HONG KONG PHARMACEUTICAL JOURNAL

VOL 32 NO 1 Jan - Apr 2025 ISSN 1727-2874

Hong Kong Pharmacy Conference 2025

22–23 February 2025

EMBRACING INNOVATION, LEADING PARADIGM SHIFT, BUILDING THE FUTURE

The Pharmaceutical Society of Hong Kong
The Practising Pharmacists Association of Hong Kong
The Society of Hospital Pharmacists of Hong Kong

Edited and published by
The Pharmaceutical Society of Hong Kong
The Practising Pharmacists Association of Hong Kong
The Society of Hospital Pharmacists of Hong Kongv

Vol. 32 Supplement 1
Jan - Apr 2025

Welcoming Message

Dear Colleagues,

On behalf of the Organizing Committee of the Hong Kong Pharmacy Conference 2025, it is my greatest pleasure and honor to extend my greetings and a heartfelt welcome to everyone participating in this amazing annual conference. We are thrilled to have you joining us for what promises to be an informative event full of inspirations.

The theme of this year's conference, **"Embracing Innovation, Leading Paradigm Shifts, Building the Future"** which serves as a catalyst triggering a series of discussions on emerging trends and collaborative efforts shaping the future of pharmacy. This year's conference is poised to set the stage for the next era of advancements in pharmacy. At this pivotal moment, we are going to embrace the future together with open arms and innovative minds. It's more than a conference - it's a journey in pursuit of excellence while offering invaluable opportunities to connect with colleagues across sectors.

Programme Day 1 will feature Keynote Speeches which engage on key topics presented by our distinguished experts such as the health policy, the Hong Kong primary care pharmacy service model, and strategies for bridging health disparities. Programme Day 2 will be structured into concurrent sessions, delving into a wide array of topics delivered by esteemed speakers, covering areas such as intensive care and ambulatory care services, initiatives in drug regulation supporting innovation, progress in primary healthcare in Hong Kong, and discussions on hospital policy and best practices. The sessions will particularly highlight valuable insights and new initiatives for the Greater Bay Area, bringing together rich and exciting regional perspectives for our collaborative discussions and actions. A Panel Discussion featuring young working pharmacists from various sectors, sharing their forward-thinking visions and collaborative strategies to advance our profession.

Your presence and active engagement are crucial for fostering exchange of ideas and making progress within our profession, and we value your insights and contributions as we navigate towards building a vibrant future for the pharmacy practice. I am sure this conference will be a memorable and rewarding experience for us.

Yours Sincerely,

Mr. Edwin LAM
Chairman, Organizing Committee
Hong Kong Pharmacy Conference 2025

Table of Contents

Invited Lectures

Oral Presentations

Table of Contents

Poster Presentations

Theme Speech 1
Pharmacopola: *Carpe Diem*

WONG, Ian
Professor of Pharmacy, Department of Pharmacology and Pharmacy, The University of Hong Kong, Hong Kong, China

In recent years, Hong Kong has made significant progress in developing its primary healthcare system. Recognizing the crucial role that pharmacists play in optimizing medication use to manage chronic diseases and self-care, the government has planned various initiatives to integrate pharmacy services more effectively into primary healthcare for the future. To enhance the capacity of community pharmacies in providing medication management, health education, and appropriate use of over-the-counter medications, the Jockey Club has invested over HK$415 million to establish the Pharm+ programme. In this speech, Professor Ian Wong will outline these initiatives and how the pharmacy profession can collaborate with the government and other primary healthcare professionals to strengthen community pharmacy practice, ultimately building a healthier future for the citizens of Hong Kong.

Theme Speech 2
Enhancing Clinical Trial Capability in Hong Kong and the Greater Bay Area: The Role of GBAICTI

CHEUNG, Bernard
Chief Executive Officer (Designate), The Greater Bay Area International Clinical Trial Institute, Hong Kong, China

The Chief Executive's 2023 Policy Address paved the way for establishing the Greater Bay Area International Clinical Trials Institute (GBAICTI) in the Hetao Shenzhen-Hong Kong Science and Technology Innovation Co-operation Zone, which would provide a one-stop clinical trial support platform and co-ordinate clinical trial resources in the public and private healthcare sectors. The GBAICTI is operated by the University of Hong Kong Faculty of Medicine, which has a well-established Clinical Trials Centre. It opened on 21 November 2024, the same day as its counterpart in Shenzhen, BAY TRIAL. It also houses a biobank with the capacity to store over 400 000 clinical samples, managed by the Hospital Authority and the Chinese University of Hong Kong. The GBAICTI will move into new facilities in the Hong Kong-Shenzhen Innovation and Technology Park when construction is completed. GBAICTI in Hong Kong and BAY TRIAL in Shenzhen will form the GBA Clinical Trial Collaboration Platform with a population base of over 86 million. This will create an extended clinical trials network, facilitating clinical trials and the cross-boundary use of data and clinical samples. Other key objectives of the GBAICTI include examining the infrastructure for clinical trials in Hong Kong such as the talent pool, and clinical research capacity, efficiency and quality assurance. A clinical research academy will be established. The GBAICTI will link up investigators, institutions and industry in GBA, the Chinese Mainland, Asia-Pacific and beyond, to attract industry investment and global collaboration. Last but not least, it will promote public engagement and participation.

Theme Speech 3
Eliminating Health Disparities through Enhancing Patient Experience

CHAN, Alexandre
Founding Chair and Professor of Clinical Pharmacy, Department of Clinical Pharmacy Practice, University of California, Irvine, USA

Health disparities are the differences in health or outcomes that are closely linked with social, economic, or environmental disadvantage. These structural inequities are key causative factors as to why health disparities are often pervasive, engrained, and mutually reinforced on multiple levels within many interconnected systems. It is also imperative to acknowledge that health disparities can deeply affect patients' day-to-day care experience, which may lead to poorer health outcomes, unwanted morbidities, and ultimately raising their risks for mortality.

As pharmacists, we have the opportunity — and the obligation — to do better for our patients and to achieve more equitable outcomes. Pharmacists can play a vital role in elevating health equity. In this lecture, we will use disparities in cancer care as a case study to discuss how community-centered, systems-level approaches may potentially advance health equity. At the same time, there needs to be room for personalization of care that would allow pharmacists to systematically improve patients' holistic care experience. The diligent use of digital health and patient-reported outcome tools can facilitate the process. In summary, we as healthcare providers must develop a critical consciousness of the root causes and structural drivers of health inequities in our communities.

Clinical:
Using Primary Care Databases to Develop and Validate a Familial Hypercholesterolaemia Algorithm

QURESHI, Nadeem
Clinical Professor of Primary Care, University of Nottingham, UK

The original English NICE guidelines recommended the use of Simon Broome criteria to identify individuals with possible Familial Hypercholesterolaemia (FH). This has led to unnecessary referrals to specialist care. The alternative criteria of the Dutch Lipid Clinic Network (DLCN) needs clinical examination of all individuals with raised cholesterol in primary care, whilst using 90th cholesterol centile misses younger individuals with FH.

Electronic health records in British primary care has most key medical terms coded e.g. medication, investigations and conditions. We proposed a new FH identification algorithm that could predict risk of FH using the coded data. As well as the variables in other criteria (in particular: cholesterol level, family history and personal medical history) the new algorithm also identifies the probability of FH taking account of triglyceride, secondary findings and response to lipid lowering treatment. The algorithm, called FAMCAT, has been calibrated and validated in 3 large British primary care databases. The diagnostic accuracy of FAMCAT confirmed against criterion standard of genetic testing in the UK, as well as current research in Malaysia and Qatar. As well as integrating the algorithm into British electronic health records, FAMCAT is available as a web-based tool. The strength of this case-finding approach is that those individuals at highest risk of FH are simply identified by searching the electronic health records using the FAMCAT algorithm. This ensures that the family doctors and FH specialist can focus their finite resources on genetic testing and counselling of those individuals most likely to benefit from face-to-face assessment.

Clinical:
Narrowing the Gaps in Diabetes Management: Insights from Community Pharmacist

CHUNG, Wing-Lam
Senior Principal Clinical Pharmacist, Watson's Personal Care Stores Pte Ltd., Singapore

Diabetes cases have been on the rise in Singapore, leading to the Ministry of Health (MOH) to declare 'War on Diabetes' in 2016.

The Diabetes Care Program by Watsons Singapore is aligned with the aim to improve diabetes control by empowering people to manage their diabetes in the community, along with other cardiovascular conditions.

The session will showcase how the program is aligned with MOH's Healthier SG campaign and National Pharmacy Strategy.

The service model's evolution over the years, recruitment process, monitoring and outcome parameters, challenges and solutions will be shared, along with feedback from program participants.

In the era of social media, the sharing will also include publicity methods for the program while abiding by the local code of ethics for pharmacists.

Collaborations with external institutions to enhance the program will be covered, along with poster presentations and related journal publications.

Lastly, the future direction of Watsons Diabetes Care Program will be discussed.

Clinical:
Pre-emptive Pharmacogenomics – Reimagining Future Prescribing

LO, Elaine
Principal Clinical Pharmacist, Department of Pharmacy, National University Hospital, Singapore

Pharmacogenomics (PGx) is study of how a person's genes affect their response to drugs. Such information has the potential of optimizing outcomes in terms of efficacy and safety. Data from Singapore showed that about 30% of adverse drug reactions (ADRs) admitted to a major acute care hospital in Singapore were caused by at least one drug with a clinical annotation in the Pharmacogenomics Knowledge Base (PharmGKB). Furthermore, the SG10K_Health study further revealed that 26.8% of Singaporeans carry a genetic variant that raises the risk of life-threatening side effects to at least one medication. Yet, the uptake of PGx is low in clinical practice. In Singapore, we are trying to bypass the barriers of adopting PGx into clinical practice via pre-emptive pharmacogenomics i.e. by testing patients for a panel of pharmacogenes ahead of time. This session will discuss:

1. The basic concepts of PGx
2. Current landscape of PGx in Singapore – Reactive and Pre-emptive PGx
3. The Interpretation of a Pre-emptive PGx report
4. Caveats of incorporating PGx information in clinical decisions
5. Case studies

Clinical:
The Best is Like Water? – "The Power of Proper IV Fluid Use"

SO, Hing-Yu
Honorary Clinical Associate Professor, Department of Anaesthesia and Intensive Care, The Chinese University of Hong Kong, Hong Kong, China

Intravenous (IV) fluid therapy is a vital component of clinical care, requiring careful selection and management to optimize outcomes across a wide range of conditions. In this lecture, titled *"The Best is Like Water? – 'The Power of Proper IV Fluid Use'"*, I will discuss the practical considerations of IV fluid therapy, with a focus on its role in managing complex clinical scenarios.

