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Gold Probe™

Bipolar Hemostasis Catheters

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本止血導管經內視鏡使用，適於上腸胃道，包括食道、胃、十二指腸和結腸的可見性流血及無流血性的部位。

環狀黃金圓形尖端

出色的導電性、均勻燒灼強化凝固效果

雙極電燒

無須電燒貼片、精準燒灼強化凝血效果

陶瓷頭端

減少組織沾黏,維持凝固效力

給付適應症

New Reimbursement
Start from July 1, 2025
Reimb. Code: CFP01GDP70SB

限用於非靜脈曲張消化道出血：

1. **潰瘍出血Forrest分類**
   (Forrest classification type)
   Ia，Ib，IIa，IIb。
2. **腫瘤出血。**
3. **複雜性消化潰瘍出血、困難止血治療，如大於2cm以上的潰瘍出血、困難處理之出血部位如空間狹小之管腔（如小腸）或胃之後壁及腸道之轉彎處之出血點。**

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暨聯合學術研討會

1

精準醫療於遺傳性疾病的新進展

Recent Advances in Precision Medicine for Genetic Disorders

時 間：115年6月27日 08:30-17:40

Time：June 27, 2026 08:30-17:40

地 點：臺北榮民總醫院 致德樓第一會議室

Place：The First Conference Room, Chih-Teh Building
Taipei Veterans General Hospital

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智醫領航科技共融～精準醫療的未來

Pioneering Smart Health, Synergy Tech: Advancing Precision Medicine

時 間：115年6月27日 08:30-17:00

Time：June 27, 2026 08:30-17:00

地 點：臺北榮民總醫院 致德樓第二會議室

Place：The Second Conference Room, Chih-Teh Building
Taipei Veterans General Hospital

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維持腦部健康：
全手術期照護團隊的關鍵行動

Maintaining Brain Health: Key Actions for the Perioperative Care Team

合辦：國立陽明交通大學急重症研究所
台灣兒童急診醫學會

時 間：115年6月27日　08:20-12:00
Time：June 27, 2026　08:20-12:00

地 點：臺北榮民總醫院 致德樓第三會議室
Place：The Third Conference Room, Chih-Teh Building
Taipei Veterans General Hospital

維持腦部健康：全手術期照護團隊的關鍵行動

Maintaining Brain Health: Key Actions for the Perioperative Care Team

From index to insight- clinical perspectives on electroencephalographic spectrogram-guided anesthesia

SBI 總論：願景與 18 項核心建議

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With the development of anesthesia techniques, electroencephalography (EEG) monitoring is gradually shifting from relying on single-valued “processed EEG indices” (such as the bispectral index BIS) to more physiologically meaningful “EG spectrograms” (such as DSA) to guide anesthesia. While processed EEG indices simplify the interpretation of anesthesia depth, their algorithms are opaque and easily affected by electromyography (EMG) interference, surgical electrical noise, or the effects of anesthetic drugs with different pharmacological properties (such as ketamine and dexmedetomidine), leading to inaccurate values. Furthermore, the accuracy of these indices decreases significantly in elderly or pediatric patients. In contrast, DSA preserves the complete frequency and temporal structure of brain waves, providing three major advantages for clinical anesthesia:

1. Assessing brain health and preventing postoperative delirium: DSA can instantly present the intensity of frontal lobe alpha waves, reflecting the stability of the cortical network. Maintaining sufficient alpha waves can significantly reduce the risk of neurocognitive complications such as postoperative delirium (POD).
2. Precise Detection of Painful Stimuli: DSA can identify specific patterns of pain caused by harmful stimuli (such as alpha dropout, beta arousal, or delta arousal, which is easily misinterpreted as “deepening anesthesia” by general indices), assisting physicians in administering analgesics more accurately.
3. Improved Safety of Multimodal and Age-Specific Anesthesia: DSA can easily identify and eliminate high-frequency noise interference, avoiding false elevations in indices.
4. Furthermore, it can provide more accurate personalized anesthesia dosage guidance for elderly and pediatric patients whose brainwave patterns change with age.

In summary, although the widespread adoption of DSA still requires the establishment of standardized quantitative indicators and structured education and training, it has successfully elevated anesthesia monitoring from rigid algorithmic numerical values to a profound understanding of brain neurophysiology, representing a key advancement in achieving personalized and brain-protective anesthesia.

Perioperative brain health: Cerebral oximetry monitoring

如何維持腦部健康？手術當中的腦血氧監測

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Preserving perioperative brain health hinges on real-time insight into cerebral perfusion, and near-infrared spectroscopy (NIRS) remains the most accessible bedside tool to provide it. Between 2020 and 2026, NIRS has evolved from a niche cerebral oxygenation monitor into a versatile platform that informs cardiac, somatic, and multi-modal neuromonitoring decisions. This 15-minute lecture frames that evolution around four practical questions every anesthesiologist now faces, integrating recent guidelines (ERAS-USA 2020, EACTS/EACTAIC/EBCP 2024) with emerging RCT and observational data.

For cardiac surgery, NIRS remains anchored by two principles: pre-induction baseline (Strong, LOE B) and algorithm-guided intervention (Class IIa, Level B). Two 2025–2026 applications expand its role beyond established use: NIRS as an early warning of low cardiac output syndrome, where rSO_2 drops >20% precede a fall in cardiac index (Silaschi 2025, AUROC 0.99); and individualized cerebral autoregulation–based MAP targeting in the ongoing PRECISION trial (Gomes 2026). In non-cardiac surgery, the Bieze 2025 algorithm RCT shortened desaturation time from 23 to 9 minutes but did not improve outcomes, reinforcing a "safety net," risk-stratified rather than routine, approach.

Adult renal NIRS fails because the renal cortex sits 4.6 cm beneath the skin, well outside the 2–2.5 cm penetration depth of clinical sensors — what is measured is subcutaneous fat and back muscle. Limb and somatic NIRS, in contrast, fall squarely within this depth and have demonstrated value across six clinical scenarios: VA-ECMO distal perfusion (where routine NIRS reduced surgical limb ischemia from 8.5% to 2.6%; Vinogradsky 2023), TAAA paraspinous monitoring, PAD severity assessment and post-endovascular prognosis, free-flap surveillance, and compartment syndrome.

Looking forward, multi-modal integration is the frontier: NIRS plus EEG identifies the cognitively fragile brain through reduced spectral edge frequency (Behera 2026) and predicts return of spontaneous circulation during prolonged CPR via alpha-wave reappearance under maintained rSO_2 (Huppert 2026, OR 5.4). A six-pillar mental model — baseline-anchored, algorithm-guided, multi-modal, context-aware, individualized, and limb-aware — summarizes how to read NIRS in 2026. The take-home: NIRS is not a single number, it is a safety net for perioperative brain health.

The art of interpreting raw electroencephalogram

原始波形 (Raw EEG) 的判讀藝術

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In contemporary clinical anesthesia, the Electroencephalogram (EEG) has emerged as a cornerstone tool for monitoring anesthetic depth and safeguarding perioperative brain health. However, an over-reliance on single-value processed EEG indices (such as BIS or PSI) often leads to clinical misinterpretation. These algorithms may filter out vital physiological information or produce misleading values when confronted with specific pharmacological agents or signal interference. Therefore, returning to the characteristics of the Raw EEG and mastering the significance of various parameters is essential to truly grasp the "art of diagnosis" regarding a patient's brain state.

To move beyond single-parameter analysis, establishing a standardized workflow for waveform observation is a clinically viable approach. First, we must understand the frequency, amplitude, and specific patterns of EEG waveforms under anesthesia. The initial step in interpretation is the identification of artifacts—such as electromyography (EMG) interference, surgical noise, or electrocardiogram (ECG) contamination—which can distort signals and lead to bias.

Next, clinicians must recognize the signatures of a stable anesthetic state, characterized by Alpha oscillations and Slow-delta waves. Furthermore, it is crucial to understand the specific patterns triggered by various clinical factors: for instance, the correlation between burst suppression and excessive anesthetic depth or cerebral ischemia, and how Alpha dropout or Delta arousal serves as indicators of nociceptive (pain) stimuli.

By mastering the identification of raw waveform characteristics, the anesthesia team can effectively distinguish true physiological signals from technical interference. This expertise enables more precise, evidence-based clinical decisions, ensuring the neurological safety and long-term brain health of patients during surgery.

Intraoperative EEG monitoring using the density spectral array: A practical framework for precision anesthetic control

術中腦電圖監測與密度頻譜陣列：精準麻醉調控的臨床實踐框架

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Intraoperative electroencephalography (EEG) monitoring has evolved beyond simple depth-of-anesthesia indices toward nuanced, pattern-based interpretation of brain state. The Density Spectral Array (DSA) — a color-coded time-frequency heatmap derived from fast Fourier transform (FFT) analysis of frontal EEG — enables anesthesiologists to visualize 20 minutes of continuous spectral data at a glance, revealing anesthetic depth, drug-specific signatures, and pathological patterns that single-number indices may obscure.

This lecture presents a structured four-module framework for interpreting DSA in clinical practice. The first module establishes DSA fundamentals: each anesthetic agent produces a distinct spectral fingerprint, and patient variables, including age and systemic illness, modulate these signatures. The second module addresses burst suppression (BS), defined by isoelectric EEG alternating with high-amplitude bursts — a manifestation of neuronal metabolic exhaustion mediated by ATP-sensitive potassium channel activation rather than a marker of adequate anesthetic depth. Commercial monitors (BIS, GE Entropy, SedLine) differ in their BS detection algorithms and consistently underestimate true suppression burden; intraoperative BS is associated with a 41% relative increase in postoperative delirium risk. The third module reframes frontal alpha dropout: abrupt loss of the 8–13 Hz alpha band during stable anesthesia reflects nociceptive thalamocortical breakthrough requiring opioid administration, not anesthetic deepening. The fourth module integrates DSA with near-infrared spectroscopy (NIRS) through a clinical 2×2 decision matrix: concurrent EEG suppression and rSO_2 decline (≥20% from baseline) mandates hemodynamic intervention for cerebral ischemia, whereas isolated EEG suppression with stable rSO_2 identifies excessive anesthetic depth requiring drug reduction.

By conceptualizing DSA as the brain's tachometer and NIRS as its fuel gauge, clinicians can integrate these complementary modalities into a unified real-time framework for precision anesthetic control, with direct implications for reducing perioperative neurocognitive complications.

SBI system (Muda & Us): System efficiency and physician well-being

SBI system (Muda & Us)：系統效率與醫師福祉

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Safe Brain Initiative (SBI) is not only about applying brain monitoring technologies such as EEG, DSA, or cerebral oximetry. Its deeper value lies in transforming perioperative care into a safer, more efficient, and more sustainable system. Within this framework, Muda and Us represent two essential system-level perspectives: reducing waste in clinical workflows and protecting the well-being of physicians and care teams.

Muda, a Lean concept meaning waste, refers to processes that consume time, energy, and resources without adding value to patient care. In perioperative practice, Muda may appear as delayed first-case starts, prolonged fasting, incomplete preoperative information, repeated documentation, inefficient turnover, missing equipment, fragmented handovers, or unnecessary waiting in the PACU. These problems are often treated as operational inconveniences, but from the SBI perspective, they directly affect brain safety. Waste increases patient anxiety, extends fasting time, creates time pressure, raises cognitive load, and reduces the ability of clinicians to interpret brain monitoring signals and respond appropriately.

Us focuses on the people within the system: physicians, nurses, anesthesiologists, surgeons, and all perioperative team members. Physician well-being should not be understood merely as personal resilience or stress management. It is a core patient safety infrastructure. A system that repeatedly exposes clinicians to fatigue, interruptions, unclear communication, time pressure, and excessive administrative burden cannot reliably deliver high-quality brain-protective care.

The goal of SBI System is therefore to connect efficiency, brain safety, and team well-being through measurable feedback. A practical Safe Brain dashboard may include operating room delay, PACU stay, fasting duration, delirium screening, EEG or NIRS events, postoperative pain, patient-reported outcomes, workload, overtime, and team perception of care quality.

The central message is simple: we cannot build a Safe Brain hospital with an unsafe work system. To protect the patient’s brain, we must also protect the system and the people who deliver care.

Practice and implementation: Establishing a safe brain hospital ecosystem

實踐與行動：建立 Safe Brain 醫院生態系

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The Safe Brain Initiative (SBI) represents a paradigm shift in perioperative care, moving beyond traditional vital signs to actively monitor and protect organ function, specifically the brain. While technical proficiency in interpreting tools like Near-Infrared Spectroscopy (NIRS) and processed Electroencephalography (pEEG) is crucial, the ultimate success of brain protection lies in the systematic integration of these technologies into daily clinical practice. This presentation outlines the structured implementation and actionable steps required to establish a comprehensive "Safe Brain Hospital Ecosystem."

Transitioning from individual monitoring to an institutional ecosystem demands a multidisciplinary approach and robust change management. We discuss the design of clinical care bundles and standardized workflows that seamlessly embed multimodal neuromonitoring into the routine anesthetic management of high-risk surgical patients. A critical component of this ecosystem is the elimination of clinical inefficiencies, or "Muda," by streamlining communication across different perioperative teams, including the surgical, PACU, and ICU teams. Furthermore, leveraging data-driven insights from real-time objective monitoring allows for proactive rather than reactive clinical interventions.

Ultimately, establishing a Safe Brain ecosystem is not merely a technological upgrade but an institutional quality improvement project. This session will share practical clinical experiences, implementation strategies, and preliminary outcomes focused on reducing postoperative neurocognitive disorders, minimizing hospital length of stay, and enhancing healthcare provider well-being. By fostering a culture of collaborative brain health preservation, we can scale these clinical practices to ensure optimal patient safety and sustainable clinical excellence across healthcare institutions.

Implementation and action: Building the safe brain ecosystem in private clinics

實踐與行動：建立診所 Safe Brain 生態系

Bai Chuan Su

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訢辰麻醉團隊

The STARDUST Anesthesia Team is dedicated to providing high-quality, safe care for clinics. Our current anesthetic services cover pediatric dental sedation, adult dental sedation, microtia surgery, plastic surgery, and full-face lifts, spanning a patient demographic aged 2 to 80 years.

In recent years, a primary focus of our care has been how to implement brain protection concurrently during anesthesia. In this presentation, we will share our team's current clinical experience and practical applications of the **Safe Brain Initiative (SBI) Care Bundle** in clinic-based anesthesia and sedation care. Furthermore, we will discuss the potential challenges encountered across our different surgical patient populations.

4

中軸型脊椎關節炎照護暨風濕新知與重點式即時超音波於整合醫學之應用

Care of Axial Seronegative Spondyloarthritis, Recent Advances in Rheumatology with Application of Point of Care Ultrasound (POCUS) in Integrated Medicine

時 間：115年6月27日 08:30~12:00

Time：June 27, 2026 08:30~12:00

地 點：臺北榮民總醫院 致德樓第四會議室

Place：The Fourth Conference Room, Chih-Teh Building
Taipei Veterans General Hospital

中軸型脊椎關節炎照護暨風濕新知與重點式即時超音波於整合醫學之應用

Care of Axial Seronegative Spondyloarthritis, Recent Advances in Rheumatology with Application of Point of Care Ultrasound (POCUS) in Integrated Medicine

JAK Inhibitors in Immune-Mediated Inflammatory Diseases (IMIDs): Update on pain management and safety profile

JAK 抑制劑於免疫介導發炎疾病之疼痛控制與安全性概況

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Janus kinase inhibitors (JAKi) have become an important therapeutic option across multiple immune-mediated diseases; however, their safety profile remains a major clinical concern. This presentation provides an integrated overview of JAKi safety across different disease populations, with emphasis on rheumatoid arthritis (RA) and atopic dermatitis (AD), alongside key insights from clinical trials and real-world evidence.

Safety outcomes associated with JAK inhibitors vary substantially depending on baseline patient characteristics. Epidemiological data show that RA patients are generally older and have a higher prevalence of cardiovascular (CV) risk factors and malignancy compared with AD patients, who are typically younger and healthier. Consequently, adverse events of special interest—including major adverse cardiovascular events (MACE), venous thromboembolism (VTE), and malignancy—are observed more frequently in RA populations than in AD populations. Age further modifies risk, with higher event rates consistently seen in patients aged ≥65 years across indications. Despite this, the absolute risk increase remains modest, estimated at approximately one additional event per 1,000 PYs.

Across indications, variations in adverse event rates appear to reflect differences in underlying disease biology and comorbidity burden rather than intrinsic differences between JAK inhibitors. Pooled analyses and long-term extension studies suggest that incidence rates of cardiovascular events and malignancies are largely consistent with the background risk of the treated populations. Notably, herpes zoster represents a consistent class effect, with increased incidence observed across all JAK inhibitors compared with baseline population rates.

In conclusion, JAK inhibitor safety should be interpreted within the context of patient-specific risk factors and disease populations. Individualized risk assessment is essential to optimize benefit–risk balance and to support appropriate clinical use across diverse indications.

irAE management: From the perspective of a rheumatologist

免疫相關不良反應的治療對策：從風濕科醫師角度出發

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Immune checkpoint inhibitors (ICIs) have revolutionized cancer treatment by enhancing antitumor immune responses. However, these therapies are also associated with a distinct spectrum of immune-related adverse events (irAEs), which result from immune system activation against normal tissues.

This presentation will explore the diverse clinical manifestations of irAEs across organ systems, including dermatologic, gastrointestinal, endocrine, pulmonary, and neurologic toxicities. Emphasis will be placed on the pathophysiological mechanisms, diagnostic challenges, and current evidence-based strategies for the prevention and management of irAEs.

Through case studies and updated clinical guidelines, we will discuss the importance of early recognition, appropriate grading, and timely intervention to optimize patient outcomes while maintaining oncologic efficacy. Understanding the balance between therapeutic benefit and immune toxicity is crucial in the era of immunotherapy.

A new horizon for IL-17 inhibition therapy for SpA

介白素 17 抑制劑於血清陰性關節炎之照護新視野

Tsu-Yi Hsieh

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Spondyloarthropathy (SpA), encompassing axial SpA, peripheral SpA, psoriatic arthritis (PsA), psoriasis (PsO), and inflammatory bowel disease (IBD)-related SpA, is a chronic inflammatory musculoskeletal disease often associated with extra-articular manifestations (EAMs). Over the past two decades, therapeutic advancements have included TNF inhibitors, IL-17A inhibitors, JAK inhibitors, and IL-23 inhibitors. However, these treatments have been linked to paradoxical effects, such as TNF-receptor antagonists and IL-17A inhibitors exacerbating uveitis, and IL-17A inhibitors inducing IBD.

Bimekizumab, a novel biologic targeting both IL-17A and IL-17F, offers a unique mechanism of action by addressing overlapping inflammatory pathways. Clinical trials have demonstrated its rapid onset of action, efficacy comparable to IL-23 inhibitors, and sustained disease control even after treatment discontinuation, making it a promising option for psoriatic disease.

In PsO, bimekizumab has shown superior efficacy in pivotal Phase 3 trials, achieving high rates of complete skin clearance (PASI 100) as early as Week 16, with durable responses sustained over four years. It also delivers excellent results in challenging areas like nail and scalp psoriasis and is effective for patients who previously failed other biologics, including IL-17A inhibitors, highlighting its potential as a second-line treatment.

In PsA, bimekizumab is effective in treating peripheral arthritis, enthesitis, dactylitis, and skin symptoms. It has demonstrated significant ACR50 and PASI100 responses at Week 16, with sustained benefits through Week 52. Bimekizumab also inhibits radiographic progression of joint damage, particularly in patients with high baseline inflammation, suggesting disease-modifying properties. Nearly 50% of patients achieved minimal disease activity (MDA) at two years.

Long-term safety data show a consistent and manageable profile. Oral candidiasis is the most common adverse event, but rates decline with continued treatment, and most cases are mild or moderate. Bimekizumab is associated with a low risk of IBD and may benefit patients with uveitis.

Overall, bimekizumab is an innovative and effective treatment for PsO and PsA, addressing unmet needs in refractory disease and complex comorbidities. Its robust efficacy, durable responses, and favorable safety profile make it a valuable addition to the SpA therapeutic landscape.

Point-of-care ultrasound: From bedside to home care

即時照護超音波：從醫院床邊到居家

Nin-Chieh Hsu

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Point-of-care ultrasound (PoCUS) has emerged as a transformative tool in modern clinical practice, enabling rapid, bedside assessment that bridges diagnostic uncertainty and immediate clinical decision-making. Traditionally rooted in emergency and critical care settings, PoCUS is now expanding into general internal medicine, hospital medicine, and increasingly into community and home-based care models. This shift reflects broader healthcare transitions toward patient-centered, decentralized care, particularly in aging societies with rising multimorbidity.

In the inpatient setting, PoCUS enhances diagnostic accuracy and guides management across multiple domains, including fluid status assessment, cardiopulmonary evaluation, and abdominal pathology. Protocolized approaches such as multi-organ scanning and focused examinations—such as the Admission Point-of-Care Ultrasound Examination (APEX)—demonstrate how PoCUS can systematically inform early inpatient management, often leading to significant modifications in treatment plans. Furthermore, integration into hospitalist workflows facilitates timely interventions, reduces reliance on advanced imaging, and improves care efficiency.

Beyond the hospital, PoCUS holds significant promise in hospital-at-home (HaH) and community-based care. With portable ultrasound devices and tele-supervision models, clinicians and trained nurse practitioners can perform real-time assessments in patients' homes, supporting early diagnosis, monitoring of chronic conditions, and avoidance of unnecessary hospital visits. Educational innovations, including near-peer teaching and remote supervision, are essential to scaling PoCUS competency across diverse healthcare providers.

However, challenges remain, including variability in training, quality assurance, and integration into existing healthcare systems. Establishing standardized curricula, competency-based assessment frameworks, and supportive policy structures will be crucial to sustain its expansion.

In summary, PoCUS represents a paradigm shift from hospital-centered diagnostics to a more flexible, bedside-to-home continuum of care. Its integration across care settings offers opportunities to enhance diagnostic precision, improve patient outcomes, and support the evolving landscape of integrated healthcare delivery.

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居家透析的新時代：現況、挑戰與未來展望

A New Era of Home Dialysis: Current Status, Challenges, and the Road Ahead

時 間：115年6月27日 08:30~12:00

Time：June 27, 2026 08:30~12:00

地 點：臺北榮民總醫院 致德樓第五會議室

Place：The Fifth Conference Room, Chih-Teh Building
Taipei Veterans General Hospital

居家透析的新時代：現況、挑戰與未來展望

A New Era of Home Dialysis: Current Status, Challenges, and the Road Ahead

The global vision and mission of the international home dialysis consortium

國際居家透析聯盟之全球願景與使命

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留成竹
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伊莉莎白諾維娜醫院 腎臟科

Home dialysis confers multiple benefits, including better quality of life, lifestyle and treatment satisfaction for patients, and lower financial costs and lesser dependance on trained professionals for health care systems. Moreover, disruptions to health provision during the COVID-19 pandemic, natural and man-made disasters have further highlighted the benefits of peritoneal dialysis, including treatment continuation, better survival and lower infection transmission risks. In addition, with an ageing population and a reduced healthcare workforce, home dialysis provides significant relief on the strain to healthcare resources.

Despite the advantages of home dialysis, its utilization remains low in most countries. Challenges for expanding home dialysis defers between lower-income countries and high resource settings, posing peculiar obstacles across patients, healthcare professionals, policy and cultural factors. The International Home Dialysis Consortium, spearheaded by the International Society for Peritoneal Dialysis and International Society of Nephrology, represented by key international and regional professional societies and industry partners, seeks to increase home dialysis uptake and improve clinical outcomes through various strategies: (i) standardizing education on peritoneal dialysis and home hemodialysis for clinicians with a focus on reducing dialysis burden for patients and caregivers, (ii) providing education and support for patients and caregivers using technology such as remote patient monitoring where appropriate and feasible to enable involvement in care decisions and choice of treatments, (iii) creating a culture of broad support for home dialysis within medical and kidney care teams, (iv) engaging with institutional and national policy leaders to advocate for provision of resources needed for home dialysis, and (v) developing and implementing locally appropriate methodologies to optimize delivery of home dialysis in different settings.

In addition, members of the International Home Dialysis Consortium have developed a set of manifestos, inviting professional groups to make a public declaration and commit to advocating for the promotion of home dialysis globally by raising awareness and education, implementing shared decision-making with provision of appropriate and accurate information on home dialysis and pursuing advocacy efforts to facilitate and incentivize home dialysis propagation. Strategically, the International Home Dialysis Consortium also holds public policy forums for home dialysis across different regions at opportunistic congresses and meetings, engaging policy makers, payors and key professional leaders to drive and blueprint home dialysis effort locally.

Leading renal care transformation: A strategic shift toward home-based therapies and value-based outcomes

邁向居家治療與價值導向成效的策略轉型

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As the burden of CKD and ESKD continues to grow, kidney care must move beyond a facility-centered model toward one that is more sustainable, flexible, and patient-centered. The COVID-19 pandemic further exposed the vulnerabilities of in-center hemodialysis (HD) and underscored the importance of home-based therapies. In this context, a PD-preferred strategy—meaning peritoneal dialysis (PD) is considered first when clinically appropriate, rather than used exclusively—represents an important direction for modern renal care.

PD is more than simply an alternative dialysis modality. It promotes patient empowerment, greater independence in daily life, and treatment choices guided by shared decision-making. For some patients, PD serves as a bridge to kidney transplantation; for others, it is a long-term therapy that better fits their lifestyle and personal goals.

The clinical rationale is also compelling. Evidence from international registries and Taiwanese data suggests that PD offers comparable early survival than HD in incident dialysis patients. PD is associated with better preservation of residual renal function, which contributes to improved volume control, solute clearance, cardiovascular stability, and transplant readiness. It also avoids many vascular access-related bloodstream infections seen in catheter-based HD. In Taiwan, peritonitis rates remain within international quality targets, reflecting continued progress in PD practice and monitoring.

With advances such as remote patient monitoring, tele-nephrology, and multidisciplinary team support, PD is becoming even more practical and accessible. Expanding urgent-start PD and addressing barriers in physician training, patient awareness, and reimbursement policy will be essential to building a more resilient, value-based, and humane future for kidney care.

Transforming peritoneal dialysis care in the era of rapid growth: The Taichung Veterans General Hospital experience

因應腹膜透析病患成長之管理策略：從數位轉型到中榮實務經驗

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As Taiwan transitions into a super-aged society, the demand for home-based renal replacement therapy has surged. At Taichung Veterans General Hospital (TVGH), we have observed a significant increase in new peritoneal dialysis (PD) patients over the past two years. Managing this rapid growth while maintaining high-quality care requires a paradigm shift from traditional methods to a “Smart Care Model.”

Our management strategy is built on three pillars: Digital Transformation, Structured Education, and Continuous Quality Improvement (CQI). First, the integration of Remote Monitoring Automated Peritoneal Dialysis (RM-APD) via the Sharesource platform has revolutionized patient surveillance. It allows for early detection of complications, such as catheter migration or peritonitis, thereby reducing hospitalization rates and improving technique survival. Currently, over 95% of our APD users are enrolled in RM-APD. Second, we addressed the “barrier of entry” for elderly and complex patients through Shared Decision Making (SDM) and assisted PD models, ensuring that age and physical frailty are no longer absolute contraindications. Third, our multidisciplinary team utilizes PD electronic management system and regular CQI meetings to streamline workflows, ensuring a nurse-to-patient ratio of approximately 1:30–35 remains sustainable without compromising patient safety.

In conclusion, the TVGH model demonstrates that by leveraging digital innovation and a robust team-based approach, it is possible to accommodate a rapidly growing PD population while enhancing clinical outcomes and patient quality of life. This scalable model provides a roadmap for PD centers facing similar demographic challenges in Taiwan..

Home hemodialysis: Current status, key challenges and promotion strategies

居家血液透析：現況、挑戰與推廣策略

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Nocturnal home hemodialysis provides better long-term patient survivals (similar to cadaveric renal transplantation) and better quality of life for patients with end-stage renal disease. First home hemodialysis (HHD) program in Taiwan was established 15 years ago by myself at Division of Nephrology, China Medical University Hospital. On-Line Monitoring and Alert system were established in 2018, which improved patients' compliance and treatment safety.

In June 2025, The National Health Insurance Administration started to provide the reimbursement for home hemodialysis except the renting fees for hemodialysis machine and RO system. The Taiwan Society of Nephrology also cooperated with the government policy by offering HHD training courses to train nephrologists and hemodialysis nurses. Using the traditional hemodialysis machines, patients need two to three months of training before they can operate hemodialysis at home independently. With new HHD machines, training period may be reduced to 2-4 weeks. The current goal is for 1% of end stage renal disease patients to receive HHD in the future.

Key challenges include high technical barrier, fear of self-puncture, caregiver stress, environmental constraints and the "convenience" paradox. Promotion of HHD in Taiwan involves navigating a unique landscape where high-quality clinical care is already very accessible. The current promotion strategies include policy and financial Incentives, smart medical on-line monitoring and establishing comprehensive support systems.

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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 08:25-12:00

Time：June 27, 2026 08:25-12:00

地 點：臺北榮民總醫院 致德樓第六、七會議室

Place：The Conference Room 6&7, Chih-Teh Building
Taipei Veterans General Hospital

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

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

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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

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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

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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

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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

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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.

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慢性氣道疾病生物製劑治療－最新進展

Biologic Agents in Chronic Airway Disease – The Recent Advances

合辦：國立陽明交通大學急重症醫學研究所

時　間：115年6月27日　08:30-12:00
Time：June 27, 2026　08:30-12:00

地　點：臺北榮民總醫院 致德樓第八、九會議室
Place：The Conference Room 8&9, Chih-Teh Building
Taipei Veterans General Hospital

慢性氣道疾病生物製劑治療－最新進展

Biologic Agents in Chronic Airway Disease – The Recent Advances

Airway-systemic immune diseases: EGPA, ABPA, and CRSwNP

氣道與全身性免疫疾病：嗜酸性肉芽腫性多血管炎、過敏性支氣管肺麴菌病及慢性鼻竇炎合併鼻息肉

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Airway-systemic immune diseases encompass overlapping type 2 inflammatory disorders that link the upper and lower airways with systemic eosinophilic immune activation. Eosinophilia, IgE-related pathways, epithelial dysfunction, and bronchial–sinonasal crosstalk are central features across eosinophilic granulomatosis with polyangiitis (EGPA), allergic bronchopulmonary aspergillosis (ABPA), and chronic rhinosinusitis with nasal polyps (CRSwNP). The concept of the respiratory tract as a single organ helps explain their frequent coexistence and shared therapeutic targets.

EGPA represents the systemic end of this spectrum, typically evolving from a prodromic phase marked by asthma and rhinosinusitis to eosinophilic tissue infiltration and finally multisystem vasculitis. Asthma occurs in more than 90% of patients, while chronic sinusitis and nasal polyps are also common. Marked blood eosinophilia and multiorgan involvement distinguish EGPA from airway-limited disease.

ABPA is an airway-centered hypersensitivity disorder that complicates asthma or cystic fibrosis and commonly presents with poorly controlled asthma, eosinophilia, elevated total and Aspergillus-specific IgE, mucoid impaction, and bronchiectasis. Current management targets both inflammation and fungal burden, using oral corticosteroids or itraconazole-based therapy for acute disease, with alternative antifungals or biologics considered in selected patients.

CRSwNP is a common type 2 inflammatory comorbidity of asthma and contributes substantially to symptom burden and disease severity. It is associated with asthma in 20%–60% of cases, and about two-thirds of patients show type 2 inflammation. Optimized medical therapy, surgery, and biologics can improve nasal and asthma outcomes.

EGPA, ABPA, and CRSwNP should be viewed as related airway-systemic immune diseases requiring early recognition, endotype-based evaluation, and multidisciplinary management.

Severe asthma: Endotype-driven precision therapy

嚴重氣喘：內型驅動之精準治療

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Severe asthma remains a major global health burden, characterized by high morbidity, recurrent exacerbations, and frequent dependence on oral corticosteroids (OCS). Management has shifted from a one size fits all approach to endotype driven precision therapy. This presentation reviews current targeted treatments, the evolving clinical goal of remission, and emerging next generation strategies that may close today's outcome gaps.

Precision care begins with identifying inflammatory endotypes, particularly Type 2 (T2) high and T2 low asthma. We highlight the practical value of core biomarkers including blood eosinophil count (BEC), fractional exhaled nitric oxide (FeNO), and serum IgE for selecting approved biologics targeting IgE, IL 5 or IL 5R, IL 4Rα, and TSLP. These therapies reduce exacerbations and OCS exposure, improve symptom control, and help stabilize lung function. However, approximately 60 to 70% of patients do not achieve clinical remission, defined as no exacerbations, no OCS use, stable lung function, and well controlled symptoms, underscoring an important unmet need and ongoing challenges. Achieving deeper response requires earlier intervention to limit irreversible airway remodeling and systematic management of high impact comorbidities that often share T2 pathways, such as chronic rhinosinusitis with nasal polyps and obesity.

This presentation also introduces emerging therapies designed to extend benefits beyond first generation biologics. These include ultra long-acting agents such as depemokimab dosed twice yearly and bispecific approaches such as lunsekimig targeting TSLP and IL 13. We also briefly survey novel mechanisms under investigation, including OX40 or OX40L modulation, BTK inhibition, and JAK inhibition for T2 low or refractory disease.

Overall, severe asthma care is moving from control to remission through biomarker guided selection, proactive comorbidity management, and next generation multi pathway strategies.

A paradigm shift in COPD: Biologics as the new frontier

肺阻塞的典範轉移：生物製劑作為治療新領域

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The management of Chronic Obstructive Pulmonary Disease (COPD) has traditionally relied on a standardized escalation of inhaled bronchodilators and corticosteroids. However, despite adherence to maximal Triple Therapy (LAMA/LABA/ICS), a distinct subgroup of patients continues to experience frequent exacerbations and significant morbidity. This persistence of residual risk underscores the limitations of the current "one-size-fits-all" paradigm and necessitates a transition toward precision medicine.

This presentation explores the reclassification of COPD as a heterogeneous syndrome driven by specific "treatable traits." Central to this shift is the identification of Type 2 inflammation—manifesting as eosinophilia—in approximately 20% to 40% of the COPD population. For this phenotype, biologic therapies targeting Interleukin-5 (IL-5) and the IL-4/13 pathways provide a mechanism-based intervention distinct from broad-spectrum immunosuppression.

We will review pivotal clinical data demonstrating the efficacy of monoclonal antibodies in reducing annualized exacerbation rates and symptoms burden. Crucial to this therapeutic success is biomarker-directed patient selection. The discussion will emphasize the utility of blood eosinophil counts as a predictive biomarker to identify high-risk patients who remain uncontrolled on standard regimens.

In conclusion, the integration of biologics marks a fundamental evolution in COPD care, moving from reactive symptom management to targeted, disease-modifying strategies. By addressing specific inflammatory endotypes, this approach optimizes therapeutic regimens and directly addresses the unmet needs of vulnerable patient populations.

Future directions: Emerging targets, biomarkers, and precision implementation

未來方向：新興標靶、生物標記與精準醫療之臨床實踐

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The clinical management of chronic airway diseases is undergoing a paradigm shift toward endotype-driven precision medicine. This presentation explores the next generation of biological therapeutics poised to redefine respiratory care.

A major transition is occurring in COPD, with the validation of Type-2 inflammatory phenotypes enabling the first biological approvals. Future development focuses on broader targets, including epithelium-derived “alarmins” such as the IL-33/ST2 axis, to address molecular heterogeneity.

Innovation is increasingly centered on bispecific antibodies designed to simultaneously inhibit synergistic inflammatory pathways, such as those targeting IL-4Rα and IL-5. Furthermore, the introduction of ultra-long-acting agents that enable twice-yearly dosing addresses treatment burden and improves patient adherence. Beyond asthma and COPD, novel agents are now targeting neutrophilic pathways in conditions like bronchiectasis.

Ultimately, these advancements support the “treatable traits” model, which emphasizes individual biomarker profiles over traditional diagnostic labels. This strategic shift from symptom management to true disease modification and clinical remission marks a new era in personalized respiratory medicine.

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2026第三屆脊柱側彎關懷月研討會：矢狀面曲線的重要性，術後加速康復暨手術工作坊

Scoliosis 2026: Sagittal Alignment Matter, Enhanced Recovery After Surgery and Simulated Surgery Workshop

時　間：115年6月27日　08:30-17:30
Time：June 27, 2026　08:30-17:30

地　點：上午：臺北榮民總醫院 致德樓第十會議室
下午：中正樓三樓麻醉部會議室及手術房
Place：AM: The Tenth Conference Room, Chih-Teh Building
PM: 3F, The Conference Room, Chung Cheng Building
Taipei Veterans General Hospital

2026第三屆脊柱側彎關懷月研討會：矢狀面曲線的重要性，術後加速康復暨手術工作坊
Scoliosis 2026: Sagittal Alignment Matter, Enhanced Recovery After Surgery and Simulated Surgery Workshop

Normal sagittal alignment development in pediatric population: Current evidences review

兒童正常矢狀位排列發育：現有證據綜述

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Sagittal alignment of the spine in the pediatric population is a dynamic process that evolves with growth and development, playing a crucial role in maintaining global balance and minimizing energy expenditure. In early infancy, due to posterior pelvic tilt, insufficient muscular support, and lack of upright posture, the spine appears relatively straight with minimal thoracic kyphosis and lumbar lordosis. As children acquire head control, sitting, and ambulation, gradual development of physiological curvatures occurs, accompanied by changes in pelvic orientation.

During childhood, spinal alignment becomes more structured, although continuous adaptations occur in response to growth and daily activities. In adolescence, rapid growth and postural compensation may lead to transient variations in sagittal parameters; however, most individuals eventually achieve an energy-efficient and balanced alignment. Recent studies have highlighted the importance of spinopelvic parameters, particularly pelvic incidence, as a key anatomical constant that influences lumbar lordosis and overall sagittal profile. Pelvic tilt and sacral slope are also closely related to postural regulation and compensatory mechanisms.

