue engineering, deep brain stimulation, wearable technologies, and AI-assisted clinical solutions. International collaboration through engineering medicine networks and global innovation challenges is presented as a mechanism to cultivate students who can solve real clinical problems rather than merely achieve academic success. Finally, the presentation introduces AI-enabled educational resources, including research assistants, medical AI datasets and data-sharing platforms, academic collaboration tools, and AI patient actors for clinical training. Together, these examples demonstrate that innovative technologies should not simply be added to medical education as technical tools; rather, they should be embedded into curriculum design, clinical reasoning, translational research, and global collaboration. The ultimate goal is to cultivate future physicians with interdisciplinary competence, ethical awareness, digital fluency, and the ability to lead medical innovation in an era of rapidly evolving healthcare

Development and evaluation of an AI-enhanced teaching program for pain assessment in nursing education

人工智慧輔助疼痛評估護理教學方案之發展與評值

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As population ageing continues to accelerate, the demand for high-quality palliative care for older adults is increasing rapidly. However, healthcare professionals often encounter challenges in delivering timely, compassionate, and individualized palliative care education, particularly when caring for older people with complex symptoms, pain distress, and multidimensional care needs. In this context, artificial intelligence (AI) offers new opportunities to enhance the design, delivery, and evaluation of teaching programs in geriatric palliative nursing care.

This invited speech introduces the development and evaluation of an AI-enhanced teaching program aimed at improving nursing education in pain assessment. The program was designed to integrate clinical relevance, educational warmth, and technological innovation, with a particular focus on supporting learners to understand pain management, symptom relief, communication with older patients and families, and holistic end-of-life care. AI was applied to assist in teaching material generation, scenario development, case adaptation, and educational feedback, thereby increasing the flexibility, efficiency, and personalization of the learning process.

The presentation will highlight how AI can support educators in constructing realistic and context-sensitive palliative care cases while maintaining the humanistic values essential to care for older adults. It will also discuss preliminary evaluative insights regarding learner engagement, perceived usefulness, and the potential of AI to strengthen teaching innovation in clinical and academic settings. Rather than replacing human caring, AI may serve as a supportive educational tool that helps educators deliver more accessible, responsive, and meaningful learning experiences.

This work demonstrates that the integration of AI into pain assessment nursing education is both feasible and promising. It also underscores the importance of balancing technological advancement with empathy, ethical sensitivity, and person-centred care in order to prepare healthcare professionals for the growing needs of an ageing society.

Reconstructing the social contract: Governance transformation of medical competency and humanistic leadership in the AI era

重構社會契約：AI 時代下醫學勝任力的治理轉型與人文領導

Chien-Yu Chen

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As medical practice enters the AI era defined by automation and algorithmic precision, we stand at a critical threshold of professional identity alienation. Traditional paradigms have long prioritized the efficiency of medical AI, often overshadowing the "Social Contract"—the fundamental essence of medicine as a sanctuary for human suffering. This presentation invites a profound moral-philosophical inquiry: In an AI-navigated clinical setting, are we cultivating precise technicians, or leaders equipped with the ethical judgment to steer through digital complexity?

By mapping onto the ACGME Milestone 2.0 framework, we redefine "Humanistic Competency" not as a peripheral ornament to technology, but as a core governance tool to counteract AI-driven dehumanization and uphold systemic justice. In the cold light of algorithms, only through an educational revolution that reshapes humanistic leadership can medical centers transcend the obsolete "AI-first" mindset and honor their timeless commitment to human values amidst the tides of change.

The summer pre-clerk camp of medical students in Taipei Veteran General Hospital

醫學生暑期臺北榮總參訪計畫

Ching-Chih Chang

張景智

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Medical students in Taiwan start their clerkship in their 5th year. A lack of early clinical exposure can mean they have a lack of medical professionalism and collaborative practice. A patient-centered curriculum with early clinical exposure can help undergraduate medical students to have a better understanding of medical professionalism. Providing early clinical exposure can also enhance the students' understanding of the role they will play in the future as a physician. Thus, we invited medical students at the end of their 3rd year, joined a 2-week summer camp at the Holistic and Multidisciplinary Medicine /General Medicine wards in Taipei Veteran General Hospital. Every participant was assigned to work with one patient and they accompanied this patient throughout their hospital course. The students were also asked to interview other medical professionals within the hospital and to write up interview reports. We found that the students' recognition of medical professionalism, the importance of communication with patients and their respect for other medical professionals were significantly improved after the 2-weeks training. Our finding showed that early clinical exposure through a pre-clerkship summer camp can help medical students improve their recognition of medical professionalism and inter-professional collaboration.