This session will explore key principles guiding the use of IV fluids, including the physiological basis for fluid choices and adjustments. Scenarios such as managing myocardial infarction (MI) in euvolemic patients, heart failure (HF) exacerbations, and diabetic ketoacidosis (DKA) will be used to illustrate critical decision-making processes. Emphasis will be placed on selecting appropriate fluids, such as lactated Ringer's, normal saline, or dextrose-containing solutions, and understanding how to adjust volumes and administration strategies based on clinical changes.

Through a practical, scenario-based approach, the session will provide actionable insights for pharmacists working in clinical settings. By highlighting the importance of fluid stewardship and collaborative care, this lecture aims to enhance pharmacists' confidence and competence in managing IV fluid therapy effectively. The focus will remain on the practical application of established principles to support better patient outcomes and interdisciplinary collaboration.

Clinical:
Clinical Pharmacy Practice in ICU Critical Care Service

LAU, Agnes
Clinical Pharmacist, Adult Intensive Care Unit, Queen Mary Hospital, Hong Kong, China

Pharmacotherapy in AICU is complicated due to the clinical complexity, fast-paced clinical changes and the usage of many high alert medications. There are numerous challenges in this type of setting. Due to the high complexity of drugs used, adverse drug events (ADEs) are prone to happen. It has been found to be approximately twice as likely in AICU if compared to non-ICU settings. Hence, the role of clinical pharmacist is becoming ever more imperative. Agnes will introduce in her sharing about the practice model required. Not only does the pharmacist help mitigate these ADEs, he/she also helps lessen the negative impacts by carefully reviewing drug profiles of these critically ill patients. There might be counter proposals to be made at times. Collaboration with other health care professionals in a closely knitted manner is also important. Besides, there is a need to closely monitor the expenditure of drugs, rendering a cost-effective service. Due to the limited number of beds in AICU, enhancement of transitional care to facilitate timely stepdown of patients to general wards is also of paramount importance.

Admittedly, it is a journey to realize the service and to grow it progressively and strategically. Agnes will share her experience in this painstaking journey and some appropriate examples will be show cased. The various elements leading to the realization of such clinical pharmacy services in the AICU setting will be shared.

Lunch Symposium: Advance in Biologic Treatment in COPD with Type 2 Inflammation

KWOK, Herbert
Clinical Assistant Professor, Department of Medicine, The University of Hong Kong, Hong Kong, China

Chronic Obstructive Pulmonary Disease (COPD) is characterized by persistent respiratory symptoms and airflow limitation, often linked to significant inflammation, particularly type 2 inflammation. This form of inflammation is marked by the activation of immune pathways involving cytokines such as IL-4, IL-5, and IL-13, which play critical roles in eosinophilic inflammation and airway hyperresponsiveness.

Current standard of treatments includes bronchodilator inhalers, corticosteroids and anti-inflammatory agents which aim to reduce symptoms and prevent exacerbation. However, some patients still have ongoing exacerbation despite these treatments. Due to the chronic inflammation on the lower airway, many patients have persistent symptoms and frequent exacerbations which leads to progressive lung function loss. There is growing evidence indicates that eosinophilic inflammation is contributed to the inflammatory response in COPD.

Biologics, a class of targeted therapies, have emerged as promising treatments for managing COPD. These therapies work by inhibiting specific components of the immune response, as a promising treatment option for patients with type 2 inflammation in COPD. Clinical trials have demonstrated that biologics can lead to significant improvements in exacerbation rates, lung function and quality of life for COPD patients.

This lecture will explore the mechanisms of type 2 inflammation in COPD, the development of biologics targeting these inflammatory pathways, the implications for clinical practice, and the potential to transform the management of this complex disease. The need for personalized treatment strategies to improve outcomes and high disease burden of COPD should be valued.

Novel Therapeutics: Overview on CAR-T Therapies in the World

CHAN, Thomas
Consultant, Division of Hematology, Queen Mary Hospital, Hong Kong, China

Chimeric antigen receptor T-cell (CAR-T cell) therapy has been a major breakthrough in cancer therapeutics in the last decade. CAR-T cell therapy is a form of cellular immunotherapy whereby autologous or allogeneic T-lymphocytes are genetically modified to express a chimeric antigen receptor (CAR), which enables the recognition of tumour-associated antigen on the tumour cell surface. Engagement with tumour cells activates the downstream signalling of CAR-T cells, leading to T-cell mediated cytotoxicity and tumour cell killing. Unique complications associated with CAR-T cell therapy include cytokine release syndrome (CRS) and immune effector cell-associated neurotoxicity (ICANS). They are generally managed with anti-cytokine therapy or glucocorticoids. Despite the initial encouragement from this novel form of therapy, relapses are still common. For example, in aggressive B-cell lymphoma, up to 70% of patients will ultimately relapse after CAR-T cell therapy. Moreover, CAR-T cell therapy is only effective for certain haematological malignancies with expression of suitable tumour-associated antigen on the cell surface. So far, only B-cell malignancies (with CD19 and/or CD22 as the targets) and multiple myeloma (with BCMA as the target) are effectively treated with this form of therapy.

Research is ongoing to enhance the curative potential, minimize the toxicity and expand the indications of CAR-T cell therapy. In this talk, we shall have an overview of the commercially available CAR-T cell products in various regions, and discuss the future potential of the CAR-T cell therapy currently under trials.

Novel Therapeutics: RNA Interference as A Novel Treatment Approach for Chronic Hepatitis B Infection

YUEN, Man-fung
Li Shu Fan Medical Foundation Professor, Division of Gastroenterology and Hepatology, Queen Mary Hospital, Hong Kong, China

Nucleos(t)ide analogue (NA) is the main therapeutic for chronic hepatitis B (CHB) infection for the last 2 decades. If it is given in long-term, it is associated with profound HBV DNA level suppression, which results in reduction of hepatocellular carcinoma and cirrhosis development. At present, the advanced goal for CHB treatment is to achieve functional cure which is defined as undetectable serum HBsAg and HBV DNA for at least 24 weeks after cessation of all therapy. In the last 5 – 10 years, there was an acceleration of development of phase I/II clinical trials on many novel antiviral agents with the aim of achieving a higher rate of functional cure. Promising results obtained from these early phase trials have provided foundations for initiating phase III clinical trials today.

Among all novel drugs for CHB, small interfering RNAs (siRNA) or anti-sense oligonucleotides (ASO) will be the mainstay for new treatment. They are RNA inhibitors which turn down mRNA transcriptional and pre-genomic activities. Rapid, profound and sustained suppressions of HBV DNA, HBV RNA and HBsAg, HBeAg, HBcrAg levels have been observed in patients receiving different regimens of these two groups of agents. In patients treated with 3 to 12 monthly doses of siRNA, there was a mean reduction of HBsAg of around 2 – 2.5 log at the end of treatment and 1.5 – 2 log reduction 48 weeks after treatment cessation, although achievement of functional cure was not seen. Whereas, functional cure has been observed in 9 – 10% patients receiving ASO. As such, phase III studies on ASO have already been initiated. As far as the absolute HBsAg level reductions are concerned, around 60 to 90% of patients could achieve HBsAg level < 100 IU/mL after receiving RNA inhibitors.

Many recent phase II studies has shown that combination of siRNA with pegylated interferon alpha would enhance the rate of functional cure up to 16 – 30%. There are now many more phase II studies using different combinations of agents with different time of treatment initiation.

The use of siRNA has been associated with minimal side effects with good patient tolerability. ASO treatment is associated with reduction of platelet count which is reversible after treatment cessation.

Novel Therapeutics: Pharmacotherapy Breakthrough in Obstructive Hypertrophic Cardiomyopathy - Cardiac Myosin Inhibitor

KAM, Kevin
Consultant Cardiologist, Department of Medicine and Therapeutics, Prince of Wales Hospital, Hong Kong, China

Hypertrophic cardiomyopathy (HCM) is defined by an increase in left ventricular (LV) wall thickness in any myocardial segment that is not explained by increased loading conditions or other cardiac/systemic diseases. Some HCM patients with subtle structural abnormalities can remain asymptomatic and have a normal lifespan; however, others may develop symptoms such as dyspnoea, chest pain, fatigue or even syncope that limit their daily activities. They are also susceptible to significant complications including atrial fibrillation, ventricular arrhythmia, cerebrovascular accident, heart failure and sudden cardiac death.

Conventional pharmacotherapies for HCM, such as beta-blockers and non-dihydropyridine calcium channel blockers, have not been robustly tested in randomized trials and thus are mostly administered on an empirical basis. One good news is the recent advances in HCM treatment with the availability of multiple completed/ongoing phase III randomized trials for new HCM medications. For example, cardiac myosin inhibitors have proven to improve functional capacity and other key parameters in symptomatic HCM patients with LV outflow tract obstruction.

In conjunction with novel treatment, the European Society of Cardiology (ESC) and American College of Cardiology / American Heart Association (ACC/AHA) guidelines published a focus update on HCM in 2023 and 2024 respectively. The guidelines highlighted novel aspects and signposting clinicians to the updated assessment and management of HCM, such as step-by-step diagnostic protocol, and inclusion of novel therapies in the treatment algorithm.

This lecture will walk through the up-to-date management of HCM, from diagnosis involving various imaging modalities, review of available treatment options, to personalized management based on disease and patient characteristics.

Drug Regulation: Future Drug Regulation in Hong Kong

CHAN, Lot
Assistant Director of Health (Preparatory Office for Centre for Medical Products Regulation), Department of Health, Hong Kong, China

The Chief Executive announced in his 2023 Policy Address that Hong Kong will be developed into a Health and Medical Innovation Hub. One of the key initiatives was to establish a drug approval authority, i.e. the Hong Kong Centre for Medical Products Regulation (CMPR), based on primary evaluation in long run. Hong Kong has also accessed to the International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use (ICH) and introduced the "1+" mechanism for new drug registration in the end of 2023, moving Hong Kong into an innovation hub for health and medical fields. In June 2024, the Department of Health set up the Preparatory Office for CMPR to put forward proposals for the establishment of the CMPR and the overall reform of the medical product regulatory system in Hong Kong. Landscape of drug regulation in Hong Kong is changing. Pharmacists in Hong Kong should know about these changes, be involved in these changes and contribute to these changes.