Despite increasing evidence, variations exist across different age groups, ethnic populations, and measurement techniques, resulting in a lack of universally accepted normative values. Establishing age-specific reference parameters is therefore essential for accurate clinical assessment. A comprehensive understanding of normal sagittal alignment development not only facilitates early identification of pathological conditions, such as hyperkyphosis or hypolordosis, but also provides a foundation for appropriate treatment planning and long-term outcome optimization in pediatric spinal disorders.

Tricks for restoring the sagittal alignment in brace management

支架治療中恢復矢狀排列的技巧

Garikoitz Aristegui

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Background: The brace treatment has the aim to prevent the progression of scoliosis in the growth child with the objective of improving the quality of life. The quality of life during the adult life is very much correlated with the sagittal alignment and balance. The relationship is very clear.

The bracing treatment is not just about paying attention to the frontal plane, to the correction of the Cobb angle, is about looking at the three dimensions. The main objective of bracing is to provide the 3D correction of the spine keeping the best sagittal alignment and balance.

One part of the morphology of scoliosis is the lateral translation, following the torsion phenomenon, and the influence of the anterior spinal overgrowth. This pathomechanism is modifying the physiological sagittal profile and looking at the x-Ray we will see a paradoxical kyphosis.

The effect of the torsional forces over the trunk is to increase the collapse of the body volume projecting the spine forward and lateral in the thoracic region, and lateral and backward in the lumbar region.

To restore the sagittal alignment with the bracing treatment we should create contact areas in the prominences, thoracic and lumbar prominence in the dorsal part, and also in the prominences we have in the ventral part of the body asymmetrically. At the same time the contact areas must be correlated with the expansion areas, with the expansion rooms to allow tissues to migrate, to do the correction through the expansion technique in all different regions.

Conclusion: The correction of the scoliosis is through the understanding and capacity of restoring the sagittal profile. The best frontal correction is not the optimum correction for scoliosis. This is described as a state of the art in the design of the brace.

Development of a portable 3D scanner for early detection of adolescent idiopathic scoliosis

可攜式三維背部掃描儀於青少年特發性脊柱側彎早期篩檢之開發

Hideto Kameshima, Masakatsu Noguchi, Yuji Nishio, Yukio Sato

亀嶋英人、野口昌克、西尾裕志、佐藤幸男

Spacevision, Inc. and SMILE CURVE Inc, Japan

Background: Moiré topography has been used for scoliosis screening in Japan because of its non-invasive nature and high sensitivity to small changes in back surface. However, conventional Moiré systems are large and difficult to operate, leading to limited reproducibility. In addition, interpreting fringe patterns required significant effort. This study aimed to develop a compact, lightweight, and practical 3D scanner (Senaka Scan) to enable scalable screening for scoliosis.

Methods: We developed a portable 3D scanner using structured light projection and stereo camera imaging to capture the three-dimensional shape of the body surface as a depth image. A texture image was simultaneously acquired from the same viewpoint. Pseudo-fringe patterns were generated from the depth image and overlaid onto the texture image to reproduce Moiré-like patterns. The device was designed for screening with a compact and lightweight structure.

Results: The device achieved an image acquisition time of 0.5 seconds and approximately 5 seconds for three-dimensional reconstruction. Moiré-like fringe patterns comparable to conventional methods were reproduced from depth and texture images. Back asymmetry can be quantitatively evaluated by measuring left–right height differences. The 3D shape data also enables applications such as spinal alignment estimation and automated analysis. Its compact and lightweight design ensures high portability and suitability for screening settings.

Conclusion: This study demonstrates the feasibility of a compact, lightweight, and high-speed scanner for accurate measurement of body surface deformities. Automated quantification of left–right asymmetry simplifies and improves conventional Moiré-based screening. The system enables assessment of body surface abnormalities, including scoliosis, and has potential for application in screening programs in Japan, Taiwan, and globally.

Anatomy-informed rib-anchored vertebral identification in full-spine radiographs

基於解剖結構的肋骨錨定椎體辨識在全脊柱 X 光中的應用

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Accurate vertebral identification is a prerequisite for automated spinal analysis in full-spine radiographs, because labeling errors can directly affect downstream tasks such as endplate selection and Cobb angle measurement. However, most existing deep learning methods rely primarily on vertebral appearance and assign labels directly from model predictions, without explicitly incorporating anatomical constraints or class consistency. In particular, rib-related cues that may help distinguish thoracic from lumbar vertebrae are rarely used, mainly because rib annotations are generally unavailable in full-spine radiographic datasets.

In this study, we propose an anatomy-informed framework for vertebral identification that incorporates rib-derived evidence as an auxiliary anatomical cue. To address the lack of rib annotations in X-ray images, we use the open-source chest CT dataset RibSeg v2 to generate digitally reconstructed radiographs (DRRs) and corresponding rib masks. Contrastive Unpaired Translation (CUT) is used to convert the DRRs into X-ray-like images while preserving anatomical structure. The translated images and corresponding rib annotations are then used to train a rib segmentation model, which is subsequently applied to Taipei Veterans General Hospital (TVGH) full-spine radiographs to extract vertebra-centered rib evidence. Importantly, no rib annotations from the TVGH dataset are required. The predicted rib masks are further incorporated in a post-processing step to assist vertebral identification, with particular emphasis on identifying the thoracolumbar boundary, especially the distinction between T12 and L1.

Preliminary experiments on the TVGH dataset show that the baseline object detection model, which assigns vertebral labels by directly selecting the top-1 prediction with the highest confidence, achieves an identification accuracy of 0.89. By further incorporating rib mask-based post-processing to refine the discrimination between T12 and L1, the accuracy improves to 0.93. These findings suggest that rib-derived anatomical cues can improve vertebral labeling consistency and enhance prediction performance in anatomically ambiguous regions.

This work provides a practical strategy for introducing rib-based anatomical priors into vertebral identification without requiring manual rib annotations on full-spine radiographs, and may contribute to more anatomically consistent automated spinal analysis.

Automatic recognition of whole-spine sagittal alignment and curvature analysis through a deep learning technique

透過深度學習技術進行全脊柱矢狀面序列自動辨識與曲度分析

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Background: Artificial intelligence based on deep learning (DL) approaches have enabled automatic recognition of the anatomic landmarks and subsequent estimation on various spinopelvic parameters.

Objective: To develop a fully automatic spinal sagittal curvature analysis system and mathematically determine the location of inflexion points (IPs) and apices (APs) in whole-spine lateral radiographs.

Methods: Based on 1800 annotated images of various spinal disease etiologies, we developed a DL model for automatic spinal curvature analysis of whole-spine lateral plain radiographs. The DL model consisted of a landmark localizer for detection of 25 vertebral landmarks, and a numerical algorithm for generation of an individualized spinal sagittal curvature. The characteristics of the spinal curvature, including the IPs, APs, and curvature angle, could thus be analyzed based on mathematical definitions. To evaluate of the performance of the landmark localizer, the localization errors of each landmark were calculated of the predictions of 300 test images. The inter-rater reliabilities between a senior orthopedic surgeon, a radiologist, and the DL model were assessed using intraclass correlation coefficient (ICC).

Results: The accuracy of the landmark localizer was within acceptable ranges (median error 1.7 – 4.1 mm), and the inter-rater reliabilities remained good to excellent (all ICC > 0.85) between the proposed DL model and any of the two experts when measuring spinal curvature characteristics.

Conclusion: The proposed DL model achieved good to excellent reliabilities with human experts in predicting the locations of inflexion points, apices, and curvature angles. Future applications could be explored to validate the system and improve clinical efficiency.

Anesthesia for scoliosis surgery: Intraoperative neuromonitoring and the wake-up test

麻醉專業在側彎手術上的實務應用：術中神經監測及喚醒試驗

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Intraoperative neuromonitoring (IONM) and the wake-up test are two essential strategies for safeguarding neurological function during spine surgery, particularly in procedures with a high risk of spinal cord injury such as scoliosis correction. IONM provides continuous, real-time assessment of neural pathway integrity through modalities such as somatosensory evoked potentials (SSEP) and motor evoked potentials (MEP). These techniques allow early detection of compromised spinal cord function, enabling timely surgical or anesthetic interventions before irreversible damage occurs. As a result, IONM has become the standard of care in many complex spinal procedures.

Despite its advantages, IONM has limitations, including susceptibility to anesthetic effects, physiological variability, and occasional signal loss or ambiguity. In such situations, the wake-up test remains a valuable adjunct. This technique involves temporarily lightening anesthesia to allow the patient to follow simple motor commands, thereby directly confirming the integrity of voluntary motor function. Although highly specific, it is less commonly used today due to its invasive nature and associated risks, such as patient movement, airway complications, and psychological distress.

Anesthetic management plays a critical role in optimizing both modalities. Total intravenous anesthesia (TIVA) is often preferred to preserve IONM signal quality, while minimizing or avoiding neuromuscular blockade is essential for accurate MEP interpretation. For wake-up tests, short-acting agents and careful titration are necessary to achieve a balance between adequate analgesia and rapid emergence.

In summary, IONM serves as a sensitive and continuous monitoring tool, while the wake-up test provides direct functional confirmation when needed. Their complementary use enhances intraoperative decision-making and improves patient safety in spine surgery.

Pain management and Enhanced Recovery After Surgery (ERAS) for pediatric scoliosis clinical perspectives

兒童側彎手術的疼痛照護及術後加速康復經驗分享

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Pediatric scoliosis correction surgery is associated with severe postoperative pain and a prolonged recovery course; therefore, comprehensive pain management throughout the surgical journey and enhanced recovery strategies are particularly important. In recent years, Taipei Veterans General Hospital has progressively extended its experience in pain management for adult spine surgery to pediatric scoliosis surgery, with further modifications tailored to the specific needs of children, thereby developing a care model better suited to clinical practice.

This lecture will begin by comparing adult and pediatric scoliosis surgery, highlighting the differences in pain presentation, medication use, psychological support, family involvement, and postoperative recovery goals. Whereas adult patients often present with chronic pain, comorbidities, and a higher risk of opioid-related complications, pediatric patients require age-appropriate pain assessment, active family participation, and multidisciplinary integrated care that balances safety with early mobilization.

The lecture will also share the clinical experience of Taipei Veterans General Hospital in multimodal analgesia, the application of regional anesthesia, prevention of postoperative nausea and vomiting, and early ambulation and rehabilitation, illustrating how adult spine surgery pain management strategies can be adapted and applied to pediatric patients. It is hoped that this presentation will provide practical clinical insights into pain management and postoperative recovery for pediatric scoliosis surgery, and help promote safer, more comfortable, and more efficient care pathways.

Pedicle anatomy: Normal and scoliosis cases

椎弓根解剖：正常狀況與脊椎側彎病例

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Over the past few decades, pedicle screw fixation has served as a primary approach for scoliosis correction, providing the three-dimensional stability required for spinal realignment. While advancements in CT-based navigation and robotic assistance have contributed to the field, an ongoing focus on pedicle morphology continues to play an essential role for surgical safety. This necessity arises from the morphological variations inherent in the scoliotic spine, which present structural challenges compared to normal spinal anatomy.

This review aims to provide a preliminary comparative analysis of the notable anatomical differences between scoliotic and normal vertebrae. The discussion seeks to explore the asymmetric dimensions of scoliotic pedicles, observing the variations found between the concave and convex sides of the spinal curve. By contrasting these pathological findings against normal anatomical standards, this session discusses specific constraints—such as pedicle narrowing and cortical bone changes—that surgeons encounter during spinal reconstructions.

In conclusion, thoughtful consideration of these anatomical variations can be helpful in reducing neurological risks and supporting better outcomes in complex spinal correction.

Free hand technique for pedicle screw insertion

徒手椎弓根螺釘置入術

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The evolution of spinal instrumentation has established pedicle screw fixation as the gold standard for achieving multi-planar stability. While image-guided systems are increasingly prevalent, the Lenke thoracic pedicle free-hand insertion technique remains a foundational skill for spine surgeons, offering high accuracy and reduced radiation exposure. This presentation delineates the systematic approach to safe, “blind” screw placement through anatomical mastery and tactile precision.

A critical prerequisite for success is the Watanabe pedicle classification. By categorizing pedicles based on their morphology and the presence of a cancellous bone channel (Types A through D), surgeons can anticipate technical challenges and adjust their trajectory or tool selection accordingly. This classification serves as a roadmap, identifying “at-risk” levels where the pedicle may be sclerotic or extremely narrow.

The core of the procedure relies on the probe method, a disciplined five-step sequence. After identifying the entry point at the junction of the transverse process and the pars interarticularis, a curved pedicle probe is used to navigate the canal. This stage relies heavily on the “tactile feel” of the bone’s density. Following path creation, the tract is rigorously evaluated using a ball-tipped sounding probe to palpate five distinct bony walls, ensuring no medial or visceral breach has occurred.

By integrating Watanabe’s morphological insights with Lenke’s surgical maneuvers, the free-hand technique proves to be a reliable and efficient method for thoracolumbar reconstruction. Mastery of this technique not only enhances surgical flow but also reinforces the surgeon’s fundamental understanding of three-dimensional spinal anatomy.

How to bend the rod for scoliosis correction

如何彎曲脊椎側彎的矯正鋼棒

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Rod contouring is a critical step in scoliosis surgery, as it directly determines the final sagittal and coronal alignment of the spine. Proper rod bending not only facilitates deformity correction but also minimizes mechanical complications such as implant failure, junctional kyphosis, and loss of correction.

The fundamental principle of rod bending is to restore physiological sagittal alignment, especially thoracic kyphosis and lumbar lordosis, rather than focusing solely on coronal correction. Preoperative planning, including assessment of pelvic parameters and flexibility of the curve, is essential to guide the target rod shape. In general, hypokyphotic thoracic curves require aggressive kyphotic contouring, while lumbar segments should be contoured to match the patient's pelvic incidence.

Various techniques can be applied during rod contouring. Differential rod bending, overbending, and in situ adjustment are commonly used to enhance three-dimensional correction. Concave-side rod placement with pre-contoured kyphosis is often preferred to facilitate derotation maneuvers, followed by convex rod application for stabilization. Attention should also be paid to smooth transitions between segments to avoid stress concentration.

Material properties of the rod, such as titanium versus cobalt-chrome, also influence the bending strategy and correction power. Stiffer rods provide stronger corrective forces but may increase the risk of proximal junctional problems.

In conclusion, rod bending is not merely a technical step but a strategic component of scoliosis correction. A well-contoured rod, based on individualized sagittal goals and biomechanical considerations, is key to achieving durable and balanced deformity correction.

Free hand technique, navigation and robotic assisted technique workshop

徒手技法與機器人輔助技法研討會

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The surgical correction of scoliosis remains one of the most demanding disciplines within spinal orthopedics, primarily due to the complex three-dimensional spinal deformities and the proximity of vital neural and vascular structures. Central to these procedures is the precise placement of pedicle screws. This abstract explores the evolving landscape of surgical skill acquisition, contrasting the traditional free-hand pedicle screw technique with the burgeoning integration of robotic navigation-assisted technology.

The Foundation: Free-Hand Pedicle Screw Technique

Historically, the free-hand technique has been the gold standard. It relies heavily on a surgeon's profound understanding of vertebral anatomy, tactile feedback, and the use of intraoperative fluoroscopy. Training for this technique is rooted in the "haloing" effect of long-term mentorship, where residents and fellows develop a "blind" spatial awareness.

1. Skill Acquisition: Training involves repetitive practice on cadaveric models and synthetic bones to master the entry points and trajectories specific to deformed scoliotic vertebrae.
2. Challenges: The learning curve is steep. In cases of severe axial rotation, the pedicle's morphology is often altered, significantly increasing the risk of cortical breach, which can lead to neurological deficits or vascular injury.

The Innovation: Robotic Navigation-Assisted Technology

The advent of robotic platforms and real-time navigation has shifted the surgical paradigm from tactile intuition to digital precision. These systems utilize preoperative CT scans to map a 3D trajectory, which a robotic arm then executes with sub-millimeter accuracy.

1. Technological Integration: Training in this domain requires a different skill set—one that emphasizes digital fluency, system calibration, and "human-in-the-loop" oversight.
2. Benefits: Research indicates that robotic assistance can normalize the skill gap between novice and expert surgeons, providing higher rates of accurate screw placement (Gertzbein-Robbins Grade A or B) even in complex apical curvatures.

Comparative Training Methodologies

The core of modern scoliosis surgical education is finding the equilibrium between these two modalities. While robotic assistance offers a "safety net," over-reliance can lead to the atrophy of traditional anatomical

intuition—a critical fail-safe should technology malfunction intraoperatively.

1. Haptic vs. Visual: Free-hand training prioritizes haptic (touch-based) feedback, whereas robotic training prioritizes visuospatial data interpretation.
2. Radiation Exposure: A significant component of training involves managing radiation; robotic systems often reduce total fluoroscopy time, protecting both the trainee and the patient.
3. Simulation-Based Learning: Modern curricula now incorporate high-fidelity simulators that allow trainees to practice free-hand techniques while simultaneously toggling navigation overlays to verify their accuracy in real-time.

Conclusion

Effective training for scoliosis surgery must be bifocal. Surgeons must achieve mastery in the free-hand technique to maintain fundamental safety and clinical judgment, while simultaneously embracing robotic navigation to enhance precision and patient outcomes. As the technology matures, the focus of surgical education will likely shift from manual dexterity alone to a sophisticated synthesis of anatomical expertise and technological proficiency.

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2026嗅覺異常診斷與治療研討會暨工作坊

Symposium & Workshop on Olfactory Restoration and Diagnosis (SWORD 2026)

時　間：115年6月27日　08:30-12:00

Time：June 27, 2026　08:30-12:00

地　點：臺北榮民總醫院 醫學科技大樓一樓會議室

Place：Medical Science and Technology Building
Taipei Veterans General Hospital

2026嗅覺異常診斷與治療研討會暨工作坊

Symposium & Workshop on Olfactory Restoration and Diagnosis (SWORD 2026)

Why is olfaction important?

為什麼嗅覺很重要？

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Olfactory disorders are common and affect about one fifth of the general population. Next to aging, the main causes of olfactory loss are nasal/sinus disease, viral infections of the upper respiratory tarct, and head trauma, and are therefore very frequent among patients in ear, nose and throat clinics. Loss of the sense of smell leads to disturbances in important olfactory areas, mainly in food enjoyment, detecting harmful food and smoke, and to some extent in social situations and working life. Most patients seem to cope well with these restrictions. However, a smaller proportion has considerable problems and expresses a noticeable reduction in general quality of life and enhanced depression.

Parosmia - When things smell different from what they used to

嗅覺倒錯 - 當氣味與過去的感受變得不同

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Parosmia is a qualitative olfactory disorder characterized by distortion in odor perception. In contrast to quantitative olfactory dysfunction, in which odor detection is reduced, individuals with parosmia perceive odors differently from how they are remembered or typically experienced. This condition commonly occurs following viral illness or head injury. Although it may appear harmless, parosmia can be distressing and significantly affect eating behavior, mood, and interpersonal relationships. Management focuses on identifying and addressing the underlying cause while providing symptomatic support."

Olfactory loss and neurodegenerative diseases

嗅覺喪失與神經退化性疾病

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Olfactory dysfunction (OD) is increasingly recognized as an important non-motor symptom and early biomarker in several neurodegenerative diseases, particularly Parkinson's disease (PD) and Alzheimer's disease (AD). Olfactory impairment affects a substantial proportion of the aging population, yet many individuals remain unaware of their deficits. Growing evidence suggests that olfactory dysfunction may precede the onset of classical motor or cognitive symptoms by several years, making it a promising target for early detection and risk stratification in neurodegenerative disorders.

In PD, hyposmia is present in up to 90% of patients at the time of diagnosis and may appear more than five years before the development of motor symptoms. The underlying mechanisms are thought to involve early deposition of α-synuclein and Lewy body pathology within the olfactory bulb and related central olfactory structures, consistent with Braak staging and the concept of prion-like propagation of protein aggregates.

In AD, olfactory dysfunction—particularly impairment in odor identification and discrimination—is associated with early neuropathological changes including amyloid-β deposition and tau-related neurofibrillary tangles within the entorhinal cortex and limbic system. Olfactory impairment has also been shown to predict conversion from mild cognitive impairment to Alzheimer's disease.

Recent advances in disease-modifying therapies further highlight the importance of identifying individuals during the prodromal phase of neurodegenerative diseases. Mechanism-directed therapies for PD and monoclonal antibody treatments targeting amyloid-β in AD represent emerging strategies aimed at slowing disease progression when administered early.

This section will review the current understanding of olfactory dysfunction in neurodegenerative diseases, including its neurobiological mechanisms, clinical characteristics, and diagnostic value. The role of olfactory testing as a non-invasive, low-cost screening tool—particularly when combined with other biomarkers—will also be discussed, highlighting its potential contribution to early detection and future therapeutic intervention strategies.

Update on treatment for olfactory dysfunction

嗅覺功能障礙的治療進展更新

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The standard treatment modality for olfactory dysfunction has not yet been established. The etiology of olfactory dysfunction is generally classified into conductive or sensorineural mechanism.

Although many drugs have been used to treat conductive olfactory dysfunction, the results are often unsatisfactory. Recently, biologics have been demonstrated to successfully treat rhinosinusitis-related olfactory dysfunction. However, there are several drawbacks about the usage of biologics in the treatment of rhinosinusitis-related olfactory dysfunction. M2 macrophages are known to have anti-inflammatory activities and tissue regeneration. M2 cells can attenuate the production of T-cell-mediated pro-inflammatory cytokines, such as interleukin (IL)-6, IL-13, interferon gamma, and TNF-α. We shall report our experience of using enriched peripheral blood-derived mononuclear cells injected into the olfactory cleft as a novel cell therapy for the treatment of CRS-related olfactory dysfunction.

Sensorineural olfactory dysfunction is with a generally poor prognosis. Many drugs have been tried to treat sensorineural olfactory dysfunction, but their effects have not been established. Olfactory training has been considered to be effective in treating sensorineural olfactory dysfunction, but its results are often unsatisfactory. Recently, platelet-rich plasma has been injected into olfactory clefts to treat COVID-related and traumatic olfactory dysfunction. We shall report our experience of platelet-rich plasma olfactory cleft injection in the treatment of traumatic olfactory dysfunction. We also report our study of using oral theophylline to treat traumatic olfactory dysfunction. Finally, we present our preliminary experience of using platelet-rich exosome olfactory cleft injection in the treatment of traumatic olfactory dysfunction.

Neuroplasticity and olfactory training

神經可塑性與嗅覺訓練

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Olfactory training (OT) has emerged as a first-line, non-pharmacological intervention for patients with olfactory dysfunction. Growing evidence suggests that its therapeutic effects are closely linked to neuroplastic changes occurring throughout the olfactory system. Repeated and structured exposure to odor stimuli may promote regeneration of olfactory receptor neurons and facilitate functional reorganization in higher cortical olfactory networks.

Recent neuroimaging studies, particularly functional MRI, have provided insights into how OT influences brain morphology and functional connectivity. Our recent investigations further suggest that multisensory olfactory training, which combines olfactory stimulation with congruent audiovisual cues, can modulate neural crosstalk between sensory networks and facilitate olfactory recovery.

This lecture will highlight current concepts of neuroplasticity in the olfactory system, review clinical evidence supporting OT, and discuss emerging strategies to enhance its therapeutic potential. Understanding the neural basis of olfactory training may help to shape future approaches for restoring olfactory function in patients with smell loss.

Olfactory preservation in sinus and skull base surgery

鼻竇與顱底手術中的嗅覺保留

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The widespread adoption of endoscopic sinus and skull base surgery has significantly expanded surgical access to sinonasal and skull base pathology. However, these approaches may place the olfactory neuroepithelium within the superior nasal vault at risk, potentially resulting in postoperative olfactory dysfunction. Preservation of olfactory function has therefore become an important surgical goal, given its substantial impact on patient quality of life.

Recent anatomical studies and clinical outcome analyses suggest that olfactory function can often be maintained with careful surgical planning and refined operative techniques. Strategies including unilateral surgical corridors, preservation of the olfactory strip, and meticulous harvesting of the nasoseptal flap have been shown to reduce injury to the olfactory mucosa and minimize postoperative hyposmia or anosmia. Objective olfactory testing in multiple series demonstrates that most patients undergoing endoscopic skull base surgery experience stable olfactory outcomes, although transient postoperative microsmia may occur.

This presentation reviews the anatomical basis of olfaction, mechanisms of olfactory injury during sinus and skull base surgery, and current evidence regarding postoperative olfactory outcomes. Technical strategies to optimize olfactory preservation will be discussed, with emphasis on surgical planning, intraoperative technique, and postoperative functional assessment.

Surgical treatment for olfactory cleft syndrome

嗅裂症候群的手術治療

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Olfactory cleft syndrome (OCS) refers to olfactory dysfunction caused by pathology localized to the olfactory cleft. Similar conditions were previously described under the term olfactory cleft disease, but the concept of OCS may better reflect the broad clinical spectrum produced by multiple abnormalities within the olfactory cleft, including anatomical stenosis, inflammatory edema, retained mucus, and synechia and tumor like lesions such as respiratory epithelial adenomatoid hamartoma (REAH). Because sinonasal findings may be minimal and routine endoscopic examination may appear unremarkable, these patients may be overlooked or misdiagnosed as having idiopathic olfactory dysfunction. In such cases, radiologic evaluation, particularly coronal CT, plays a central role in identifying the underlying pathology.

This lecture reviews the rationale, indications, and surgical principles for the treatment of OCS. The aim of surgery is not to enlarge the olfactory cleft excessively, but to improve ventilation within the olfactory cleft, restore access of odorants and topical medications, and preserve the olfactory mucosa as much as possible. Therefore, surgery should be understood as a ventilation-improving and function-preserving procedure, rather than a simple widening procedure. This approach may be beneficial in selected patients whose olfactory dysfunction is mainly attributable to conductive impairment caused by localized stenosis or inflammatory obstruction.

At the same time, long-standing disease may not respond sufficiently even when ventilation is surgically improved, because a sensorineural component may coexist in addition to the conductive impairment. For this reason, the duration of disease should be taken into careful consideration when determining surgical indications and counseling patients regarding expected outcomes. Recognition of OCS as a treatable target may provide a new framework for the diagnosis and management of patients with previously unexplained olfactory dysfunction.

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直腸癌治療之最適化策略：從早期介入至完全術前放化療（TNT）與未來展望

Optimal Management of Rectal Cancer: From Early Treatment to TNT and Beyond

時 間：115年6月27日 08:50-17:10

Time：June 27, 2026 08:50-17:10

地 點：臺北榮民總醫院 長青樓護理館

Place：Nursing Arts Laboratory, Evergreen Building, Taipei Veterans General Hospital

直腸癌治療之最適化策略：從早期介入至完全術前放化療（TNT）與未來展望

Optimal Management of Rectal Cancer: From Early Treatment to TNT and Beyond

Standardizing rectal cancer surgery with the Hugo™ RAS system: The single-docking "HUGO-SWAP" workflow

應用新型機器人輔助平台於大腸直腸外科手術

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Background: Robotic colorectal surgery is evolving with the introduction of modular platforms such as the Hugo™ RAS system. Unlike conventional integrated systems, its independent arm configuration necessitates a redefined surgical workflow to ensure safety, efficiency, and reproducibility, particularly in rectal cancer surgery.

Objective: To present a standardized single-docking workflow ("HUGO-SWAP") for robotic rectal cancer surgery and to highlight key technical strategies specific to the Hugo™ system.

Methods: The HUGO-SWAP workflow is designed to achieve true single docking through a structured sequence of setup, arm swapping, and re-allocation. A linear port configuration minimizes arm interference, while strategic assistant port placement maintains optimal ergonomics. During the transition from pelvic to upper abdominal phases, arm swapping and re-allocation using the side-panel interface enable optimal instrument alignment. Following this transition, splenic flexure mobilization is performed using a medial-to-lateral approach, allowing safe dissection along the pancreatic–colic plane and controlled vascular handling. In this phase, advanced bipolar energy devices such as LigaSure™ RAS facilitate stable tissue sealing and efficient dissection. In the pelvic phase, stable exposure and traction strategies are essential for deep rectal dissection under the constraints of independent robotic arms. Intracorporeal transection and anastomosis are performed within this standardized framework.

Results: This workflow enables consistent single-docking procedures without redocking and provides stable operative conditions in both pelvic and upper abdominal phases.

Conclusion: The HUGO-SWAP workflow offers a reproducible strategy for rectal cancer surgery using the Hugo™ system and may support broader adoption and training of modular robotic platforms.

Advantages of robotic surgery in colorectal cancer: Single-port vs. multi-port systems

機器手臂輔助手術於直腸癌之優勢：單孔 (Single-Port) 與多孔 (Multi-Port) 系統之比較

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Introduction: Minimally invasive surgery has significantly advanced colorectal cancer treatment, and robotic platforms have further enhanced precision, ergonomics, and surgical access. The emergence of the da Vinci Single-Port (SP) system represents a major evolution, enabling complex colorectal procedures through a single incision and offering improved maneuverability in anatomically narrow spaces. This presentation compares SP and multi-port (MP) robotic systems, highlighting the clinical and technical advantages of SP surgery based on institutional experience.

Methods: A single-institution experience with SP robotic colorectal surgery was reviewed, focusing on technical feasibility, performance in confined pelvic anatomy, and applicability to both abdominal and transanal procedures. Comparative perspectives with MP robotic and laparoscopic approaches were incorporated, emphasizing vessel and nerve identification, pelvic stability, and incision-related outcomes.

Results: SP robotic surgery demonstrated performance comparable to MP systems while providing several distinct advantages. Enhanced visualization and articulation facilitated precise identification of small vessels and autonomic nerves, contributing to reduced blood loss and improved nerve preservation. The platform enabled stable dissection in narrow pelvis cases, including ultra-low anterior resection and intersphincteric resection. Fewer and smaller incisions resulted in reduced postoperative pain and shorter hospital stays. Additionally, the SP system offered a stable and ergonomic platform for transanal procedures, expanding the feasibility of natural orifice surgery without compromising oncologic or functional outcomes.

Conclusion: SP robotic colorectal surgery is technically feasible, safe, and offers meaningful short-term advantages over MP robotic and laparoscopic techniques. Its strengths—minimal incisions, improved ergonomics in narrow spaces, and stable transanal access—position the SP platform as a promising next step in minimally invasive colorectal cancer surgery. Further comparative trials are needed to validate long-term outcomes and refine indications.

Keywords: Single-port robotic surgery; Multi-port robotic surgery; Colorectal cancer;

Transanal surgery; Minimally invasive surgery; da Vinci SP; Natural orifice surgery.

From multiport to single-port: Integrating Xi, SP, and TaTME in the evolution of robotic rectal surgery

從多孔到單孔：Xi、SP 與 TaTME 在機器人直腸手術演進中的整合策略

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Robotic surgery has become an important advancement in minimally invasive colorectal surgery. The da Vinci Xi system provides enhanced three-dimensional visualization, improved instrument articulation, and better ergonomics, enabling surgeons to perform complex colorectal procedures with greater precision and confidence. This presentation shares a single surgeon's experience in adopting robotic colorectal surgery and discusses how the da Vinci Xi platform is shaping the next generation of surgical standards.

In rectal surgery, the robotic platform significantly facilitates pelvic dissection and helps achieve high-quality total mesorectal excision (TME). In colon surgery, robotic technology enables more precise lymph node dissection and supports totally robotic procedures with intracorporeal anastomosis. In the presenter's experience, robotic low anterior resection demonstrated reduced blood loss and favorable outcomes compared with laparoscopic surgery, particularly in lower rectal tumors.

The presentation also introduces early experiences with the da Vinci SP platform and explores its potential applications, including robotic transanal total mesorectal excision (TaTME). While initial cases demonstrate promising feasibility, technical challenges remain. Continued innovation in robotic platforms may further minimize surgical trauma and bring colorectal surgery closer to the goal of truly scarless procedures.

Prevention and management of anastomotic leakage

腸道吻合處滲漏之預防及處置

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Anastomotic leakage (AL) remains one of the most devastating complications following gastrointestinal surgery, particularly in low anterior resection for rectal cancer. AL is associated with significant morbidity, mortality, prolonged hospitalization, and increased healthcare costs. Furthermore, it negatively impacts long-term oncological outcomes and local recurrence rates. Despite advances in minimally invasive techniques and stapling devices, the incidence of AL persists, necessitating established protocols for its prevention and management.

We will discuss the risk factors associated with AL, including patient-related factors (e.g., malnutrition, male gender, obesity, and neoadjuvant radiochemotherapy) and surgical factors (e.g., tension and ischemia). Preventive strategies included optimize patient condition and intraoperative techniques to ensure tension-free anastomosis. The application of emerging technologies, such as Indocyanine Green (ICG) fluorescence angiography, is highlighted for its utility in assessing intraoperative perfusion. Additionally, the role of diverting stomas in high-risk patients is evaluated.

Diagnostic protocols focus on the trajectory of inflammatory markers, specifically C-reactive protein (CRP), as a negative predictive value, with contrast-enhanced CT serving as the gold standard for confirmation. Management strategies are categorized based on the International Study Group of Rectal Cancer (ISREC) grading system: Grade A (conservative management), Grade B (antibiotics with percutaneous or trans-anal drainage), and Grade C (urgent re-operation for peritonitis).

The management of anastomotic leakage requires a multimodal approach. Through the identification and optimization of modifiable risk factors and the adoption of intraoperative perfusion assessment, the risk of AL can be mitigated. Once leakage occurs, early recognition and individualized intervention based on severity grading are paramount to reducing mortality and preserving organ function.

Local excision in early rectal cancer: From alternative care to risk stratification

早期直腸癌的局部切除：從替代治療到風險分層管理

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許詔文

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Radical surgery with total mesorectal excision (TME) remains the gold standard treatment for rectal cancer, offering excellent oncologic outcomes but at the cost of substantial morbidity, functional impairment, and permanent stoma in selected patients. With increasing emphasis on organ preservation and minimally invasive strategies, local excision has emerged as an important treatment option in carefully selected cases. In current practice, local excision should not be regarded merely as an “alternative” to radical surgery, but rather as part of a structured, risk-adapted management strategy guided by pathological evaluation and multimodal therapy.

Local excision in early rectal cancer can be achieved through multiple approaches, including endoscopic submucosal dissection (ESD), endoscopic muscularis dissection (EMD), and transanal minimally invasive surgery (TAMIS). These techniques provide complementary options depending on tumor location, morphology, depth of invasion, fibrosis, and institutional expertise. The critical prerequisite for curative intent local excision remains high-quality en-bloc R0 resection, enabling accurate histopathologic assessment of depth of invasion, lymphovascular invasion, tumor budding, differentiation, and margin status.

For suspected T1 rectal cancer, international guidelines have established clear criteria for curative local resection. In low-risk lesions, en-bloc R0 local excision followed by surveillance may provide oncologic safety comparable to radical surgery while preserving anorectal function. In contrast, patients with high-risk pathological features should be considered for completion radical surgery or additional therapy. For T2 rectal cancer, radical surgery remains the recommended standard. Nevertheless, in patients refusing radical surgery or unfit for major resection, emerging evidence suggests that selected cases may be managed by EMD or full-thickness local excision, provided that adjuvant chemoradiotherapy (CCRT) is incorporated to improve oncologic safety. In locally advanced rectal cancer (≥T3) after neoadjuvant CCRT, patients achieving clinical complete response (cCR) may be considered for a watch-and-wait strategy. However, uncertainty in response assessment remains a major concern. In patients unwilling to undergo TME, diagnostic local excision using ESD/EMD or TAMIS may provide valuable pathological confirmation and further risk stratification to guide subsequent management.

This lecture will review the current evidence and practical decision-making framework of local excision

in early rectal cancer, emphasizing the integration of ESD, EMD, and TAMIS within a structured risk stratification strategy to optimize oncologic safety while minimizing overtreatment.

Keywords: Chemoradiotherapy; EMD; ESD; Local excision; Organ preservation; Rectal cancer; Risk stratification; T1; T2; TAMIS

Total Pelvic Exenteration (TPE): Challenging the limits and ensuring safety

骨盆腔廓清手術：挑戰極限與安全

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Complex pelvic disease was always difficult to manage in cancer treatment. Pelvic cavity is a narrow space area contains several major vessels, nerves, and organs. Operation in pelvic could leads to high morbidity and mortality. Earlier time in Taiwan, the major tools facing complex pelvic tumor were radiation and chemotherapy. However, the outcome was not very well, and the patient might suffer from uncontrolled infection or pain.

Pelvic exenteration leads to better disease control and life quality in properly selected cases. It extends surgery more than total mesorectum (TME) plane, push our limit and boundary forwards. Before performing exenteration surgery, we need comprehensive understanding of pelvic anatomy. Reduce morbidity and mortality with well planning.

We’ll share our understating and current evidence of pelvic exenteration. Also, our initial experience of pelvic exenteration surgery and pitfall we encountered.

From image to action: The role of MRI in rectal cancer decision-making

從影像到臨床策略：MRI 如何影響直腸癌治療決策

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Magnetic resonance imaging (MRI) has become a central imaging modality in the management of rectal cancer, providing critical information that directly influences clinical decision-making throughout the disease course. High-resolution pelvic MRI is widely regarded as the standard tool for local staging, enabling detailed evaluation of tumor extent, depth of invasion, and its relationship to the mesorectal fascia. Imaging features such as circumferential resection margin (CRM) involvement, extramural vascular invasion (EMVI), and nodal status are key prognostic indicators that guide treatment strategies, including the selection of neoadjuvant chemoradiotherapy or total neoadjuvant therapy.

Beyond baseline staging, MRI also plays an essential role in treatment response assessment. Following neoadjuvant therapy, MRI allows evaluation of tumor regression, fibrosis, and residual disease, which helps determine the feasibility of sphincter-preserving surgery or consideration of organ-preserving strategies such as the “watch-and-wait” approach in selected patients with complete clinical response. MRI is also valuable in postoperative surveillance, particularly in differentiating postoperative fibrosis from local tumor recurrence.

In addition to local disease assessment, MRI has emerged as an important modality for detecting distant metastases, particularly in the liver, which is the most common site of metastasis in rectal cancer. Hepatobiliary contrast-enhanced MRI using gadoxetic acid (EOB-MRI) significantly improves the detection of small liver metastases compared with conventional imaging. Early identification of hepatic metastases can alter staging, influence surgical planning, and facilitate timely multidisciplinary treatment strategies, including liver-directed therapy.