Internal medicine residency training in Taipei Veterans General Hospital - Challenge and erspective

臺北榮總內科住院醫師訓練養成制度的挑戰與展望

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The goal of an internal medicine residency program is to train and prepare newly graduated medical students to become competent internists. Residency is also an ideal time for future physicians to start thinking about their need for work–life balance. However, internal medicine residency training in the modern era faces a complex intersection of burnout, technological acceleration, compensation expectations, and structural changes in healthcare delivery, leading to residency shortage. It is time to reform the residency training program from a workload-centered (service-based) model to a learning-centered (education-based) system.

Strategies for advancing medical education research

醫學教育研究如何推動

Yu-Che Chang

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In an increasingly complex global landscape, strengthening research capacity in healthcare professions education (HPE) is critical to advancing the field. The Chang Gung Medical Education Research Centre (CG-MERC) offers a distinctive example of a hospital-based research centre embedded within a large healthcare system, with a primary focus on developing sustainable HPE scholarship.

Building on insights from global HPE research networks, this presentation uses CG-MERC as a case to examine how research centres can be strategically designed to support capacity building and scholarly development. Four interrelated dimensions will be explored: (1) institutional embeddedness, focusing on how organisational positioning shapes research priorities and support structures; (2) research field integration, examining how centres connect educational theory, practice, and interdisciplinary perspectives; (3) networked collaboration, highlighting local and international partnerships that facilitate knowledge exchange; and (4) impact and value creation, considering contributions to faculty development and the advancement of educational scholarship.

Drawing on CG-MERC's experience in cultivating a community of practice, this presentation reflects on key strategies for fostering sustained engagement, supporting researcher development, and strengthening research ecosystems. It aims to contribute to ongoing discussions on how HPE research centres can be positioned to enhance scholarly capacity and collaboration across contexts.

Humanistic care in primary healthcare

基層醫療的人文關懷

Te-Jen Hung

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I grew up in poverty and was in poor health. To attend university, I had to apply for a seven-year loan for students from low-income families. Throughout this process, I received guidance and assistance from many benefactors, which enabled me to successfully complete my studies. When I became a physician and began practicing, my mother, who was already in the end- life stage, told me: “Treat every hardworking mother and child with kindness.” This has become my lifelong motto as a medical doctor.

In 1986, I completed my residency training in otolaryngology and began practicing in the community. Guided by my mentors’ teachings on holistic medicine and my mother’s lessons on respect and empathy, I served my fellow residents. My patients placed great trust in me, often sharing details of their family lives and community issues. This gave me the opportunity to expand my perspective beyond the clinic and engage in community health initiatives.

In the 1990s, I became involved in the cultural heritage preservation movement, helping to secure the designation of the Beitou Hot Spring Public Bathhouse as a third-class historic site and its revitalization as the Beitou Hot Spring Museum. I have also been involved in initiatives such as the Hot Spring Ecological Park, the ecological preservation of Hokutolite (北投石), and the campaign to preserve the Losheng Sanatorium for Henderson’s Disease (leprosy). Although the process was arduous, it taught me the importance of dialogue, discussion, coordination and reaching consensus. Simply put, setting aside one’s own perspective to respect and integrate differing opinions is the fundamental spirit of public engagement and a fundamental quality of a democratic society.

Improving the accessibility of healthcare environments in clinics embodies core values of medical human rights and the rights of people with disabilities. In 2020, I initiated a campaign within the Taipei City Medical Association, inviting healthcare providers (clinic physicians), healthcare recipients (representatives of disability groups), scholars and government officials to discuss and formulate the principle of “accessible clinics where patients can receive treatment.” We also invited representatives from disability groups to conduct on-site visits to clinics while using wheelchairs. The Taipei City Medical Association subsequently awarded friendly accessibility and gold-level certifications. Starting in 2020, the Ministry of Health and Welfare adopted the same principles and invited me to serve as the chairperson of the clinic task force. To date, out of 20,000 Western medicine, traditional Chinese medicine and dental clinics nationwide, 2,000 have received government recognition and awards, collectively contributing to Taiwan’s progress toward a society of human rights and equality.

Physicians provide professional healthcare to the public, fostering a strong doctor-patient relationship through empathy and respect. Beyond the examination room, we address the societal factors influencing

holistic health- including social welfare, the ecological environment, education and culture, and industrial innovation—to create healthy communities and cities. The promotion of health and care for the whole person, the whole family, the whole community and eliminating health inequities naturally emerges, paving the way for a healthy and sustainable Taiwan.