Drug Regulation: 國家藥品監督管理局加入ICH的歷程

白玉
主要負責人、副處長
質量管理處
國家藥品監督管理局藥品審評中心
中國

國際人用藥品註冊技術協調會（ICH）成立於1990年，旨在通過在國際層面上協調技術要求，加快引進新藥並保證已批准藥物能夠持續對患者可及。國家藥品監督管理局（NMPA）於2017年正式加入ICH成為監管機構成員，並於2018年、2021年、2024年連續三次當選為ICH管委會成員。加入ICH后，NMPA成立局ICH工作辦公室，設在藥品審評中心，主要承擔ICH的相關溝通聯絡、議題協調、指導原則實施及培訓研討等工作。從選派專家到推動ICH指導原則落地實施，NMPA均建立了相關工作機制。當前，NMPA已基本採納實施了全部ICH指導原則，同時NMPA積極採取相關措施，應對ICH新理念、新工具、新方法給藥品監管帶來的挑戰。

（本環節將以普通話進行）

Drug Regulation: Regulatory Reliance, Harmonisation and International Collaboration in New Drug Evaluation

KANG, Tse-Siang
Head of Regulatory Sciences, North, East and West Asia Cluster, Global Regulatory Sciences, Pfizer Research and Development, Singapore

The presentation will provide an overview of the Industry's experience within the Access Consortium and other reliance pathways utilized in selected Asian markets. The presentation will be broadly divided in the following sections:

1. **Industry Perceptions and Experiences with the Access Consortium New Active Substance Work-Sharing Initiative (NASWSI):**
   - This section covers an introduction to the Access Consortium, and the results of an industry survey on the Access experience, highlighting the benefits and challenges of the NASWSI.
2. **Journey of how HSA joined ACCESS:**
   - This part provides a personal perspective on the Health Sciences Authority (HSA) of Singapore's journey to joining the Access Consortium. It discusses capacity and capability building, reliance versus recognition, and the challenges faced by HSA in maintaining its status as a reference agency.
3. **Reliance examples and Mechanisms:**
   - The final section introduces various reliance and worksharing mechanisms, utilized in a number of Asian markets. It emphasizes the importance of regulatory convergence, cross-sharing of dossiers, and the need for predictability and streamlined processes.

Greater Bay Area: Clinical Pharmacy Service in Shenzhen United Family Hospital

SHI, Ying
Chair of Pharmacy, Shenzhen United Family Hospital, Mainland China

- An introduction of Shenzhen New Frontier United Family Hospital
- An overview of clinical pharmacy service in mainland China
- What clinical pharmacy service are currently provided in UFH and SZUFH
- Advantages and specialities we currently do at SZUFH
- What the future development for clinical pharmacy services we are going to delivery for our patients at SZUFH

Greater Bay Area: Private Public Partnership in Macao Healthcare Services

CHIO, Sharon
Head, Hospital Administration Department, Conde S. Januário General Hospital, Health Bureau, Macau, China

The Macao Special Administrative Region Government adheres to the principle of "prevention first, proper medical care" and is committed to integrating health into various public policies to comprehensively protect the health of residents. The government emphasizes disease prevention as the primary task and carries out comprehensive health promotion and protection efforts to achieve the vision of a "Healthy Macao."

This meeting will introduce the demographic profile and health indicators of Macao, the medical insurance system, the healthcare system, collaboration between public and private medical institutions, the development of pharmaceutical services, and future directions for medical development.

The Macao Health Bureau employs a tripartite development strategy involving the government, non-profit organizations, and private medical institutions. Through outsourcing services, funding allocations, and sending patients for treatment overseas, it provides residents with either free or reasonably priced medical services. This collaborative approach effectively alleviates the pressure on public healthcare institutions while offering residents greater convenience and access to high-quality medical services.

The Beijing Union Medical College Macao Medical Center, located on the outlying island, officially opened on September 16 ,2024. It offers both public and private services, promotes synergistic benefits, and advances the expansion and improvement of specialized medical services in Macao, thereby reducing the necessity for residents to seek certain treatments abroad. Once fully operational, the public services of the new hospital will seamlessly integrate into the public healthcare service network of the Macao SAR, avoiding service gaps and overlaps while enhancing operational efficiency and cost-effectiveness.

In terms of pharmaceutical services, the Health Bureau is dedicated to provide comprehensive patient-centered and rational medication-focused pharmaceutical care through hospitals, health centers, and community pharmacies to meet the ongoing treatment needs of patients.

Greater Bay Area: Introduction to GD-Macau In-depth Cooperation Zone in Hengqin

王丹
董事長、總經理
中醫藥科技產業園副總經理兼粵澳藥業有限公司
橫琴粵澳中醫藥產業園
中國

監管協同與創新是澳門-橫琴大健康產業融合發展的基石。在國家有關部委的支援下，一系列創新政策，陸續在橫琴落地實現，包括：在橫琴使用澳門地區已上市部分藥品；內地醫療機構中藥製劑首次跨境到澳門使用；澳門中成藥內地註冊用研發樣品成功進口的首次突破；《中藥註冊管理專門規定》實施以來首個憑藉人用經驗，由醫療機構中藥製劑直接進入III.期臨床試驗的1.1類中藥新藥在橫琴實現。

粵澳藥業作為澳門特區政府公共資本企業，橫琴生物醫藥大健康產業公共服務平臺，按照中國及歐盟GMP標準建設，服務內容包括港澳藥物跨境委託生產服務，擬申報澳門中成藥批文的註冊批委託生產服務以及澳門註冊諮詢和註冊代理以及港澳已上市傳統外用中成藥內地簡化註冊服務，並協助探索澳門中成藥進入葡語國家市場。

（本環節將以普通話進行）

Innovation:
Catalyzing Clinical Translation of Innovative Therapies – Role of the Hong Kong Science and Technology Parks Corporation

YOON, Weng-Li
Associate Director of Therapeutics, Hong Kong Science and Technology Parks Corporation, Hong Kong, China

Dr Yoon's lecture will focus on the development of Life and Health Technology ecosystem at Hong Kong Science Park. To date, there are more than 280 biomedical companies and InnoHK centres developing novel innovations in therapeutics, medical diagnostics and medical devices at Hong Kong Science Park. The number of clinical-stage companies has also grown to more than 8-fold in the past 5 years to 45, signaling their steady progress to commercialization. To enable the translation from preclinical to clinical stage, HKSTP has established a comprehensive platform comprising infrastructure and supporting programmes including the Drug Safety Centre, Clinical Translational Catalyst initiative, IncuBio etc. Dr Yoon will particularly delve further into the impact of such programmes in catalysing clinical translation in Hong Kong.

Innovation:
Clinical Trials in Hong Kong – Advantages and Challenges

TSANG, Louisa
Managing Director, Clinical Research Management Office and Phase 1 Clinical Trial Centre, The Chinese University of Hong Kong, Hong Kong, China

Clinical trial development is a key focus highlighted in the Chief Executive's 2023 Policy Address. The Policy Address aims to transform Hong Kong into a globally recognized hub for research and clinical investigations by providing resources to shape the strategic development of clinical trials in Hong Kong. Hong Kong has been conducting clinical trials since the 1990s, and we undoubtedly possess world-class expertise and solid experience adhering to internationally recognized standards. Beyond Hong Kong, other regions in the Asian Pacific are also developing and enhancing their clinical trial capabilities with the intention of attracting pharmaceutical, biotechnology, and device companies to invest in clinical trials and drug commercialization. In this context, Hong Kong stands out with several advantages that set us apart from the region. However, we must also address the challenges and maintain our competitiveness to continue our success.

Innovation:
From Broad to Specific: Novel, Oral TYK2-targeted Therapy in Psoriasis Treatment and Beyond

CHUNG, Martin
Associate Consultant, Department of Medicine, Queen Mary Hospital, Hong Kong, China

Psoriasis is a chronic inflammatory skin disorder characterized by excessive keratinocyte proliferation, driven by dysregulated immune signaling. Recent advancements in understanding the underlying molecular pathways have revealed the critical role of the Janus kinase (JAK) family, particularly TYK-2 (tyrosine kinase 2), in mediating the immune response in psoriasis. TYK-2 plays a central role in the signaling of key cytokines involved in the pathogenesis of psoriasis, including IL-12, IL-23, and IL-22. Targeting this pathway offers a promising therapeutic strategy with the potential for improved efficacy and safety profiles compared to conventional treatments.

In this lecture, we will explore the mechanism of action of TYK-2 inhibitors, focusing on **deucravacitinib**, a novel oral selective TYK-2 inhibitor. Approved for the treatment of moderate-to-severe psoriasis, deucravacitinib specifically targets the TYK-2 enzyme, inhibiting the signaling of pro-inflammatory cytokines while sparing other JAK family members, offering a more targeted approach than broad-spectrum JAK inhibitors. We will discuss the clinical efficacy of deucravacitinib, highlighting its superiority in terms of skin clearance, safety profile, and overall patient outcomes. Additionally, we will consider its potential application in other immune-mediated diseases beyond psoriasis, and its role in the evolving landscape of precision medicine.

Clinical:
Update on Preventive Strategies against Herpes Zoster and RSV Infections in Diabetes

LEE, Paul
Clinical Associate Professor, Department of Medicine, The University of Hong Kong, Hong Kong, China

Patients with diabetes, in particular those who are older and with other comorbidities like cardiovascular diseases, are more susceptible to viral infections including herpes zoster (HZ) and respiratory syncytial virus (RSV) infection than individuals without diabetes. Patients with HZ are also at an elevated risk of developing post-herpetic neuralgia (PHN) which can be a debilitating complication. On the other hand, RSV infection is another growing concern, especially among older adults, owing to their increased risk of severe RSV-associated complications and hospitalizations which are linked to higher morbidity and mortality. Vaccinations against both HZ and RSV are currently available to protect these vulnerable populations. Notably, awareness of these preventive strategies among clinicians is crucial. This talk will discuss the updated guidelines and recommendations on the vaccination strategy, and illustrate how these strategies can significantly reduce the incidence and impact of HZ and RSV, leading to better patient care and quality of life.

Primary Healthcare: Building the Future of Community Pharmacy in Primary Healthcare - Are You Ready to be Part of it?