While computed tomography remains widely used for systemic staging, MRI increasingly provides both detailed local evaluation and highly sensitive detection of hepatic metastases. By integrating pelvic MRI and liver MRI findings into multidisciplinary discussions, imaging can move beyond diagnosis to actively shape treatment pathways. This evolving role highlights how modern MRI enables clinicians to translate imaging findings into actionable therapeutic decisions in rectal cancer management.

Later-line treatment strategies in metastatic colorectal cancer: Clinical development and optimal integration

轉移性大腸直腸癌後線治療策略：臨床發展與最佳整合

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The treatment landscape of metastatic colorectal cancer (mCRC) in the later-line setting has expanded considerably, yet optimal sequencing and integration of available therapies remain key clinical challenges. Among current options, trifluridine/tipiracil (FTD/TPI) has demonstrated a consistent survival benefit with a manageable safety profile, and its combination with bevacizumab has further improved clinical outcomes. Randomized evidence has shown that FTD/TPI plus bevacizumab significantly prolongs survival compared with FTD/TPI alone, supporting this combination as a key standard of care in previously treated mCRC.

In parallel, other anti-angiogenic approaches such as fruquintinib have demonstrated efficacy in refractory populations, providing additional options beyond cytotoxic-based therapies. As treatment options increase, therapy selection should be individualized based on prior exposure to anti-angiogenic agents, cumulative toxicities, and patient-specific factors, including performance status and disease burden. Clinical experience underscores the importance of maintaining disease control while preserving quality of life in heavily pretreated patients.

The therapeutic paradigm is also evolving toward biomarker-driven strategies. HER2-targeted therapies, including trastuzumab combined with pertuzumab and trastuzumab deruxtecan, have demonstrated meaningful activity in patients with HER2-amplified mCRC. In addition, KRAS G12C inhibitors such as sotorasib, particularly when combined with EGFR blockade, have shown promising efficacy in molecularly defined subgroups. These advances highlight the growing importance of molecular stratification in later-line treatment.

As these emerging therapies become increasingly integrated into clinical practice, defining their optimal positioning relative to established regimens—particularly FTD/TPI plus bevacizumab—will be critical. This presentation will review the clinical evidence supporting FTD/TPI-based combination therapy, summarize safety and real-world experience, and discuss a practical framework for sequencing later-line treatments in mCRC.

Organ preservation strategies after radiotherapy: Considerations and challenges of 'watch and wait'

放射線治療後的器官保留策略：「觀察與等待」的考量與挑戰

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The standard of care for locally advanced mid-to-low rectal cancer remains neoadjuvant chemoradiotherapy (nCRT) followed by total mesorectal excision (TME). Despite surgical advancements, long-term functional sequelae—including impaired bowel, urinary, and sexual functions—significantly impact patients' quality of life. The "Watch and Wait" (W&W) strategy offers a paradigm shift by allowing patients with a clinical complete response (cCR) to pursue organ preservation. Current clinical evidence suggests that oncological outcomes and survival rates for W&W are comparable to those of immediate radical surgery.

However, the implementation of W&W faces several critical challenges. First, cCR assessment relies heavily on digital rectal examination (DRE), endoscopy, and MRI, all of which have inherent diagnostic limitations. The potential for liquid biopsies or endorectal ultrasound to improve diagnostic accuracy remains an area of active investigation. Furthermore, there is no standardized definition for "near cCR," nor is there a consensus on its conversion rate to cCR or whether local excision can safely replace radical surgery in these cases. These uncertainties complicate clinical decision-making. Second, the optimal sequence and combination of nCRT—including the role of total neoadjuvant therapy (TNT) and the integration of immunotherapy for microsatellite instability (MSI) and beyond—remain to be fully established.

Future directions involve optimizing multidrug regimens, integrating immune-checkpoint inhibitors, and refining the synergy between long-course and short-course radiotherapy. Establishing standardized protocols for cCR evaluation and surveillance is essential to balance oncological safety with the preservation of long-term quality of life.

Preoperative long-course radiotherapy for rectal cancer: 25 years' experience of Taipei Veterans General Hospital

手術前長療程應用於直腸癌：臺北榮總二十五年經驗

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Surgery and radiotherapy (RT) are both important modalities for locally advanced rectal cancer. Since 2000, preoperative RT has replaced post-operative RT in the above scenario. We started long-course chemoradiotherapy (LCRT) with different chemotherapy regimen in Taipei VGH 25 years ago. In the last 10 years, short-course RT (SCRT) has become the main modality in the preoperative setting, especially combined with neoadjuvant chemotherapy, that is, total neoadjuvant therapy (TNT). However, some patients still received LCRT for specific reasons.

From randomized clinical trials, SCRT and LCRT offer comparable long-term survival and local control, but they are selected based on specific clinical goals and patient health. SCRT is a one-week, highly convenient, and cost-effective option with lower acute toxicity, making it ideal for elderly or frail patients and cases where surgery is already planned. In contrast, the five-to-six-week LCRT regimen provides superior tumor downstaging and higher rates of complete response, establishing it as the "gold standard" for organ preservation (the "Watch and Wait" approach) and for shrinking advanced or low-lying tumors to avoid a permanent stoma. While SCRT is an efficient component of modern Total Neoadjuvant Therapy (TNT) protocols, recent clinical data suggests that LCRT provides more durable results for patients aiming to avoid surgery entirely, as SCRT carries a higher risk of local tumor regrowth in non-operative management.

Role of short-course radiotherapy in the era of total neoadjuvant therapy

短期放射線治療在全程新輔助治療時代下的角色

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Short-course radiotherapy (SCRT), delivering 25 Gy in five fractions over one week, has emerged as an attractive alternative to conventional long-course chemoradiation (LCCRT) for rectal cancer. Compared with surgery alone, SCRT significantly reduces local recurrence without compromising overall survival. Although LCCRT generally achieves greater tumor downstaging, SCRT offers several practical and clinical advantages that have increased its use in modern treatment strategies.

One key advantage of SCRT is its short treatment duration, which enables earlier initiation of systemic therapy and facilitates integration into total neoadjuvant therapy (TNT) regimens. In the RAPIDO trial, high-risk locally advanced rectal cancer patients were randomized to SCRT followed by consolidation chemotherapy and delayed surgery versus standard LCCRT. SCRT-based TNT doubled the pathological complete response rate (28.4% vs. 14.3%), improved compliance with systemic therapy, and reduced disease-related treatment failure and distant metastases. Overall survival and locoregional control were comparable between the two strategies. Five-year follow-up confirmed sustained reductions in distant metastases, although a modest increase in locoregional recurrence was observed in the SCRT group.

Beyond oncologic outcomes, SCRT provides important practical benefits. The one-week schedule markedly reduces treatment burden and improves patient convenience, particularly for elderly or frail patients and those living far from treatment centers. SCRT is also associated with fewer acute toxicities, including lower rates of gastrointestinal and genitourinary adverse effects, and peri-anal dermatitis is uncommon. Acute symptoms often occur after completion of treatment rather than during radiotherapy.

In summary, SCRT represents an effective and convenient neoadjuvant radiotherapy strategy for rectal cancer. Its short treatment course, lower acute toxicity, and facilitation of early systemic therapy make it particularly well suited for TNT approaches. Careful patient selection remains important, as LCCRT may still be preferred for distal tumors requiring higher pelvic radiation doses. Ongoing trials combining SCRT with chemotherapy or immunotherapy may further optimize personalized treatment strategies.

Optimizing treatment decisions through biomarker-driven strategies in mCRC

轉移性大腸直腸癌的治療策略：從生物標記出發

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The management of metastatic colorectal cancer (mCRC) is increasingly guided by biomarker-driven strategies, reflecting a shift toward precision oncology. Molecular profiling, including RAS, BRAF, and MSI status, plays a critical role in informing treatment selection, sequencing, and overall treatment planning.

Recent data presented at major international congresses in 2026 have further highlighted the evolving role of targeted combination strategies. The phase III BREAKWATER trial demonstrated that the addition of encorafenib and cetuximab to FOLFIRI-based chemotherapy improved response rates and progression-free survival in patients with BRAF V600E–mutant mCRC. In parallel, emerging evidence suggests that KRAS G12C inhibitors in combination with cetuximab have shown promising clinical activity, with ongoing studies such as KRYSTAL-10 further evaluating this approach.

These advances reflect a shift from biomarker-based exclusion toward biomarker-specific combination strategies, positioning EGFR inhibition as a potential therapeutic backbone across multiple molecular subgroups. Such developments support a more individualized approach to treatment selection in contemporary clinical practice.

In clinical practice, treatment decisions should integrate molecular characteristics with key clinical factors, including tumor burden, disease distribution, patient condition, and treatment intent.This presentation will review recent clinical evidence and explore how biomarker-driven strategies can be applied in daily practice to optimize treatment decisions and improve patient outcomes in mCRC.

Anorectal sexual transmitted infection and related strategies

肛門直腸的性傳染病及相關防治策略

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詹珮君

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疾病管制署 慢性傳染病組

Background: HIV and anorectal sexually transmitted infections (STIs)—including syphilis, gonorrhea, and mpox—remain major public health concerns in Taiwan. These infections overlap in transmission routes, clinical presentations, and affected populations, particularly among men who have sex with men (MSM). Integrating HIV/STI prevention into surgical and colorectal care may improve early detection and treatment and strengthen linkage to comprehensive sexual health services. In 2025, Taiwan reported 879 newly diagnosed HIV cases, a 12% decrease from 2024, likely reflecting strengthened post-pandemic screening. Syphilis cases rose by 2%, with a 7% increase among women, suggesting a shift in gender distribution; moreover, incidence among adolescents and young adults has increased over the past five years regardless of gender. Gonorrhea incidence declined by 16%. Mpox outbreaks have been contained through targeted vaccination of high-risk groups; since expanded access began in 2023, 61 cases were reported and confirmed in 2025. Most mpox cases presented with genital or perianal lesions and were often initially misdiagnosed as condyloma or herpes, underscoring the importance of differential diagnosis among surgical specialists.

Methods and Results: The B1 Program—a nationwide initiative—provides routine HIV testing for patients with STIs, acute viral hepatitis, or substance use disorders in clinical settings. Between 2019 and 2025, the program demonstrated increased case detection, particularly within colorectal surgical departments, where the highest HIV positivity rates were observed among patients diagnosed with condyloma acuminatum, genital herpes, and syphilis. The program incentivizes clinics to integrate HIV screening and counseling into routine care and encourages partner notification and treatment.

HIV Prevention and Pre-exposure Prophylaxis (PrEP) Expansion— a government-subsidized PrEP program, enrolling over 11,000 users, including MSM, sex workers, sero-discordant couples and individuals engaged in chemsex has been endorsed nation-wide since 2018. For those at-risk population who tested negative for HIV, PrEP is a good choice of prevention for HIV in the future.

Health Promotion and Professional Education—in collaboration with national medical societies, including family medicine, obstetrics and gynecology, urology, colon and rectal surgeons and infectious diseases. These initiatives, reaching nearly 2,000 healthcare professionals in 2025, aim to standardize STI management and promote stigma-free, sex-positive clinical environments.

Conclusions: Taiwan's integrated approach—surveillance, targeted vaccination, expanded screening, and PrEP scale-up—highlights the value of linking public health policy with surgical practice. Embedding HIV/STI prevention in colorectal care can improve outcomes and advance national goals to end HIV transmission and promote sexual health equity. By 2025, the Sexual Health-Friendly Clinics Program had

certified 1,879 physicians to deliver inclusive, evidence-based care. We warmly invite all colon and rectal surgeons to join us.

Keywords: Clinical integration; Gonorrhea; HIV; Mpox; PrEP; Public health policy; Sexual health; Sexually transmitted infections; Syphilis; Taiwan CDC

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核醫心臟影像處理：從定量檢查到陷阱辯識

Nuclear Medicine Image Processing : From Quantitative Analysis to Pitfall Identification

時　間：115年6月27日　08:20-12:00

Time：June 27, 2026　08:20-12:00

地　點：臺北榮民總醫院 第三門診9樓創意谷

Place：The Clinical Innovation Center, Taipei Veterans General Hospital

核醫心臟影像處理：從定量檢查到陷阱辯識

Nuclear Medicine Image Processing : From Quantitative Analysis to Pitfall Identification

SPECT quantification of endocardial to epicardial perfusion gradients with spread field imaging technology

應用擴散場成像技術於 SPECT 定量心內膜至心外膜灌注梯度之定量

Yi-Hwa Liu

劉義華

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Endocardial (endo) and epicardial (epi) perfusion gradients in the transmural myocardium are fundamental markers of early ischemia, microvascular dysfunction, and subclinical cardiomyopathy. Despite the widespread availability of single photon emission computed tomography (SPECT) myocardial perfusion imaging, current systems lack the spatial resolution adequate to resolve transmural heterogeneity and the quantitative rigor needed to measure subtle endo/epi perfusion differences. This results in missed diagnoses and poor phenotyping of microvascular disease. Recent advances in gamma detection and collimation technology as well as SPECT reconstruction algorithms offer the unprecedented opportunity to achieve high resolution SPECT and precise quantitative analysis capable of measuring transmural gradients with accuracy approaching positron emission tomography, at a fraction of the cost and with far greater accessibility.

This study was to establish clinically deployable, high-sensitivity and high-resolution SPECT that enables early detection of subendocardial ischemia and microvascular disease. We have developed a quantitative SPECT framework with spread field imaging (SFI) technology to measure endo/epi myocardial perfusion gradients in patients with suspected or established coronary microvascular dysfunction. Our preliminary data demonstrate (1) sub-5-mm effective spatial resolution using our novel SPECT collimation and reconstruction techniques, (2) accurate measurement of endocardial–epicardial regional perfusion in cardiac phantoms, and (3) feasibility of endo/epi quantification in phantom datasets. We believe that the advanced SFI technology will enable SPECT to noninvasively quantify transmural perfusion gradients, potentially transforming the diagnosis and management of ischemic heart disease and significantly reducing cardiovascular morbidity.

Clinical applications of quantitative myocardial blood flow assessment using dynamic SPECT

動態 SPECT 心肌血流定量的臨床應用

Yuka Otaki

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Quantification of myocardial blood flow (MBF) has long been established using positron emission tomography (PET). In contrast, MBF quantification with single-photon emission computed tomography (SPECT) has traditionally been limited because of its lower spatial resolution. Recently, the development of semiconductor detector–based SPECT systems has enabled dynamic acquisition and quantitative MBF assessment with an accuracy comparable to that of PET.

In patients with multivessel coronary artery disease, conventional perfusion imaging provides relative assessment of myocardial perfusion and may fail to detect ischemia due to balanced ischemia. Quantitative MBF analysis can improve the detection of myocardial ischemia in such cases.

At our institution, dynamic SPECT imaging is performed in patients with multivessel coronary artery disease scheduled for coronary artery bypass grafting (CABG). Identification of ischemic myocardial territories using quantitative MBF helps guide surgical revascularization strategy. In addition, postoperative dynamic SPECT is used to evaluate improvement in myocardial perfusion.

More recently, we have applied dynamic SPECT in patients with angina symptoms without obstructive coronary artery disease (ANOCA). We are currently investigating the relationship between SPECT-derived MBF parameters and invasive coronary wire–based assessment of coronary microvascular dysfunction (CMD). These findings may contribute to the noninvasive diagnosis and therapeutic evaluation of ANOCA using SPECT.

In this presentation, we will introduce our institutional experience with dynamic SPECT for quantitative assessment of myocardial blood flow and its potential clinical applications.

Experience sharing on 4DM Myocardial Blood Flow (MBF) processing

4DM 心肌血流處理經驗分享

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施鈺呈

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Quantification of myocardial blood flow (MBF) and myocardial flow reserve (MFR) has traditionally been performed with PET imaging, but recent advances in detector technology and reconstruction algorithms have enabled dynamic acquisition with SPECT. In this presentation, we will describe the workflow for calculating MBF using dynamic SPECT data processed with 4DM software. The talk will cover practical steps including dynamic image acquisition, reconstruction, motion correction, time–activity curve generation, and kinetic modeling required to derive MBF and MFR.

In addition to the technical aspects, we will share our institutional experience with dynamic SPECT MBF analysis, focusing on image interpretation and common pitfalls encountered in routine practice. Particular attention will be given to factors that may affect measurement accuracy, such as attenuation artifacts, extracardiac activity, limited temporal resolution, and patient motion. We will also discuss current limitations of SPECT-based MBF quantification.

Finally, we will review the clinical implications and prognostic value of MBF and MFR derived from dynamic SPECT, highlighting how these quantitative parameters may improve risk stratification and aid in the evaluation of coronary artery disease. Our experience suggests that, when properly performed and interpreted, dynamic SPECT MBF analysis can provide valuable physiologic information that complements conventional perfusion imaging.

Clinical practice in QPS/QGS image processing and reconstruction

QPS/QGS 影像處理與重建之臨床實務經驗

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Drawing from extensive clinical experience in a high-volume tertiary center, this presentation explores the optimization of Tl-201 myocardial perfusion imaging (MPI) using the GE NM530c (CZT) system. The focus is on the empirical development of standardized protocols necessary to ensure robust QPS/QGS quantification.

We first address the critical nature of patient positioning, detailing the clinical workflow for centering the heart within the 19 cm “sweet spot”— a vital step to prevent truncation and sensitivity degradation inherent in the NM530c’s stationary detector geometry. To ensure consistent results, we emphasize the implementation of standardized reconstruction requirements, utilizing optimized iterative parameters and filtering to maintain a uniform diagnostic baseline.

The core of this session highlights that achieving high-quality, high reproducibility images ultimately depends on the synergy between precise centering and sufficient acquisition time. By establishing rigorous standards for patient alignment and compensating for Tl-201’s specific photon flux through optimized scan duration, clinicians can minimize artifacts and stabilize diagnostic metrics in a demanding clinical environment.

The past and future of Cedars-Sinai cardiac suite (QGS/QPS/QPET/AutoQUANT)

Cedars-Sinai 心臟影像套裝軟體（QGS/QPS/QPET/AutoQUANT）的過去、現在與未來

Jack Chih-Chun Wei

魏志君

Quantitative Diagnostic Software Group, Cedars-Sinai Medical Center, USA

As part of Cedars-Sinai Medical Center, the Quantitative Diagnostic Software Group (formerly known as Artificial Intelligence in Medicine Program) has been developing software and algorithms that are considered the gold standard in nuclear cardiology. Our software applications have been available through licensing partners like GE, Siemens, and Philips for over 20 years, under names such as AutoQUANT, QGS, QPS, QPET and more.

We are constantly improving our software by incorporating new research and adding new features. A timeline of various software features introduced over the years and their clinical relevance will be given. It is also a great opportunity to bring developers behind the software and the end users, i.e., the healthcare professionals, together in the same forum. Therefore, part of the presentation will be expanded Q & A, with questions collected and forwarded by the organizer beforehand for more rounded and in-depth answers.

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骨腫瘤診斷與治療新視界：深耕人工智慧驅動的精準分類、影像辨識與微創

Slogan：整合分類 × 精準診斷 × 微創治療

(Integration of Classification, Precision Diagnosis, and Minimally Invasive Therapy)

時　間：115年6月27日　　08:30-12:30
Time：June 27, 2026　　08:30-12:30

地　點：臺北榮民總醫院 第三門診9樓創新沙龍
Place：The Clinical Innovation Center, Taipei Veterans General Hospital

骨腫瘤診斷與治療新視界：深耕人工智慧驅動的精準分類、影像辨識與微創

Slogan：整合分類 × 精準診斷 × 微創治療

(Integration of Classification, Precision Diagnosis, and Minimally Invasive Therapy)

Systematic imaging approach to bone tumors

骨腫瘤影像診斷的系統化判讀模式

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The systematic interpretation of bone tumor imaging requires a disciplined analytical framework that integrates clinical context, lesion morphology, and multimodality imaging characteristics. A haphazard or intuition-driven approach leads to diagnostic errors, missed lesions, and inappropriate management. A structured method, by contrast, transforms complex imaging findings into actionable diagnostic conclusions.

This presentation introduces a step-by-step protocol for bone tumor image interpretation applicable across radiography, CT, and MRI. The framework covers six core domains: (1) lesion location — epiphyseal, metaphyseal, or diaphyseal; cortical, medullary, or periosteal; (2) lesion margin and zone of transition — indicating biologic aggressiveness; (3) matrix characterization — osteoid, chondroid, fibrous, or mixed; (4) periosteal reaction patterns — Codman triangle, sunburst, onion skin; (5) soft tissue extension and neurovascular involvement; and (6) multiplicity and systemic context including skeletal survey and whole-body MRI or PET findings.

The presentation emphasizes age-stratified differential diagnosis: in pediatric patients, osteosarcoma and Ewing sarcoma dominate the malignant spectrum; in adults, metastases and myeloma must be excluded before entertaining primary bone tumors. Key imaging mimics and diagnostic pitfalls are illustrated with case examples. Integration of MRI signal characteristics — particularly T1 marrow signal, T2 heterogeneity, and contrast enhancement patterns — is discussed in relation to histological correlation.

In conclusion, a systematic imaging approach to bone tumors reduces diagnostic uncertainty and facilitates timely multidisciplinary tumor board decision-making. Standardized reporting templates aligned with this framework are presented as a tool for improving consistency across radiologists and institutions.

Molecular markers in bone tumor pathology

骨腫瘤病理診斷基因標記最新趨勢

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The landscape of bone tumor pathology has been fundamentally reshaped by advances in molecular diagnostics. The fifth edition of the WHO Classification of Tumours of Soft Tissue and Bone (2020) reflects a paradigm shift from purely morphology-based diagnosis to an integrated approach that incorporates immunohistochemistry, fluorescence in situ hybridization (FISH), and next-generation sequencing (NGS). Molecular markers now play a central role in diagnosis, prognostication, and therapeutic targeting.

This presentation reviews the most clinically impactful molecular alterations across the major bone tumor subtypes. For osteosarcoma, complex genomic instability and TP53 alterations remain hallmarks, with emerging interest in CDK4 and MDM2 amplification distinguishing low-grade central osteosarcoma from dedifferentiated variants. Ewing sarcoma is defined by EWSR1-FLI1 and related fusions detectable by FISH or RNA sequencing, critical for diagnosis in morphologically ambiguous cases. Chondrosarcomas are stratified by IDH1/IDH2 mutations in conventional subtypes, while mesenchymal chondrosarcoma harbors the HEY1-NCOA2 fusion. Giant cell tumor of bone is characterized by H3F3A p.G34W mutation, detectable by immunohistochemistry.

The role of SMARCB1 loss in epithelioid sarcoma, STAT6 nuclear expression in solitary fibrous tumor, and MDM2 amplification in atypical lipomatous tumors/well-differentiated liposarcomas are discussed as paradigmatic examples of marker-driven reclassification. The application of liquid biopsy and circulating tumor DNA in monitoring treatment response and detecting relapse represents an emerging frontier.

In conclusion, molecular pathology has become indispensable in the diagnosis and classification of bone tumors. Pathologists, radiologists, and oncologists must collaborate within a molecular tumor board framework to ensure accurate diagnosis and enable access to targeted therapy in eligible patients.

Application of advanced computer simulation in complicated pelvis tumor resection

利用先進電腦模擬困難骨盆腫瘤手術

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Pelvic bone tumor resection remains one of the most technically demanding procedures in orthopedic oncology. The complex three-dimensional anatomy of the pelvis, proximity to major neurovascular structures, and the need to achieve wide oncologic margins while preserving functional limb and pelvic ring integrity create formidable surgical challenges. Conventional preoperative planning based on two-dimensional imaging is often insufficient for anticipating intraoperative complexity.

This presentation describes the application of advanced computer simulation and three-dimensional (3D) surgical planning technologies to facilitate pelvic tumor resection. Preoperative workflows include CT- and MRI-based 3D reconstruction of tumor extent and its relationship to the iliac vessels, sciatic nerve, sacroiliac joint, and acetabulum. Virtual osteotomy planning allows the surgeon to define resection planes, simulate margin adequacy, and assess reconstruction options — including custom 3D-printed implants, modular hemipelvic prostheses, and structural allograft composites — prior to the index procedure.

Case examples are presented illustrating Enneking zone I–III pelvic resections where computer simulation altered the operative strategy, reduced intraoperative blood loss, and enabled safer nerve-sparing approaches. Integration of intraoperative navigation systems and patient-specific cutting guides — fabricated from preoperative 3D plans — is discussed in the context of improving resection accuracy and reproducibility.

In conclusion, advanced computer simulation represents a transformative tool in the surgical management of complex pelvic bone tumors. The combination of virtual planning, custom implants, and intraoperative navigation defines a new standard of care that improves oncologic outcomes while reducing surgical morbidity.

Quantitative imaging & radiomics in bone tumors

骨腫瘤相關最新影像量化型研究發展

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The integration of quantitative imaging and radiomics into the evaluation of bone tumors has fundamentally transformed the landscape of musculoskeletal oncologic radiology. Conventional morphological assessment, while foundational, is inherently limited by interobserver variability and the inability to capture the full spectrum of tissue heterogeneity. Radiomics — the high-throughput extraction of quantitative features from medical images — offers a pathway to objectify and standardize imaging-based tumor characterization.

This presentation reviews the current state of quantitative imaging research in bone tumors, encompassing primary malignancies (osteosarcoma, chondrosarcoma, Ewing sarcoma) as well as bone metastases. Key topics include: (1) MRI-based radiomic feature extraction for tumor grading and histological subtype differentiation; (2) CT-derived texture analysis for predicting treatment response to neoadjuvant chemotherapy; (3) the role of photon-counting CT (PCCT) in enhancing spectral data quality and enabling new quantitative metrics; (4) PET/CT radiomics for metabolic phenotyping and prognostic stratification; and (5) the application of machine learning and deep learning algorithms to automate feature selection and build robust predictive models.

Emerging evidence supports the utility of radiomics in differentiating benign from malignant lesions, identifying pathological fracture risk, and monitoring disease progression. Standardization of image acquisition protocols, reproducibility of feature extraction pipelines, and prospective validation remain critical challenges. The IBSI (Image Biomarker Standardisation Initiative) framework is discussed in the context of harmonizing multi-institutional datasets.

In conclusion, quantitative imaging and radiomics represent a paradigm shift in bone tumor imaging, bridging the gap between radiology and precision oncology. As artificial intelligence tools become increasingly integrated into clinical workflows, radiologists are positioned to deliver not only diagnostic but also prognostic and predictive information, elevating the value of imaging in multidisciplinary tumor management.

Image-guided ablation therapy for bone tumors: Practical experience

骨腫瘤影像導引消融治療實際經驗

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Image-guided ablation therapy has emerged as a safe, effective, and minimally invasive treatment option for a spectrum of bone tumors, ranging from benign lesions such as osteoid osteoma to malignant entities including bone metastases and primary sarcomas selected for palliative or adjunctive treatment. With real-time imaging guidance — primarily CT fluoroscopy — ablation offers precision targeting while minimizing collateral damage to adjacent neurovascular structures.

This presentation shares our institutional experience with radiofrequency ablation (RFA), microwave ablation (MWA), and cryoablation for bone tumors. Osteoid osteoma remains the gold-standard indication for RFA, with technical success rates exceeding 90% and a low complication profile. For bone metastases causing intractable pain, cryoablation provides durable pain palliation and local tumor control, particularly in lesions refractory to radiotherapy or in patients with limited radiation tolerance. Specific procedural considerations are addressed, including thermal protection of adjacent cortex, spinal cord, and peripheral nerves, as well as cement augmentation to reduce post-ablation fracture risk in weight-bearing bones.

Practical insights from case series are presented: patient selection criteria, pre-procedural imaging review, needle trajectory planning, ablation zone monitoring with thermometry, and post-procedural follow-up protocols using MRI and CT. Complications encountered — including skin burns, incomplete ablation, and transient neuropraxia — and their management are discussed candidly.

In conclusion, image-guided ablation for bone tumors is a well-established and expanding minimally invasive modality. Institutional experience, rigorous technique, and close multidisciplinary collaboration are essential for achieving reproducible oncologic and symptomatic outcomes.

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肥胖、代謝性脂肪肝與腸道微菌叢

Obesity, MASLD, and the Microbiota

時 間：115年6月27日 13:30-17:30

Time：June 27, 2026 13:30-17:30

地 點：臺北榮民總醫院 致德樓第三會議室

Place：The Third Conference Room, Chih-Teh Building
Taipei Veterans General Hospital

肥胖、代謝性脂肪肝與腸道微菌叢
Obesity, MASLD, and the Microbiota

Mechanistic insights into obesity: Metabolic dysregulation and microbiota interactions

肥胖的機制性解析：代謝失調與腸道微生物交互作用

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Obesity is a complex metabolic disorder and a major global health challenge associated with an increased risk of type 2 diabetes, cardiovascular disease, fatty liver disease, and certain cancers. This speech will focus on the mechanistic basis of obesity, with particular emphasis on metabolic dysregulation and the interactions between host physiology and the gut microbiota. Beyond excessive calorie intake and physical inactivity, alterations in gut microbial composition and diversity have emerged as important contributors to obesity-related metabolic disturbances. Gut microbiota can influence energy harvest, fat storage, systemic inflammation, and insulin resistance, thereby playing a critical role in the development and progression of obesity. The session will also discuss how lifestyle factors, including diet, physical activity, sleep, and stress, affect both metabolic homeostasis and microbial balance. In particular, dietary strategies such as increasing fiber intake and incorporating fermented foods may beneficially modulate the gut microbiota and improve metabolic health. By integrating current understanding of host–microbiota interactions, this lecture aims to provide a mechanistic framework for obesity management and to highlight practical approaches that support long-term metabolic well-being.

Use of glucose-lowering or weight-loss medications to control weight: Endocrinologist's perspective

使用降血糖 / 減重藥物來控制體重：內分泌科醫師的觀點

Chii-Min Hwu

胡啟民

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Endocrinologists emphasize that the use of antidiabetic or weight-loss medications for weight management should be approached comprehensively, rather than relying on pharmacotherapy alone. While these medications can help regulate blood glucose levels and reduce appetite, optimal and sustainable weight control is best achieved by integrating pharmacological treatment with lifestyle modifications, including dietary changes and regular physical activity.

This discussion highlights key perspectives from endocrinology experts: medications should be considered adjunctive tools rather than stand-alone solutions. Healthy dietary practices are fundamental, including caloric control, limiting high-fat and high-sugar foods, and increasing the intake of vegetables and lean proteins. Regular physical activity further enhances energy expenditure and improves insulin sensitivity, contributing to better glycemic control and weight management. In addition, weight reduction is associated with a lower risk of cardiovascular disease, hypertension, and other chronic conditions.

Professional guidance from endocrinologists is essential for individualized assessment and tailored treatment strategies. Long-term success depends on sustained behavioral changes to prevent weight regain. Certain agents, such as GLP-1 receptor agonists, have demonstrated significant efficacy in appetite suppression and glucose regulation, thereby supporting weight loss.

In conclusion, effective and sustainable weight management requires a multidisciplinary approach that combines pharmacological therapy, lifestyle intervention, and expert medical supervision.

Endoscopic management of obesity: Current techniques, outcomes, and future directions

肥胖的內視鏡治療：當前技術、療效與未來發展方向

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Obesity has emerged as a global health crisis, contributing significantly to the burden of metabolic disorders, cardiovascular diseases, and reduced quality of life. While lifestyle modification and pharmacotherapy remain first-line treatments, their long-term efficacy is often limited. Bariatric surgery, although effective, is invasive and not suitable or acceptable for all patients. In this context, endoscopic management of obesity has gained increasing attention as a minimally invasive, safe, and effective alternative.

This presentation reviews the current techniques in endoscopic bariatric and metabolic therapies (EBMTs), including gastric and intestinal approaches, such as intragastric balloons, endoscopic sleeve gastroplasty (ESG), aspiration therapy and duodenal mucosal resurfacing (EMR). These modalities aim to induce weight loss through gastric volume reduction, delayed gastric emptying, metabolic control and behavioral modification. Clinical evidence has demonstrated that EBMTs can achieve significant total body weight loss, with favorable safety profiles compared to surgical approaches.

Outcomes from recent studies suggest that EBMTs are preferred than lifestyle modification alone. Additionally, combination therapy with obesity management medications are also promising. Despite these advances, challenges remain, including variability in patient response, durability of outcomes, and the need for standardized protocols.

Looking forward, future directions in endoscopic obesity management include the development of novel devices, combination therapies integrating pharmacological agents such as GLP-1 receptor agonists, and personalized treatment strategies based on patient characteristics. Advances in endoscopic techniques and improved understanding of metabolic mechanisms are expected to further enhance efficacy and expand indications.

In conclusion, endoscopic management represents a rapidly evolving field that bridges the gap between medical and surgical therapies for obesity. With ongoing innovation and growing clinical evidence, EBTs are poised to play an increasingly important role in the multidisciplinary management of obesity.

Metabolic-microbial interactions in bariatric surgery: From mechanisms to clinical impact

減重手術中的代謝 - 腸道菌交互作用：從機轉到臨床影響

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Bariatric and metabolic surgery is currently the most effective treatment for severe obesity and obesity-related metabolic diseases, producing substantial and durable weight loss as well as high remission rates of type 2 diabetes. While anatomical restriction and nutrient malabsorption were historically considered the primary mechanisms, accumulating evidence suggests that metabolic improvements following bariatric surgery are strongly influenced by complex interactions between the gut microbiota and host metabolic pathways.

Recent studies have demonstrated profound and rapid alterations in gut microbial composition following procedures such as sleeve gastrectomy (SG) and Roux-en-Y gastric bypass (RYGB). These changes are accompanied by functional shifts in microbial metabolism, including altered bile acid transformation, short-chain fatty acid production, and microbial signaling pathways that interact with host metabolic regulators. Experimental studies using germ-free animal models have further shown that transplantation of post-bariatric surgery microbiota can partially reproduce weight reduction and metabolic improvements, supporting a causal role for the gut microbiome in mediating surgical outcomes.

Mechanistically, several key pathways have been proposed to explain these metabolic-microbial interactions. These include enhanced bile acid signaling through FXR and TGR5 receptors, increased secretion of incretin hormones such as GLP-1 and PYY, modulation of intestinal nutrient sensing, and reduced systemic inflammation. Together, these pathways contribute to improved insulin sensitivity, energy expenditure, and glucose homeostasis following metabolic surgery.

Clinically, the recognition of microbiome-mediated mechanisms has important implications. Microbial signatures may serve as predictive biomarkers for surgical outcomes, while microbiome-targeted interventions—including probiotics, prebiotics, dietary modulation, or fecal microbiota transplantation—are being explored as adjunctive strategies to enhance metabolic benefits. Moreover, understanding these interactions may help explain heterogeneity in weight loss response and diabetes remission after bariatric procedures.

In conclusion, metabolic surgery represents a unique human model to study host–microbiome interactions in metabolic regulation. Integrating microbiome research with surgical and metabolic medicine may not only improve patient selection and postoperative management but also provide insights for the development of novel microbiome-based therapies for obesity and metabolic disease.

MASLD in the new era: Evolving risk assessment and management strategies

新時代背景下的 MASLD：演進中的風險評估與管理策略

Daniel Huang

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Metabolic Associated Steatotic Liver Disease (MASLD) has become the dominant driver of chronic liver disease worldwide, with a growing proportion of patients presenting with advanced fibrosis and hepatocellular carcinoma. The clinical challenge is no longer simply identifying steatosis but determining who will progress and who requires intervention.

Risk stratification in MASLD is now anchored on scalable, non-invasive pathways. Simple tools such as FIB-4 remain useful at the front line, but their value lies in integration with second-line tests including elastography and imaging-based assessment. Increasingly, risk is understood as multidimensional—fibrosis stage, metabolic burden, and genetic susceptibility all contribute. In particular, the interaction between type 2 diabetes and genetic variants such as *PNPLA3* appears to identify a subgroup at disproportionate risk of hepatocellular carcinoma, even outside traditional cirrhosis-based frameworks.

Assessment of treatment response is also moving away from biopsy toward quantitative, repeatable measures. Imaging-based techniques such as proton density fat fraction provide sensitive readouts of hepatic fat, and when interpreted alongside biochemical and clinical changes, allow a more nuanced assessment of disease trajectory. Composite endpoints, including those capturing meaningful metabolic and hepatic improvement, are beginning to emerge as practical alternatives in both trials and early clinical adoption.

Therapeutically, lifestyle modification remains central but is often insufficient in higher-risk disease. Pharmacologic options are expanding, with agents targeting weight, insulin resistance, and inflammatory pathways showing consistent benefit. GLP-1 receptor agonists in particular have demonstrated clinically meaningful reductions in steatosis and weight, while antifibrotic strategies are advancing in parallel.

Taken together, MASLD management is evolving toward an integrated model: risk stratified, biomarker-driven, and increasingly personalized, where the goal is not simply disease detection, but altering its natural history.

Early-life gut microbiota as a determinant of obesity and hepatic steatosis: Mechanisms and clinical implications

早期生命期腸道微生物群對肥胖與肝臟脂肪堆積的決定性作用：機制與臨床意涵

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The first 1,000 days of life represent a critical developmental window during which the gut microbiota, host metabolism, and nutritional exposures co-evolve to shape long-term metabolic health. Increasing evidence indicates that early-life microbial colonization patterns may influence susceptibility to childhood obesity and metabolic dysfunction-associated steatotic liver disease (MASLD). Perturbations in early microbial development—driven by factors such as delivery mode, feeding practices, antibiotic exposure, and diet—can alter microbial diversity and metabolic signaling pathways.

In this presentation, I will review emerging mechanistic insights linking early-life microbiota to metabolic regulation, including microbial modulation of energy harvest, bile acid metabolism, intestinal barrier function, and hepatic lipid metabolism. Longitudinal studies further suggest that altered microbial trajectories during infancy may predispose individuals to excessive weight gain and hepatic steatosis later in childhood.

I will also present findings from our pediatric cohort demonstrating that children with obesity and MASLD exhibit a reduced abundance of Bacteroides ovatus, which is associated with increased liver steatosis and elevated alanine aminotransferase levels. In high-fat diet mouse models, oral supplementation with B. ovatus attenuated hepatic lipid accumulation and improved metabolic parameters, supporting a microbiota-mediated protective effect against hepatic steatosis.

Together, these findings support the concept that pediatric metabolic health represents an ecological phenotype shaped by early-life gut microbial development. Recognizing the gut microbiome as a modifiable organ highlights opportunities for early-life preventive strategies—including breastfeeding promotion, appropriate complementary feeding, prudent antibiotic use, and targeted microbiome-based interventions—to reduce the risk of obesity and MASLD.

Met-HBV: Impact of MASLD on the natural history and management of chronic hepatitis B

Met-HBV：代謝異常脂肪性肝病對慢性 B 型肝炎自然史及臨床管理的影響

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Steatotic liver disease is an emerging problem, and it usually coexists with metabolic dysfunction. These factors may lead to adverse liver and cardiometabolic outcomes. After the introduction of metabolic dysfunction-associated steatotic liver disease (MASLD), HBV infection does not need to be excluded from the entity of MASLD. As HBV carriers age, they develop more comorbidities. HBV patients with concurrent MASLD, or Met-HBV, are becoming a new issue, which is around 30% of HBV carriers.

Having two diseases, “MASLD” and “HBV”, together is expected to have a synergistic worse outcome. However, after dissecting its components, “metabolic dysfunction” and “steatotic liver disease” have different impacts on the HBV activity. While metabolic dysfunction increases the risk of cirrhosis, HCC, and all-cause mortality in HBV patients, steatosis seems to be protective, reducing these risks and associated with a higher chance of HBsAg seroclearance. Among these metabolic dysfunctions, type 2 diabetes has a major impact on the natural course of chronic hepatitis B.

For the management of Met-HBV, we need to manage metabolic dysfunction and HBV concurrently. Lifestyle modification, exercise, and weight reduction remain the cornerstone of management, helping to control both conditions. The severity of liver fibrosis and steatosis should be assessed before initiating medical management. Specific medication for metabolic dysfunction should be utilized with caution in patients with cirrhosis or decompensation. GLP-1 agonist-based therapy is emerging, and its impact on HBV patients should be monitored.

On the other hand, different antiviral therapies in Met-HBV seem to achieve similar viral suppression. The underlying metabolic inflammation often persists, potentially masking residual risk for disease progression. We should be aware of the lipid profiles and renal dysfunction during antiviral therapy.

HCV-Driven metabolic reprogramming and gut microbiome remodeling: From chronic infection to post-SVR outcomes

C 型肝炎病毒慢性感染至病毒清除後對代謝及腸道微生物群的影響

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Chronic hepatitis C virus (HCV) infection induces profound alterations in host metabolism and the gut-liver axis, contributing to liver disease progression and systemic complications. This speech will highlight how HCV reshapes host metabolic pathways and gut microbial composition during chronic infection and after viral eradication through sustained virologic response (SVR). Viral replication and host-virus interactions drive metabolic reprogramming in hepatocytes, affecting lipid metabolism, glucose regulation, and mitochondrial function. These changes promote steatosis, insulin resistance, and persistent inflammatory signaling, thereby facilitating fibrosis progression and increasing the risk of hepatocellular carcinoma (HCC).

A key component of this pathophysiology involves the gut-liver axis, where HCV-associated liver injury alters intestinal permeability and disrupts the gut microbial ecosystem. Chronic infection is commonly associated with gut dysbiosis, characterized by reduced microbial diversity, depletion of beneficial short-chain fatty acid-producing bacteria, and expansion of potentially pathogenic taxa. These microbial shifts can enhance microbial translocation and endotoxin exposure through the portal circulation, amplifying hepatic inflammation and metabolic disturbances.

The advent of direct-acting antivirals (DAAs) has dramatically improved treatment outcomes, enabling most patients to achieve SVR. Viral clearance partially restores metabolic homeostasis and can improve the gut microbial profile; however, emerging evidence suggests that some metabolic abnormalities and microbiome alterations may persist even after successful therapy. Consequently, patients who achieve SVR may still exhibit residual risks for metabolic dysfunction, fibrosis progression, or HCC.

Overall, HCV infection should be viewed as a systemic metabolic disease involving complex interactions among viral factors, host metabolism, and the gut microbiome. Understanding these interconnected mechanisms may help identify biomarkers for disease progression and guide new therapeutic strategies targeting metabolic pathways and microbiome modulation to improve long-term outcomes after SVR.

Impact of metabolic dysfunction on prognosis in hepatocellular carcinoma

代謝功能障礙對肝細胞癌預後的影響

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Metabolic dysfunction is a major determinant of outcome in hepatocellular carcinoma (HCC). In the era of metabolic dysfunction-associated steatotic liver disease (MASLD), prognosis depends not only on tumor burden and liver reserve but also on obesity, diabetes, sarcopenia, cardiovascular disease, and chronic inflammation. MASLD-related HCC can arise outside the classic cirrhosis-dominant pathway, yet surveillance remains centered largely on cirrhosis. As a result, some at-risk patients may fall outside routine surveillance and present with more advanced tumours rather than early-stage disease, potentially worsening prognosis from the outset.

Recent evidence suggests that metabolic dysfunction influences prognosis at several levels. Patients with obesity, diabetes, or steatohepatitis may enter treatment with a remnant liver already primed for further carcinogenesis. After curative-intent resection, obesity and diabetes have been linked to increased late recurrence, consistent with persistent lipotoxicity, insulin resistance, and fibrogenic signalling. MASLD has also been associated with shorter overall survival after resection even when time to recurrence is similar, suggesting that frailty, competing cardiometabolic mortality, and reduced treatment tolerance contribute to outcome. Obesity may further reduce the performance of ultrasound-based surveillance and make percutaneous ablation technically more difficult in selected patients.

The systemic therapy setting remains more complex. Experimental studies indicate that steatohepatitis can impair antitumour immune surveillance and may alter responsiveness to immune checkpoint blockade. However, contemporary clinical data have not shown a uniformly inferior outcome for broadly defined non-viral HCC, implying that this category is too heterogeneous and may conceal biologically distinct subgroups within metabolically driven disease.

Taken together, metabolic dysfunction should be regarded as a prognostic axis rather than a background comorbidity in HCC. Future management will require better identification of at-risk non-cirrhotic MASLD populations, longer postoperative surveillance, more precise etiologic stratification, and integrated assessment of tumor factors, liver reserve, body composition, and cardiometabolic risk.

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解碼肥厚的心：肥厚性心肌病變、法布瑞氏症與心肌類澱粉沉積症的最新臨床進展

Decoding the Thickened Heart: A Contemporary Update on Hypertrophic Cardiomyopathy, Fabry Disease, and Cardiac Amyloidosis

時 間：115年6月27日 13:00-17:15

Time：June 27, 2026 13:00-17:15

地 點：臺北榮民總醫院 致德樓第四會議室

Place：The Fourth Conference Room, Chih-Teh Building
Taipei Veterans General Hospital

解碼肥厚的心：肥厚性心肌病變、法布瑞氏症與心肌類澱粉沉積症的最新臨床進展
Decoding the Thickened Heart: A Contemporary Update on Hypertrophic Cardiomyopathy, Fabry Disease, and Cardiac Amyloidosis

At the forefront: Modern management of hypertrophic cardiomyopathy

巔峰對話：肥厚性心肌病變的現代治療新視界

Martin S. Maron

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Hypertrophic cardiomyopathy (HCM) has evolved into a highly treatable disease with near-normal longevity. This lecture reviews contemporary paradigms in risk stratification, imaging, and therapeutics reshaping its natural history. Sudden cardiac death (SCD) prevention relies on ACC/AHA guidelines. Key markers—family history of SCD, unexplained syncope, massive LVH, apical aneurysms, and sensitivity in risk stratification. Furthermore, CMR is indispensable; an LGE scar burden of ≥15% serves as a critical threshold guiding ICD decisions. Distinguishing obstructive from non-obstructive phenotypes is paramount. Upright exercise echocardiography remains the gold standard, revealing that nearly 70% of patients exhibit dynamic LVOT obstruction. For symptomatic obstructive patients, while myectomy and alcohol ablation remain excellent options, cardiac myosin inhibitors have revolutionized medical therapy. Mavacamten and the next-generation agent Aficamten robustly reduce gradients, improve peak VO2, and down-refer patients from invasive interventions. Notably, Aficamten features pharmacological advantages, including a shorter half-life for faster titration, fewer drug interactions, and less transient systolic dysfunction. Lastly, the lecture highlights a low threshold for early anticoagulation in HCM patients with atrial fibrillation, independent of CHA2DS2-VASc scores, to mitigate stroke risk. Future horizons, including multi-drug targeted therapies for non-obstructive HCM (metabolic modulators, SGLT2 inhibitors) and AI to refine diagnostic specificity, are also discussed to optimize global survival.

Behind the thickened wall: Deciphering LVH in cardiomyopathy

心牆背後的真相：左心室肥大的診斷迷霧

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Left ventricular hypertrophy (LVH) represents a common yet diagnostically challenging phenotype encountered in contemporary cardiology. While hypertrophic cardiomyopathy (HCM) remains the most recognized cause of unexplained LVH, several infiltrative and phenocopy conditions, including cardiac amyloidosis and Fabry cardiomyopathy can present with similar morphologic features but substantially different prognostic and therapeutic implications. Other differential diagnosis including. This lecture, "Behind the Thickened Wall: Deciphering LVH in Cardiomyopathy," will provide a practical multimodality imaging–based approach to the differential diagnosis of LVH, emphasizing the integration of clinical clues, electrocardiography, echocardiography, cardiovascular magnetic resonance (CMR), nuclear imaging, and emerging artificial intelligence applications.

The great imitator: Facing Fabry Disease – Taiwan experience

偉大的模仿者：法布瑞氏症—臺灣實戰經驗

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Fabry disease is increasingly recognized in Taiwan and is no longer considered exceptionally rare. Data from nationwide newborn screening programs identified approximately 1 affected male infant in every 1,600 births. The predominant genotype in Taiwan is the IVS4+919G>A mutation, which is associated with a late-onset phenotype characterized predominantly by cardiac involvement. With growing awareness among cardiologists, an increasing number of patients with unexplained left ventricular hypertrophy (LVH) have been diagnosed with Fabry disease. Fabry cardiomyopathy may present with asymmetric LVH, closely mimicking sarcomeric hypertrophic cardiomyopathy (HCM), thereby posing substantial diagnostic challenges in daily clinical practice. At Taipei Veterans General Hospital, we have established the largest adult Fabry disease cohort in Taiwan. This prospective observational cohort includes more than 300 patients with longitudinal follow-up extending beyond 10 years. The cohort encompasses asymptomatic mutation carriers as well as patients with overt cardiac involvement, with and without enzyme replacement therapy (ERT).

In this lecture, I will highlight the Taiwan experience in Fabry disease, focusing on the overlapping phenotypic features between Fabry cardiomyopathy and HCM, including similarities in morphology and cardiovascular risk profiles. I will also discuss the early detection of subclinical cardiac involvement using speckle-tracking echocardiography, refined risk stratification based on LVH severity and myocardial mechanical function, and pragmatic imaging tools for monitoring treatment responsiveness during ERT in relation to the underlying inflammatory and fibrotic myocardial status. These findings may help establish a more precise risk stratification framework for Fabry cardiomyopathy, analogous to the well-established approach used in HCM, while also providing practical guidance for the management and longitudinal monitoring of patients undergoing lifelong ERT.

At the crossroads: A comprehensive overview of cardiac amyloidosis

站在診斷的十字路口：心臟類澱粉沉積症概論

Mei-Ling Chen
陳美綾
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Cardiac amyloidosis has emerged from a historically underrecognized disorder to a major cause of heart failure, arrhythmia, and increased mortality, particularly among older adults. Advances in multimodality imaging, biomarker assessment, genetic testing, and disease-modifying therapies have transformed the diagnostic and therapeutic landscape, placing clinicians “at the crossroads” of evolving diagnostic algorithms and expanding treatment opportunities. This lecture provides a comprehensive overview of cardiac amyloidosis, with a focus on the two predominant subtypes: light-chain (AL) amyloidosis and transthyretin amyloidosis (ATTR), including both hereditary and wild-type forms.

This presentation will review the pathophysiology and clinical manifestations of cardiac amyloid infiltration, emphasizing red-flag features that facilitate early recognition in patients presenting with unexplained left ventricular hypertrophy, heart failure with preserved ejection fraction, conduction abnormalities, or extracardiac manifestations. Contemporary diagnostic strategies integrating echocardiography, cardiac magnetic resonance imaging, nuclear scintigraphy, biomarkers, and tissue confirmation will be discussed, alongside practical approaches to differentiating AL from ATTR amyloidosis.

The right path: Navigating the modern therapies of ATT “R” cardiomyopathy

向右走：轉運蛋白類澱粉心肌病變的新藥策略

Yen-Hung Lin

林彥宏

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台大醫院 內科部 心臟內科

Transthyretin amyloid cardiomyopathy (ATTR-CM) is caused by myocardial deposition of misfolded transthyretin protein. It is classified into 2 groups by the genetics of Transthyretin amyloidosis (ATTR): wild-type (ATTRwt) or hereditary (hATTR or ATTRm). ATTR-CM, irrespective of genotype, is an unrecognized mechanism underlying HFpEF. It was reported wild-type TTR might be an underdiagnosed cause of HFpEF. However, the prevalence of wild-type ATTR among patients with HFpEF is not well-established in Taiwan and Asia.

In recent years, various pharmacological treatments have been investigated, focusing on different therapeutic targets. These targets include reducing transthyretin production, preventing the dissociation of the transthyretin tetramer, and the depleting transthyretin amyloid deposits.

Transthyretin stabilizers including tafamidis and acoramidis, have been investigated for their efficacy in preventing the dissociation of transthyretin tetramers into monomers, thereby mitigating the progression of ATTR-CM. These medications were studied in in Tafamidis in Transthyretin Cardiomyopathy Clinical Trial (ATTR-ACT) and Efficacy and Safety of acoramidis in Subjects With Transthyretin Amyloid Cardiomyopathy (ATTRibute-CM). Transthyretin mRNA silencers, including patisiran and vutrisiran, function as siRNA to inhibit the transcription of transthyretin mRNA into protein, thereby delaying the progression of ATTR-CM. Patisiran was studied in the Patisiran Treatment in Patients with Transthyretin Cardiac Amyloidosis (APOLLO-B) trial8, and vutrisiran in the Patients with Transthyretin Amyloidosis with Cardiomyopathy (HELIOS-B) trial.

The speech will cover the rationale, major clinical trials, current recommendation, and future perspectives in ATTR-CM treatment.

The left path: Racing against time in a “L” cardiomyopathy management

向左走：輕鏈類澱粉心肌病變的多專科治療

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Systemic light-chain (AL) amyloidosis with cardiac involvement is a hematologic emergency in which delayed diagnosis and treatment markedly worsen survival. Patients often present with heart failure, unexplained ventricular wall thickening, edema, renal dysfunction, neuropathy, or multisystem symptoms that mimic common cardiovascular diseases. Management therefore depends on rapid recognition, urgent confirmation of diagnosis, and immediate therapy. A multidisciplinary approach involving cardiology, hematology, nephrology, pathology, and supportive care teams is essential to shorten time to treatment and prevent irreversible organ damage. Diagnostic evaluation should include serum and urine monoclonal protein studies, serum free light chain assay, cardiac biomarkers, echocardiography, and tissue biopsy with Congo red staining followed by definitive amyloid typing. Cardiac magnetic resonance imaging may further support diagnosis when clinically feasible. Once AL amyloidosis is confirmed, prompt plasma cell–directed therapy is critical. Daratumumab-based regimens, particularly daratumumab, bortezomib, cyclophosphamide, and dexamethasone, have become preferred frontline treatment because they can induce rapid and deep hematologic responses, which are especially important in advanced cardiac disease. However, treatment must be individualized, as fragile patients may require reduced dosing, sequential drug introduction, and close monitoring for hypotension, arrhythmia, infection, neuropathy, and worsening heart failure. Supportive management differs from standard heart failure care and often relies on careful diuresis, salt and fluid restriction, rhythm surveillance, and cautious use of conventional heart failure medications because many are poorly tolerated. Serial monitoring of free light chains, NT-proBNP, renal function, and clinical status is necessary to guide response-adapted care. In summary, successful management of “L” cardiomyopathy requires racing against time through early suspicion, rapid diagnosis, immediate clone-directed therapy, and coordinated multidisciplinary care.

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泌尿道結石與男性性腺功能低下的臨床新進展

The New Frontier of Stone Management and Male Hypogonadism: From Genetics to Robotics

時 間：115年6月28日　　13:30-17:30

Time：June 28, 2026　　13:30-17:30

地 點：臺北榮民總醫院　致德樓第五會議室

Place：The Fifth Conference Room, Chih-Teh Building
Taipei Veterans General Hospital

泌尿道結石與男性性腺功能低下的臨床新進展

The New Frontier of Stone Management and Male Hypogonadism: From Genetics to Robotics

Beyond idiopathic: Unraveling the genetic basis in nephrolithiasis

探尋特發性背後：腎結石的可能遺傳成因

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臺北榮民總醫院 泌尿部

Nephrolithiasis affects a substantial proportion of the global population and carries a significant burden of recurrence and long-term renal morbidity. Although dietary and environmental factors have long been recognized as contributors, the label of "idiopathic" nephrolithiasis has obscured a meaningful understanding of the disease's molecular drivers. However, recent advancements in genomic sequencing are fundamentally shifting the paradigm. Beyond the well-known monogenetic disorders such as cystinuria (SLC3A1, SLC7A9) and primary hyperoxaluria (AGXT, GRHPR, HOGA1), recent clinical genetic studies have identified an expanding list of potential genetic mutations in previously categorized as idiopathic

Monogenic mutations account for a diagnostically important subset of nephrolithiasis cases, particularly in pediatric populations and those with early-onset or recurrent disease. Currently, there are more than 40 Mendelian genes reported to be causative of stone formation. The majority of these monogenic mutations follow an autosomal recessive inheritance pattern. However, growing evidence suggests that heterozygous carriers of pathogenic variants in these genes are not entirely protected, and may still carry an elevated risk of nephrolithiasis in adulthood. In parallel, genome-wide association studies have identified multiple common variants associated with stone risk, underscoring the polygenic architecture that modulates susceptibility across broader patient populations.

Despite these advances, the translation of genetic findings into routine clinical practice remains limited. Barriers include the heterogeneity of stone phenotypes, incomplete genotype-phenotype correlations, and restricted access to comprehensive genetic testing in clinical settings. Nevertheless, emerging evidence supports the integration of genetic evaluation into the diagnostic workup of selected patients, with the potential to refine risk stratification and guide targeted therapeutic strategies. The trajectory of primary hyperoxaluria type 1 stands as the most compelling example nowadays: precise identification of AGXT mutations has directly enabled the clinical deployment of Lumasiran and Nedosiran.

This presentation highlights that the designation of "idiopathic" nephrolithiasis might not be a final diagnosis, but as an indication for further molecular investigation. A deeper understanding of the genetic basis of stone disease holds potential for moving the field toward more precise, individualized approaches to prevention and care.

Optimizing lithotripsy efficiency: The rivalry of Holmium laser and Thulium laser

優化雷射碎石術效率：比較 Holmium laser and Thulium laser

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Preoperative evaluation is critically important, as the choice of surgical approach and required instruments is determined by stone characteristics and the patient's clinical condition. Laser systems are an indispensable component of contemporary stone surgery.

Holmium:YAG laser technology has a long history and well-established clinical efficacy, remaining the dominant modality in most stone procedures. However, its high peak power can increase retropulsion and reduce fragmentation efficiency, which has been a persistent target for technological improvement. In addition, the large machine footprint and high energy consumption raise concerns regarding medical resource utilization in an era that increasingly emphasizes sustainability and ESG principles.

The parameter settings of the thulium fiber laser (TFL) are highly diverse and complex. Surgeons must be thoroughly familiar with the system to apply it effectively across different clinical scenarios. While TFL offers advantages such as ultra-high frequency and extensive parameter adjustability, practical challenges, including carbonization and excessive laser flash (char and char formation)—may interfere with surgical visualization and efficiency.

The pulsed thulium laser (pTM:YAG) is an emerging laser system characterized by high peak power combined with pulsed modulation, producing effective coagulation and cavitation effects. This technology is well suited for both lithotripsy and prostate surgery, offering strong versatility across urological applications.

Every laser platform has its own clinical value. Technological evolution should not be limited to the machines themselves; only through a deep understanding of each system can surgeons fully exploit its potential, optimize surgical performance, and ultimately enhance the quality of patient care.

Robotic-assisted retrograde intrarenal surgery (RIRS): Enhancing precision, ergonomics, and surgical outcomes in endourology

機器輔助逆行性腎內手術（RIRS）：提升泌尿內視鏡手術中的精準度、人因工程與手術成效

Ching-Heng Yen

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Retrograde intrarenal surgery (RIRS) has become a cornerstone in the management of upper urinary tract calculi, driven by advancements in flexible ureteroscopy and laser technology. However, conventional RIRS remains technically demanding, with challenges including surgeon fatigue, limited instrument stability, and a steep learning curve. The integration of robotic assistance into RIRS represents a promising evolution aimed at addressing these limitations.

Robotic-assisted RIRS (RA-RIRS) platforms provide enhanced scope stability, tremor filtration, and intuitive control, allowing for more precise navigation within the intrarenal collecting system. These systems also offer improved ergonomics, potentially reducing operator fatigue during prolonged procedures. Emerging evidence suggests that RA-RIRS may improve stone-free rates, particularly in complex or lower pole stones, while maintaining comparable safety profiles to conventional techniques.

In addition, robotic platforms facilitate integration with adjunctive technologies such as real-time imaging, automated scope positioning, and potentially artificial intelligence-driven stone targeting. These innovations may further optimize operative efficiency and reproducibility across varying levels of surgical expertise.

Despite its advantages, challenges remain, including cost considerations, system accessibility, and the need for further high-quality comparative studies to establish clear clinical benefits. As technology continues to evolve, RA-RIRS may play a pivotal role in shaping the future of minimally invasive stone surgery.

This presentation will review current robotic platforms, clinical outcomes, technical considerations, and future directions of robotic-assisted RIRS, highlighting its potential to redefine precision and efficiency in endourological practice.

Emerging trends in androgen replacement therapy for male hypogonadism: From injectable and transdermal to intranasal administration

男性性腺功能低下睪固酮補充治療之新興趨勢：從注射、經皮到鼻內給藥

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Male hypogonadism is an increasingly recognized clinical entity, with a reported prevalence of approximately 20% among men in the primary care setting and a rising trend with advancing age. Testosterone replacement therapy (TRT) remains the cornerstone of management for symptomatic men with consistently low serum testosterone concentrations, and aims to restore physiological testosterone levels—typically within the mid-adult male reference range of 400 to 800 ng/dL—while alleviating symptoms and improving body composition, bone mineral density, sexual function, and quality of life. Since the introduction of transdermal testosterone gels in 2003, the landscape of TRT has evolved substantially. Prescriptions in the United States rose more than threefold between 2000 and 2011, followed by a 48% decline from 2013 to 2016 in response to FDA warnings regarding cardiovascular risk and refined indications for use. This shifting landscape underscores the importance of individualized therapy guided by both efficacy and safety considerations.

This lecture will provide a contemporary overview of the available routes of testosterone administration, including their pharmacokinetic profiles, efficacy, safety, and practical considerations for clinical use. Intramuscular testosterone esters (enanthate, cypionate, and long-acting undecanoate) offer proven long-term efficacy but are associated with peak-and-trough fluctuations and, in the case of undecanoate, a rare risk of pulmonary oil microembolism. Subcutaneous testosterone enanthate delivered by autoinjector represents a more recent option that provides steadier serum concentrations with improved patient comfort. Transdermal patches and gels deliver relatively stable physiological testosterone levels but carry the risk of skin irritation and secondary transfer through close skin contact. Newly available oral testosterone undecanoate self-emulsifying formulations have re-introduced an oral option without hepatotoxicity concerns. Intranasal testosterone gel, administered three times daily, offers a distinct advantage in that it appears to cause less suppression of gonadotropins and spermatogenesis, making it a potentially attractive option for younger hypogonadal men who wish to preserve fertility. Non-testosterone strategies, including human chorionic gonadotropin, selective estrogen receptor modulators, and aromatase inhibitors, will also be briefly discussed in the context of fertility-preserving treatment. Through case-based discussion and current evidence, this presentation aims to equip urologists with a practical framework for selecting the most appropriate androgen replacement modality based on patient preference, treatment goals, pharmacokinetic considerations, and long-term safety.

Clinical management of testosterone deficiency in young and fertile men

年輕男性睪固酮缺乏症之臨床處置：生育力保存的考量

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Testosterone deficiency (TD) in young men presents unique clinical challenges, particularly in those who desire current or future fertility. Unlike older hypogonadal men, management strategies in reproductive-aged patients must balance symptomatic improvement with preservation of spermatogenesis, as conventional testosterone replacement therapy (TRT) suppresses the hypothalamic–pituitary–gonadal axis and may result in oligospermia or azoospermia. Accurate diagnosis requires characteristic symptoms together with consistently low morning serum testosterone levels, confirmed on repeated testing. Recent evidence suggests that hypogonadism is increasingly recognized among infertile men, with reported prevalence rates ranging from 16% to 45%, depending on semen quality and diagnostic criteria.

This lecture will review the contemporary clinical approach to testosterone deficiency in young and fertile men, including diagnostic evaluation, identification of reversible causes, and differentiation between primary and secondary hypogonadism. The reproductive risks and limitations associated with exogenous testosterone therapy will also be discussed. Special emphasis will be placed on fertility-preserving therapeutic strategies, including selective estrogen receptor modulators (SERMs), aromatase inhibitors, human chorionic gonadotropin (hCG), and intranasal testosterone formulations. Evidence-based treatment selection, combination regimens, and monitoring strategies for testosterone levels, hematocrit, prostate safety, and reproductive outcomes will also be reviewed. Through case-based discussion and current guideline recommendations, this presentation aims to provide practical and evidence-based management strategies for urologists caring for young men with testosterone deficiency while preserving reproductive potential.

Cardiovascular safety of testosterone replacement therapy: Key insights from the TRAVERSE trial

睪固酮補充治療的心血管安全性：TRAVERSE 試驗的關鍵啟示

Tsung-Yi Hsieh

謝宗頤

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臺大醫院 泌尿部

The cardiovascular safety of testosterone replacement therapy (TRT) in men with hypogonadism has long been a clinical concern. The TRAVERSE Study is the largest randomized, double-blind, placebo-controlled trial designed to determine the effects of TRT on the incidence of major adverse cardiac events (MACE) among middle-aged and older men with hypogonadism and preexisting or high-risk cardiovascular disease. The trial provided robust evidence that TRT does not significantly increase the risk of MACE compared to placebo. However, patients receiving TRT demonstrated a higher incidence of atrial fibrillation, acute kidney injury, and pulmonary embolism. These findings that warrant careful interpretation. This presentation reviews the trial's design and primary outcomes, examine these secondary safety signals, and discuss how a balanced interpretation of the evidence can inform individualized clinical decision-making regarding the potential benefits and risks of TRT in middle-aged and older men with hypogonadism.

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抗藥性細菌治療之新進展

Update of Treatment: Multi-Drug Resistant Organism

共同主辦： 臺北榮民總醫院感染管制中心、
臺北榮民總醫院內科部感染科、
國立陽明交通大學急重症醫學研究所

時 間：115年6月27日 13:30-17:00
Time：June 27, 2026 13:30-17:00

地 點：臺北榮民總醫院 致德樓第六、七會議室
Place：The Conference Room 6&7, Chih-Teh Building
Taipei Veterans General Hospital

抗藥性細菌治療之新進展

Update of Treatment: Multi-Drug Resistant Organism

Update of treatment of third-generation cephalosporin-resistant Enterobacterales

三代頭孢黴素抗藥性腸內菌的治療新知

Yi-Tsung Lin

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Third-generation cephalosporin-resistant Enterobacterales (3GCephRE) usually involves ESBL-producing Enterobacterales and Enterobacterales at moderate to high risk for clinically significant AmpC production. Routine EBSL testing is not performed by most clinical microbiology laboratories and non-susceptibility to ceftriaxone is often used as a proxy for ESBL production. However, Enterobacterales at moderate to high risk for clinically significant AmpC production receive less attention in the literature. ESBL are most prevalent in *Escherichia coli*, *Klebsiella pneumoniae*, *Klebsiella oxytoca*, and *Proteus mirabilis*. CTX-M enzymes, particularly CTX-M-15, are the most common ESBLs worldwide. ESBLs other than CTX-M with unique hydrolyzing abilities are variants of narrow-spectrum TEM and SHV β-lactamases with amino acid substitutions, but they have undergone less clinical investigation than CTX-M enzymes. AmpC β-lactamases are β-lactamase enzymes that are produced at basal levels by many Enterobacterales and increased AmpC enzyme production resulting from inducible *ampC* expression can increase MICs to certain antibiotics, most notably ceftriaxone, cefotaxime, and ceftazidime. *Enterobacter cloacae* complex, *Klebsiella aerogenes*, and *Citrobacter freundii* are the most common Enterobacterales at moderate to high risk for clinically significant AmpC production. Recently, IDSA guidance updated the treatment for ESBL-E and Enterobacterales with moderate to high risk for clinically significant AmpC production due to an inducible *ampC* gene. In this presentation, I will review the updated information for the treatment for 3GCephRE.

Update of treatment of carbapenem-resistant Gram-negative bacilli

對碳青黴烯具抗藥性的革蘭氏陰性菌治療的新知

Chien Chuang

莊　茜

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Carbapenems have traditionally served as the last-resort antibiotics for treating severe infections caused by multidrug-resistant Gram-negative bacilli. However, use of carbapenem leads to the emergence and dissemination of carbapenem-resistant Gram-negative bacilli (CRGNB), especially carbapenem-resistant *Enterobacterales*, carbapenem-resistant *Pseudomonas aeruginosa*, carbapenem-resistant *Acinetobacter baumannii*. As a result, alternative treatment strategies must be explored.

Managing CRGNB infections poses a major challenge for healthcare systems worldwide due to the limited therapeutic options and high mortality. In recent years, significant advancements have been made in the treatment of CRGNB, focusing on novel therapeutic approaches. This presentation will provide a comprehensive overview of the current strategies for managing CRGNB infections, highlighting recent developments and challenges in the field. These include the introduction of new β-lactam (cefiderocol), and new β-lactam/β-lactamase inhibitor combinations, such as ceftazidime/avibactam, ceftolozane/tazobactam, imipenem-cilastatin-relebactam, and aztreonam-avibactam, which have demonstrated promising clinical efficacy.

Effectively managing CRGNB infections requires a multifaceted approach, encompassing the development of novel antibiotics and the reconsideration of existing therapeutic strategies. This presentation will explore these aspects in detail, providing clinicians with up-to-date information to support informed decision-making in CRGNB management.

Update of treatment of *Staphylococcus aureus* and *Enterococcus spp.*

金黃色葡萄球菌以及腸球菌的治療新知

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Background: Methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant enterococci (VRE) are leading causes of severe, health care-associated infections. Effective management requires a multifaceted approach involving rigorous infection control, optimized pharmacokinetics/pharmacodynamics (PK/PD), and targeted antimicrobial selection.

Preferred Drugs and PK/PD: Vancomycin and daptomycin remain the foundational therapies for MRSA bacteremia. To optimize efficacy and minimize nephrotoxicity, vancomycin necessitates area under the curve (AUC)-guided dosing. For daptomycin, clinicians increasingly favor higher doses (8–10 mg/kg daily) for MRSA due to its concentration-dependent killing. In VRE (*Enterococcus faecium*) infections, linezolid and daptomycin are the primary therapeutic options. However, daptomycin requires even higher dosing regimens of 10 to 12 mg/kg/day to achieve pharmacologic targets and suppress treatment-emergent resistance mediated by the LiaFSR stress response pathway.

Monotherapy vs. Combination Therapy: The role of upfront combination therapy differs markedly between the two pathogens. In MRSA bacteremia, clinical trials (e.g., CAMERA-2) have shown that combinations such as vancomycin or daptomycin with an anti-staphylococcal beta-lactam successfully reduced the duration of bacteremia, but they did not improve mortality and were associated with significantly higher rates of acute kidney injury. Consequently, upfront combination therapy is currently not recommended for MRSA. Conversely, for VRE, combining high-dose daptomycin with a beta-lactam or fosfomycin may enhance bactericidal activity improve patient outcomes.

Early Oral Switch: The transition from intravenous to oral antibiotics has gained traction to reduce hospital length of stay and central line-associated complications. The POET and SABATO trials demonstrated that early oral switch is safe and effective for carefully selected patients with low-risk *S. aureus* bacteremia and stabilized endocarditis. However, as MRSA cases were heavily underrepresented in these trials, generalized application for MRSA requires further validation.

New Drugs and Therapeutics: The therapeutic armamentarium continues to expand. Ceftobiprole, a novel cephalosporin, recently received FDA regulatory approval for MRSA bacteremia after demonstrating noninferiority to daptomycin. Long-acting lipoglycopeptides like dalbavancin (evaluated in the DOTS trial) and oritavancin (for VRE) offer promising alternatives for step-down consolidation therapy, facilitating early hospital discharge. Furthermore, novel non-pharmacologic modalities, such as bacteriophage therapies, are under active investigation as adjunctive treatments to address recalcitrant infections.

This presentation will deliver an in-depth update on advancements in the management of MRSA and VRE, emphasizing recent clinical data and innovative therapeutic approaches designed to optimize patient care amid rising antimicrobial resistance.

Application of artificial intelligence in infection control

人工智慧在感染管制的應用

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臺北榮民總醫院 感染管制中心

Driven by the rapid advancement of healthcare digitalization and artificial intelligence (AI), healthcare systems are undergoing a digital transformation from retrospective analysis toward real-time proactive intervention. This course reviews global AI trends in infection prevention and control (IPC) over the past three years, encompassing predictive analytics for healthcare-associated infections (HAIs), automated hand hygiene monitoring, and intelligent outbreak surveillance. It highlights how these technologies enhance the efficiency of data extraction and clinical decision support.

The practical segment focuses on the implementation of digital visualization dashboards for IPC monitoring. By integrating Laboratory Information System (LIS) data, these real-time surveillance platforms for respiratory pathogens—such as Influenza and COVID-19—enable rapid trend analysis and situational awareness through visualization. Furthermore, the session discusses the integration of multidrug-resistant organisms (MDRO) monitoring systems to optimize the timing and precision of preventive interventions. By leveraging AI-driven insights and visualization tools, healthcare organizations can effectively implement evidence-based, data-centric precision prevention strategies.

Application of artificial intelligence in antimicrobial stewardship

人工智慧在抗生素管理的應用

Nai-Wei Hsu

許乃偉

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Timely initiation of appropriate empiric antibiotics in patients with sepsis is critical, as delays are strongly associated with increased mortality; however, clinicians frequently face substantial uncertainty when selecting empiric therapy in the setting of evolving antimicrobial resistance. Current antimicrobial stewardship programs (ASPs) rely on static antibiograms and retrospective audit-and-feedback strategies, which are often insufficient for real-time, patient-specific decision-making. Moreover, despite increasing interest in artificial intelligence (AI), no formal guideline currently exists to direct its implementation in antimicrobial stewardship. AI offers a framework for real-time, data-driven antimicrobial decision support, including prediction of resistant pathogens to guide empiric therapy selection, dynamic surveillance through real-time antibiograms, and automated audit-and-feedback systems to identify inappropriate prescriptions and prioritize high-risk patients. Nevertheless, the effectiveness of AI systems is highly dependent on data quality, completeness, and integration into clinical workflows, as inaccurate or fragmented data may lead to unreliable outputs and limit clinical adoption. Existing stewardship frameworks emphasize structured interventions, monitoring, and clinician accountability, which provide a foundation for AI integration. AI should therefore be positioned as a tool to augment—rather than replace—infectious disease specialists, with the potential to improve the timeliness, precision, and safety of empiric antibiotic therapy in critically ill patients.

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精準復健新時代：運動醫學 × 疼痛醫學的臨床整合與突破

The New Era of Precision Rehabilitation: Clinical Integration and Innovations in Sports Medicine and Pain Medicine

時 間：115年6月27日 13:30-17:30

Time：June 27, 2026 13:30-17:30

地 點：臺北榮民總醫院 介壽堂

Place：Jie Shou Hemorial Hall
Taipei Veterans General Hospital

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血液疾病治療最新進展

The Recent Advances in the Treatment of Hematological Disease

時 間：115年6月27日 13:30-17:30

Time：June 27, 2026 13:30-17:30

地 點：臺北榮民總醫院 致德樓第十會議室

Place：The Tenth Conference Room, Chih-Teh Building
Taipei Veterans General Hospital

血液疾病治療最新進展

The Recent Advances in the Treatment of Hematological Disease

Advancing CML treatment with clinical insights on asciminib

慢性骨髓性白血病 CML

Eri Matsuki

School of Medicine, Keio University, Japan

Despite advances in chronic myeloid leukemia (CML) therapy, unmet needs remain in frontline care, including suboptimal molecular responses, treatment intolerance, and the need for long-term disease control. Asciminib, the first STAMP (Specifically Targeting the ABL Myristoyl Pocket) inhibitor, offers a novel mechanism distinct from ATP-competitive TKIs, providing an alternative approach for patients across treatment lines.

Phase 3 frontline data from ASC4FIRST demonstrated higher major molecular response rates at Week 48 with asciminib compared with standard-of-care TKIs, alongside a favorable safety and tolerability profile. Clinical experience suggests that transition to asciminib may be considered for patients requiring optimization of safety, tolerability, or depth of response.

Mutation testing remains essential in guiding treatment decisions, particularly in the context of resistance or intolerance to ATP-binding TKIs, where asciminib's allosteric mechanism provides a complementary strategy and recommended by 2025 CML ELN guideline for multiple BCR::ABL1 mutations.