WU, Cynthia
Pharmacist, Department of Pharmacology and Pharmacy, The University of Hong Kong, Hong Kong, China

HKUMed Community Pharmacy, the first community pharmacy situated on a university campus, was established in 2024 under the leadership of Professor Ian Wong at Department of Pharmacology and Pharmacy in the University of Hong Kong.

The journey of setting up this pharmacy from scratch started with co-creating the floorplan on a vacant ground with architects and engineers at HKU in early 2024. Recruiting HKU Pharmacy students as assistants during the set up and exposing them to this sector at a deeper level were brave moves which redefined their learning curves. Eventually, the strong infrastructure for pharmacy operations and service development was built with the collaborative effort of experts from different fields, including clinical governance, procurement, IT, finance, media, etc. All these first-time experiences have gifted me an exponential growth in my career, and an invaluable chance to pioneer new practice and standards in the community setting.

For instance, an in-house shelf tag system which generates and prints unique drug location code was designed and implemented on our own, which benchmarks hospital standards and fulfils one of the numerous clinical governance requirements under the HKU Health System. The cost-effective drug formulary was constructed by a tendering exercise for medications, for the first time in the community sector. Located on the HKUMed campus, the pharmacy also provides fertile grounds to nurture collaborations with specialist doctors, pushing the frontier of pharmacy practice in primary healthcare.

Challenges are many, but rewards and opportunities are even more. The sharing of this long journey of mine would illustrate the skills and knowledge warranted for setting up future community pharmacy. These skills include but not limited to clinical knowledge and understanding of hospital operations, IT skills, communication skills, ss well as empathy, compassion, and innovation. Are you ready to hitch a ride with me to join and build the future of community pharmacy in primary healthcare?

Primary Healthcare: Strategies for Improving the Sustainability of Community Pharmacy

CHIANG, Sau-Chu
Director, Pharmaceutical Care Foundation, Hong Kong, China

Sustainability for a nonprofit community pharmacy can be multi-faceted, involving not only economic viability but also social and environmental considerations. Here are some methods through which a nonprofit community pharmacy can thrive sustainably:

1. Diversification of Services
2. Grant Funding and Donations
3. Collaborative Partnerships
4. Education and Outreach
5. Utilizing Technology
6. Cost Management
7. Sustainable Practices
8. Patient-Centric Care
9. Advocacy and Policy Engagement
10. Volunteer Involvement

Conclusion

By adopting a combination of these methods, a nonprofit community pharmacy can not only enhance its sustainability but also strengthen its role as a valuable health resource within the community. Success will depend on a clear mission, effective community engagement, and continuous innovation.

The speaker will elaborate on each of the above methods adopted and practiced at the session.

Primary Healthcare: Exploring Development of Pharmacists' Role in Primary Health Care from Multiple Perspectives

CHUNG, Harriet
Chief Care Coordinator, Sham Shui Po District Health Centre, Hong Kong, China

In December 2022, the Hong Kong Government released the Primary Healthcare Blueprint to formulate the development direction and strategies to strengthen the local primary healthcare system. The Blueprint highlights a series of initiatives that restructure the existing healthcare services regarding the challenges of an ageing population and the increasing prevalence of chronic diseases.

The reformed Primary Healthcare services aim to enhance people's health literacy, optimize their health outcomes and quality of life, well-utilize the limited healthcare resources, prevent or delay the onset of chronic diseases, and demonstrate effective disease management to avoid those preventable complications. As the key members of the multidisciplinary healthcare team, pharmacists can grasp the opportunity to broaden their roles and scope of practice in responding to these challenges. This session will share some examples to inspire pharmacists to work on more initiatives for the future development of pharmacists in primary health care in Hong Kong.

Policy and Practice: 中國內地臨床藥學發展

張伶俐
副院長
四川大學華西第二醫院
中國

中國內地臨床藥學起步於20世紀60年代，1989年原華西醫科大學試點本科教育。 進入21世紀后，隨著原衛生部臨床藥師培訓和臨床藥師制建設持續推進，臨床藥學工作和臨床藥師培訓快速發展，目前開設臨床藥學本科招生高校近60所，每年培養本科生近3000名，博士點高校30餘所; 畢業后臨床藥師培訓基地300餘家，開設專業20餘個，迄今已培養臨床藥師學員近3萬名，臨床藥師、藥師崗位培訓納入國家衛生健康委緊缺人才項目。 目前，建立了臨床藥師管理制度和服務標準體系，藥學門診、藥學監護等臨床藥學服務逐步納入醫保支付體系。 臨床藥師在醫療機構的診療實踐中也發揮著重要作用，如複雜疾病的藥學會診、MDT多學科團隊實踐、治療藥物監測和個體化給葯等。 此外，從藥學服務和藥物治療中發現問題，採用科學研究方法和手段生產證據，解決臨床問題，並向臨床實踐指南、藥學服務技術標準等轉化，已成為臨床藥學科學研究的主要方向。 中國內地臨床藥學實踐、教學和研究均已經取得了顯著成績，但機遇與挑戰並存，仍需不斷努力，推動臨床藥學高質量發展。

（本環節將以普通話進行）

Policy and Practice: Hospital Accreditation with the China International Hospital Accreditation (CIHA) Scheme

CHU, Pauline
Honorary Advisor, Quality & Safety Division, New Territories West Cluster, Hospital Authority, Hong Kong, China

As technology advances, new medical services develop and patient expectations rise, hospital services have grown more complex. Through a hospital's self-evaluation and the assessment of external, independent professionals against established standards, hospital accreditation is considered an effective tool to improve hospital quality, ensure patient safety, and protect the staff working there.

In line with the Chief Executive's Policy Addresses of 2022 and 2023 about hospital accreditation, the Hospital Authority has resumed the Hospital Accreditation Programme by adopting the China's International Hospital Accreditation (CHIA) Standards (2021 Version) from Oct 2024.

The CHIA Standards [2021], developed by the Shenzhen Hospital Accreditation Research Centre (SHARC), received accreditation from the International Society for Quality in Healthcare External Evaluation Association (ISQua EEA) in 20221. The standard. The CHIA Standards advocate people's health as center, safety first and prevention first. It also promotes continuous quality improvement. It is divided into three Chapters, subdivided into 16 Sections, 61 Criteria and 186 Clauses.

Ms. Chu will present key strategies for pharmacists to get ready for the upcoming survey, focusing on their roles in medication management and safety. The presentation will cover understanding accreditation standards, necessary preparations, the importance of documentation, continuous quality improvement requirements, and staff training.

The talk aims to empower participants with the knowledge and tools needed to navigate the accreditation process successfully and elevate the role of pharmacy in achieving excellence in healthcare.

(This session will be conducted in Cantonese)

Policy and Practice: "Good Drugs for Use in Hong Kong"

KWONG, Benjamin
Convenor, Good Medicine for Hong Kong

The research and development (R&D) of the pharmaceutical industry has achieved a rapid and unprecedented advancement; particularly in the field of oncology and rare diseases. Furthermore, the R&D achievements in Mainland China and in the West in recent years have made a significant impact to the health care industry.

The last decade's achievements have dramatically changed the oncology landscape and rekindled hope for rare disease patients. The life expectancy of oncology patients is prolonged to an extent that its management resembles chronic disease management. Hong Kong has established its fame in medical care standard with contributing factors including timely access of the latest and newest drugs developed all over the world. The number of latest and newest drugs available each year increases markedly due to in-depth learning of molecular biology, detection of genetic mutation, and early registration by regulatory authorities. The future application of artificial intelligent (AI) technology in drug development and medical care will imminently create a huge problem for medical care providers.

However, our health care system, our local economic infrastructure and our higher education atmosphere have not been keeping abreast of the times and regional developments. If we keep things status quo, our niche in medical care would disappear. We need to do something to retain good medicines to be available to patients in the city as a treatment option to choose from and to let patients choose the optimal drug treatment under an informed decision process.

Plenary Discussion:
Where I See Myself in 2035 - Young Working Pharmacists Sharing Their Views on Future Pharmacy Profession

Our young pharmacists stand at the forefront of a dynamic and rapidly changing profession. Equipped with fresh perspectives and contemporary training, they are keenly aware of the potential transformations in pharmaceutical care, technology integration, and drug regulation. They are uniquely positioned to drive the profession forward, blending creativity, energy, and diverse talents to meet evolving healthcare needs and advance our profession.

In this plenary discussion session, we have a unique opportunity to explore the evolving landscape of pharmacy through the eyes of our youngest and brightest colleagues from various fields. As we encourage their active engagement in reflecting their needs and aspirations, we also invite the broader community of pharmacists to listen, learn, and integrate these fresh insights into our collective journey forward. In doing so, we create a collaborative environment where the youthful visionaries of today become the trailblazing leaders of tomorrow, fostering a profession—and a society—capable of overcoming deep-rooted conflicts and achieving unparalleled heights.

Young people are our future. **Are you ready to hear their voices and show your support now?**

Ab02

Comparative Effectiveness, Safety and Quality-of-life Improvement of Pharmacists versus Allergists in Low-risk Penicillin Allergy Delabelling: The Hong Kong Penicillin Allergy Pharmacist Initiative (HK-PAPI)

HOOI, KY James MBChB[1]*; LOW, CH Marshall BPharm[2]*; TO, CL Jonathan BPharm[2]*; MAK, WF Hugo MBBS[1]; CHOI, M Mandy BPharm[2]; TAM, CP Chris BPharm[2]; MAK, WM Raymond MSc[3]; WONG, KC Vincent MPharm[3]; CHAN, CC Timo MClinPharm[3]; LI, WT Andrew MClinPharm[3]; MAK, CY Charlie MClinPharm[3]; CHIANG, Valerie MBBS[4]; CHU, KH Gordon MBBS[1]; WONG, CY Jane MBBS[1]; LI, TL Theresa MBBS[5]; LI, H Philip MD[1]

[1] Division of Rheumatology and Clinical Immunology, Department of Medicine, Queen Mary Hospital, The University of Hong Kong, Hong Kong
[2] Department of Pharmacy and Pharmacology, The University of Hong Kong, Hong Kong
[3] Department of Pharmacy, Queen Mary Hospital, Hong Kong
[4] Division of Clinical Immunology, Department of Pathology, Queen Mary Hospital, Hong Kong
[5] Hong Kong West Cluster, Hospital Authority, Hong Kong
* Authors contributed equally

Objectives: Mislabelled penicillin allergies are associated with myriads of adverse health and socioeconomic outcomes including the increased the risk of antimicrobial resistance. With the overwhelming need for specialist allergy services, pharmacist initiatives such as the Hong Kong Penicillin Allergy Pharmacist Initiative (HK-PAPI) have been advocated. This study aims to compare the efficacy, safety and improvements in health-related quality-of-life (HR-QoL) of pharmacists versus allergists in a pilot low-risk penicillin allergy delabelling initiative.