This presentation will review emerging frontline evidence, real-world clinical experience with treatment transition, and practical considerations in mutation-guided management, highlighting how asciminib may address unmet needs and support personalized CML therapy in the frontline setting.

Durability and long-term outcomes in DLBCL

瀰漫性大 B 細胞淋巴瘤 DLBCL

Hao-Yuan Wang

王浩元

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臺北榮民總醫院 血液科

Diffuse large B-cell lymphoma (DLBCL) remains a curable disease for a substantial proportion of patients; however, durability of response and long-term outcomes continue to represent critical challenges. This presentation will explore key determinants of sustained remission, including depth of response, minimal residual disease, and biological heterogeneity. We will review real-world and clinical trial evidence on long-term survival, highlighting the plateau in cure rates with standard immunochemotherapy and the unmet needs among high-risk subgroups.

Emerging therapeutic strategies—such as targeted agents, antibody-drug conjugates, and cellular therapies including CAR-T—have demonstrated promising efficacy in improving durability, particularly in relapsed or refractory settings. Among these, CAR-T represents one of several treatment options that may offer meaningful clinical benefit for selected patients, with the potential to achieve durable responses in specific clinical scenarios.

In addition, we will examine factors influencing late relapse, treatment-related toxicity, and survivorship issues, emphasizing the importance of balancing efficacy with quality of life. By integrating clinical insights with evolving treatment paradigms, this session aims to provide a comprehensive perspective on how to enhance durable responses and improve long-term outcomes for patients with DLBCL.

JAK inhibitor selection in challenging scenarios of myelofibrosis

骨髓纖維化 MF

Claire Harrison

Deputy Chief Medical Officer -Research, Data and Analytics, Guy's and St Thomas' NHS Foundation Trust, UK

The therapeutic landscape for myelofibrosis (MF) has significantly evolved with the approval of multiple JAK inhibitors. However, clinical decision-making remains complex in “challenging scenarios”, such as managing severe symptom burdens, cytopenias, or transitioning between therapies.

In this presentation, I will utilize real-world hypothetical cases to navigate these complexities. A primary focus will be the enduring clinical value of Jakavi (ruxolitinib). As the most established agent with over 12 years of evidence, Jakavi remains the “gold standard” for rapid spleen volume reduction and symptom relief.

I will discuss how Jakavi’s robust long-term data—the strongest in the class—demonstrates a clear correlation between optimal dosing and improved overall survival (OS). Furthermore, I will address the safety and advantages of peritransplant Jakavi use, noting its role in achieving stable disease control before hematopoietic stem cell transplant. While newer agents offer specialized benefits for cytopenic phenotypes, Jakavi continues to serve as the essential therapeutic foundation for a broad spectrum of MF patients. Attendees will gain expert insights into balancing individual patient characteristics with the proven, disease-modifying potential of Jakavi to optimize long-term clinical outcomes.

From steroid to novel strategies- Ruxolitinib in GvHD management

移植物對抗宿主疾病 GvHD

Yao-Chung Liu
劉耀中
Division of Hematology, Taipei Veterans General Hospital, Taipei, Taiwan, ROC
臺北榮民總醫院 血液科

Graft-versus-host disease (GvHD) remains a major complication following allogeneic hematopoietic stem cell transplantation, traditionally managed with systemic corticosteroids as first-line therapy. However, steroid-refractory or steroid-dependent GvHD continues to pose significant clinical challenges, with limited efficacy and substantial toxicity. This presentation will review the evolving treatment landscape, shifting from conventional steroid-based approaches toward more targeted and mechanism-driven strategies.

Ruxolitinib, a selective JAK1/2 inhibitor, has emerged as an important treatment option in both acute and chronic GvHD, demonstrating improved response rates and symptom control in patients with inadequate response to steroids. Clinical evidence supporting its use, including key trials and real-world data, will be discussed, alongside its impact on durability of response and patient quality of life.

Beyond ruxolitinib, the session will briefly explore other novel agents and combination strategies under investigation, highlighting the trend toward personalized and steroid-sparing approaches. Practical considerations, including patient selection, timing of intervention, and management of adverse events, will also be addressed. This presentation aims to provide a comprehensive overview of how innovative therapies are reshaping GvHD management and improving long-term patient outcomes.

Real-world clinical experience with fabhalta: Redefining PNH management in the proximal inhibition era

陣發性夜間血紅素尿症 PNH

Junichi Nishimura
School of Medicine, Osaka University, Japan

This presentation explores the transformative shift in managing Paroxysmal Nocturnal Hemoglobinuria (PNH), focusing on the pivotal role of Iptacopan in redefining therapeutic success. By targeting Factor B at the proximal level of the complement cascade, this innovative mechanism provides a decisive advantage, offering comprehensive control over both intravascular and extravascular hemolysis. This shift elevates clinical expectations beyond mere transfusion independence toward the ambitious goals of hemoglobin normalization (Hb ≥12 g/dL) and profound improvements in patient quality of life.

Drawing on scientific evidence and Real-World Evidence (RWE) from Japan, I will demonstrate the rapid onset and significant magnitude of hemoglobin recovery facilitated by Iptacopan. These data underscore its ability to effectively address residual anemia and the persistent unmet needs of patients who remain symptomatic or transfusion-dependent on traditional C5 inhibitors.

Furthermore, we will examine the practical differentiation of this therapy. As a twice-daily oral regimen, Iptacopan enhances treatment stability and adherence, mitigating the risk of breakthrough hemolysis often associated with the waning effects of injectable therapies. By integrating robust clinical trial data with real-world case experiences, this session will illustrate how Iptacopan is reshaping the future of PNH care—prioritizing a patient-centric approach that minimizes medical dependency and fosters meaningful, long-term well-being in the proximal inhibition era.

Clonal evolution and long-term safety in SAA patients treated with eltrombopag: A 5-year follow-up review

嚴重再生不良性貧血 SAA

Po-Shen Ko

柯博伸

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Severe aplastic anemia (SAA) is a life-threatening bone marrow failure disorder with limited therapeutic options for patients ineligible for hematopoietic stem cell transplantation. Eltrombopag, a thrombopoietin receptor agonist, has demonstrated significant efficacy in improving hematologic responses when added to immunosuppressive therapy. However, concerns remain regarding long-term safety, particularly the risk of clonal evolution.

This presentation reviews 5-year follow-up data on SAA patients treated with eltrombopag, focusing on the incidence, timing, and characteristics of clonal evolution, including cytogenetic abnormalities and progression to myelodysplastic syndromes or acute leukemia. Long-term safety outcomes, including sustained response, relapse rates, and adverse events, will also be discussed.

Emerging evidence suggests that while eltrombopag contributes to durable hematologic improvement, careful longitudinal monitoring is essential to detect potential clonal changes. The overall benefit-risk profile remains favorable in appropriately selected patients, particularly in those with refractory disease.

This review aims to provide clinicians with a comprehensive understanding of long-term outcomes associated with eltrombopag use in SAA, supporting informed treatment decisions and optimized patient management strategies.

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子宮移植之臨床經驗與最新發展-台灣未來展望

Uterine Transplantation: Clinical Experience and Recent Advances - Future Directions for Taiwan

時 間：115年6月27日 13:00-17:30

Time：June 27, 2026 13:00-17:30

地 點：臺北榮民總醫院 中正樓18樓骨科部會議室

Place：18F, The Conference Room, Chung Cheng Building
Taipei Veterans General Hospital

子宮移植之臨床經驗與最新發展-台灣未來展望

Uterine Transplantation: Clinical Experience and Recent Advances - Future Directions for Taiwan

Technical evolution and outcomes of back-table technique and recipient surgery for uterine transplantation

子宮移植受贈者手術之技術演進與臨床成果

Giuliano Testa

Baylor University Medical Center, Annette C. and Harold C. Simmons Transplant Institute, Living Donor Liver Transplantation, USA

Texas Christian University and the University of North Texas Health Science Center School of Medicine, Medical Education, USA

Background: Uterine transplantation (UTx) has emerged as a viable treatment for women with absolute uterine factor infertility. Advances in surgical techniques, particularly in back-table preparation and recipient surgery, have been critical to improving graft viability and reproductive outcomes.

Objective: To evaluate the technical evolution of back-table techniques and recipient surgical procedures in uterine transplantation and assess their impact on clinical outcomes.

Methods: A review of reported clinical cases and surgical protocols was conducted, focusing on innovations in graft preparation, vascular anastomosis, ischemia time reduction, and postoperative management. Comparative analysis of early and recent UTx procedures was performed to identify improvements in surgical efficiency and patient outcomes.

Results: Refinements in back-table techniques, including meticulous vascular dissection and optimized preservation methods, have significantly reduced ischemic injury. Advances in recipient surgery, such as minimally invasive approaches and improved vascular anastomosis strategies, have enhanced graft survival rates. These developments have contributed to increased success in menstruation restoration and live births following transplantation.

Conclusion: Continuous technical advancements in both back-table preparation and recipient surgery have substantially improved the safety and efficacy of uterine transplantation. Further standardization and innovation are expected to enhance long-term graft function and reproductive success.

Keywords: Back-table technique; Graft survival; Recipient surgery; Uterine transplantation; Vascular anastomosis

Uterine transplantation: Surgical innovation in robot-assisted living donor hysterectomy and immunosuppressive strategies with long-term monitoring in recipients

子宮移植之手術創新與免疫策略：機器手臂輔助活體捐贈子宮切除術及受贈者長期免疫監測

Liza Johannesson

Baylor University Medical Center, Annette C. and Harold C. Simmons Transplant Institute, USA
Texas Christian University, Department of Surgery, USA

Background: Uterine transplantation (UTx) has evolved from an experimental procedure to a clinically viable treatment for absolute uterine factor infertility. Milestones in surgical innovation, including robot-assisted living donor hysterectomy and improved immunosuppressive strategies, have significantly influenced graft survival and reproductive outcomes.

Objective: To analyze the evolution of uterine transplantation with emphasis on robot-assisted living donor hysterectomy, immunosuppressive protocols, and their impact on long-term clinical and reproductive outcomes.

Methods: A narrative review of clinical cases, surgical advancements, and longitudinal studies was performed. Emphasis was placed on the transition from open to minimally invasive and robotic donor surgeries, developments in immunosuppressive regimens, and recipient monitoring protocols. Outcomes assessed included donor morbidity, graft survival, rejection incidence, and live birth rates.

Results: The evolution of UTx has demonstrated marked improvements in both surgical safety and efficacy. Robot-assisted donor hysterectomy has reduced intraoperative complications, minimized blood loss, and enhanced recovery. Advances in immunosuppression, including individualized and reduced-intensity regimens, have lowered rejection rates while maintaining graft function. Long-term follow-up indicates sustained graft viability, restoration of menstruation, and increasing numbers of successful live births, reflecting improved overall outcomes compared to early UTx experiences.

Conclusion: Continuous evolution in surgical techniques and immunosuppressive management has transformed uterine transplantation into a more reliable and effective clinical option. These advancements have led to improved donor safety, better graft outcomes, and enhanced reproductive success, supporting the ongoing development and standardization of UTx programs.

Keywords: Graft outcomes; Immunosuppression; Robot-assisted hysterectomy; Surgical evolution; Uterine transplantation

Allogeneic uterine transplantation: Animal model experience in Taipei Veterans General Hospital

動物異體子宮移植：臺北榮民總醫院之動物模型經驗

Wei-Ting Chao

趙偉廷

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Institute of Clinical Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan, ROC

臺北榮民總醫院 婦產科

國立陽明交通大學醫學院 婦產科

國立陽明交通大學臨床醫學研究所

Background: Uterine factor infertility (UFI) remains a major challenge in reproductive medicine. Uterine transplantation (UTx) offers the only clinical solution enabling these patients to achieve biological gestation and childbirth. This study aims to establish and share the preliminary surgical experiences and postoperative care protocols of an allogeneic uterine transplantation model using swine at Taipei Veterans General Hospital.

Methods: Two female swine (approximately 33 kg) were utilized to establish an allogeneic uterine transplantation model, designated as the donor and the recipient. In the donor swine, meticulous dissection of the uterine graft—including the uterine arteries, primary veins, and internal iliac branches—was performed prior to total hysterectomy and subsequent euthanasia. The retrieved graft underwent ex vivo flushing with cold organ preservation solution for cold ischemic protection. Concurrently, the recipient swine underwent a total hysterectomy, followed by orthotopic allogeneic uterine transplantation within the pelvic cavity. Microsurgical techniques were employed for vascular anastomosis (bilateral arterial and venous reconstruction) to secure graft perfusion. Standardized anesthesia, perioperative immunosuppressive modulation, and antibiotic prophylaxis were administered, followed by intensive postoperative monitoring of vital signs, wound healing, and behavioral recovery.

Results: A standardized large animal model for orthotopic allogeneic uterine transplantation was successfully established. The critical benchmarks of the procedure relied heavily on the precision of vascular isolation from the donor and the patency of microsurgical anastomoses in the recipient's pelvic cavity. Preliminary findings demonstrated that comprehensive preoperative preparation, combined with refined microvascular techniques, significantly minimized cold ischemic time and secured adequate graft perfusion. Intensive postoperative monitoring and structured pharmacology (including immunosuppression, multimodal analgesia, and prophylactic antibiotics) were essential for optimizing short-term survival outcomes in this porcine model.

Conclusion: The porcine allogeneic uterine transplantation model is a technically demanding yet highly invaluable platform for clinical translation. Our institutional experience validates the surgical feasibility of orthotopic transplantation and provides a foundational milestone for advancing into future clinical human trials of uterine allotransplantation.

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多模式疤痕治療

Multimodal Scar & Keloid Management

時　間：115年6月27日　　13:50-17:00

Time：June 27, 2026　　13:50-17:00

地　點：臺北榮民總醫院 致德樓第八、九會議室

Place：The Conference Room 8&9, Chih-Teh Building
Taipei Veterans General Hospital

多模式疤痕治療
Multimodal Scar & Keloid Management

Surgical approaches for keloid and pathologic scar management

蟹足腫與病態性疤痕的手術治療策略

Chia-Hsuan Tsai

蔡嘉軒

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林口長庚紀念醫院 整形外科

Keloids and hypertrophic scars are fibroproliferative disorders of the skin that result from abnormal healing of injured or irritated skin. Multiple studies suggest that genetic, systemic, and local factors may contribute to the development and/or growth of keloids and hypertrophic scars. Moreover, the severity of scarring is shaped by interactions between these local factors, genetic factors, and systemic factors such as hypertension and sex hormones. The Asian population is challenged with a high incidence of keloid occurrence with a specific genetic predominance. The annual reported incidence of new keloid cases in Taiwan is around 30,000. Nowadays keloid therapy included: surgery plus radiotherapy, compression therapy, steroid injection, cryotherapy and laser treatment. Surgery with adjuvant radiotherapy approach is thought to have the most significant effect on decreasing recurrence rate. I will present some preliminary reports revealed convincing evidence of feasibility and effectiveness of applying adjuvant radiotherapy after keloid excision at Chang Gung Memorial Hospital in the Taiwanese population.

Radiotherapy for keloids: Protocols, timing, and clinical outcomes

蟹足腫放射治療：劑量、時機與臨床經驗

Pei-Wei Shueng
熊佩韋
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亞東紀念醫院 放射部

Radiotherapy has become an important adjunctive treatment in the management of keloids, particularly when combined with surgical excision. This lecture will review the biological basis of radiation therapy for keloid control and summarize commonly used treatment protocols in clinical practice. Key topics include optimal dose fractionation, timing of postoperative irradiation, and techniques used to minimize complications while maximizing treatment efficacy. Evidence from recent clinical studies will be discussed, together with institutional experiences in treating difficult or recurrent lesions. Through case examples, participants will gain insight into how radiotherapy can be integrated into a comprehensive treatment strategy for keloid patients and how multidisciplinary collaboration improves clinical outcomes.

Traditional chinese medicine in scar treatment: Acupuncture, herbal therapy, regulation

中醫觀點的疤痕治療：針灸、藥物與調理

Yuan-Chieh Yeh

葉沅杰

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基隆長庚醫院 中醫科

Traditional Chinese Medicine (TCM) offers a different perspective in the management of scar disorders through a holistic approach that focuses on systemic balance and tissue healing. This lecture will introduce commonly used TCM modalities in scar treatment, including acupuncture, herbal medicine, and constitutional regulation. The underlying theoretical concepts of Qi, blood circulation, and inflammatory balance will be explained in relation to scar formation and tissue remodeling. Clinical experiences and examples will be presented to illustrate how TCM interventions may complement conventional medical treatments. The session aims to broaden the understanding of integrative approaches to scar care and explore how traditional therapies may contribute to symptom control and functional improvement in selected patients.

Multimodal non-surgical management of keloids and hypertrophic scars

蟹足腫與肥厚性疤痕的多模式非手術治療

Shiou-Han Wang

王修含

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國立臺灣大學醫學院附設醫院 皮膚部

Keloids and hypertrophic scars are fibroproliferative disorders resulting from abnormal wound healing and are often associated with pruritus, pain, stiffness, cosmetic disfigurement, and recurrence. Their pathogenesis involves persistent inflammation, fibroblast dysregulation, abnormal collagen deposition, angiogenesis, and mechanical tension. Optimal management therefore requires individualized, multimodal, non-surgical strategies rather than single-modality treatment.

Pulsed dye laser, intralesional corticosteroid injection, botulinum toxin A injection, and cryotherapy represent important non-surgical treatment modalities for active and symptomatic scars. Corticosteroid injection remains a mainstay for reducing inflammation, thickness, and symptoms. Cryotherapy is particularly useful for elevated or bulky lesions and may facilitate scar flattening. Botulinum toxin A has emerged as a promising adjunct through tension reduction and possible modulation of profibrotic signaling. Pulsed dye laser is especially valuable in erythematous, symptomatic, or vascular-active lesions and is often most effective when incorporated into combination treatment. Silicone-based products may also serve as useful adjuncts in home care and long-term scar management.

This lecture will review practical multimodal strategies for non-surgical management of keloids and hypertrophic scars, with emphasis on pulsed dye laser, intralesional corticosteroid injection, botulinum toxin A injection, and cryotherapy.

Treatment of white scar: Color regeneration with microdermal melanocyte grafting

白疤治療：白疤顏色再生術

Su-Ben Tsao

曹賜斌

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曹賜斌整形外科診所

White scars are often obvious and very difficult to treat or mask. They will remind and expose patients' unpleasant past events, such as suicide, bullying, cleft lip disease, cosmetic surgery, etc. So, every patient usually asks for removal of it.

But no current treatment can remove the white scar, either surgery or laser therapy. Here we have established a brand-new technique called " Microdermal grafting for white scar color regeneration" to solve the tough problem.

The first paper was published on Aesthetic Surgery Journal in 2019, and the second advanced paper was published on the same journal in 2021. Around siz hundred pateints have been treated during the past 6 years in our clinic, their surgical results ar as followings: 50% inprovement rate of skin color regenration for first session treatment, 80% for second session, 90% fro third session. The interval between each session is 3-6 months.

There are two major complications: post inflammatory hyperpigmentation and epidermal including cyst. Their incidences are not high if they are well treated.

We will present the surgical technique and their case examples in detail during the meeting.

Laser therapy for keloids and hypertrophic scars

蟹足腫與肥厚性疤痕的雷射治療

Chang-Cheng Chang
張長正
Department of Plastic and Reconstructive Surgery, China Medical University Hospital, Taichung, Taiwan, ROC
中國醫藥大學附設醫院 外科部 整形外科美容中心

Laser therapy has become an important modality in the treatment of keloids and hypertrophic scars. Various laser systems, including pulsed dye lasers, fractional lasers, and ablative lasers, have been applied to improve scar texture, vascularity, and symptoms such as pain and pruritus. This lecture will review the principles of laser–tissue interaction and the mechanisms through which lasers influence scar remodeling. Treatment protocols, patient selection, and potential complications will also be discussed. Clinical cases will be used to demonstrate practical treatment strategies and how laser therapy can be incorporated into multimodal scar management to enhance functional and cosmetic outcomes.

Scar camouflage and aesthetic techniques

疤痕遮蓋與美容應用

Shiseido Life Quality Makeup Center

資生堂社會關懷美容中心

Shiseido Life Quality Makeup Center, Taipei , Taiwan, ROC

資生堂社會關懷美容中心

Visible scars can significantly influence a patient's self-confidence and quality of life even when medical treatment has been completed. Cosmetic camouflage techniques provide a practical solution to help conceal scars and improve appearance in daily life. This lecture introduces the principles of color correction, camouflage makeup techniques, and product selection for different types of scars and skin tones. Demonstrations and clinical examples will illustrate how these techniques can be applied in patients with surgical scars, burn scars, or pigmentary abnormalities. The session emphasizes the importance of aesthetic rehabilitation as part of comprehensive scar care and highlights how supportive cosmetic strategies can contribute to psychological well-being and social confidence.

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健康台灣深耕計畫：守護兒童、拒絕傷害

臺灣兒童死因探討與青少年自殺的辨識與防治

Healthy Taiwan Sprout Project: Saving Young Lives Childhood Mortality and Adolescent Suicide Prevention in Taiwan

共同主辦：臺北榮民總醫院兒童醫學部、大數據中心、急診部、
精神醫學部、國立陽明交通大學急重症醫學研究所、
台灣兒童急診醫學會

時　間：115年6月28日　　08:50-12:40
Time：June 28, 2026　　08:50-12:40

地　點：臺北榮民總醫院 致德樓第一會議室
Place：The First Conference Room, Chih-Teh Building
Taipei Veterans General Hospital

健康台灣深耕計畫：守護兒童、拒絕傷害
臺灣兒童死因探討與青少年自殺的辨識與防治
Healthy Taiwan Sprout Project: Saving Young Lives Childhood Mortality and Adolescent Suicide Prevention in Taiwan

Decomposing under-5 child mortality in Taiwan, 1996-2023

解構臺灣五歲以下兒童死亡率，1996-2023

Tsung-Hsueh Lu

呂宗學

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The Healthy Taiwan initiative aims to reduce the under-5 mortality rate from 5.3 deaths per 1,000 live births in 2023 to fewer than 4.0 per 1,000 by 2030. However, long-term trends indicate that although under-5 mortality declined substantially from 9.5 per 1,000 live births in 1998 to 4.4 in 2014, progress has since stagnated, reaching 5.3 in 2023. This stagnation is largely attributable to an increase in day 0 mortality, rising from 0.7 per 1,000 live births in 2013 to 1.5 in 2023, primarily due to changes in birth certification practices. In contrast, mortality rates at 1–6 days and 7–27 days—more robust indicators of neonatal care quality—have continued to decline steadily from 1996 to 2023.

We further examined factors contributing to the stagnation in post-neonatal mortality rates (PNR) since 2012 and in mortality among children aged 1–4 years since 2016. The plateau in PNR was mainly driven by an increase in deaths due to respiratory diseases, with their proportion rising from 9.8% in 2008–2011 to 13.0% in 2012–2015. Child death review data suggest that many of these deaths were associated with unsafe sleeping environments.

For children aged 1–4 years, the stagnation since 2016 was primarily associated with respiratory diseases (particularly influenza and pneumonia) and disorders of the nervous system (notably cerebral palsy). Although the proportion of deaths due to external causes remained relatively stable—27.0% (n=198) in 2012–2015 and 25.6% (n=163) in 2016–2019—most of these deaths are considered preventable.

In conclusion, in response to certification-related artifacts, the Office of Statistics, Ministry of Health and Welfare, has introduced neonatal and infant mortality rates calculated with and without minimum gestational age thresholds of 22 and 24 weeks to improve comparability. Moving forward, targeted interventions are needed to reduce sleep environment–related sudden unexpected infant deaths in the post-neonatal period and preventable external causes among children aged 1–4 years.

Fatal child maltreatment: The gatekeeping role of pediatricians and a decade of clinical experience

致命兒虐專題：兒科醫師的守門角色與十年臨床經驗

Frank Leigh Lu

呂立

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臺大兒童醫院 兒童胸腔加護科 兒少保護醫療中心

Fatal child maltreatment represents one of the most severe and preventable tragedies in pediatric practice. Pediatricians are often positioned at the critical front line where early warning signs, unexplained injuries, neglect, medical delay, caregiver narratives, and inconsistencies in clinical findings may first become visible. This presentation focuses on the gatekeeping role of pediatricians in identifying, responding to, and preventing severe and fatal child abuse, based on more than ten years of clinical experience in a multidisciplinary child protection medical center.

Through real-world clinical experience, the lecture will examine how pediatricians can move beyond the traditional role of disease diagnosis and treatment to become active protectors of children's safety, dignity, and rights. Key topics include recognition of sentinel injuries, assessment of abusive head trauma and severe physical abuse, interpretation of medical findings in the context of developmental capacity and caregiver history, documentation standards, multidisciplinary communication, and collaboration with social welfare, law enforcement, forensic medicine, and the judicial system.

The presentation will also discuss the practical challenges faced by clinicians, including delayed reporting, fragmented information, uncertainty in diagnosis, pressure from caregivers or institutions, and the emotional burden of participating in medico-legal processes. Drawing from a decade of experience, the speaker will highlight the importance of establishing hospital-based child protection teams, standardized clinical pathways, expert consultation mechanisms, and integrated case review systems for fatal and near-fatal child maltreatment.

Ultimately, pediatricians serve not only as medical experts but also as essential gatekeepers within the child protection system. By improving early recognition, strengthening multidisciplinary collaboration, and translating clinical findings into actionable protection decisions, pediatricians can help prevent repeated harm, support vulnerable families, and contribute to a safer society for children.

Medical perspectives on severe pediatric mortality cases in Taiwan: From emergency care to inpatient management

臺灣重大兒童死亡個案的醫療觀點：從急診到住院

Jung Lee

李嶸

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長庚紀念醫院 兒童一般醫學科

Background: Pediatric out-of-hospital cardiac arrest (OHCA) is a rare event but is associated with severe sequelae. The survival-to-hospital-discharge rate has improved from approximately 2–6% in earlier reports to 17.6–40.2% in more recent studies. However, only 1–2% of OHCA survivors achieve a favorable neurological outcome. This talk aims to report the characteristics of pediatric OHCA and to evaluate the pre-hospital and emergency department (ED) management associated with patient outcomes.

Objective: To investigate the characteristics, pre- and in-ED management associated with outcome in children less than 18 years old with OHCA in EDs and to identify factors for favorable outcomes.

Method: This was a retrospective review.

Results: This talk aims to report the characteristics, the trends in incidence, clinical management, and outcome of pediatric OHCA patients.

A 15-year analysis of inpatient pediatric mortality at a Taipei Veterans General Haspital

臺北榮總住院孩童之 15 年死亡案例分析

Szu-Yin Tse

曾思穎

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國立陽明交通大學醫學院急重症醫學研究所博士班

This study aims to conduct a comprehensive analysis of pediatric mortality at Taipei Veterans General Hospital over a 15-year period, spanning from January 2011 to December 2025.

The primary objective is to investigate the distribution of major causes of death and the shifting trends in mortality rates among children and adolescents aged 0 to 18 years. Building upon previous clinical research regarding pediatric intoxication and accidental injuries, this analysis places a significant emphasis on identifying both medical and external risk factors—such as age group, gender, and pre-existing underlying diseases—that contribute to fatal outcomes.

The research focuses on a specific patient population consisting of pediatric cases who were either confirmed deceased or underwent compassionate discharge (critical AAD) during their hospitalization. By examining variables such as the final diagnosis leading to death and the involvement of palliative care consultations, the study seeks to highlight critical gaps in injury prevention and clinical management.

Ultimately, this retrospective analysis of longitudinal big data is intended to provide evidence-based insights into pediatric survival, particularly regarding the prevention of preventable deaths caused by poisoning or accidents, thereby informing future public health strategies and hospital intervention protocols.

Safeguarding dolescent mental health: Suicide risk identification, intervention, and family support

守護青少年心理健康：自殺風險辨識、介入與家庭支持

Hsiang-Hsuan Huang

黃翔瑄

Department of Psychiatry, Taipei Veterans General Hospital, Taipei, Taiwan, ROC

臺北榮民總醫院 精神醫學部

Adolescent suicide has emerged as one of the most pressing public health concerns worldwide, with rising rates of self-harm and suicidal behaviors among youth populations. This presentation addresses the critical need for early identification of suicide risk factors, evidence-based intervention strategies, and the pivotal role of family support systems in safeguarding adolescent mental health.

The presentation begins by examining the current epidemiological landscape of adolescent suicide, highlighting key risk factors. Screening tools and structured assessment approaches are reviewed to equip clinicians with practical strategies for early detection of at-risk youth.

Evidence-based interventions are discussed, including psychotherapeutic approaches and safety planning. Emerging pharmacological treatments with rapid-acting antisuicidal properties are also reviewed, with attention to their potential applications and safety considerations in adolescent populations.

Finally, the role of family involvement in suicide prevention is discussed. Approaches to improving parent-adolescent communication, reducing family conflict, and training family members to recognize warning signs and facilitate access to professional care are explored.

Early signals of childhood adversity: Clinical recognition and risk of non-natural death in Taiwan

兒少逆境的早期警訊：臨床辨識與非自然死亡風險

Chuan-Yu Chen, Yi-Nuo Lee, Tan-Wen Hsieh

陳娟瑜 李以諾 謝丹雯

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國家衛生研究院 神經與精神研究中心

Childhood adversity and maltreatment are major contributors to preventable morbidity and mortality among children and adolescents. Healthcare encounters may provide critical opportunities to identify children living in high-risk environments early. However, clinical recognition, reporting processes, and the long-term outcomes of these children remain incompletely understood.

This presentation synthesizes findings from several population-based studies in Taiwan examining the continuum from medical recognition of maltreatment-related injuries to reporting processes and subsequent mortality outcomes. Using linked national administrative databases, including birth records, healthcare utilization data, child protection reports, and death registries, we addressed three related questions: (1) the prognosis of infants diagnosed with maltreatment-related injuries, (2) the gap between physician diagnosis and reporting to child protection systems, and (3) the long-term risk of non-natural mortality among children reported for maltreatment.

Preliminary analyses suggest that maltreatment-related injuries identified in healthcare settings may represent early signals of vulnerability among children. However, inconsistencies appear to exist between clinical recognition and formal reporting to child protection systems, indicating potential gaps in the response pathway. In addition, children who come to the attention of child protection systems may experience elevated risks of adverse outcomes, including non-natural causes of death.

These findings highlight the critical role of healthcare professionals in recognizing early warning signs of adversity and strengthening collaboration between medical and child protection systems. Improving detection and reporting pathways may help reduce preventable mortality among vulnerable children.

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健康台灣深耕計畫：多元人才培訓全國論壇

Healthy Taiwan Sprout Project: Forum on Multidisciplinary Talent Development

時　間：115年6月28日　07:30-13:00

Time：June 28, 2026　07:30-13:00

地　點：臺北榮民總醫院 致德樓第二會議室

Place：The Second Conference Room, Chih-Teh Building
Taipei Veterans General Hospital

健康台灣深耕計畫：多元人才培訓全國論壇

Healthy Taiwan Sprout Project: Forum on Multidisciplinary Talent Development

Healthy Taiwan: Public participation

健康台灣：全民參與

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To cultivate a healthier populace and advance national wellness in alignment with Sustainable Development Goals (SDGs), Taiwan has launched the "Healthy Taiwan" initiative. This policy seeks to realize a vision in which our citizens are healthier, the nation is stronger, and Taiwan is embraced by the global community. To this end, a concrete eight-year blueprint has been established with specific objectives, including increasing average life expectancy and reducing child mortality.

To achieve these goals, the government will focus resources into five foundational pillars: advancing the national cancer prevention program, implementing the "888" plan for the control of the "three highs" (hypertension, hyperglycemia, and hyperlipidemia), strengthening national mental health resilience, promoting the "Healthy Taiwan Deep Cultivation Project," and strengthening the long-term sustainability of the National Health Insurance system. The Health Promotion Administration is dedicated to crafting health policies tailored to distinct life stages, with plans to expand eligibility and enhance services for health check-ups and cancer screenings in 2025.

This vital work is implemented by local health bureaus and medical institutions in collaboration with community-based family physicians, to deliver person-centered, holistic health services. Through these efforts, we aim to achieve the "Healthy Taiwan" goal of reducing the standardized mortality rate for major chronic diseases and cancer by one-third by 2030. The prevention plan for the "three highs" is structured around early detection, timely intervention, and measurable improvement, empowering individuals to adopt healthier lifestyles for effective disease management. Building a "Healthy Taiwan" requires cross-sector collaboration, the support from the medical community, and the active public participation to create a healthier, safer, and higher-quality living environment for all.

Promoting universal cancer screening and integrated cross-sector care toward a healthy Taiwan

促進癌症篩檢普及與跨領域整合照護，邁向健康台灣

Cheng-Hsu Wang

王正旭

Legislator Legislative Yuan, Taipei, Taiwan, ROC

立法院 立法委員

The "Healthy Taiwan Deep Cultivation Project," an initiative derived from President Lai Ching-te's national vision, is structured around four pillars: optimizing working conditions for medical professionals, planning for diverse talent cultivation, integrating smart technology into healthcare, and promoting social responsibility for medical sustainability. Through systematic reforms, this project aims to comprehensively upgrade the healthcare ecosystem and establish Taiwan as a leader in medical development in the Asia-Pacific region.

During a recent meeting of the "Healthy Taiwan" Promotion Committee, President Lai underscored the urgency of advancing our national cancer prevention strategy, establishing a clear objective to reduce the standardized cancer mortality rate by one-third by 2030. He noted that this committee serves as a vital platform for consolidating collective strength and fostering the cross-disciplinary collaboration necessary to achieve such an ambitious goal. To realize this vision, various government ministries will actively engage in cancer prevention efforts.

Key actions include expanding the age eligibility for screenings, incorporating new types of cancer screenings, and increasing screening rates in workplaces. Furthermore, adjustments to screening subsidies will be made to ensure these public health measures are both effective and sustainable. It is imperative that we proactively target high-risk populations and make the necessary financial adjustments to support these critical interventions. This national forum on talent cultivation will address the educational needs and developmental pathways for various medical professions. Using cancer screening and care as a prime example, we will explore the construction of a new paradigm for cross-disciplinary, integrated care in the AI era. This involves leveraging technologies like digital twins and navigating associated regulatory frameworks to innovate our healthcare delivery models and advance toward a healthier Taiwan.

From health policy to implementation: Strategies and vision of the healthy Taiwan plan

健康臺灣深耕計畫：多元人才培訓全國論壇《從健康政策到深耕實踐：健康臺灣計畫之策略與願景》

Hsiang-Kuo Chen

陳相國

President, Taiwan Medical Association (TMA) , Taipei, Taiwan, ROC

中華民國醫師公會全國聯合會

In the post-pandemic era, constructing a resilient and sustainable healthcare system has become a critical imperative for advancing the "Healthy Taiwan" initiative. Our nation confronts a confluence of challenges, including surging medical demands, severe shortages of healthcare personnel, and the rapid evolution of digital technology. In response, the Taiwan Medical Association has proposed a blueprint built upon four pillars: stabilizing the medical workforce, cultivating professional talent, harnessing digital technology, and committing to sustainable practices. Through systemic reforms and integrated policies, we aim to safeguard public health and foster the long-term development of Taiwan's medical sector.

First, stabilizing the healthcare workforce is our most urgent priority. We must address personnel attrition by improving salary structures, optimizing the practice environment, and cultivating a supportive workplace culture. Regarding talent cultivation, we recommend the Executive Yuan establish a cross-ministerial task force to promote a unified approach to education, examination, training, and employment. Concurrently, we must optimize the use of auxiliary healthcare staff and technological tools to enhance service efficiency and quality.

Second, in digital transformation, the rise of AI necessitates a human-centric, risk-managed framework that includes robust regulatory oversight and strengthened information security to alleviate the administrative burden on clinicians. Finally, to promote sustainability, the healthcare system must advance toward net-zero emissions through energy-efficient infrastructure and smart care models, supported by government incentives. These four pillars are indispensable; only through a collaborative effort between the government and the medical community—advancing workforce policies, technological applications, and sustainable governance in tandem—can we build a more resilient and forward-looking healthcare system to continuously protect the health of our nation.

From development to retention: Building clear career pathways and mentorship systems for healthcare professionals

從培育到留任：建立清晰職涯發展路徑與導師制度的實踐

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The retention of healthcare professionals has emerged as a central institutional priority amid rising clinical workload, generational shifts in workforce expectations, and the post-pandemic erosion of professional commitment. Within the framework of Taiwan's Healthy Taiwan Deep-Cultivation Plan, Taipei Veterans General Hospital (VGHTPE) has implemented an integrated strategy that links transparent career-development pathways with structured mentorship to convert recruitment investment into sustained professional engagement. This presentation reviews the design and first-quarter implementation of a hospital-wide career-ladder system covering five core allied health professions: nursing (N0–N4), nutrition (D1–D4), respiratory therapy (RRT registered through RRT3 specialist), medical technology (MT0–MT4), and pharmacy (P0–P4). For each profession, advancement criteria—years of service, certification, research output, and teaching contribution—were tailored to discipline-specific competencies and integrated with performance incentives. In parallel, a tiered mentorship system was deployed across nursing, nutrition, respiratory therapy, medical technology, pharmacy, and physical therapy, with one-to-one models for pharmacy, medical technology, and physical therapy, and one-to-many models for nursing, nutrition, and respiratory therapy. A 100% mentor-assignment rate was achieved for all post-graduate-year (PGY) trainees, supported by formal counseling, structured interviews, and feedback mechanisms. To ensure mentor quality, the Department of Medical Education delivered twelve faculty-development sessions in the first quarter—five workshops and seven topical lectures—covering cross-generational communication, leadership, psychological resilience, mindfulness, and feedback techniques. Early outcomes demonstrate measurable impact: new-hire nursing retention rose to 90.1%, compared with 79.9% in 2023 and 83.7% in 2024, while onboarding training satisfaction reached 95.8%. International benchmarking through ACGME faculty-development training and the planned launch of a competency-based medical education (CBME) platform will further extend mentorship reach from new hires to mid-career professionals. This integrated framework offers a replicable institutional model for converting workforce development into long-lasting retention.

Strengthening healthcare workforce and sustainable development

強化醫療人力與永續發展

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In the context of an aging population and the continuous growth of healthcare demands, the stability and sustainability of the healthcare system critically depend on the establishment of a robust and resilient healthcare workforce. In Taiwan, the current nursing workforce participation rate is only 62.88%, and the significant increase in turnover rates following the COVID-19 pandemic reflects persistent structural challenges in workforce allocation, work environments, and career development systems. Therefore, strengthening nurse retention, improving working conditions, and developing attractive and sustainable career pathways have become essential priorities for ensuring healthcare quality and enhancing system resilience.

This conference adopts a clinical practice perspective to address key issues in the sustainability of the nursing workforce and proposes three core strategies:

First, establishing safe and appropriate staffing systems to ensure care quality and balanced workloads. Second, developing diverse career pathways and interdisciplinary talent development mechanisms. As the future healthcare system evolves from a single-discipline model to an interdisciplinary, team-based approach—encompassing clinical care, advanced practice nursing, community health, long-term care, public health, and smart healthcare—workforce policies must shift from a "single-track" model to a "multi-pathway" framework. Through Advanced Practice Nursing (APN), interdisciplinary training, and continuing education, healthcare professionals can pursue specialized roles at different career stages, such as Nurse Practitioners (NPs), Clinical Nurse Specialists (CNSs), and Nurse Anesthetists (NAs). This approach strengthens interprofessional collaboration and expands opportunities for professional growth while enhancing overall care effectiveness.

Third, creating a supportive and enabling environment for professional development. The sustainability of the healthcare workforce depends on robust policy and institutional support, including reimbursement systems that appropriately reflect the value of healthcare services and workforce costs. In addition, policies should incentivize healthcare institutions to establish supportive work environments, implement appropriate nurse-to-patient ratios, invest in workforce development, and strengthen professional advancement systems. Through these structural and environmental enhancements, workforce retention can be improved, and the resilience and sustainability of the healthcare system can be further strengthened.

In alignment with the vision of "Healthy Taiwan," this conference will also explore how to integrate education, policy support, and a global perspective to build a resilient and sustainable healthcare workforce. Through institutional reforms and policy initiatives, healthcare professionals can be supported to remain engaged in long-term clinical practice, thereby strengthening system resilience, ensuring healthcare quality and patient safety, and advancing the long-term goal of a healthier Taiwan.

Healthy Taiwan and NHI reform

健康臺灣，健保新政

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Taiwan's National Health Insurance (NHI) program has operated for 31 years, providing equitable access to high-quality healthcare through the dedication of medical professionals and strong public support. As Taiwan enters a super-aged society marked by rapid population aging and low fertility, healthcare demand and expenditures continue to rise. Alongside workforce mobility, new drug adoption, and rapid technological advances, these pressures underscore the need for ongoing NHI reforms to strengthen system resilience and ensure sustainability.

Approximately 8.5 million people in Taiwan live with chronic diseases, with hypertension, hyperglycemia, and hyperlipidemia serving as major risk factors for cardiovascular and renal diseases. To support the "888 Plan for Prevention and Control of the Three Highs," the NHI Administration has implemented a digital, family physician–centered care model that integrates data-driven clinical decision support, lifestyle counseling, risk stratification, value-based payment, and AI-enabled personalized health education to improve disease management and promote patient empowerment.

In cancer care, the "National Cancer Prevention and Treatment Program" focuses on expanding early screening, advancing precision medicine, and establishing a dedicated NT$10 billion cancer drug fund to reduce mortality. Policies such as coverage for next-generation sequencing (NGS), alignment with international treatment guidelines, and provisional reimbursement for new therapies ensure continuous, appropriate care across the patient journey. Efforts to strengthen health technology assessment (HTA) capacity further accelerate access to innovative treatments.

To advance digital transformation, the NHI Administration promotes telemedicine for rural and homebound populations and strengthens the integration of big data and health IT systems, including MediCloud and My Health Bank. Adoption of FHIR standards and support for cloud-based hospital information systems aim to build a precision medicine ecosystem and deliver integrated, patient-centered care.

Digital piloting for a healthy Taiwan: Creating a new era of smart biomedicine

數位領航健康台灣，打造智慧生醫新紀元

Chih-Kang Chiang

姜至剛

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Guided by national strategies including the "Healthy Taiwan" initiative, the "National Project of Hope," the 2035 Ministry of Health and Welfare White Paper on Science and Technology, and the overall observations and recommendations of the Bio Taiwan Committee (BTC), Taiwan is entering a transformative stage of precision medicine and high-resilience healthcare. By consolidating resources across industry, government, academia, and research, we are cultivating interdisciplinary talent and aligning our regulatory frameworks with international norms to fortify our biomedical ecosystem.

1. Vision and Strategies for a Healthy Taiwan

Our overall development is centered on five core strategies: policy leadership, regulatory adaptation, technological innovation, industrial promotion, and global market expansion. This integrated approach is building a comprehensive biomedical innovation ecosystem, translating research and development outcomes into tangible solutions that protect public health and propel Taiwan's biomedical industry onto the global stage.

2. Emerging Trends in Biomedical Product Development

In response to global supply chain restructuring and the AI revolution, Taiwan is accelerating transformation in three key directions:

(1) Intelligent Development: Integrating AI and big data to drive personalized health management and enhance the quality of medical decision-making.

(2) Adoption of Emerging Technologies: With the legislative framework for the "Regenerative Medicine Act" and “ Regenerative Medicinal Products Act” nearing completion, the development of cell and gene therapies is poised for a critical growth phase.

(3) Strengthening Supply Chain Resilience: Implementing the "National Medical Products Resilience Preparedness Plan" to enhance the autonomy and stability of our supply chain for critical medicines and medical devices.

3. Regulatory Innovation and Digital Transformation

To accelerate market entry and enhance oversight efficiency, we are pursuing digital transformation through:

- e-Submission: Streamlining review processes through digital filing.
- AI-assisted reviews: Simplifying administrative procedures through intelligent automation.
- Transparent governance: Establishing clear frameworks for AI and cybersecurity to ensure innovative products meet clinical needs rapidly while adhering to the highest safety standards.

4. Talent Training and a Sustainable Future

The "Healthy Taiwan Cultivation Plan" places talent cultivation at its core. We are committed to fostering professionals who possess digital literacy, regulatory expertise, and a global mindset. By continuously strengthening these training mechanisms, we will support the innovative growth of the biomedical industry and guide Taiwan toward a sustainable and globally competitive new era in biomedicine.

Providing continuing education and professional development opportunities

提供持續教育和專業發展機會

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The sustainable development of an organization is closely linked to its systems and strategies for talent development. Healthcare settings have long been regarded as workplaces characterized by long working hours and high levels of stress. How to effectively organize and implement professional development activities within such an environment remains a challenge for all healthcare institutions. This presentation will briefly share the strategies, experiences, and outcomes of Taipei Veterans General Hospital in providing various continuing professional development opportunities for its staff.

Reflections and vision: Visit to Japanese medical libraries and special libraries

鏡鑑與前瞻：探訪日本醫學圖書館及特色圖書館

Ching-Ju Hsiao

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臺北榮民總醫院 教學部醫學圖書組

With the generous support of the Japan Medical Library Association (JMLA) and the Taiwan Medical Library Association (TMLA), we completed an intensive 8-day study tour, visiting 13 libraries in Tokyo and the JMLA headquarters. Notable medical libraries included the Keio University Shinanomachi Media Center (Kitasato Memorial Medical Library), St. Luke's International University Library, Toranomon Hospital Library, the Jikei University Center for Academic Resources and Library, and the University of Tokyo Medical Library. This comprehensive report is structured around observations in six key areas: Space and Environment, Collections and Resources, Technology and Innovation, Service and User Experience, Community Engagement and Promotion, and Organization and Management.

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免疫軸再平衡｜
止癢三軸：AD・PN・CSU的精準照護

Rebalancing the Immune Axis | Three Axes of Itch: Precision Care across AD, PN, and CSU

時　間：115年6月28日　08:00-12:25
Time：June 28, 2026　08:00-12:25

地　點：臺北榮民總醫院 致德樓第三會議室
Place：The Third Conference Room, Chih-Teh Building
Taipei Veterans General Hospital

免疫軸再平衡｜止癢三軸：AD・PN・CSU的精準照護

Rebalancing the Immune Axis | Three Axes of Itch: Precision Care across AD, PN, and CSU

Lebrikizumab in moderate to severe AD management: What matters to Taiwanese clinicians?

Lebrikizumab 治療異位性皮膚炎之三年長期療效與安全性：聚焦 IL-13 抑制機轉

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Patients with moderate-to-severe atopic dermatitis (AD) commonly suffer from itch (90.1%), sleep disturbances (49.3%), and anxiety/depression. They experience an average of 9 flares per year, each lasting about 15 days, which significantly impacts their quality of life (DLQI). The HOME organization has established Long-Term Control (LTC) as a core outcome domain for clinical trials, emphasizing it as a multidimensional, patient-centered, holistic assessment. AD is an IL-13-dominant disease; IL-13 levels are elevated in the skin of AD patients across all age groups and serve as the key cytokine driving the pathogenesis of the disease. Lebrikizumab selectively binds to IL-13 with high affinity and is characterized by a slow dissociation rate.

Lebrikizumab: Clinical Efficacy and Long-Term Control

Lebrikizumab is a biologic that selectively inhibits IL-13. In Taiwan, it is approved for the systemic treatment of patients aged 12 and older (weighing ≥ 40 kg) with moderate-to-severe AD who are inadequately controlled by, or intolerant to, topical therapies.

ADvocate 1/2 Monotherapy (Week 16) Results:

- IGA 0/1: 38.1% (vs. 11.7% placebo)
- EASI-75: 55.4% (vs. 17.2% placebo)
- EASI-90: 34.5% (vs. 9.2% placebo)
- Pruritus NRS improvement ≥ 4 points: 42.9% (vs. 12.2% placebo)

Long-Term Maintenance (ADvocate 1/2 → ADjoin):

An Observed Case (OC) analysis of Q4W (every 4 weeks) maintenance dosing showed that clinical responses—including IGA (0/1) and EASI-75/90/100—were sustained through Week 152 (approx. 3 years). Notably, in the Q4W group (N = 99), only 24.2% required any rescue medication, and only 9.1% required systemic rescue therapy. These data support the concept of “Long-Term Stable Control” with a lower treatment burden. The safety profile remained consistent, with most adverse events being mild to moderate in severity.

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Unmet needs in head and neck atopic dermatitis: Site-specific immune heterogeneity and therapeutic implications

頭頸部異位性皮膚炎的未被滿足需求：部位特異性免疫異質性與治療意涵

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烏惟新

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Head and neck (H&N) involvement represents a clinically distinct and often underrecognized phenotype of atopic dermatitis (AD), associated with disproportionately high disease burden, visible skin involvement, and significant impact on quality of life. Despite advances in systemic therapies, H&N dermatitis remains a persistent challenge, highlighting a critical unmet need in AD management.

The pathophysiology of H&N-predominant AD is complex, with site-specific immune heterogeneity playing a central role. Increased expression of key cytokines, including IL-4, IL-13, IL-17, and IL-22, is thought to amplify local inflammation. Notably, the development or persistence of H&N dermatitis in patients receiving biologic therapies—particularly IL-4/IL-13 inhibitors—has drawn increasing attention. This observation suggests a potential shift toward alternative inflammatory pathways, underscoring the limitations of targeting a single axis in certain patient populations.

From a therapeutic perspective, management of H&N AD requires a personalized and mechanism-based approach. In patients who experience suboptimal response or de novo head and neck dermatitis during biologic treatment, treatment optimization or switching to alternative systemic therapies may be warranted.

Targeted therapies with broader immunomodulatory effects, such as Janus kinase (JAK) inhibitors, modulating multiple cytokine pathways simultaneously. Targeting multiple cytokines may translate into better disease control in difficult-to-treat areas such as the head and neck, as well as more rapid and consistent symptom relief.

In conclusion, H&N involvement highlights the need for a more refined and patient-centric treatment strategy. Addressing the site-specific immune heterogeneity behind H&N will be essential to improve clinical outcomes.

One solution across type 2 inflammation: The expanding role of Dupilumab in AD and beyond

Dupilumab 於第二型發炎皮膚疾病的整合治療角色：從異位性皮膚炎到相關共病

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Type 2 inflammation represents a common pathophysiological pathway underlying multiple dermatological conditions. Dupilumab (Dupixent), a monoclonal antibody targeting IL-4 receptor alpha, effectively blocks IL-4 and IL-13 signaling—key drivers of type 2 inflammation—offering a unified treatment approach across diverse conditions.

Failure to recognize and address type 2 comorbidities in patients with AD may compromise treatment effectiveness, resulting in persistent pruritus, disease relapse, and diminished long term disease control. For dermatologists, understanding the systemic nature of type 2 inflammation is therefore essential to optimize treatment strategy and improve long term patient outcomes.

In atopic dermatitis (AD), dupilumab demonstrates remarkable efficacy in reducing disease severity, improving quality of life, and providing sustained itch relief. Clinical trials show significant improvements in EASI scores and patient-reported outcomes.

Beyond AD, dupilumab extends to prurigo nodolaris (PN), reducing nodule count and itch intensity for patients with this challenging condition. The therapeutic benefits also apply to chronic spontaneous urticaria (CSU), addressing the shared inflammatory pathways underlying these conditions.

This three-axis approach to itch management—addressing AD, PN, and CSU—represents precision medicine in dermatology. By understanding the shared pathophysiology of type 2 inflammation, we provide targeted care that addresses root causes rather than symptoms.

Dupilumab exemplifies how one solution can address multiple type 2 inflammatory conditions, offering patients comprehensive relief and enhanced quality of life across the type 2 inflammation spectrum.

Advancing atopic dermatitis management: From molecular insights to clinical practice

異位性皮膚炎治療新進展：從分子機制到臨床應用

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Atopic dermatitis (AD) is a heterogeneous and multifactorial inflammatory disease that extends beyond a single immune pathway. While type 2 (Th2) inflammation plays a central role, increasing evidence demonstrates the involvement of additional immune axes, including Th17, Th22, and Th1 signaling, particularly in Asian patients. This complex immune landscape contributes to diverse clinical phenotypes, disease severity, and variable treatment responses. These insights from molecular and translational studies provide a strong biological rationale for broader immunomodulatory approaches. Janus kinase (JAK) inhibitors, by targeting intracellular signaling common to multiple cytokine pathways, can simultaneously modulate Th2-, Th17-, and Th22-driven inflammation contributing to the immunopathology observed in Asian AD. In clinical practice, JAK inhibitors have demonstrated rapid and profound improvements in key disease domains of AD, particularly pruritus control and overall disease severity. Importantly, they address several unmet needs observed with biologic therapies, including residual disease activity, suboptimal responses in certain anatomical areas, and delayed onset of action. Switching from biologics to JAK inhibitors has emerged as a rational strategy for patients with inadequate response, enabling deeper and faster disease control. This presentation will bridge molecular insights with clinical evidence to demonstrate how JAK inhibitors alleviate symptom burden, enhance quality of life, and support long-term disease management of AD.

Care never quits: Above and beyond PsA care with Cosentyx

照護不退場，治療再突破 Cosentyx PsA 全面守護

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Psoriatic arthritis (PsA) is a heterogeneous, immune-mediated disease that extends beyond skin involvement to affect peripheral joints, axial structures, entheses, and multiple organ systems. Ongoing inflammation not only drives pain and disability, but also leads to progressive and often irreversible structural joint damage. Achieving early, sustained, and comprehensive disease control is therefore essential for improving long-term outcomes in patients with PsA.

This symposium reviews current insights into PsA pathophysiology, highlighting interleukin-17A (IL-17A) as a central and unifying driver of inflammation across skin and musculoskeletal domains. IL-17A is produced by diverse innate and adaptive immune cells via both IL-23–dependent and IL-23–independent pathways, positioning it as a key amplifier of chronic inflammation. Its activity links inflammatory burden with joint damage, bone erosion, and pathological new bone formation—hallmark features of both peripheral and axial PsA.

Secukinumab, a fully human monoclonal antibody that selectively targets IL-17A, directly inhibits this core inflammatory pathway. By neutralizing IL-17A regardless of its cellular source, secukinumab provides robust and consistent control of both skin and joint manifestations. Clinical and imaging evidence demonstrates that IL-17A inhibition is associated not only with rapid and durable symptom improvement, but also with favorable effects on structural outcomes, including reduced progression of erosions and enthesophytes.

Aligned with EULAR and GRAPPA recommendations, this session emphasizes a treat-to-target strategy in PsA, underscoring the importance of early recognition, holistic assessment across disease domains, and timely escalation to biologic therapy when appropriate.

To sum up perspectives above, targeting pure IL-17A mechanisum, for example, Secukinumab, goes beyond symptom control—addressing the inflammatory core of PsA to protect joints, preserve structure, and support long-term patient outcomes.

Simple approaches to managing skin problems in diabetes mellitus：The role of ceramides

糖尿病患者的皮膚照護：神經醯胺的角色

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Diabetes mellitus is a common systemic disease that frequently affects the skin, with up to 30–70% of patients experiencing dermatologic manifestations. Among these, xerosis and pruritus are particularly prevalent and can significantly impair quality of life. These skin changes are largely driven by impaired epidermal barrier function, altered lipid composition, and reduced skin hydration, which may also increase the risk of fissures, infections, and delayed wound healing. Early recognition and appropriate management of diabetes-associated skin conditions are essential components of patient care. Basic skincare interventions, including the use of gentle cleansers and effective moisturizers, play a key role in restoring barrier function and alleviating symptoms. Emerging evidence suggests that formulations containing physiological lipids, such as ceramides, may further support barrier repair and improve clinical outcomes. This lecture will provide an overview of common diabetic skin changes, underlying mechanisms, and practical, evidence-based skincare strategies that can be incorporated into routine patient education to improve both skin health and overall well-being.

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新興降脂療法、新型藥物及其開發背後的科學原理

Emerging Lipid-Lowering Therapies & Mechanisms

時 間：115年6月28日 08:30-12:00

Time：June 28, 2026 08:30-12:00

地 點：臺北榮民總醫院 致德樓第四會議室

Place：The Fourth Conference Room, Chih-Teh Building
Taipei Veterans General Hospital

新興降脂療法、新型藥物及其開發背後的科學原理
Emerging Lipid-Lowering Therapies & Mechanisms

CRP & atherosclerosis: From clinical to basic

CRP 與動脈粥樣硬化：從臨床到基礎研究

Yao-Jen Liang

梁耀仁

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輔仁大學 應用科學與工程研究所

C-reactive protein (CRP), traditionally regarded as a nonspecific biomarker of systemic inflammation, has emerged as a pivotal mediator in the pathogenesis of atherosclerosis, bridging clinical observations with underlying molecular mechanisms. Epidemiological studies have consistently demonstrated that elevated CRP levels independently predict cardiovascular events, underscoring its clinical relevance beyond conventional lipid parameters.

At the cellular level, accumulating evidence indicates that CRP actively participates in vascular inflammation rather than serving merely as a passive marker. CRP promotes endothelial dysfunction, a key early event in atherogenesis, by inducing pro-inflammatory cytokines such as interleukin-6 and interleukin-8, and by upregulating adhesion molecules including vascular cell adhesion molecule-1 (VCAM-1) and monocyte chemoattractant protein-1 (MCP-1). These changes facilitate monocyte recruitment and adhesion to the endothelium, thereby accelerating plaque initiation and progression.

Mechanistically, CRP exerts its effects through Fcγ receptors, particularly CD32, leading to activation of intracellular signaling pathways such as nuclear factor-κB (NF-κB), a central regulator of inflammatory gene expression. This signaling cascade amplifies vascular inflammation and perpetuates a pro-atherogenic environment. Furthermore, CRP-mediated inflammation establishes a vicious cycle, enhancing cytokine release and sustaining endothelial injury.

From a translational perspective, targeting CRP-related pathways offers potential therapeutic implications. Modulation of inflammatory signaling, including inhibition of NF-κB activation, may attenuate endothelial dysfunction and atherosclerotic progression. Thus, CRP represents not only a clinically valuable biomarker but also a mechanistic link connecting systemic inflammation to vascular disease, highlighting its dual role in both risk stratification and pathophysiological insight.

Bempedoic acid: Targeting cholesterol synthesis upstream

Bempedoic Acid：上游膽固醇合成抑制的新策略

Dee Pei

裴馹

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Bempedoic acid is a novel lipid-lowering agent that inhibits cholesterol biosynthesis upstream of 3-hydroxy-3-methylglutaryl–coenzyme A (HMG-CoA) reductase, offering an alternative therapeutic strategy for patients with hypercholesterolemia. It is a prodrug that is selectively activated in the liver by very long-chain acyl-CoA synthetase 1 (ACSVL1), thereby minimizing systemic exposure and reducing the risk of muscle-related adverse effects commonly associated with statins.

Mechanistically, bempedoic acid inhibits adenosine triphosphate–citrate lyase (ACL), a key enzyme involved in the conversion of citrate to acetyl-CoA, an essential precursor for cholesterol and fatty acid synthesis. By reducing hepatic cholesterol synthesis, it upregulates low-density lipoprotein receptor (LDLR) expression, thereby enhancing clearance of circulating LDL cholesterol (LDL-C).

Clinical trials have demonstrated that bempedoic acid, either as monotherapy or in combination with other lipid-lowering therapies such as statins or ezetimibe, produces a significant reduction in LDL-C levels, typically in the range of 15–25%. Notably, the CLEAR Outcomes trial showed that bempedoic acid significantly reduced major adverse cardiovascular events in statin-intolerant patients, highlighting its role in cardiovascular risk reduction.

In addition to lipid-lowering effects, bempedoic acid has been associated with modest reductions in high-sensitivity C-reactive protein (hs-CRP), suggesting potential anti-inflammatory benefits. Overall, bempedoic acid represents an important addition to the therapeutic armamentarium, particularly for patients who are unable to tolerate statins or require additional LDL-C lowering beyond conventional therapies.

PCSK9 inhibition in the new era: From siRNA to oral therapy

PCSK9 抑制新時代：從 siRNA 到口服療法

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Proprotein convertase subtilisin/kexin type 9 (PCSK9) is a central regulator of low-density lipoprotein cholesterol (LDL-C) homeostasis through its promotion of hepatic LDL receptor degradation. Therapeutic targeting of PCSK9 has therefore become a highly effective strategy for cardiovascular risk reduction, particularly in patients with atherosclerotic cardiovascular disease (ASCVD) or those who fail to achieve lipid goals with conventional therapies. While monoclonal antibodies against PCSK9 have demonstrated substantial LDL-C lowering and cardiovascular benefit, recent advances have expanded the therapeutic landscape into novel modalities with improved convenience and durability.

Small interfering RNA (siRNA)-based therapy, exemplified by inclisiran, represents a major innovation by selectively silencing hepatic PCSK9 synthesis. Through sustained intracellular activity, inclisiran enables potent and durable LDL-C reduction with twice-yearly dosing, addressing long-standing challenges in treatment adherence. In parallel, the development of oral PCSK9 inhibitors marks a significant paradigm shift. MK-0616, a first-in-class orally bioavailable macrocyclic peptide, has demonstrated promising LDL-C–lowering efficacy in early-phase clinical trials, offering the potential to combine the potency of PCSK9 inhibition with the convenience of oral administration.

These advances signal a transition from injectable biologics to gene-silencing approaches and now toward oral therapeutics, reflecting a broader evolution in lipid management. This lecture will provide a comprehensive overview of the mechanistic foundations of PCSK9 inhibition, with a particular focus on inclisiran and emerging oral agents such as MK-0616, and will discuss their potential roles in optimizing long-term cardiovascular risk reduction in contemporary clinical practice.

ApoC-III inhibition in the treatment of atherosclerosis

ApoC-III 抑制在動脈粥樣硬化治療中的角色

Chao-Feng Lin

林肇鋒

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Apolipoprotein C-III (ApoC-III) has emerged as a critical regulator of triglyceride-rich lipoprotein (TRL) metabolism and a key contributor to atherogenesis. By inhibiting lipoprotein lipase activity and impairing hepatic uptake of TRL remnants, ApoC-III promotes hypertriglyceridemia and the accumulation of remnant particles, both of which are increasingly recognized as causal factors in atherosclerotic cardiovascular disease (ASCVD). Genetic and epidemiological studies have consistently demonstrated that loss-of-function variants in the APOC3 gene are associated with lower triglyceride levels and a reduced risk of cardiovascular events, thereby establishing ApoC-III as a compelling therapeutic target.

Recent advances in RNA-targeted therapies have enabled selective inhibition of ApoC-III synthesis. Antisense oligonucleotides (ASOs), such as volanesorsen and next-generation agents like olezarsen, as well as small interfering RNA (siRNA) therapies, have shown substantial reductions in circulating triglycerides and remnant cholesterol levels in patients with severe hypertriglyceridemia, including familial chylomicronemia syndrome. Beyond triglyceride lowering, emerging evidence suggests that ApoC-III inhibition may improve lipoprotein remnant clearance and attenuate vascular inflammation, thereby exerting direct anti-atherogenic effects.

This evolving therapeutic paradigm highlights the expanding role of targeting TRL metabolism in cardiovascular prevention. In this lecture, we will review the biological role of ApoC-III, summarize current clinical evidence for ApoC-III–targeted therapies, and discuss their potential implications in the management of residual cardiovascular risk beyond low-density lipoprotein cholesterol lowering.

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戰傷與外傷處置的整合視角：
輸血、腦傷與化學武器威脅

Integrated Perspectives on Combat and Trauma Care: Transfusion, Brain Injury, and Chemical Weapons Threats

時 間：115年6月28日 08:20-12:00

Time：June 28, 2026 08:20-12:00

地 點：臺北榮民總醫院 致德樓第五會議室

Place：The FifthConference Room, Chih-Teh Building
Taipei Veterans General Hospital

戰傷與外傷處置的整合視角：輸血、腦傷與化學武器威脅
Integrated Perspectives on Combat and Trauma Care: Transfusion, Brain Injury, and Chemical Weapons Threats

Emerging concepts in trauma hemorrhage and transfusion strategies

外傷出血與輸血策略新觀點

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詹勝宇

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長庚紀念醫院 外傷急症外科

Trauma-related hemorrhage remains one of the leading causes of preventable death worldwide, particularly within the first hours following injury. Recent advances in trauma care have reshaped the understanding of trauma-induced coagulopathy and the optimal strategies for resuscitation and transfusion. This lecture will review emerging concepts in the pathophysiology of traumatic hemorrhage, including endothelial dysfunction, fibrinolytic dysregulation, and the early development of trauma-induced coagulopathy.

Key developments in damage control resuscitation will be discussed, with emphasis on balanced blood component therapy, the role of whole blood transfusion, early use of anti-fibrinolytics such as tranexamic acid, and goal-directed resuscitation guided by viscoelastic hemostatic assays. In addition, evolving strategies in hemorrhage control—including rapid identification of bleeding sources, integration of resuscitative endovascular techniques, and multidisciplinary trauma team coordination—will be highlighted. From an emergency and critical care perspective, the talk will also address practical considerations in implementing modern transfusion protocols, optimizing massive transfusion systems, and improving trauma system readiness. By integrating current evidence and clinical experience, this session aims to provide frontline clinicians with an updated framework for early recognition and effective management of severe traumatic hemorrhage, ultimately improving survival outcomes in critically injured patients.

Wartime medical practice experience sharing from Ukraine

烏克蘭戰時醫療實務經驗分享

Chih-Chun Hsu

許智鈞

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新竹馬偕紀念醫院 急診醫學科

The ongoing conflict in Ukraine has presented unprecedented challenges to the healthcare system, requiring rapid adaptation and innovation in emergency medical care under extreme conditions. This presentation will share firsthand experiences and practical insights from frontline medical operations in Ukraine, focusing on the unique aspects of wartime emergency medicine. Key topics include the establishment and operation of field hospitals in combat zones, triage protocols adapted for mass casualty incidents involving both military and civilian populations, and the management of complex traumatic injuries including blast injuries, gunshot wounds, and multi-system trauma. The presentation will discuss critical decision-making processes under resource constraints, innovative improvisation techniques for medical procedures when standard equipment is unavailable, and the psychological impact on both patients and healthcare providers. Special attention will be given to the coordination between military and civilian medical services, evacuation strategies from hot zones to definitive care facilities, and the integration of international medical volunteers into local healthcare systems. Drawing from real cases and operational experiences, this session aims to provide valuable lessons learned that can inform disaster preparedness, mass casualty response planning, and emergency medical care in austere environments. The presentation will also address the resilience of healthcare workers, ethical challenges in extreme situations, and the importance of international medical cooperation in conflict zones.

Continuum of care in traumatic brain injury: Prevention and control of post-traumatic epilepsy and targeted temperature management

創傷性腦外傷的持續照護：癲癇預防及管理與溫控治療

Tsung-Hsi Tu

杜宗熹

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國立陽明交通大學 醫學系

Traumatic brain injury (TBI) is a major cause of neurological morbidity worldwide and is frequently associated with the development of post-traumatic epilepsy (PTE), which may significantly affect long-term functional outcomes and quality of life. The continuum of care for patients with TBI requires coordinated strategies that extend from the acute emergency phase to long-term neurological follow-up. This lecture will provide an overview of the epidemiology and pathophysiological mechanisms underlying post-traumatic seizures and epilepsy, including the roles of structural brain injury, neuro-inflammation, and neuronal network reorganization. Key aspects of early management will be discussed, particularly the identification of patients at high risk for seizures and the evidence-based use of prophylactic antiepileptic medications during the acute phase. In addition, the session will address the clinical approach to monitoring, diagnosis, and treatment of late post-traumatic epilepsy, including pharmacologic therapy, multidisciplinary follow-up, and rehabilitation considerations. From the perspectives of emergency medicine and neuro-critical care, practical issues in integrating acute management with long-term neurological care will also be highlighted. By emphasizing a comprehensive and longitudinal care framework, this session aims to enhance clinicians' ability to prevent, recognize, and manage post-traumatic epilepsy, ultimately improving neurological outcomes for patients with traumatic brain injury.

Chemical weapons threats and medical management

化學武器的威脅與醫療應變

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Although chemical weapons are strictly regulated under international conventions, recent conflicts and terrorist incidents have demonstrated that they remain a real threat to civilians and health systems. In addition, large-scale releases of toxic industrial chemicals may present with clinical patterns and management principles that closely resemble chemical warfare agent exposures. This lecture will provide a concise overview of major classes of chemical warfare agents and high-risk toxic chemicals—including nerve, vesicant, choking and blood agents—with emphasis on their toxicological mechanisms and typical toxidromes. Key elements of field response will be discussed: threat assessment and risk communication, personal protective equipment and hot/warm/cold zone setup, strategies for decontamination and triage, and syndromic-based antidotal and supportive treatment. From an emergency and disaster medicine perspective, the talk will further address hospital preparedness for chemical incidents, including mass-casualty surge pathways, design of decontamination and patient flow, incident command and coordination, and inter-agency collaboration. By presenting a structured framework for risk recognition and medical management, this session aims to support frontline clinicians in providing safe and effective care during chemical weapons attacks and related toxic chemical emergencies, while maintaining responder safety as a primary priority.

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大師之路：胸腔外科的傳承

Journeys of the Thoracic Masters

時 間：115年6月28日 08:00-12:10

Time：June 28, 2026 08:00-12:10

地 點：臺北榮民總醫院 致德樓第六、七會議室

Place：The Conference Room 6&7, Chih-Teh Building
Taipei Veterans General Hospital

大師之路：胸腔外科的傳承
Journeys of the Thoracic Masters

Particle therapy and beyond: Emerging roles of carbon ion and BNCT in complex thoracic malignancies

粒子治療與未來發展：碳離子與硼中子捕獲治療在複雜胸腔腫瘤中的新興角色

Yuan-Hung Wu

吳元宏

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臺北榮民總醫院 重粒子及放射腫瘤科

The evolution of thoracic radiation oncology has entered the era of particle therapy, offering unprecedented precision in treating complex malignancies. This presentation highlights recent breakthroughs, with a specific focus on Carbon Ion Radiotherapy (CIRT) and Boron Neutron Capture Therapy (BNCT), and their roles in the multidisciplinary management of thoracic tumors.

Compared to traditional X-ray-based treatments, Carbon Ion Radiotherapy provides superior physical dose distribution via the Bragg Peak and a significantly higher Relative Biological Effectiveness (RBE). For thoracic surgeons, this means enhanced tumor control in radioresistant cases (such as sarcomas or advanced NSCLC) while drastically reducing the radiation dose to critical organs-at-risk, including the heart, esophagus, and healthy lung parenchyma. This precision facilitates safer combined-modality approaches and preserves post-treatment physiological reserves.

Furthermore, we explore the emerging clinical potential of Boron Neutron Capture Therapy (BNCT) in the thoracic domain. As a binary treatment modality that combines targeted boron delivery with thermal neutron irradiation, BNCT offers “cellular-level” selectivity. This makes it a promising candidate for diffuse or recurrent diseases, such as malignant pleural mesothelioma or multifocal lesions, where traditional surgery or wide-field radiation may be overly morbid.

As we move toward personalized oncology, understanding the indications for these advanced particle therapies is crucial for thoracic surgeons. By integrating CIRT and BNCT into our therapeutic arsenal, we can expand the boundaries of resectability and offer curative-intent options to patients previously considered untreatable.

Surgery for lung cancer: An update

肺癌手術治療：最新進展

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彰化基督教醫院 胸腔外科

Surgical management remains a cornerstone in the treatment of lung cancer, particularly for patients with early-stage and selected locally advanced disease. Recent advances in lung cancer screening, staging, perioperative therapy, and minimally invasive techniques have significantly reshaped the role of surgery. The implementation of low-dose computed tomography (LDCT) screening has led to increased detection of early-stage lung cancers, thereby expanding the population eligible for curative surgical resection.

Minimally invasive surgery, including video-assisted thoracoscopic surgery (VATS) and robotic-assisted thoracic surgery (RATS), have become widely adopted, offering reduced postoperative morbidity, shorter hospital stay, and comparable oncologic outcomes to open thoracotomy. In addition, the role of sublobar resection, particularly segmentectomy, has gained attention following recent randomized trials demonstrating non-inferiority to lobectomy in selected patients with small peripheral tumors.

The application of single-port thoracoscopic surgery has become increasingly widespread. Since 2016, we has routinely performed single-port thoracoscopic surgeries. With the introduction of 3D flexible endoscopes, we have adopted this technology for thoracoscopic procedures. Compared to the traditional 30-degree 2D thoracoscope, the 3D flexible endoscope allows for more precise movements and shorter surgery times.

In 2018, we also established a hybrid operating room and simultaneously introduced image-guided surgery in thoracic surgery. Image guidance has significantly reduced surgical waiting times and effectively improved the surgical margins in segmentectomy procedures. In 2020, we introduced the Ziosoft 3D imaging reconstruction system, enhancing the precision of preoperative planning for thoracoscopic surgeries. Our hospital also introduced the Da Vinci Xi and SP system and began using it for lung cancer. We look forward to further advancing thoracic surgery with the adoption of more new technologies.

This lecture will provide an updated overview of current surgical strategies for lung cancer, highlight recent clinical evidence, and discuss future directions in integrating surgery with emerging systemic treatments to optimize patient outcomes.

Introduction of the thoracic master (Yun-Hen Liu)

胸腔外科大師的介紹 (劉永恆)

Wei-Hsun Chen

陳維勳

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林口長庚紀念醫院胸腔外科

Professor Yun-Hen Liu is recognized for his expertise in lung cancer surgery, minimally invasive thoracic procedures, and multidisciplinary care. He has advanced techniques such as video-assisted thoracoscopic surgery (VATS), improving surgical precision and recovery. His clinical interests also include lung transplantation, airway interventions using rigid bronchoscopy, and innovative approaches such as natural orifice transluminal endoscopic surgery. Dr. Liu is actively involved in research and education, contributing to innovation and training future surgeons.

A doctor's candid life confession

醫生生涯真情告白

Yun-Hen Liu

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林口長庚紀念醫院／長庚大學 胸腔外科

A medical career, in every stage, carries its own weight and meaning.

From the first day you set foot in medical school, you must establish your aspirations, for only with direction can you go the distance. The experience of your seniors is the most precious asset you have. Take it in, hold it close. When difficulties arise, do not retreat; it is only by facing adversity head-on that you truly grow.

Once in clinical practice, make good use of the best tools available so your abilities can be multiplied. Every patient, every diagnosis, is a chance to learn. Through steady accumulation, you will carve out a path of your own. That path has no shortcuts; it is built on years of perseverance and focus.

As your experience deepens, it is not enough to excel in craft alone; you must cultivate a compassionate heart. In an ever-changing medical landscape, preparing for adversity in times of peace is wisdom. With patients and colleagues, benevolence and virtue are the foundation. Learn to recognize talent and deploy it well, so every member of your team can shine in the right role.

In your later years, when you have become a revered elder, the most important thing is passing on the torch. Transform your experience into nourishment for the next generation. Do not overstep; give them space to grow. When the time is right, retire gracefully, handing the torch into steady hands.

To have walked all ten stages, a lifetime of medicine lived without regret.

These ten idioms I offer as encouragement to all of you, my bright young students.

Introduction of the thoracic master

胸腔外科大師的介紹

Chih-Hung Lin

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臺中榮民總醫院 胸腔外科

Professor Hsu is a scholar who has nurtured countless talents. His influence, I believe, extends far beyond the realm of academia; much of it lies in his character and how he conducts himself in daily life.

In truth, Professor Hsu never pursued a PhD, yet he eventually rose to the rank of professor. Like many of us, his journey was not always smooth sailing. However, when faced with adversity, he did not choose the path many others might take—settling into a life of leisure and ease. Instead, he seized every moment, actively pursued further studies, and even returned to foundational laboratory work, earning his professorship through sheer, solid dedication. I believe that in terms of life attitude, Professor Hsu has provided us with a profoundly positive model: he teaches us not to lose heart in the face of current hardships, but to enrich and elevate ourselves instead.