Methods: All adult patients categorized as low-risk penicillin allergy were randomized and evaluated by either pharmacists or allergists in a 1:3 ratio. Clinical outcomes and changes in the 6-item Drug Hypersensitivity Quality of Life Questionnaire (DrHy-Q) scores were compared.

Results: Of 323 patients referred, 96.3% (311/323) completed penicillin allergy evaluation (pharmacists: 83 [24.3%] vs. allergists: 228 [66.7%]). Overall, 93.6% (291/311) were delabelled with no difference between evaluations by pharmacists and allergists (92.8% vs 93.9%, p=0.729). There were no severe or systemic reactions in either cohort. Patients evaluated by either pharmacists (43.4 [SD:29.1] to 10.5 [SD:5.93], p<0.001) or allergists (37.2 [SD:22.2] to 29.1 [SD:22.4], p<0.001) reported improved HR-QoL reflected by statistically significant reduction of DrHy-Q scores. However, the absolute reduction in DrHy-Q scores were significantly greater among pharmacist-evaluated patients compared to allergists-evaluated patients (-24.6 [SD:25.1] vs -9.19 [SD:13.7], p<0.001).

Conclusion: Evaluation and delabelling by pharmacists versus allergists were comparably effective and safe among patients with low-risk penicillin allergy. Moreover, patients evaluated by pharmacists reported significantly greater improvements in HR-QoL. This study highlights the potential of multidisciplinary allergy initiatives in overcoming the increasing burden of drug allergy pandemic.

Ab07

Analysis of Pharmaceutical Care Practices in the Intensive Care Unit of a Regional Hospital

HUNG, Pei-Yuan[1,2]; HSIEH, Hui-Hsia[1,2]; CHEN, Chi-Hua[1,2]

[1] Department of Pharmacy, Taichung Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taichung, Taiwan, R.O.C.
[2] Taichung City New Pharmacists Association

Background: Patients admitted to the Intensive Care Unit (ICU) often present with severe conditions, such as sepsis or major trauma, frequently require the concurrent use of multiple medications, which can increase the risk of adverse drug events. Clinical pharmacists play a vital role in managing medication therapy for ICU patients, helping to optimize therapeutic outcomes. This study aims to investigate the practices of clinical pharmaceutical care provided by pharmacists in the ICU of a regional hospital in Taiwan.

Methods: This study encompasses a thorough compilation of all interventions and recommendations made by clinical pharmacists from 2018 to November 2024. The analysis will concentrate on the acceptance rates, categories of medications and types of interventions.

Results: During the study period, a total of 1,330 interventions or recommendations were recorded by ICU clinical pharmacists, achieving an impressive acceptance rate of approximately 99%. The categorization of these interventions revealed that the primary focus was on antimicrobial agents, which accounted for 71.7% of the total, including both antibiotics and antifungal medications. The subsequent intervention categories included gastroenterology (8.4%) and cardiovascular (4.8%). In terms of the interventions, dosing recommendations comprised the majority at 58.6%. Other included the inappropriate drug use (13.8%), such as contraindications and antibiotic resistance; inappropriate dosage or administration (8.6%), encompassed dosages unsuitable for nasogastric administration or incorrect infusion rates.

Conclusion: Given the critical condition of ICU patients, significant variability in renal and hepatic function can occur, necessitating careful consideration of dosing parameters by clinical pharmacists. The predominant challenges of sepsis and infection in this patient population underscore the need for precise dosing and pathogen sensitivity analysis as essential components of ICU care. We anticipate that this analysis will serve as a valuable resource for pharmacists interested in ICU practices and will inform the development of training protocols tailored for clinical pharmacists working within the ICU setting.

Ab15

Analysis of Medication Management System Data to Determine Potentially Inappropriate Medication Use and Hospitalization Among Older Adults Living in Residential Care Homes for the Elderly in Hong Kong

CHAU, Ho-cheung[1]; ZHANG, Kexin[2]; TAI, Bik-wai Bilvick[2]; HUI, Sing-yan Isaac[2]; CHIANG, Sau-chu[1]; CHEUNG, Yin-ting[2]

[1] The Hong Kong Pharmaceutical Care Foundation, Hong Kong

[2] School of Pharmacy, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong

Objectives: This study utilized the data captured through a medication management system to describe the prevalence of PIM use in 29 Resident Care Homes for the Elderly (RCHEs) in Hong Kong and to investigate the association between potentially inappropriate medications (PIM) use and hospitalization in this population.

Methods: This observational study utilized final-administered medication data from the SafeMed Medication Management System (SMMS®), which is a purpose-built IT supporting the medication management process at RCHEs. Data on hospital admissions and the medications administered to the residents were extracted from the SMMS®. The 12-month period prevalence of PIM use was obtained by comparing the medication data with the 2023 Beers criteria. Multivariable logistic regression was conducted to investigate the association between PIM use and hospital admissions.

Results: The study population included 6,346 residents (age 82.9±8.6 years; female 61.9%). The average number of current medications was 6.8±7.4. Polypharmacy (≥5 medications) was present in almost half (51.5%) of the residents. The 12-month period prevalence of PIM use is 34.5%. Among the residents who took PIMs, 65.1% used 1 PIM, 25.5% used 2 PIMs, and 9.4% used >2 PIMs. Residents who used PIMs in 2023 were associated with higher rates of hospitalization (OR 1.73, 95% CI 1.54 to 1.69), after adjusting for age, sex and comorbidities. The number of PIMs used was proportional to the risk of hospitalization (OR: 2.17, 95% CI: 1.82 to 2.59 for >1 PIMs vs 0). A higher cumulative adverse drug events risk score was associated with great risk of hospitalization (P<0.001).

Conclusions: The use of PIM is observed in one-third of the older adults residing in RCHEs, and is associated with an increased risk of hospitalization. Our findings highlight the urging need for strategies to improve clinicians' awareness of PIM list and its adverse impact on this population.

Ab17

Impact of Pharmacist Clinic on Adherence to Treatment Schedule and Safety in Oncology Patient Receiving FOLFIRI/FOLFOX-based Chemotherapy: A Before-And-After Study

LAM, Wing-sum Tiffany[1]

[1] Pharmacy Department, Queen Elizabeth Hospital

An Integrated Oncology Pharmacist Clinic (IOPC) was launched in Queen Elizabeth Hospital. This study aimed to assess adherence to the treatment schedule and patient safety under the Pharmacist Clinic. Primary endpoint is the relative dose intensity (RDI) per patient. Secondary endpoints include incidence of treatment delay per cycle, reasons for unplanned treatment delays, median actual treatment interval, number of unplanned consultation/ hospitalisation, number of cases requiring further discussion or referral to oncologists, and their reasons.

This was a retrospective, single-centre, service evaluation study using a historical control. Patients who had FOLFIRI/FOLFOX-based regimens and attended the Pharmacist Clinic from December2022 to March2024 were recruited into the intervention group.

58 patients were recruited into the Pharmacist Clinic and the historical control group respectively, with 467 treatment cycles in the intervention group and 441 treatment cycles in the control group. The mean overall RDI was 65.76% in the Pharmacist Clinic group versus 61.97% in the control group (P=0.061). Time index, one of the components in the RDI formula, was significantly higher in the Pharmacist Clinic group (P<0.001). Moreover, there was a 14% absolute reduction in treatment delay (P<0.001), and delay caused by limited bed and doctor appointments quota was decreased by 5.41%. In terms of safety, the intervention group had a significantly lower unplanned consultation/ hospitalisation rate of 5.35%, compared to 9.30% in the control group (P=0.029). In the Pharmacist Clinic, 74 out of 158 consultations required to seek doctor attention with the most common reason being prescription of supportive drugs.

Patients enrolled into the IOPC were optimized in their patient management journey. Under the new model of care, adherence to the treatment schedule and treatment safety were improved. These results demonstrated the value of oncology pharmacy services in promoting medication safety and improving cancer care quality, thereby resulting in better treatment outcomes.

Ab25

Impact of Integrated Pharmacist Cardiovascular Clinic for Patients on Blood Pressure- and Lipid-Lowering Therapy: A Service Evaluation Study

GOH, Zhen-hao[1]; CHUNG, U-qing[1]; CHEUNG, Man-hin[1]; LEUNG, Yun-shing[1]; WONG, Kit-ming[1]; WONG, Pui-yan Janice[1]; WONG, Chi-yuen[2]; CHEUNG, Chi-yuen Simon[2]; LI, Yim-chu[3]; HO, Ka-ming[3]; CHEUNG, Yin-ting[4]

[1] Department of Pharmacy, Queen Elizabeth Hospital, Kowloon Central Cluster, Hospital Authority, Hong Kong
[2] Department of Medicine, Queen Elizabeth Hospital, Kowloon Central Cluster, Hospital Authority, Hong Kong
[3] Department of Family Medicine & Primary Healthcare, Kowloon Central Cluster, Hospital Authority, Hong Kong
[4] School of Pharmacy, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong

Objectives: An Integrated Pharmacist Cardiovascular Clinic (PCVC) has been established in a major public hospital and a general outpatient clinic in Hong Kong to improve patient care in hypertension, dyslipidaemia and overall cardiovascular risk control. This study aimed to evaluate the impact of the PCVC on patients' blood pressure and low-density lipoprotein cholesterol (LDL-C) control and to analyse medication interventions made by pharmacists.

Methods: In this retrospective cohort study, patients enrolled in the PCVC from October 2023 to March 2024 were compared with patients under usual care from October 2022 to March 2023. Primary outcomes were the mean changes in office systolic blood pressure (SBP) and LDL-C at month 6. Secondary outcomes were the proportion of patients attaining target LDL-C, frequency and types of pharmacists' medication interventions and their acceptance by physicians, and summary of adverse drug reactions (ADRs) of antihypertensive and lipid-lowering agents reported within the study period.