As a surgeon, Professor Hsu serves as another exemplar for me. He has always been highly receptive to new ideas and possessed the courage to innovate. Long before thoracoscopic lung surgeries became commonplace, he had already developed a complete “thoracoscopic subxiphoid thymectomy” technique, which has been published and recorded in medical literature and textbooks. This is a remarkable achievement for any surgeon, and it is especially difficult for those of us from non-Western backgrounds. Furthermore, in the early days of thoracoscopic surgery, he frequently flew abroad to learn from others. It is this very personality—one that embraces new things and challenges—that made him a truly masterful surgeon. Under his leadership, thoracoscopic surgery at Taichung Veterans General Hospital gradually flourished.

Beyond his attitude toward life and the field of surgery, Professor Hsu has had a tremendous impact on me. He has taught me a great deal about interpersonal relationships and integrity. Using his wisdom, he would offer guidance on the principles of conduct without ever making the situation awkward. There is, of course, so much more we can learn from him, and I hope everyone can find inspiration and insight from his speech.

The master's path: Passing the torch in thoracic surgery

大師之路：胸腔外科的傳承

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In this retrospective presentation, I reflect on my lifelong journey in thoracic surgery, a career that has shaped not only my professional identity but also my fundamental values. I trace the arc of my medical life, beginning with my education at the National Defense Medical Center, through my formative years as a surgeon, to my roles in establishing the Taiwan Association of Thoracic & Cardiovascular Surgery (TSTS) and serving as a consultant at Taichung Tzu Chi Hospital.

The core of my clinical narrative focuses on the evolution of surgical techniques in Taiwan. I discuss my contributions to the field, including the early adoption of Video-Assisted Thoracoscopic Surgery (VATS) and the development of specialized procedures such as thoracoscopic sympathectomy and subxiphoid thymectomy. A significant portion of my technical work has been dedicated to esophageal cancer; I detail my experience with Minimally Invasive Esophagectomy (MIE) and my advocacy for the "Reverse Sequence" approach to improve patient safety and surgical precision in complex reconstructions.

Beyond the operating room, I share my passion for academic research—ranging from cancer cell biology to interdisciplinary collaborations in micro-electronics—and the importance of patient-centric care, exemplified by the founding of the "Enjoy Eating Club" for esophageal cancer survivors.

Finally, I offer a synthesis of my "Life Realizations." These are the philosophical lessons distilled from decades of practice: the importance of maintaining professional ethics, the necessity of adapting to technological change with a rational mind, and the wisdom of finding a balance between one's calling and personal peace. My aim is to pass on these reflections to the next generation of medical professionals as they navigate their own journeys in this challenging yet rewarding field.

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新世代乳癌治療的整合與未來：精準醫療、個人化醫療與全人照護的協同發展

The Integration of Next Generation Breast Cancer Care: Synergizing Precision Medicine, Personalized Therapy, and Holistic Support

時　間：115年6月28日　08:30-12:10
Time：June 28, 2026　08:30-12:10

地　點：臺北榮民總醫院 第三門診大樓9樓創意谷
Place：The Clinical Innovation Center,
Taipei Veterans General Hospital

新世代乳癌治療的整合與未來：精準醫療、個人化醫療與全人照護的協同發展

The Integration of Next Generation Breast Cancer Care: Synergizing Precision Medicine, Personalized Therapy, and Holistic Support

The broadest and most optimal cross ethnic evaluation of CDK4/6 inhibitors in HR+/HER2 early breast cancer

賀爾蒙陽性早期乳癌患者的 CDK4/6 抑制劑之跨族群分析

Chi-Feng Chung

鍾奇峰

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醫療財團法人辜公亮基金會

和信治癌中心醫院 血液腫瘤科

The landscape of early breast cancer treatment has evolved significantly with the introduction of CDK4/6 inhibitors for patients with HR+/HER2− disease. As these therapies are increasingly adopted worldwide, understanding their performance across diverse ethnic populations has become a critical clinical priority. Differences in genetics, tumor biology, comorbidities, and treatment patterns have historically raised questions about whether efficacy or tolerability varies by ethnicity, especially in regions with rapidly growing breast cancer incidence.

This presentation delivers the most comprehensive cross-ethnic evaluation to date of CDK4/6 inhibitors in HR+/HER2− early breast cancer. By integrating global clinical trial data with region-specific subgroup analyses, it highlights similarities and distinctions in treatment outcomes among Asian, Western, and other major ethnic cohorts. Key endpoints—including invasive disease-free survival, safety signals, dose-modification patterns, and long-term benefit—are examined to assess whether response consistency is maintained across populations.

Beyond clinical trial findings, the session also explores how factors such as pharmacogenomics, endocrine sensitivity, BMI distribution, and healthcare practice patterns may influence treatment experience across ethnicities. Real-world evidence from multiple regions is incorporated to complement trial data, offering a broader perspective on adherence, tolerability, and treatment sequencing in routine clinical practice.

Ultimately, the analysis provides clinicians with a clearer understanding of how CDK4/6 inhibitors perform globally and whether ethnicity meaningfully impacts outcomes. These insights aim to support more confident, precise, and individualized decision-making for patients with HR+/HER2− early breast cancer, ensuring that treatment strategies remain both evidence-based and broadly applicable across diverse populations.

Optimizing patient outcomes in HER2 positive early breast cancer through a personalized treatment strategy

透過個人化治療策略優化 HER2 陽性早期乳癌患者的預後

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鄭涵方

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臺北榮民總醫院 乳房外科

The therapeutic landscape for HER2-positive early breast cancer has evolved from a standardized protocol to a highly sophisticated, personalized treatment strategy. With the primary goal of maximizing cure rates while minimizing long-term toxicity, modern clinical management now emphasizes risk-stratified decision-making. This approach leverages the power of dual HER2 blockade, specifically the combination of Trastuzumab and Pertuzumab, to achieve superior outcomes in both neoadjuvant and adjuvant settings. A critical component of personalization is the shift toward dual HER2 inhibition as the foundational backbone for high-risk patients.

In the neoadjuvant setting, achieving a pathologic complete response (pCR) serves as a vital prognostic marker. This allows clinicians to implement response-guided therapy: escalating treatment with Trastuzumab Emtansine (T-DM1) for those with residual disease, established by the KATHERINE trial, or maintaining standard dual blockade for those achieving pCR. Furthermore, clinical data from the APHINITY trial have demonstrated that the addition of Pertuzumab to adjuvant Trastuzumab and chemotherapy significantly improves invasive disease-free survival (iDFS) and overall survival (OS) in the node-positive subgroup.

Beyond clinical efficacy, optimizing patient outcomes now encompasses quality of life and healthcare efficiency. The introduction of Phesgo—a fixed-dose combination of Pertuzumab and Trastuzumab for subcutaneous injection—represents a major milestone in patient-centric care. Results from the FeDeriCa and PHranceSCa studies confirm that Phesgo maintains non-inferior efficacy and safety compared to intravenous administration while drastically reducing treatment time from hours to minutes. This transition not only improves the patient experience by reducing chair time and injection-related discomfort but also optimizes clinic workflows and resource allocation. By integrating potent dual blockade with the convenience of subcutaneous delivery and response-based adjustments, clinicians can deliver a truly optimized, precision-medicine approach that balances oncological rigor with the daily realities of patient life.

Enhancing health-related quality of life in HER2-positive breast cancer: The impact of subcutaneous dual-blockade therapy

優化 HER2 陽性乳癌病患之健康及生活品質

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三軍總醫院 一般外科

HER2-positive breast cancer represents a subset of breast cancer with distinct biological characteristics and clinical behaviors. The advent of targeted therapies has revolutionized the management of this disease, shifting the focus toward integrating personalized medicine approaches. Modern treatment goals have expanded beyond survival to include the enhancement of health-related quality of life (HRQoL) through innovative delivery methods.

Targeted Therapy Integration: Emphasizing the role of monoclonal antibodies like trastuzumab and pertuzumab, combined with chemotherapy, as the cornerstone of treatment for HER2-positive breast cancer.

Biomarker-Driven Treatment: Discussing the utilization of subcutaneous (SC) formulations as a personalized delivery method to optimize patient convenience and therapy adjustments.

Combination Strategies: Evaluating the potential of combining HER2-targeted therapies with other modalities, such as hormonal therapy and immunotherapy, to enhance therapeutic outcomes.

Optimizing Quality of Life: Evaluating strategies to minimize toxicity and manage adverse effects, thereby improving the quality of life for patients undergoing intensive therapy.

Clinical Trials and Emerging Therapies: Highlighting the importance of ongoing clinical trials and exploring novel agents that show promise in further improving patient outcomes.

Ultimately, the goal is to provide a comprehensive treatment plan that ensures each individual receives optimized care, maximizing health benefits and maintaining superior quality of life throughout the treatment journey.

The evolving treatment landscape with novel therapeutics in metastatic HR+ BC with inavolisib

HR+ 轉移性乳癌治療的最新進展：Inavolisib 的臨床應用前景

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The treatment landscape of metastatic hormone receptor–positive breast cancer (HR+ BC) has evolved significantly with the emergence of targeted therapies addressing key resistance pathways. Despite the clinical benefits of endocrine therapy combined with CDK4/6 inhibitors, we seek to cooperate new strategy to maximize the benefits of endocrine therapy. The success of a phase III trial, INAVO120, highlights the importance of the activation of the PI3K/AKT/mTOR signaling pathway in endocrine therapy after failure to aromatase inhibitors. Around 40% HR+ BC patients can be identified to have the signal activation in this pathway by gain-of-function mutations on PIK3CA gene.

Inavolisib, a next-generation, highly selective PI3Kα inhibitor, has been proved to enhance efficacy while relatively minimized toxicity compared with earlier PI3K inhibitors. Recent clinical studies demonstrate that inavolisib, when combined with endocrine therapy and CDK4/6 inhibition, provides promising improvements in progression-free survival and tumor response rates in patients with PIK3CA-mutated metastatic HR+ BC. Its improved pharmacologic profile may also contribute to better tolerability and patient adherence.

This review explores the evolving role of inavolisib within the current treatment paradigm, examining its mechanism of action, clinical efficacy, and safety profile. As precision medicine continues to shape oncology practice, integrating biomarker-driven therapies such as inavolisib represents a critical step toward optimizing outcomes in metastatic HR+ breast cancer.

Beyond the conventional: Navigating the future of oral SERDs with Giradestrant

超越傳統治療：從 Giradestrant 看口服 SERD 的未來發展與臨床應用

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The landscape of endocrine therapy for hormone receptor(HR)-positive, HER2-negative breast cancer is undergoing a fundamental transformation. For decades, clinicians have relied on intramuscular fulvestrant and aromatase inhibitors as the cornerstones of treatment. However, the limitations of administration and suboptimal pharmacokinetics have created a critical need for therapeutics beyond conventional strategies.

Giredestrant, a highly potent, next-generation oral selective estrogen receptor degrader (SERD), is engineered to achieve sustained receptor inhibition, maintaining efficacy even in the presence of ligand-independent receptor activation. In addition to superior ability to achieve near-complete estrogen receptor occupancy, the consistent bioavailability by transitioning from parenteral to oral delivery makes its robust activity against endocrine resistance, which is often driven by ESR1 mutations.

Recent clinical evidence across both early and advanced disease settings suggests that giredestrant may redefine the standard of care.

The favorable safety profile and sustained drug exposure represents a significant leap toward more personalized, patient-centric strategies. Beyond monotherapy, the integration of Giredestrant into combination regimens, such as CDK4/6 inhibitors, PI3K inhibitors, or AKT inhibitors lead us to a future where endocrine therapy is more effective and better tolerated. This session will focus on how to navigate a strategic roadmap for a patient-centric approach that balances the tumor response and quality of life.

TROP2 milestones in mTNBC: Advancing treatment with Sacituzumab govitecan

TROP2 在轉移性三陰性乳癌的里程碑：以 Sacituzumab Govitecan 推進治療進展

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Metastatic triple-negative breast cancer (mTNBC) is characterized by its aggressive nature and historically limited therapeutic options. The near-universal expression of TROP2 in TNBC has led to the development of Sacituzumab govitecan (SG), a first-in-class TROP2-directed antibody-drug conjugate (ADC). Engineered with a high drug-to-antibody ratio and a potent bystander effect, SG addresses tumor heterogeneity more effectively than conventional chemotherapy.

The landmark phase III ASCENT trial provided definitive evidence for SG, demonstrating statistically significant improvements in both progression-free survival (PFS) and overall survival (OS) compared to single-agent chemotherapy. These robust outcomes have redefined the standard of care. Notably, SG is currently the only ADC designated as a “Preferred Category 1” intervention by the NCCN Guidelines for pretreated mTNBC. Furthermore, it achieved the maximum score of 5 on the ESMO Magnitude of Clinical Benefit Scale (ESMO-MCBS), affirming its status as a high-value therapeutic option with profound clinical benefit.

Strategically integrating SG into the second-line setting is essential for optimizing the therapeutic sequence. Utilizing the most potent evidence-based options early in the metastatic trajectory ensures that clinical outcomes are maximized and not compromised by disease progression or treatment attrition. This evolution toward precision TROP2-targeted therapy represents a major milestone in breast oncology, reshaping the treatment landscape and providing a more promising outlook for patients with mTNBC.

「醫學研究論文獎」及
「盧致德院長獎」論文摘要

「盧致德院長獎」
(從刊登於中華醫學會雜誌上的全部論文中，選出被引用
20 次以上的作者，並以其中最多次者頒發盧致德院長獎)

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Reprogramming patient-induced pluripotent stem cell-specific retinal organoids for deciphering epigenetic modifications of RNA methylation

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Abstract

Background. Induced pluripotent stem cell (iPSC) technology has emerged as a powerful tool for disease modeling, providing an innovative platform for investigating disease mechanisms. iPSC-derived organoids, including retinal organoids, offer patient-specific models that closely replicate in vivo cellular environments, making them ideal for studying retinal neurodegenerative diseases where retinal ganglion cells (RGCs) are impacted. N6-methyladenosine (m6A), a prevalent internal modification in eukaryotic mRNAs, plays a critical role in RNA metabolic processes such as splicing, stability, translation, and transport. Given the high energy demands of RGCs, mitochondrial dysfunction, which leads to impaired adenosine triphosphate (ATP) production and increased reactive oxygen species (ROS) levels, is often central to the progression of retinal neurodegenerative disorders. However, the epigenetic mechanisms underlying m6A modification and their contributions to these conditions remain unclear.

Methods. Patient-specific iPSCs were generated from individuals with Leber hereditary optic neuropathy (LHON) and differentiated into RGCs within retinal organoids. To analyze m6A methylation, we used quantitative polymerase chain reaction (PCR) and focused on differential expression of key m6A-modifying enzymes.

Results. iPSC-derived retinal organoids are adaptable for studying and investigating the epigenetic mechanisms of retinal neurodegenerative diseases. Our data demonstrated the profiling of global m6A-related gene expression levels in LHON patient-derived iPSC-RGCs compared with controls, highlighting specific disruptions in m6A modification pathways.

Conclusion. These findings suggest that differential m6A modifications may play pivotal roles in the pathogenesis of retinal neurodegenerative diseases and affect the progression of the disease in affected individuals.

Keywords. Induced pluripotent stem cell; Methylation; N6-methyladenosine; Reactive oxygen species; Retinal ganglion cells

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The influences of antihistamine on liver fibrosis, vasoresponsiveness, and portosystemic shunting in bile duct–ligated cirrhotic rats

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Abstract

Background. Liver cirrhosis with portal hypertension is a sequela of chronic hepatitis, characterized by liver fibrosis, poor portosystemic collateral vasoresponsiveness, increased mesenteric angiogenesis, and collateral formation. Antihistamines are frequently used to control pruritus in cirrhotic patients, and it has also been shown to reverse histamine-induced inflammation, fibrogenesis, angiogenesis, and vasodilatation. However, the relevant impacts on cirrhosis are not clear.

Methods. Liver cirrhosis was induced in rats with common bile duct ligation (BDL). Sham rats were surgical controls. Levocetirizine (0.5 mg/kg/day, oral gavage) or vehicle was administered from the 1st day after operations and experiments were performed on the 29th day to survey: (a) Systemic and splanchnic hemodynamic parameters; (b) serum liver and renal biochemistry parameters; (c) protein expressions of liver fibrogenesis factors; (d) portosystemic collateral vasoresponsiveness to vasopressin; (e) portosystemic shunting degree; and (f) mesenteric angiogenesis.

Results. Compared with the vehicle, levocetirizine decreased portal pressure, superior mesenteric artery flow, portal vein (PV) flow, and elevated PV resistance in BDL rats. Levocetirizine significantly down-regulated the hepatic TGF-β, p-Smad2, MMP-2, and TIMP-1 protein expressions in BDL rats. Levocetirizine did not affect the collateral vasoresponsiveness to vasopressin but tended to reduce the severity of portosystemic shunting and mesenteric angiogenesis.

Conclusion. Levocetirizine ameliorated liver fibrosis, portal hypertension, and splanchnic hyperdynamic circulation in cirrhotic rats, possibly through the downregulation of hepatic fibrogenesis factors. Antihistamines may be a therapeutic option to control portal hypertension. However, further investigations are required to clarify its clinical application.

Keywords. Angiogenesis; Antihistamine; Liver cirrhosis; Portal hypertension

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Comparison of operative outcomes between proximal and total gastrectomy for proximal gastric cancer

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Abstract

Background. Total gastrectomy and proximal gastrectomy (PG) are both treatment options for proximal gastric cancer. Currently, there is no consensus on which procedure is better. The aim of this study was to compare the operative outcomes between PG and total gastrectomy in the treatment of proximal gastric cancer.

Methods. Between January 2000 and October 2022, patients who underwent either PG with double tract reconstruction (PG-DTR) or total gastrectomy with Roux-en-Y reconstruction (TG-RY) for proximal gastric cancer were included. The clinicopathologic characteristics and operative outcomes were compared between the two groups. Propensity score matching was performed to compare the short- and long-term outcomes between the two groups.

Results. A total of 263 patients were included in the study. After propensity-score matching, there was no significant difference in clinicopathological characteristics between the two groups. The TG-RY group had more retrieved lymph nodes (37.8 ± 18.6 vs 28.7 ± 15.4; p = 0.022) and a longer hospital stay (13.6 ± 10.2 vs 9.4 ± 3.3 days; p = 0.036) than the PG-DTR group. Surgical complications were similar between the two groups. The PG-DTR group had a greater prevalence of reflux esophagitis (21.4% vs 7.1%; p = 0.034), a higher postoperative/preoperative body weight ratio (0.91 ± 0.08 vs 0.84 ± 0.14; p = 0.021), and a higher postoperative/preoperative serum albumin ratio (1.07 ± 0.11 vs 0.96 ± 0.18; p = 0.004) than the TG-RY group.

Conclusion. Compared with TG-RY, PG-DTR was associated with better postoperative nutritional status and comparable operative complications.

Keywords. Double tract reconstruction; Operative outcome; Proximal gastrectomy; Roux-en-Y reconstruction; Total gastrectomy

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TwPAD registry: A prospective, multicenter registry of chronic peripheral arterial disease involving lower limbs in Taiwan

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Abstract

Background. Peripheral arterial disease (PAD) is a consequence of systemic atherosclerosis, resulting in arterial narrowing and diminished blood flow, leading to complications like claudication, rest pain, ulcers, gangrene, and functional limitations. Despite its impact on cardiovascular mortality, physical function, and quality of life, PAD has received less attention than other atherosclerotic disorders. This study addresses the paucity of comprehensive clinical data on PAD in Taiwan, aiming to analyze its incidence, risk factors, pharmacological and interventional treatments, and outcomes.

Methods. This prospective, multicenter, observational registry includes PAD patients from 10 medical centers or teaching hospitals across Taiwan. Data collected encompass demographic characteristics, medical history, laboratory results, and treatment history. Patients are followed up annually to monitor all-cause mortality, major clinical events (cardiovascular

death, nonfatal myocardial infarction, nonfatal stroke), and total cardiovascular events (including hard events, unplanned revascularizations, hospitalizations for endovascular therapy, stroke, transient ischemic attacks, and heart failure).

Results. From September 2020 to December 2022, 1005 patients were enrolled. The mean age of the cohort was 70.3 years, with men constituting the majority (59.3%). The prevalence rates of key medical conditions were 68.2% for diabetes, 76.3% for hypertension, 72.6% for hypercholesterolemia, 40.6% for smoking, and 26.2% for end-stage renal disease. Central Taiwan patients were younger and had a higher body mass index (BMI) and prevalence of obesity, but lower rates of comorbidities such as hypertension, diabetes, and smoking history. In contrast, eastern Taiwan patients who were older had a lower BMI and prevalence of obesity, but exhibited higher levels of comorbidity.

Conclusion. The TwPAD registry provides comprehensive insights into patient characteristics, treatments, and outcomes. Regional variations in age, BMI, and comorbidity levels were noted between central and eastern Taiwan. Importantly, the registry identified gaps in adherence to guideline-directed medical therapy, particularly in statin use. Continued data collection will support improvements in PAD management nationwide.

Keywords. Asian; Epidemiology; Peripheral arterial disease; Registries; Treatment outcome

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Clinical outcomes of round spermatid injection vs intracytoplasmic sperm injection: The role of hormonal pretreatment for nonobstructive azoospermia

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Abstract

Background. Round spermatid injection (ROSI) into oocytes offers men with nonobstructive azoospermia (NOA) the opportunity to have biological offspring in cases where mature spermatozoa are not detected. However, the clinical outcomes of ROSI remain poor. This study compared the outcomes of ROSI with intracytoplasmic sperm injection (ICSI) and investigated the effect of hormonal pretreatment.

Methods. This retrospective cohort study enrolled infertile couples undergoing either ROSI or ICSI at the reproductive center in Taipei Veterans General Hospital. The administration of selective estrogen receptor modulators, gonadotropins, and aromatase inhibitors in male patients were recorded. Relevant hormonal markers and biochemical parameters were determined. The outcomes of ROSI and ICSI were assessed based on fertilization rate, implantation rate, and live birth rate.

Results. A total of 36 couples were recruited in the ROSI group, whereas 39 couples were recruited in the ICSI group for the analysis. Patients in each group demonstrated similar characteristics, except for a higher proportion of male patients in the ROSI group who were pretreated with anastrozole. The fertilization rate and implantation rate were similar between ROSI and ICSI groups after adjusting for confounding variables. The live birth rate was significantly lower in the ROSI group (8.3%) than in the ICSI group (30.8%) before and after adjusting for confounding variables.

Conclusion. ROSI demonstrated fertilization and implantation rates comparable to those of ICSI for male patient with NOA undergoing testicular sperm extraction surgery. Anastrozole may improve the outcomes of ROSI into oocytes. Further studies evaluating the effect of anastrozole administration on ROSI outcomes are warranted.

Keywords. Anastrozole; Aromatase inhibitor; Intracytoplasmic sperm injection; Selective estrogen receptor modulators; Spermatid

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Differential involvement of trait impulsivity, fluid intelligence, and executive function in creativity among euthymic patients with bipolar disorder

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Abstract

Background. While anecdotal evidence suggests a link between bipolar disorder and heightened creativity, empirical studies are scarce, and the underlying cognitive mechanisms remain unclear. This study aimed to explore the association between trait impulsivity, executive function, fluid intelligence, and creativity among euthymic patients with bipolar disorder.

Methods. Euthymic outpatients with bipolar disorder and age- and sex-matched healthy controls were enrolled in this crosssectional study. Creativity was assessed using the Abbreviated Torrance Test for Adults and the Chinese Word Remote Associates Test, which examined divergent thinking and convergent thinking, respectively. Trait impulsivity was measured using the Barratt Impulsiveness Scale, while cognitive flexibility was evaluated using the Wisconsin Card Sorting Test. Fluid intelligence was assessed using Raven's Progressive Matrices. General linear models were used to assess the associations between these cognitive measures.

Results. Fifty-seven euthymic patients with bipolar disorder and 56 controls were recruited. Euthymic patients with bipolar disorder exhibited comparable overall creativity to controls but underperformed in convergent thinking. General linear models confirmed a negative association between trait impulsivity and creativity, primarily observed in patients with bipolar disorder. Cognitive flexibility positively correlated with creativity among patients with bipolar disorder, independent of fluid intelligence.

Conclusion. Our study showed that euthymic patients with bipolar disorder do not have heightened creativity. The findings underscore the importance of considering trait impulsivity and cognitive factors in understanding creativity in bipolar disorder.

Keywords. Bipolar disorder; Cognitive flexibility; Convergent thinking; Divergent thinking; Trait impulsivity

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The neuropsychological impacts of coronavirus disease 2019 in nonhospitalized patients with long coronavirus disease and brain fog

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Abstract

Background. Coronavirus disease 2019 (COVID-19) causes persistent symptoms, including brain fog. Based on limited research on the long-term consequences of mild COVID-19, which has yielded inconsistent results, we investigated which cognitive functions were most affected by COVID-19 in nonhospitalized Asian patients with long-term COVID and subjective cognitive complaints.

Methods. Fifty-five nonhospitalized patients with subjective cognitive complaints after COVID infection (24 males and 31 females, mean age: 45.6 ± 14.6 years, mean duration of education: 14.4 ± 3.0 years) finished the study. Neuropsychological assessments included screening tests for overall cognition, and comprehensive tests for memory, executive function, processing speed, and subjective emotional and disease symptoms. Cognitive test scores were converted into Z-scores. Moreover, principal component analysis (PCA) was used to define cognitive domains across subtest scores.

Results. Comprehensive assessments revealed cognitive impairment in 69.1% of patients (<1.5 SD in at least one test). The processing speed (27.3%), memory recall (21.8%), memory learning (20.0%), and inhibitory control (18.2%) were the most affected areas. Self-reported anxiety and depression were observed in 35% and 33% of patients, respectively. Furthermore, the degree of anxiety was predictive of learning performance.

Conclusion. Nearly 70% of patients with subjective cognitive complaints and long COVID had objective cognitive impairments. A comprehensive evaluation is essential for these patients, even when they present with mild symptoms.

Keywords. Brain fog; Cognitive function; Long COVID; Neuropsychology

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Real-world outcomes of everolimus-based treatment in a Taiwanese cohort with metastatic HR+/HER2− breast cancer

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Abstract

Background. Everolimus was the first orally targeted therapy for certain cancers. It was introduced before CDK4/6 inhibitors and is widely used to treat advanced hormone receptor-positive (HR+)/human epidermal growth factor receptor 2-negative (HER2−) breast cancer. This study presents comprehensive findings including updated data and long-term survival analyses focusing on patients with HR+/HER2− metastatic breast cancer who received everolimus-based treatment. The objectives were to assess the impact of everolimus on overall survival (OS) and progression-free survival (PFS) by treatment line, and to evaluate its role in therapeutic strategies in a real-world setting.

Methods. We included 299 women aged over 20 years with histologically confirmed HR+/HER2− breast cancer who received everolimus-based treatment from multiple medical centers in Taiwan. Survival curves were generated using the Kaplan-Meier method, with the log-rank test for comparisons. Univariate and multivariate analyses were performed using a Cox proportional hazards regression model. Adverse effects were graded according to the Common Terminology Criteria for Adverse Events version 5.0.

Results. The median PFS was 5.6 months, and the median OS was 60.1 months. Patients receiving everolimus treatment in three or more lines and those who underwent chemotherapy before everolimus-based treatment had a significantly shorter PFS but longer OS. Patients with liver and central nervous system metastases had significantly shorter PFS and OS. The disease control rate was 51.5%, and the overall response rate was 8.0%.

Conclusion. These findings support current guidelines and advocate for the inclusion of everolimus in treatment plans for patients with metastatic HR+/HER2− breast cancer, particularly in late-line treatment, with careful consideration of the benefit-risk profile for each patient.

Keywords. Breast cancer; Everolimus; Liver; Progression-free survival; Taiwan

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Comprehensive genomic profiling of Taiwanese triple-negative breast cancer with a large targeted sequencing panel

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Abstract

Background. Breast cancer is a leading cause of cancer-related deaths in women, particularly those with the triple-negative (TN) phenotype. Although novel therapeutic options are emerging, most are biomarker-driven. This study used comprehensive genomic profiling (CGP) via targeted sequencing to identify actionable alterations in a TN subcohort of the VGH-TAYLOR study.

Methods. The study included patients with either early-stage (defined by first-line surgery or neoadjuvant therapy) or late-stage (defined by relapse or de novo metastatic disease) breast cancer. CGP was performed using the Illumina TruSight Oncology 500 assay. The level of actionability was assessed using the European Society for Medical Oncology (ESMO) Scale of Clinical Actionability of Molecular Targets (ESCAT) criteria, with additional annotations provided by the PierianDx software and OncoKB database.

Results. CGP was successfully performed on 104 TN breast cancer samples. The most common actionable genes (occurring in >10% of cases) were *PIK3CA* (38%), *BRCA2* (25%), *PTEN* (13%), *BRCA1* (13%), *ERBB2* (12%), and *ERBB3* (11%). After applying a stringent per-variant filter, these frequencies were reduced to 22%, 6%, 5%, 4%, 4%, and 1% for *PIK3CA*, *PTEN*, *BRCA2*, *BRCA1*, *AKT1*, and *PALB2*, respectively. Based on the standard cut-off of 10 mutations/megabase, 24 samples were classified as tumor mutation burden (TMB)-high, whereas 80 were TMB-low. The proportion of TMB-high cases was lower among the early-stage patients compared to the late-stage patients (19% vs 36%; $p < 0.05$).

Conclusion. This study demonstrates the clinical feasibility and utility of large-scale CGP, enabling the investigation of a broad range of genes and multi-gene signatures, such as TMB and microsatellite instability (MSI). The identification of actionable biomarkers offers the potential to expand therapeutic opportunities for TN breast cancer patients.

Keywords. Comprehensive genomic profiling; Targeted sequencing; Triple-negative breast cancer; Tumor mutation burden; VGHTAYLOR study

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ChatGPT and other artificial intelligence applications speed up scientific writing

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The launch of ChatGPT (Chat Generative Pre-trained Transformer, OpenAI Limited Partnership, San Francisco, USA) on November 30, 2022, has sparked a wave of enthusiasm.[1,2] People from all walks of life are eager to experiment with this novel application and discussions are lively, especially in the education sector.[3–5] In contrast, discussion of this topic in medical journals has lagged behind,[6–9] and much of the discussion has focused on ghostwriting by ChatGPT, involving academic ethics, originality, and authorship.[10–12] In fact, the use of artificial intelligence (AI) technology in texts has become increasingly mature in recent years,[13] dramatically changing the way scientific writing works (Table 1).

English has been the dominant scientific language (*lingua franca*) for decades.[14] It is undeniable that the vast majority of scientists who do not speak English as their mother tongue still have difficulty or are much less proficient in writing in English. Machine translation, especially natural language processing using neural networks and deep learning, can almost help overcome language barriers. The following demonstrates three AI-powered approaches to writing in English for native Chinese speakers (Fig. 1).

The tools available now for writing assistance, particularly in English, go well beyond simple grammar, punctuation, and spelling checks. They can provide immediate synonym searches to suggest word choices, as well as paraphrasing to alter the tone and style of the text. Take as an example DeepL Write (DeepL GmbH, Cologne, Germany), the public beta version of which has been launched on January 17, 2023. The moment the user types a word, the software automatically suggests various synonyms or related terms. Once the user has written a few words, the software offers a number of additional word choices that can be used to complete the sentence. For an entire sentence, dozens of different ways to write that sentence will be available. AI provides contextualized examples for reference through the sentence search engine and natural language processing.

In translation, AI has dramatically improved the accuracy of machine translation in recent years, with DeepL Translator (DeepL GmbH) being probably the leader.[15] DeepL Translator uses an algorithm called a convolutional neural network in deep learning. In August 2017, DeepL Translator launched the free online translation service. By the end of 2022, it has supported 29 languages, with Chinese in March 2020. A variety of comparable products are available on the internet. Users can paste the Chinese text into various translation tools, compare the results, and choose the right one. More importantly, try to rewrite the original Chinese text repeatedly so that the translation software can understand it and then provide appropriate results.

The use of AI to write scientific papers is clearly unethical, and its accuracy is currently in doubt. Generally speaking, writing is only a small part of the overall research. The core of the research should be the idea together with its results. In addition, science is based on previous research and citation is very important. Currently, AI content generation tools are not yet able to

Table 1

Examples of artificial intelligence applications in scientific writing

Tool	Web address (accessed on February 5, 2023)
Writing assistance	
DeepL Write	https://www.deepl.com/write
Ludwig	https://ludwig.guru/
Grammarly	https://app.grammarly.com/
QuillBot	https://quillbot.com/
Trinka	https://www.trinka.ai/
Microsoft Editor	https://www.microsoft.com/zh-tw/microsoft-365/microsoft-editor
Translation	
DeepL Translator	https://www.deepl.com/translator
Google Translate	https://translate.google.com/
Bing Translator	https://www.bing.com/translator
Reverso Translation	https://www.reverso.net/text-translation
Youdao Translate	https://fanyi.youdao.com/
Baidu Translate	https://fanyi.baidu.com/
Content generation	
ChatGPT	https://chat.openai.com/
Copy.ai	https://www.copy.ai/
Texta	https://www.texta.ai/
ChatSonic	https://writesonic.com/chat
Writier	https://writier.io/
Writerly	https://writerly.ai/

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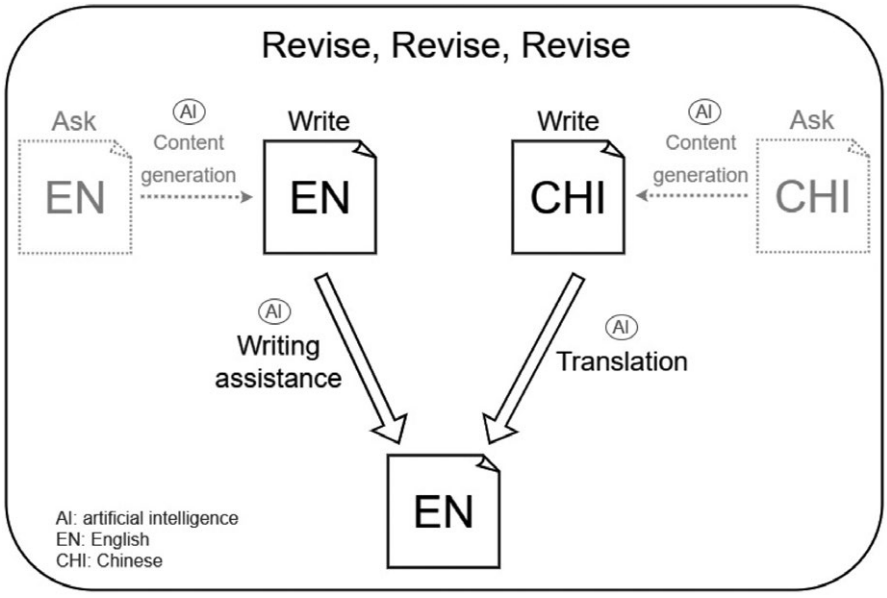

Fig. 1 Use of artificial intelligence applications in scientific writing.

automatically provide correct citing sources. There is no denying that for many people, writing is not easy. ChatGPT and other AI-powered content generation tools can write various versions of text in a few seconds, perhaps inspiring the authors to overcome the writer's block.

Regarding the role of AI in scientific writing, we should bravely embrace the new world with an open mind. Physicians do not need to understand the physics of computed tomography and magnetic resonance imaging in detail, but only how to interpret the images. Researchers do not need to understand the mathematical principles underlying statistical models; instead, they must understand how to apply statistical formulae. Similarly, scientists do not need to be embarrassed about not knowing AI algorithms; rather, they should know how to exploit AI tools.

Dear readers, if you have read the previous paragraphs and found them comprehensible, you are entering the world of AI. The current manuscript was originally written in Chinese without any assistance and then translated into English by means of AI-powered tools. After manual revision, the manuscript was edited again by AI-powered tools.

Experimentally, the original Chinese version of the above text was first summarized into six sentences by ChatGPT and then translated into English using DeepL Translator as follows:

> The launch of OpenAI's ChatGPT has generated a lot of buzz and is being used across a wide range of industries, particularly in the education sector. Advances in AI technology have changed the way science is written. Many scientists who are not native English speakers still have difficulty writing in English. Three ways of using AI technology to help Chinese speakers write English are presented. AI technology has dramatically improved the accuracy of machine translation, with DeepL Translator being the best.

In addition, a six-sentence summary of the English version of the above text is provided by ChatGPT as follows:

> The launch of OpenAI's ChatGPT has received enthusiasm from various sectors, but discussions about its use in medical journals have lagged behind. There have been concerns about the ethical implications of using AI for scientific writing. However, AI technology has greatly advanced in recent years and has changed the way scientific writing works. AI-powered tools such as DeepL Write can provide immediate synonym searches, paraphrasing and even writing suggestions, while AI translation has greatly improved machine translation accuracy. AI-generated writing is still considered unethical and its accuracy is questionable. But, scientists should embrace AI tools and use them to overcome writer's block, without having to understand the underlying algorithms.

Obviously, ChatGPT's handling of the Chinese language still has room for improvement.

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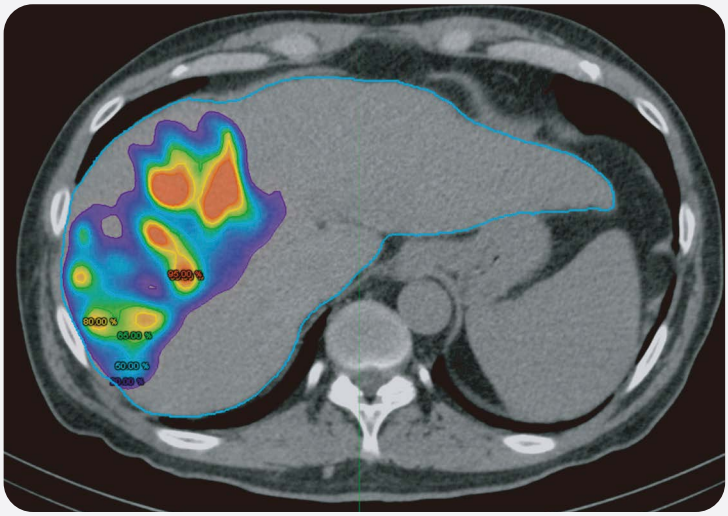

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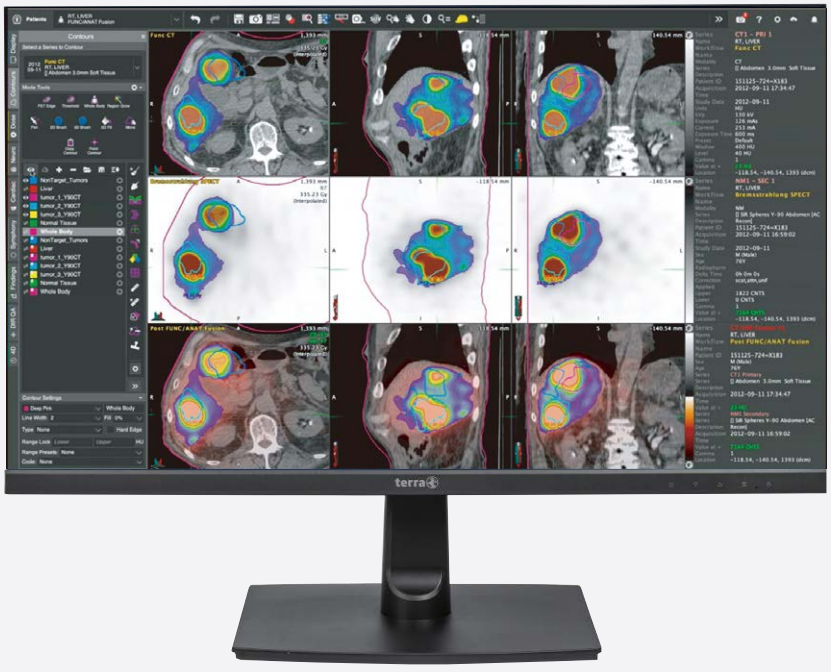


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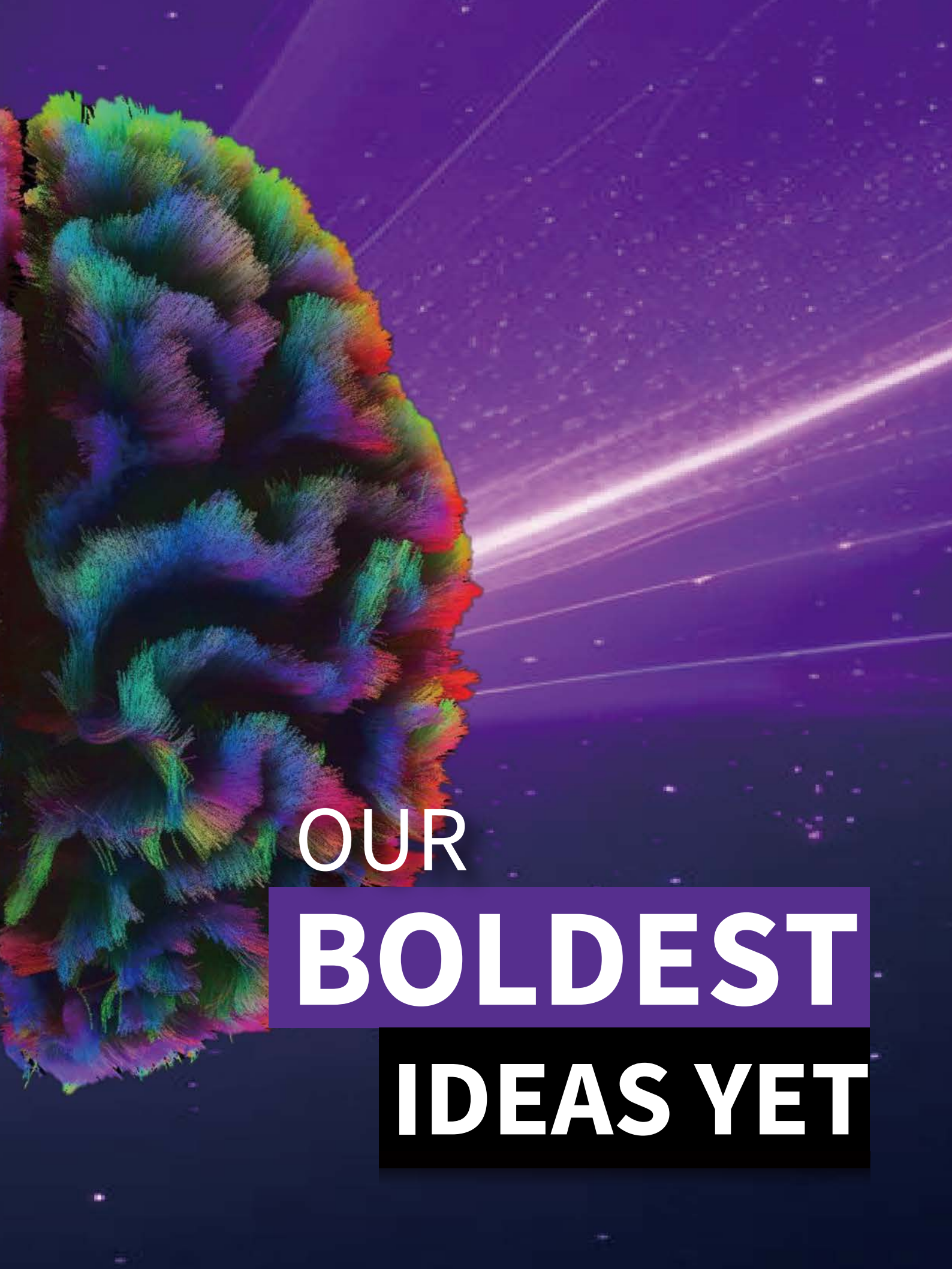
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Exploring Functional Cure in Chronic Hepatitis B

GSK

The importance of Hepatitis B surface antigen (HBsAg)[1]

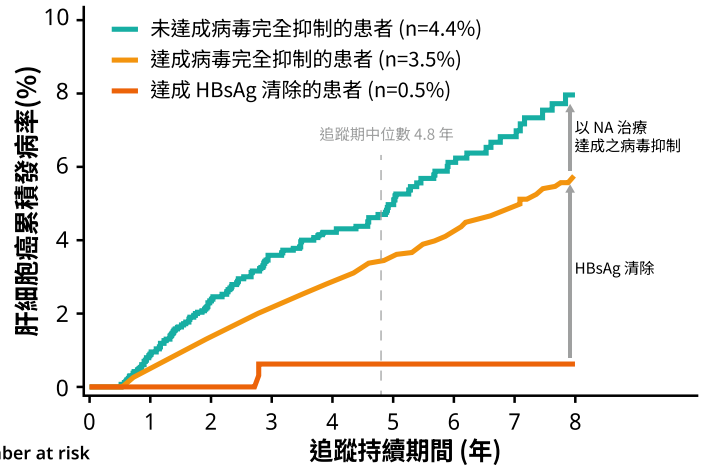
一項香港全境的回溯性世代研究中，20,263 位慢性 HBV 感染者接受 ≥6 個月核苷 (酸) 類似物 (nucleoside/nucleotide analogue, NA) 治療。

在完全病毒抑制的基礎上，若能達到HBsAg清除，則相比於未達到完全病毒抑制的患者，肝細胞癌的風險較低。

HBsAg 清除者肝癌發生率僅 0.6%：
- 相比之下，未達成 HBsAg 清除者追蹤 8 年的肝癌累積發生率為 5.6%

未達成病毒完全抑制的患者有較高的肝細胞癌風險：
- 追蹤 8 年肝癌累積發生率 7.8%

病毒完全抑制 vs. HBsAg 清除: Gray's test, p <0.001
未達成病毒完全抑制 vs. 病毒完全抑制: Gray's test, p <0.001
(追蹤8年：功能性治癒 0.6% vs. 病毒完全抑制 5.6%) (HCC risk: aHR 0.24; 95% CI 0.06–0.97; p=0.045)
(追蹤8年：未達成病毒完全抑制 7.8% vs.病毒完全抑制 5.6%) (HCC risk: aHR 1.69; 95% CI 1.36–2.09; p <0.001)



Number at risk									
未達成病毒完全抑制	2,764	2,715	2,003	1,555	1,221	996	741	542	385
病毒完全抑制	17,123	17,010	15,053	12,680	10,429	8,402	6,248	4,353	2,891
HBsAg 清除	376	376	354	318	274	231	182	126	80

aHR, adjusted hazard ratio; **CI,** confidence interval; **HBsAg,** Hepatitis B surface antigen; **HBV,** Hepatitis B Virus; **HCC,** hepatocellular carcinoma; **NA,** nucleoside/nucleotide analogue

研究顯示 HBsAg 清除是慢性 HBV 感染治療的重要終點指標

Various definitions of cure

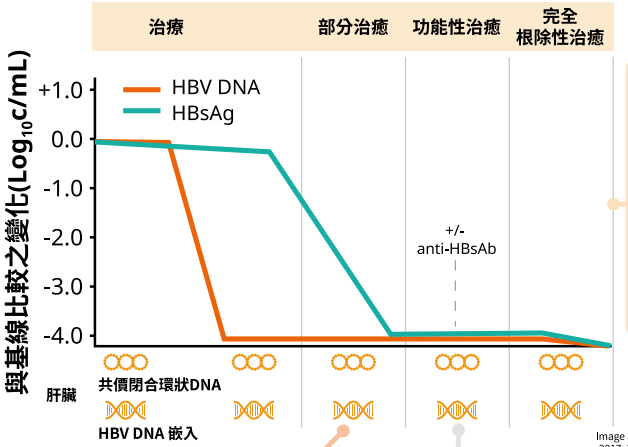


Image adapted from Testoni B, et al. Semin Liver Dis. 2017; 37(3): 231-242, with permission from Thieme6

完全根除性治癒：
血清中 HBsAg 和 HBV DNA 檢測不到，肝臟中也無法檢測到 HBV DNA，並且肝臟內 cccDNA 和嵌入的 HBV DNA 片段消失。現有的治療方法尚無法達成完全根除性治癒[2–4]

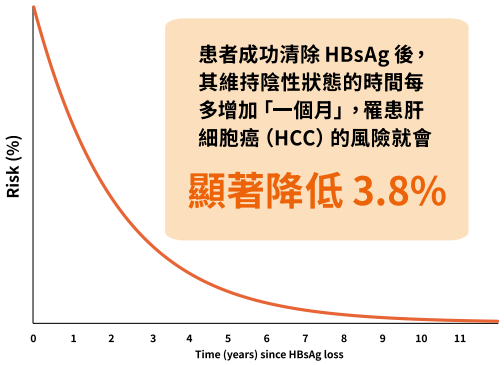
部分治癒：
在停止治療後，血清中檢測不到 HBV DNA，ALT 水平正常，但仍可檢測到 HBsAg[2,3]。目前的核苷 (酸) 類藥物 (NA) 治療能夠達成此效果。

功能性治癒：
HBsAg 消失 ± B型肝炎表面抗體 (anti-HBs)，並在有限的治療期間後持續抑制 HBV DNA，但肝臟中仍存在殘留的 cccDNA 與嵌入的 DNA。目前功能性治癒在使用核苷 (酸) 類藥物 (NA) 和 長效型干擾素治療 (PEG-interferon therapies) 時很少達成[2–5]；針對慢性 B 型肝炎的研究藥物正致力於達成此目標[6]。

HBsAg loss has a cumulative clinical benefit over time

Impact of HBsAg loss on HCC risk over time

(Hong Kong database, 2005–2019, 1639 (2.3%) experienced HBsAg loss*)[7]



患者成功清除 HBsAg 後，其維持陰性狀態的時間每多增加「一個月」，罹患肝細胞癌 (HCC) 的風險就會

顯著降低 3.8%

*一項回顧性世代研究，收錄了 71,077 名慢性B肝患者，透過分析真實世界電子健康紀錄進行長期追蹤，結果證實達成B肝表面抗原 (HBsAg) 清除能顯著降低失代償性肝病、肝癌與全因死亡的風險，並減少醫療資源的消耗
CHB, chronic hepatitis B; CI, confidence interval; HBsAg, hepatitis b surface antigen; HCC, hepatocellular carcinoma; HR, hazard ratio.

迫切需要在疾病過程中盡早達成 HBsAg 清除，以改善慢性 B 型肝炎患者的預後[7,8]

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【品名】杜避炎注射劑300毫克 (DUPIXENT solution for injection 300mg) | 衛部菌疫輸字 第 001082 號 | 北市衛藥廣字第 114100157 號

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【禁忌】DUPIXENT 禁用於已知對dupilumab或其任何賦形劑過敏的病人。【警語及注意事項】1. 過敏反應: 曾通報的過敏反應包括過敏性休克、血清疾病 (serum sickness) 或類血清疾病反應 (serum sickness-like reaction)、血管性水腫、全身性蕁麻疹、皮疹、結節性紅斑及多形性紅斑。若出現臨床上重大過敏反應，DUPIXENT應停藥並給予適當治療。 2. 結膜炎和角膜炎: 接受DUPIXENT治療的異位性皮膚炎受試者有較高的結膜炎和角膜炎發生率。結膜炎為最常被通報的眼睛疾患。大多數出現結膜炎的受試者其結膜炎在治療期間痊癒或逐漸康復。在氣喘受試者中，DUPIXENT 和安慰劑間的結膜炎和角膜炎發生率近似。慢性鼻竇炎合併鼻息肉(CRSwNP)的受試者在24週的安全性彙整資料中，DUPIXENT治療組的結膜炎發生率為2%相對於安慰劑組為1%；這些受試者的結膜炎後來皆痊癒。慢性鼻竇炎合併鼻息肉(CRSwNP)的臨床研究中並無角膜炎之通報個案。在嗜伊紅性食道炎(EoE)受試者中，DUPIXENT組在安慰劑對照試驗中未通報發生結膜炎和角膜炎。結節性癢疹(PN)受試者的結膜炎發生率在DUPIXENT治療組為4% 而安慰劑組為1%；這些受試者在治療期間皆痊癒或逐漸康復。結節性癢疹(PN)的臨床研究 中並無角膜炎之通報個案。在慢性阻塞性肺病受試者中，DUPIXENT 組的結膜炎和角膜炎發生率分別為 1.4%和0.1%，安慰劑組為1%和0%。在慢性自發性蕁麻疹受試者中，DUPIXENT 和安慰劑間的結膜炎發生率相似。慢性自發性蕁麻疹研發計畫中未通報發生角膜炎的病例。請告知病人或其照顧者，當眼睛出現新的症狀或原有症狀惡化時，應告訴醫護人員。3. 嗜伊紅性白血球相關狀況: 接受氣喘治療的病人可能有嚴重的全身性嗜伊紅性白血球增多症，有時會出現嗜伊紅性白血球肺炎或類似嗜伊紅性韋格納肉芽腫(granulomatosis with polyangiitis)之血管炎的臨床表徵，這種病況通常會給予全身性皮質類固醇治療。這些事件可能與口服皮質類固醇劑量降低有關。醫師應對嗜伊紅性白血球增多症病人的血管炎性皮疹、肺部症狀惡化、心臟併發症及/或神經病變保持警覺。DUPIXENT治療與這些病況之因果關係尚未建立。4.氣喘或慢性阻塞性肺病的急性症狀或急性惡化: DUPIXENT不應用於治療氣喘或慢性阻塞性肺病的急性症狀或急性氣喘惡化。DUPIXENT不可用於治療急性支氣管痙攣或重積性氣喘。若在DUPIXENT開始治療後氣喘或慢性阻塞性肺病未能獲得控制或惡化，則病人應尋求醫療建議。5. 突然降低皮質類固醇劑量的相關風險: DUPIXENT開始治療後，不可突然停用全身性、局部性或吸入性皮質類固醇。如果可行，皮質類固醇的劑量應逐漸降低並在醫護人員的直接監督下執行。降低皮質類固醇劑量有可能引起全身性戒斷症狀及/或使得先前被全身性皮質類固醇壓抑的病況再度出現。6. 併有氣喘的病人: 應告知併有氣喘的的異位性皮膚炎病人，在尚未諮詢醫師前，不得擅自調整或停止氣喘治療。7. 關節痛: 使用DUPIXENT曾有出現關節痛之報告，有些病人曾發生與關節症狀相關的步態障礙或活動力下降；有些個案導致住院。在上市後報告中，關節痛的發作時間並不一定，從DUPIXENT首次給藥後數天至數個月不等。有些病人的症狀在DUPIXENT持續治療後獲得緩解，其他病人則在DUPIXENT停藥後才康復或逐漸康復。8. 寄生蟲(蠕蟲)感染: 在DUPIXENT的臨床試驗中排除已知有蠕蟲感染的病人，因此DUPIXENT是否會影響對抗蠕蟲感染的免疫反應尚不清楚。病人應先治療蠕蟲感染，才能開始接受DUPIXENT治療。若病人在DUPIXENT治療期間感染蠕蟲且對抗蠕蟲治療無反應，則應停用DUPIXENT直到感染解除為止。參與兒童氣喘發展計畫的6-11歲兒童受試者曾通報出現蠕蟲感染 (5例蟯蟲感染及1例蛔蟲感染) 之不良反應。9. 疫苗接種: 在DUPIXENT開始治療前，應考慮按照當前接種指南之建議，完成所有適齡的疫苗接種。接受DUPIXENT治療期間的病人應避免接種活性疫苗。目前尚不清楚在DUPIXENT治療期間接種活性疫苗，這些疫苗的安全性或有效性是否受到影響。關於DUPIXENT與非活性疫苗同時使用的資料相當有限。【不良反應】臨床重要副作用/不良反應：過敏反應、結膜炎和角膜炎、關節痛、寄生蟲 (蠕蟲) 感染。異位性皮膚炎試驗:結膜炎、角膜炎、眼瞼炎、乾眼症、注射部位反應、口腔皰疹、眼睛癢、其他單純皰疹病毒感染。氣喘試驗：注射部位反應、口咽疼痛、嗜伊紅性白血球增多症。慢性鼻竇炎合併鼻息肉試驗: 注射部位反應、結膜炎、關節痛、胃炎、失眠、嗜伊紅性白血球增多症、牙痛。嗜伊紅性食道炎試驗：注射部位反應、上呼道感染、關節痛、皰疹病毒感染。結節性癢疹試驗：鼻咽炎、結膜炎、皰疹感染、頭暈、肌痛、腹瀉。慢性阻塞性肺病試驗：病毒感染、頭痛、鼻咽炎、背痛、腹瀉、關節痛、尿道感染、局部給藥反應、鼻炎、嗜伊紅性白血球增多症、牙痛、胃炎。慢性自發性蕁麻疹：注射部位反應。使用前請詳閱藥品仿單警語及注意事項 | 杜避炎注射劑300毫克/衛部菌疫輸字 第001082號

【品名】杜避炎注射劑200毫克/衛部菌疫輸字 第001133號

◄ 電子仿單請掃此二維條碼

處方前請參閱衛生福利部核准之完整仿單內容。仿單版本Ref：USPI-Apr2025 簡易仿單版本日期：Aug -2025

藥商：賽諾菲股份有限公司 | 地址：台北市松仁路3號7樓

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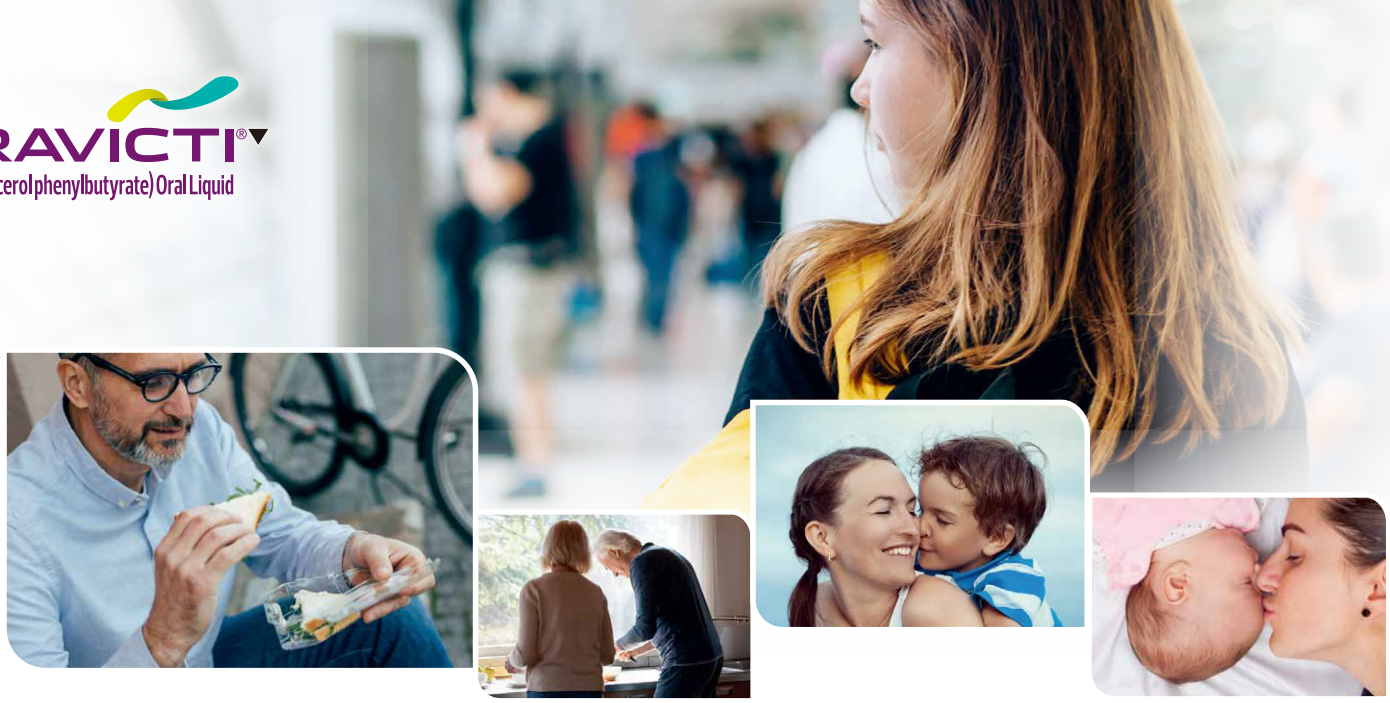
RAVICTI®▼
(glycerol phenylbutyrate) Oral Liquid



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近10年來全球問世無氣味
無味道液體口服氮清除劑

新一代氮清除劑 RAVICTI oral liquid

- 涵蓋適應症更多，共包含 6 種尿素循環代謝異常亞型
- 口服液體劑型，更能針對病人個體化取用合適藥量
- 用藥體積小，無氣味、無味道、適口性好

藥品純度高 **不含賦形劑** **不含鈉**

涵蓋年紀由新生兒至成人包含短期及長期研究

有效性

- 2月齡以下小兒病人，以苯丁酸甘油酯長期治療，其的平均歸一化靜脈血氨值落在正常限值範圍內。
- 2月齡至17歲病人，短期試驗匯總分析，由苯丁酸鈉轉換為苯丁酸甘油酯後的血漿氨顯著降低，在苯丁酸甘油酯的長期治療期間，平均空腹靜脈血氨值落在正常範圍內。
- 成人病人，以苯丁酸甘油酯長期治療，平均空腹靜脈血氨值落在正常限值。

瑞維安口服液 RAVICTI oral liquid

本藥限由醫師處方使用，此為簡易仿單，完整產品資訊，請參照完整仿單，衛部罕藥輸字第 000095號。

學名： Glycerol phenylbutyrate

適應症：本品用於不能藉由限制蛋白質的攝入和/或單純補充氨基酸控制的尿素循環代謝異常（Urea Cycle Disorders; UCDs）病人的長期輔助治療，包括carbamoyl phosphate synthetase(CPS) I缺乏症、鳥胺酸氨甲醯基轉移酶(ornithine carbamoyltransferase（OTC）)缺乏症、argininosuccinate synthetase（ASS）缺乏症、argininosuccinate lyase（ASL）缺乏症、arginase（ARG）I 缺乏症和ornithine translocase缺失引起之高鳥胺酸血症-高氨血症-高瓜胺酸血症症候群（hyperornithinaemia-hyperammonaemia homocitrullinuria syndrome；HHH）。

使用限制：

1. 服用本品時，必須限制飲食中的蛋白質，某些情況下還應添加膳食補充劑（例如必需氨基酸、精氨酸(arginine)、瓜氨酸(citrulline)、無蛋白熱量補充劑）。
2. 本品不得使用於急性高氨血症 (acute hyperammonemia)之控制。

用法用量：本品必須配合膳食蛋白限制，有時候必須配合飲食補充劑（例如必需氨基酸、精氨酸(arginine)、瓜氨酸(citrulline)、無蛋白熱量補充劑），這取決於促進生長發育所需的每日膳食蛋白攝入量。應根據個別病人蛋白質耐受性和所需的每日膳食蛋白攝入量來調整日劑量。

未進行原位肝移植的病人可能需要終身使用本品治療。每日推薦總劑量需根據體表面積計算，範圍爲4.5 ml/m²/天至11.2 ml/m²/天，詳見藥品仿單說明書。

禁忌：對Glycerol phenylbutyrate過敏者禁用。禁用於治療急性高氨血症，因為採取更快速降低血氨濃度的干預措施對於急性高氨血症治療至關重要。

副作用：常見（≥1/100且＜1/10）不良反應：食慾增加或減退、厭食、頭暈、頭痛和震顫、胃腸脹氣、腹瀉、嘔吐、噁心、腹痛、消化不良、腹脹、便秘、口腔不適、乾嘔、皮膚氣味異常、痤瘡、子宮出血、疲乏、周邊水腫、天門冬氨酸氨基轉移酶升高、丙氨酸氨基轉移酶升高、陰離子間隙升高、淋巴細胞計數下降、維生素D下降。

注意事項：有些病人即使正在接受苯丁酸甘油酯治療，也會出現急性高氨血症(包括高血氨腦病變)；胰腺功能不全或腸吸收不良病人的苯丁酸吸收下降，應密切監測氨濃度；氨濃度正常或偏低的病人（特別是＜2月齡的兒童）有不明原因嗜睡、意識模糊、噁心和困倦，應懷疑PAA濃度高；如果合併使用皮質類固醇和苯丁酸甘油酯，如果UCDs病人必須使用Valproicacid 與haloperidol，需密切監測氨濃度；Probenecid可能會抑制苯丁酸甘油酯代謝物（包括PAGN）的腎排泄；本品可能會嚴重影響病人開車和使用機器的能力；每日劑量應根據個別病人的尿素合成能力估計值（如有）、氨基酸特徵、蛋白耐受性和促進生長發育所需的每日膳食蛋白攝入量個別調整，再依據血漿氨、穀氨醯胺、U-PAGN及/或血漿PAA和PAGN以及血漿PAA/PAGN比值的監測作進一步的劑量調整。

RAVICTI®▼
(glycerol phenylbutyrate) Oral Liquid

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韋立得®

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不受腎功能[1]與食物[1]影響的B肝口服藥物*
單一劑量固定一天一顆[1]，融入各種生活型態
簡單治療，陪伴患者更長遠的未來

提供不同生活形態的病患族群單一化治療，例如忙碌的上班族、共病的長青族、特殊B肝預防族群

具有卓越的療效[2]、安全性[2]，服藥方便[2]更大幅提升患者醫囑性以確保良好的疾病控制[3]

0%
Detectable resistance over 8 years[2]

97-98%
HBeAg negative Patients with HBV DNA < 29 IU/ml over 8 years[2]

86-89%
HBeAg negative Patients achieved ALT Normalization over 8 years(central lab cutoff)[2]

Ref.
1. TFDA approved product information
2. Buti M, et al. EASL 2023. Oral #OS-067
3. Shin WJ et al. Am J Gastroenterol. 2018;113:998-1008
*不建議用於末期腎病且未接受長期血液透析的病人

韋立得® 膜衣錠
VEMLIDY® (tenofovir alafenamide)

適應症:適用於治療成人慢性 B 型肝炎。**劑量與用法:**在開始使用VEMLIDY之前，應檢測病人是否患有HIV–1感染症。不可單獨使用VEMLIDY治療HIV感染症病人。**成人建議劑量:**VEMLIDY的建議劑量為每日一次口服25毫克(一錠)。**腎功能不全病人的劑量:**對於估計肌酸酐廓清率高於或等於15毫升/分鐘的病人，或末期腎病(ESRD，估計肌酸酐廓清率低於15毫升/分鐘)但接受長期血液透析的病人，並不須調整 VEMLIDY 的劑量。血液透析當日，待血液透析治療完成後再投與 VEMLIDY。VEMLIDY 不建議用於末期腎病且未接受長期血液透析的病人。**肝功能不全病人的劑量:**對肝功能不全的病人，並不須調整VEMLIDY的劑量。 **警語與注意事項：**依據96週的臨床試驗分析結果，發現>5%的不良反應(所有等級)包括：頭痛、腹痛、咳嗽、背痛、 疲倦、噁心、關節痛、腹瀉和消化不良。如有發生或疑似發生上述不良反應，請詳見仿單並做出臨床適當處理。臨床上可能發生的風險包括乳酸中毒/嚴重肝臟腫大合併脂肪肝、停止治療後B型肝炎惡化、合併感染HBV與HIV–1之病人發生HIV–1抗藥性的風險、新發生的腎功能受損或腎功能受損惡化，如有發生或疑似發生上述不良反應，請詳見仿單並做出臨床適當處理。如果用藥過量，應監視病人是否出現毒性反應的跡象。VEMLIDY使用過量時的處置方式為一般的支持性措施，包括監測生命徵象與觀察病人的臨床狀態。血液透析可有效移除 tenofovir，萃取係數約為 54%。

特殊族群之使用:對於懷孕的婦女，現有的 APR 資料顯示，tenofovir alafenamide (TAF) 的整體出生缺陷風險和亞特蘭 大大都會先天缺陷計劃(MACDP)中美國參考族群的重大出生缺陷背景發生率 (2.7%) 並無明顯差異。**對於哺乳期間的母親**，目前並不確知 VEMLIDY 及其代謝物是否會出現於人類的乳汁中、影響乳汁生成作用或對餵哺母乳的嬰兒造成影響。投予 TDF 之後，tenofovir 已證實會出現於哺乳之大鼠及恆河猴的乳汁中。目前並不確知 tenofovir alafenamide 是否會出現於動物的乳汁中。應一併考慮餵哺母乳對於發育與健康之效益、母親對VEMLIDY 的臨床需求，以及 VEMLIDY 或母親的基礎疾病對餵哺母乳之嬰兒的任何可能不良影響。**兒童之使用**VEMLIDY用於18歲以下之兒童病人的安全性及有效性尚未確立。老年病人:在臨床試驗中曾針對 89 位 65 歲(含)以上的受試者投予VEMLIDY。在老年受試者與 18 至小於 65歲的受試者之間，並未發現任何安全性或療效方面的差異。
請存放於 30°C (86°F)以下的環境。 其他資訊請詳見衛福部最新核准之仿單

使用前請詳閱說明書警語及注意事項
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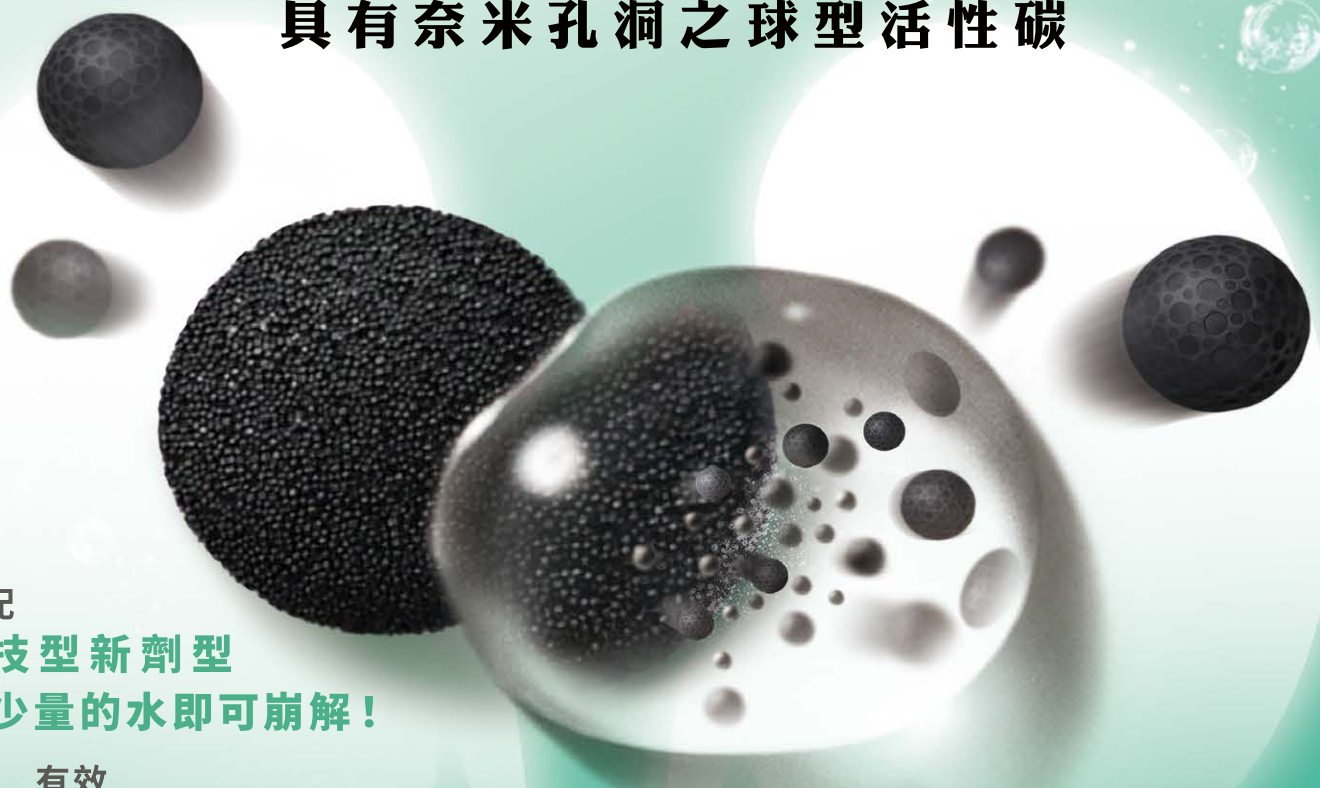

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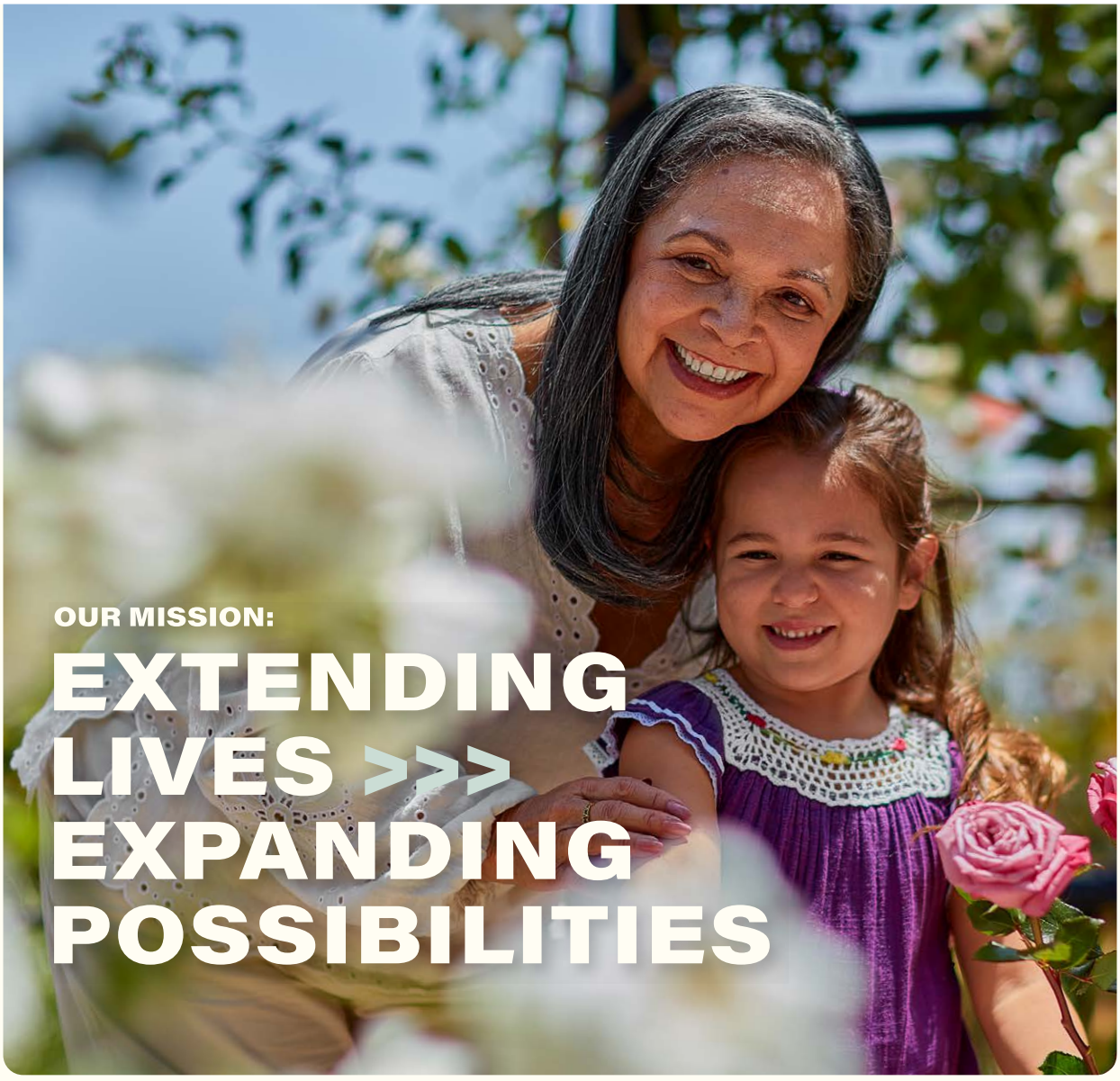

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