Results: 152 patients (mean age 70.7 years), including 76 who received care from the PCVC, were evaluated. After 6 months, significant differences ($p < 0.001$) were observed in the mean changes (95% confidence interval) in office SBP and LDL-C in the PCVC group [-16.9 mmHg (-35.2, 1.4) and -0.73 mmol/L (-1.64, 0.18)] versus the control group [-2.5 mmHg (-18.3, 13.3) and +0.19 mmol/L (-0.49, 0.87)]. This was accompanied by a significant difference ($p < 0.001$) in the proportion of patients attaining target LDL-C in the PCVC group (65.8%) versus the control group (38.2%). 131 medication interventions were made by pharmacists, including 77 dose escalations, 16 drug initiations and 11 changes in dosing frequency. All interventions were accepted by physicians. Nearly all ADRs reported are common side effects of the respective agents.

Conclusions: Pharmacists play an instrumental role in titrating and monitoring blood pressure- and lipid-lowering therapies, thereby improving proximal outcomes of cardiovascular diseases.

Ab05

Ambulatory Medication Therapy Management – A Pilot Service in a Local Private Teaching Smart Hospital

LEUNG, Kin-lun[1]; WONG, Cheuk-lun Alan[1]
[1] CUHK Medical Centre (CUHKMC), Hong Kong SAR, China

Objective: Medication therapy management (MTM) services have been widely adopted overseas, but local development has been limited, especially in the private sector. To promote the rational use of medicines, a pharmacist-led MTM has been implemented, aiming to resolve drug-related problems (DRP), improve patients' clinical outcomes, minimise healthcare expenditures, and strengthen collaboration with prescribers.

Methods: A retrospective screening of dispensing records for Specialist Outpatient Centre (SOPC) patients was conducted for the period between 1 January and 30 June, 2024. Patients fulfilling the criteria below: (1) adults, (2) who understood Cantonese, English, or Putonghua, had (3) at least two diagnoses among hypertension, diabetes, or dyslipidaemia, (4) at least two dispensing episodes within the specified period, and (5) changes in their medication regimens, poor medication compliance, or suboptimal disease control, as determined by laboratory reports or noted in consultation records, were included. Patients enrolled in the Chronic Disease Co-Care (CDCC) programme with medications prescribed were also included. Patients who no longer obtained medications from our pharmacy were excluded.

Results: Among 34,818 patients, 26 patients met the inclusion criteria (N=24 SOPC, N=2 CDCC). To date, 16 sessions were conducted for 8 patients (eight 30-minute face-to-face sessions, five 10-minute face-to-face sessions, and three phone follow-ups). Three major DRPs were identified: (1) "unintentionally administering/using the drug in the wrong way" (100%), (2) "intentionally/unintentionally taking less medication than prescribed" (67%), and (3) "inappropriate timing of administration" (50%). After follow-ups, 100% of patients showed improvement on DRPs. Prescribers welcomed our service whilst patients considered MTM useful based on feedback.

Conclusions: Despite our MTM service being in the pilot phase, patients attest to the positive impact of pharmacist-led MTM on their care. With the planned expansion of MTM service scope and resource allocation, the MTM service will continue to help achieve rational use of medicines and benefit different parties.

Ab06

The Impact of Concurrent Use of Fluoroquinolones and Oral Hypoglycemic Agents on Fasting Blood Glucose Levels in Hospitalized Patients

HSIEH, Hui-Hsia[1,2,3]; HUNG, Pei-Yuan[1,3]; CHEN, Chi-Hua[1,3]; HOUR, Mann-Jen[2]
[1] Department of Pharmacy, Taichung Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taichung, Taiwan, R.O.C.
[2] School of Pharmacy, China Medical University, Taichung, Taiwan, R.O.C.
[3] Taichung City New Pharmacists Association

Objective: The concurrent use of fluoroquinolones and oral hypoglycemic agents has been reported to cause fluctuations in fasting blood glucose levels. Fluoroquinolones may induce hypoglycemia by stimulating insulin secretion or affecting pancreatic β-cell metabolism, while some evidence also links them to hyperglycemia, with mechanisms remaining unclear. Among fluoroquinolones, levofloxacin poses a higher risk due to its pronounced effects on insulin sensitivity and glucose regulation. To mitigate these risks, our hospital implemented a drug interaction alert system supported by pharmacists' clinical monitoring. This study investigates fasting blood glucose changes in hospitalized patients receiving both fluoroquinolones and oral hypoglycemic agents and examines clinical implications alongside existing literature.

Methods: This retrospective analysis reviewed medical records of hospitalized patients who concurrently used fluoroquinolones (ciprofloxacin, levofloxacin, and moxifloxacin) and oral hypoglycemic agents between January 2024 and September 2024. Fasting blood glucose levels before and one day after combination therapy were analyzed to determine mean differences and fluctuation ranges. Relevant literature was also reviewed to compare findings and explore underlying mechanisms.

Results: Among 185 cases analyzed, the average patient age was 70.83 ± 13.39 years. Blood glucose levels increased in 73 cases, with a mean rise of 62.51 ± 65.54 mg/dL, predominantly associated with levofloxacin. In contrast, 112 cases showed reductions in blood glucose levels, averaging 53.58 ± 59.17 mg/dL, also most prominently influenced by levofloxacin. These findings align with literature reporting that fluoroquinolones can cause significant glucose fluctuations, with levofloxacin exerting the greatest impact.

Conclusion: This study confirms that fluoroquinolones, particularly levofloxacin, significantly influence blood glucose variability, corroborating previous findings. The dual effects on insulin secretion and glucose metabolism emphasize the need for caution when prescribing fluoroquinolones, especially in diabetic or renally impaired patients. Drug interaction alert systems, pharmacist assessments, and real-time monitoring can optimize therapy, mitigate risks, and improve medication safety.

Ab08

Comparative Efficacy Analysis of Trastuzumab and Biosimilar Ogivri in Breast Cancer Patients

CHIU, Jou-Wen[1,2]; HSIEH, Hui-Hsia[1,2]; CHEN, Chi-Hua[1,2]

[1] Department of Pharmacy, Taichung Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taichung, Taiwan, R.O.C.

[2] Taichung City New Pharmacists Association

Background: Human epidermal growth factor receptor 2 (HER2) is overexpressed or gene-amplified in 20-25% of breast cancers, and the anti-HER2 monoclonal antibody trastuzumab has been a pivotal treatment, significantly improving survival outcomes in patients with HER2-positive breast cancer. Due to its high cost, biosimilars like Ogivri, the first trastuzumab biosimilar, have been developed as cost-effective alternatives. Ogivri was approved by FDA in December 2017 for HER2-positive breast cancer and metastatic stomach cancer, showing comparable efficacy and safety to the reference trastuzumab in clinical trials.

Method: A retrospective investigation was conducted on patients who underwent chemotherapy for breast cancer using either trastuzumab or the trastuzumab biosimilar Ogivri between January 2023 and October 2024. The study aimed to compare the clinical outcomes of the two groups in terms of progression-free survival (PFS) and overall survival (OS).

Results: A total of 54 patients were enrolled, with 40 patients (74%) assigned to the trastuzumab group (mean age 59.5 ± 12.5 years) and 14 patients (26%) to the trastuzumab biosimilar Ogivri group (mean age 62.5 ± 10.5 years).

The estimated median PFS for the trastuzumab and the trastuzumab biosimilar Ogivri groups were 20.15 and 13.42 months, respectively. The Kaplan–Meier cumulative rate for PFS did not differ significantly between the two groups (log-rank test: p = 0.625). The estimated median OS for the trastuzumab and trastuzumab biosimilar Ogivri groups were 20.5 and 14.57 months, respectively. The Kaplan–Meier cumulative rate for OS did not differ significantly between the two groups (log-rank test: p = 0.068).

Conclusion: Our findings suggest no significant differences in PFS and OS between trastuzumab and the trastuzumab biosimilar Ogivri, indicating that Ogivri is a viable alternative for HER2-positive breast cancer patients. However, due to the study's limited sample size and short duration, further large-scale studies are necessary to confirm long-term efficacy and the comparability of both treatments.

Ab09

An Examination of Therapeutic Drug Monitoring: A Retrospective Analysis Conducted at a Teaching Hospital in Central Taiwan

LEE, Wan-Yi[1,2]; CHEN, Chi-Hua[1,2]; HSIEH, Hui-Hsia[1,2,3]

[1] Department of Pharmacy, Taichung Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taichung, Taiwan, R.O.C.

[2] Taichung City New Pharmacists Association

[3] School of Pharmacy, China Medical University, Taichung, Taiwan, R.O.C.

Objectives: Therapeutic Drug Monitoring (TDM) is a clinical tool employed to optimize therapeutic outcomes by quantifying the blood concentrations of specific medications. This process aims to strike a balance between therapeutic efficacy and the minimization of adverse effects. This research utilized Power BI to develop datas collection and analysis system for TDM within a teaching hospital in central Taiwan. The objective of the study was to assess the clinical benefits of TDM, focusing on therapeutic efficacy, reducing adverse reactions, and ensuring patient safety.

Methods: This retrospective study examined all TDM cases were conducted from January to October 2024. The data gathered were systematically organized and analyzed using statistical methods.

Results: During the study, a total of 1,624 TDM cases were analyzed, resulting in a assessment timeliness rate of 95.0% and a physician acceptance rate of 99.7%. The most frequently monitored medications included Tacrolimus (38.36%), Valproic Acid (23.52%), and Cyclosporine (9.54%). The analysis revealed that drug concentrations were excessively elevated in 4.68% of cases, remained within the therapeutic range in 63.36% of cases, and fell below the therapeutic range in 31.96% of cases.

Pharmacists conducted evaluations of sampling accuracy and assessed the therapeutic effects of medications, leading to the conclusion that 77.22% of cases retained their original prescriptions, while 13.05% necessitated intervention by physicians and pharmacists. An automated alert system for critical values facilitated timely responses to potential issues. Additionally, five outpatient cases involving incorrect blood sampling timing were rectified through educational measures, with subsequent follow-up confirming the normalization of results. These findings demonstrate the importance of TDM in enhancing treatment efficacy and ensuring drug safety.

Conclusions: This study underscores the vital role of TDM within clinical environments. Pharmacist-led interventions enhance medication safety, mitigate drug-related complications, and reduce the occurrence of adverse reactions, thereby illustrating the considerable advantages of pharmaceutical care.

Ab10

Analysis of Medication Use for Mycoplasma Infections in Pediatric Patients

SHEN, Yi-Ting[1,2]; CHEN, Chi-Hua[1,2]; HSIEH, Hui-Hsia[1,2,3]

[1] Department of Pharmacy, Taichung Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taichung, Taiwan, R.O.C.

[2] Taichung City New Pharmacists Association

[3] School of Pharmacy, China Medical University, Taichung, Taiwan, R.O.C.

Objectives: Mycoplasma pneumoniae is a prevalent cause of respiratory tract infections in children, with treatment typically involving macrolides or tetracyclines. Fluoroquinolones are reserved for cases in which no safer alternative is available.

Methods: This study retrospectively analyzes medication usage for Mycoplasma infections in pediatric patients at a regional hospital from January to September 2024.

Results: A total of 297 patients were included in the study, with 34% requiring hospitalization. Azithromycin was prescribed to 283 patients (mean duration: 2.85 ± 1.45 days), while 30 patients received Doxycycline (mean duration: 7.08 ± 2.7 days). No patients were prescribed fluoroquinolones. Fourteen patients (4.7%) received Doxycycline as initial therapy, and 13 patients (4.6%) switched from Azithromycin to Doxycycline due to treatment failure. The detection rate of Mycoplasma IgM was 69%, with 63% of patients showing positive results (IgM values > 10). A subgroup analysis was conducted on 99 patients with complete laboratory data. The Mycoplasma IgM values showed no significant correlation with age, white blood cell count (WBC), neutrophil percentage (N. Seg), lymphocyte percentage (Lym), monocyte percentage (Mono), absolute neutrophil count (ANC), alanine aminotransferase (ALT), time from symptom onset, or duration of hospitalization. The only correlation observed was with high-sensitivity C-reactive protein (hsCRP), where the correlation coefficient was -0.25, indicating a weak negative correlation.

Conclusions: Treatment costs were NT$105 for Azithromycin and NT$21 for Doxycycline. According to the American Academy of Pediatrics Red Book (2024-2027), Doxycycline can be administered to children of all ages for up to 21 days. Given its lower cost and effectiveness, Doxycycline is recommended as the preferred therapy for suspected Mycoplasma infections in children. This study highlights the importance of considering both cost and antibiotic resistance when selecting treatments for pediatric patients. Further research is necessary to explore biomarkers such as high-sensitivity C-reactive protein (hsCRP) in the decision-making process for treatment.

Ab11

Potentially Hazardous: Suspected Delirium Induced by Lorazepam in a Patient Undergoing Chemotherapy

CHEN, Ying-Chen[1,2]; SHEN, Yi-Ting[1,2]; HSIEH, Hui-Hsia[1,2]; CHEN, Chi-Hua[1,2]

[1] Department of Pharmacy, Taichung Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taichung, Taiwan, R.O.C.

[2] Taichung City New Pharmacists Association

Objectives: Lorazepam is used for anxiety and epilepsy. Drug-induced delirium accounts for approximately 30% of all delirium cases. This article presents a case of suspected delirium attributed to the administration of lorazepam as premedication for chemotherapy.

Methods: A Case Study Report.

Results: A 56-year-old male diagnosed with cholangiocarcinoma underwent his initial FOLFOX chemotherapy regimen, which included oxaliplatin, fluorouracil, and leucovorin. Pre-chemotherapy medications included palonosetron, diphenhydramine, dexamethasone, and lorazepam. Approximately thirty minutes after the infusion of oxaliplatin, the patient exhibited symptoms of wheezing and confusion. In response, the chemotherapy was temporarily halted, and the symptoms resolved within one hour. After adjusting the infusion rate, the chemotherapy was successfully completed, and the patient was discharged two days later. Delirium can be triggered by various pharmacological agents, including analgesics, anticholinergics, hypnotics, and sedatives. Both diphenhydramine and lorazepam have been associated with the onset of delirium. The existing literature indicates that lorazepam has a reported incidence of delirium of 1% or less, while diphenhydramine is linked to delirium less frequently. Consequently, lorazepam is hypothesized to be the primary contributor to the delirium observed in this case. The Naranjo adverse drug reaction probability scale yielded a score of 5, suggesting a “Probable” causal relationship. Following the discontinuation of lorazepam in subsequent treatments, the patient did not experience any further episodes of delirium.

Conclusions: According to the NCCN guidelines, FOLFOX is classified as having moderate emetogenic potential. The combination of palonosetron and dexamethasone is recommended for the prophylaxis of delayed nausea and vomiting. Additionally, lorazepam is commonly included as a standard component in the chemotherapy protocols of certain healthcare institutions. However, to reduce the risk of delirium, its use should be limited to situations where it is considered necessary. This case highlights the importance of careful medication management to ensure patient safety.

Ab12

Nationwide Real-Time Monitoring of Diabetes Medication Therapy Adherence Clinic (DMTAC): A Data-Driven Approach to Improve Patient Outcome in Ministry of Health Facilities in Malaysia

ALIAS, Aliza[1,4]; MISHAN, Nurish Ezzantie[1,4]; HASHIM, Helmi Hafiz[1]; EMBI, Syahida Che[1]; IBRAHIM, Wan Noraimi Wan[1]; LOGANADAN, Navin Kumar[2,4]; HAMID, Masfiza Abdul[3]

[1] Pharmacy Practice & Development, Pharmaceutical Services Division, MOH
[2] Pharmacy Department, Hospital Putrajaya, MOH
[3] State Pharmaceutical Services Division, Kedah State Health Department, MOH
[4] Clinical Pharmacy Working Committee (Diabetes Mellitus Subspecialty), Pharmaceutical Services Programme, MOH

Background: The Diabetes Medication Therapy Adherence Clinic (DMTAC) is an ambulatory care service provided by the Ministry of Health (MOH) pharmacists to assist diabetic patients in achieving better glycaemic control and medication adherence. It offers personalized care, including counseling and education on medications, disease management, and lifestyle modifications.

Objective: The objective of this approach was to monitor DMTAC services in MOH facilities through a real-time data registry.

Methods: A prospective data entry initiative has been conducted in MOH facilities, including hospitals and health clinics, since January 2023. The required data include demographic information, social status, HbA1c levels, and medication adherence monitoring. The data is analyzed descriptively. The performance of HbA1c readings and adherence levels is compared at baseline (before recruitment) and post-completion (after completing four modules), and the results are visualized in real-time using bar charts and graphs on the Integrated Data Quality Use of Medicines (IDQUMC) website.

Results and Conclusions: To date, approximately 2,395 patients have been monitored in real-time nationwide. Of these, 1,923 patients (80%) achieved a reduction in HbA1c levels, with a mean reduction (± SD) of 2.7% (± 1.8%). However, around 193 patients (19%) showed an increase, and 40 patients (4%) showed no change in HbA1c levels. These groups will be closely monitored and may require additional interventions. The remaining data is still being processed in the backend of the database and will be available once the pre- and post-HbA1c data is complete. The live data registry enhances awareness by enabling real-time monitoring of patient performance and serves as a comprehensive data pool for DMTAC services nationwide, which could help in strategizing and strengthening pharmaceutical services. More data could be included in the future to involve other clinical outcome monitoring, including the expansion to other pharmacist intervention monitoring programs.

Ab13

Application of Business Intelligence Dashboards in Evaluating the Learning Outcomes of Pharmacy Interns in Interdisciplinary Team Meetings

HUNG, Chih-Hao[1,2]; HSIEH, Hui-Hsia[1,2,3]; CHEN, Chi-Hua[1,2]

[1] Department of Pharmacy, Taichung Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taichung, Taiwan, R.O.C.
[2] Taichung City New Pharmacists Association
[3] School of Pharmacy, China Medical University, Taichung, Taiwan, R.O.C.

Objectives: Interdisciplinary teamwork is a fundamental component of medical education, designed to improve healthcare quality and patient safety. Engaging in interdisciplinary team meetings allows pharmacy interns to enhance their understanding of holistic care, strengthen interprofessional communication, and foster innovative thinking while integrating patient safety. This study investigates the application of business intelligence (BI) software to evaluate learning outcomes and enhance assessment efficiency.

Methods: Twelve pharmacy interns participated in a program from August 2023 to October 2024. Under the guidance of clinical preceptors, the interns reviewed medication regimens, presented clinical cases, and engaged in discussions during interdisciplinary team meetings. Pre- and post-training self-assessment questionnaires were administered, covering six domains: clinical problem-solving, prescription review, medication recommendations, interdisciplinary collaboration, confidence, and sense of accomplishment. Additionally, clinical care ability assessments were conducted, focusing on five domains: clinical application, issue identification, database search skills, data organization, and accurate recommendations. Data collected through Google Forms were analyzed using Power BI for real-time visualization. Differences between pre- and post-training assessments were evaluated using the Wilcoxon Signed-Rank test.

Results: Each intern participated in one interdisciplinary team meeting, totaling 12 meetings. Self-assessment scores improved from 75.8 ± 8.4 to 83.2 ± 6.7 following the training, with a Pearson correlation coefficient of 0.59 ($p < 0.05$). Clinical care ability scores increased from 75.6 ± 6.6 to 82.7 ± 5.3, also showing a Pearson correlation of 0.55 ($p < 0.05$). BI dashboards identified one intern with declining scores in clinical application, which prompted the implementation of a mentorship mechanism. Power BI reduced data processing time to 1-2 minutes, significantly enhancing analysis efficiency.

Conclusion: Integrating BI software with data analytics and visualization enhances real-time evaluation, facilitating the rapid identification of anomalies and the formulation of strategies. BI software provides substantial value in medical education by improving the learning outcomes of pharmacy interns and increasing assessment efficiency within interdisciplinary team settings.

Ab14

Innovative Community Pharmacy Service: Improved Health Outcomes Through a 12-Week Lifestyle Change Program

LO, Tien-tien
Health in Action Limited

Objectives: This study evaluates a 12-week lifestyle change program implemented as an innovative community pharmacy service to promote healthier lifestyles among overweight adults aged 25-55 and reduce their risk of chronic disease. This initiative aims to demonstrate the crucial role of community pharmacists in educating the public, emphasizing their accessibility as the first point of contact in chronic disease prevention.

Methods: Seven participants completed the program, which included 60-minute in-person health, fitness, and nutrition workshops held weekly over 12 weeks. These sessions focused on promoting healthy eating habits and increasing physical activity to facilitate sustainable, long-term lifestyle changes. Key health parameters—HbA1c, BMI, blood pressure (BP), and LDL levels—were measured before and after the program, with one-year follow-up assessments.

Results: After the 12-week program, there was no improvement in HbA1c levels, with a mean increase of +0.14. However, follow-up data after one year indicated a mean reduction of -0.17 in HbA1c levels, suggesting long-term benefits. In contrast, there was an improvement in BMI during the 12-week program, with a mean reduction of -0.11. Yet, by the one-year follow-up, the mean BMI increased by +0.07.

Case Highlights:

- **Participant 1 (Female, aged 33 years):** HbA1c decreased from 5.7% (pre-assessment) to 4.8% (one-year follow-up), along with increased physical activity sustained up to one year post follow-up.
- **Participant 2 (Female, aged 66 years):** HbA1c fell from 6.2% (pre-assessment) to 5.5% (one-year follow-up), changing her diagnosed pre-diabetes status to normal, effectively decreasing her risk of developing diabetes, sustained up to one year post follow-up.

Conclusion: This program highlights the innovative capacity of community pharmacy services to effect positive lifestyle changes and reduce chronic disease risk. Strengthening this model and implementing it across community-based settings could further establish the strategic role of community pharmacists in chronic disease prevention.

Ab16

How Does Hong Kong Make Innovative Cancer Drugs Available and Affordable: A Qualitative Analysis of Policy Documents and Stakeholder Interviews

HUANG, Zhengwei[1]; DONG, Dong[1]
[1] The Jockey Club School of Public Health and Primary Care, The Chinese University of Hong Kong

Background: Despite Hong Kong's status as a leader in life expectancy, access to innovative cancer drugs remains limited.

Objectives: This study aims to identify the policies that facilitate access to these drugs and the challenges encountered in their implementation.

Materials and Methods: A qualitative approach was adopted, comprising a review of 207 policy documents and interviews with 16 stakeholders. Key components affecting access to cancer medications were analyzed, focusing on research and development (R&D), market authorization, selection, and financing, particularly concerning availability and affordability. Interview participants included internal stakeholders (decision-makers from the Hospital Authority, oncologists, and other medical professionals) and external stakeholders (pharmaceutical companies and patient advocacy groups). Data synthesis was performed using an inductive- deductive thematic analysis approach.

Results: Recent policy shifts in Hong Kong have emphasized market authorization and financing. Facilitators of availability include proactive reforms in market authorization (such as the " 1+ " mechanism and primary evaluations), named patient programs for early access, and expedited formulary selection processes. For affordability, key facilitators include relaxed criteria for safety nets, patient access programs, and innovative private insurance schemes. However, implementation challenges persist, notably the insufficient emphasis on rigorous health technology assessments (HTA), lack of transparency in decision-making, and constrained drug budgets.

Conclusions: This study highlights the urgent need for improved access to innovative cancer drugs in Hong Kong. Recent government initiatives aim to enhance access through more proactive evaluations and approvals, thereby expediting the availability of advanced treatments, fostering competitive pricing, and increasing subsidies.

Ab18

Examining Patterns of Chinese Medicine Use in Patients with Cancer: A Preliminary Analysis

WU, Xingyue[1]; LAM, Chun-sing[1]; AU, Kwok-yin David[2]; LOONG, Ho-fung Herbert[3]; LIN, Zhixiu[2]; ZUO, Zhong[1]; CHEUNG, Yin-ting[1]

[1] School of Pharmacy, Faculty of Medicine, The Chinese University of Hong Kong
[2] School of Chinese Medicine, Faculty of Medicine, The Chinese University of Hong Kong
[3] Department of Clinical Oncology, Faculty of Medicine, The Chinese University of Hong Kong

Objectives: This study aims to evaluate the co-prescribing patterns between Chinese medicines (CM) and Western medications using the CUHK–Hong Kong Integrative Medical Centre (IMC) and public healthcare system databases. This is a preliminary descriptive analysis of the patterns of CM use and correlation with symptoms among patients with cancer who visited the IMC between 2017 and 2024.

Methods: The patients with cancer-related diagnoses were identified using specific keywords, including 癌 *ai* (cancer), 瘤 *liu* (tumour), 岩 *yan* (tumour), 癥瘕 *zheng jia* (tumor), and 白血 *bai xue* (leukemia). The most recent consultation of each patient was extracted to identify their past medical history, current symptoms, and prescribed CM. Both manual assessments and natural language processing were used for content analysis.

Results: This preliminary analysis included 4,661 patients with 62,113 visit records. Among all cancer patients, 900 (19%) had only one consultation at the IMC, while the remaining (81%) had ≥ 2 consultations. Few patients with cancer received acupuncture (2.5%). The majority (n=4415, 95%) were prescribed CM, with approximately 80% having ≥2 prescription records. A subset (n=1253, 27%) received >10 prescriptions. Out of the 41,982 CM prescriptions, the top most frequently prescribed herbs were S0192 黃芪 *Milkvetch Root* (n=5974, 14%), S0317 薏苡仁 *Coix Seed* (n=5834, 14%), H1341 黨參 *Tangshen* (n=5640, 13%) and S0291 土茯苓 *Glabrous Greenbrier Rhizome* (n=5404, 13%). The use of these herbs was documented in patients with abnormal bowel movement (63%), cough (18.5%), sleep problems (15%), dry mouth (11.5%) and abdominal pain (11%).

Conclusion: A framework for analyzing the documented symptoms and prescribed CM is established through this preliminary analysis. Future work includes validating the patients' cancer diagnoses and examining the co-prescribing patterns with Western medications from the public healthcare system. (Funded by Health Bureau, HMRF Ref 10210506)

Ab19

An Observational Study of the Accuracy and Efficiency in Parenteral Nutrition Calculation Associated with a Pharmacist-designed Nutritional Support Digital Application in a Hospital Pharmacy Setting

CHAN, H.K. Doris; LI, C.P. Peter; LIU, M.T. Timothy; CHEUNG C.Y. Eddy; MAK, H.K. Ivan*
Pharmacy, North District Hospital, HKSAR, China
*Project Supervisor Email Address: mhk450@ha.org.hk

Objective: This observational study aimed to investigate the difference of required time quantitatively in manual input of total parenteral nutrition (TPN) medication administration record (MAR), compared to entry with the assistance of a pharmacist-developed parenteral nutrition compatibility calculator in North District Hospital (NDH), named ReadyMadeTPN. Qualitative feedback from the dispensers concerning the features of ReadyMadeTPN was, furthermore, studied to reveal the effectiveness and user feedback holistically.

Methods: Seven dispensers from inpatient pharmacy were recruited for completing 1 set of TPN MAR with correct electrolytes content listed (SETA), and 1 set with electrolytes content exceeding the compatible value (SETB), both similar to daily operational TPN MAR received from wards, both with manual calculation and ReadyMadeTPN compatibility calculator assistance (in total of 4 paper). The time for completion of entry was recorded. Dependent paired t-test analysis with Excel was performed for efficiency study. The participants were invited to fill a questionnaire for ReadyMadeTPN feedback for descriptive qualitative analysis.

Results: Both the p-values for SETA (0.003) and SET B (0.001) of all participants revealed statistical significance ($p<0.05$). The result showed ReadyMadeTPN was effective in reducing the time required for TPN MAR entry for dispensers for both correct, incorrect MARs. An average of 3.4 min and 4.2 min was saved from manual calculation by using ReadyMadeTPN instead, for correct and incorrect MAR entry respectively for all dispensers. For qualitative analysis, all the dispensers agreed or strongly agreed that ReadyMadeTPN is easy to use, accurate, reliable, significant in preventing medical error and helped save time in calculation. One dispenser felt neutral for adequate training for the application, while others agreed training was adequate.

Conclusions: ReadyMadeTPN has demonstrated efficiency in MAR entry in NDH, and was recognised for optimizing safety with its accurate compatibility checking. Bedside care, home parenteral nutrition service with digital application might be our future study focus.

Ab20
Evaluation of Guideline-Directed Medical Therapy Optimization in a Multidisciplinary Heart Failure Service

CHU, Lap-ting[1]
[1] Department of Pharmacy, Queen Elizabeth Hospital, Hospital Authority, Hong Kong

Objectives: The study aimed to evaluate the impact of a multidisciplinary heart failure team on the optimization of heart failure treatment and the time to subsequent follow-up after hospitalization of patients with heart failure with reduced ejection fraction (HFrEF).

Methods: A retrospective, single-centre, cohort study was conducted at Queen Elizabeth Hospital. Hospitalization episodes occurred during January 2023 to April 2023 were reviewed. A total of 190 patients were recruited: 74 in the intervention group and 116 in the control group. The primary outcome was to compare the likelihood of patients with HFrEF achieving quadruple therapy at the time of discharge in patients who received care from HF team and patients under usual medical care. The secondary outcomes were the time interval between discharge and the subsequent follow-up, the prescribing pattern of individual HF GDMT, and the acceptance rate of pharmacist interventions in the intervention group.

Results: Patients receiving clinical consultations from the heart failure team were 4.71 times more likely to receive quadruple therapy than those without consultations from the team (CI: 2.39-9.27, p<.001). Meanwhile, other factors like age, gender, and comorbidities have non-significant effects on quadruple therapy use. Patients recruited to the heart failure transition clinic were 10.30 times more likely to have a follow-up within six weeks post-discharge. (CI: 2.32-45.62, p=.002). Significantly higher proportions of patients in the intervention group were prescribed HF-specific BB (88% versus 72%, p=.012) and SGLT2 inhibitors (80% versus 62%, p=.014) than the control group. Pharmacist interventions were well accepted by physicians (100%).

Conclusion: The multidisciplinary heart failure team was linked to a higher optimization rate of guideline-directed medical therapy for HFrEF. The team-supported heart failure transition clinic ensured timeliness and continuity of care for heart failure patients.

Ab22
A Prospective, Interventional Study on the Impact of Pharmacist Education for Thyroidectomy Patients: Experience of a Local Hospital in Hong Kong

LI, Wai-yin Evelyne
Department of Pharmacy, Prince of Wales Hospital, Hong Kong

Objectives: This study aimed to evaluate the effects of pharmacist education on thyroxine replacement therapy for post-thyroidectomy patients in a local Hong Kong hospital.

Methods: This was a prospective, interventional study conducted from November 2023 to April 2024 at the medical specialist out-patient thyroid clinic of Prince of Wales Hospital. Patients who underwent total/partial thyroidectomy for non-malignant thyroid disease and were on thyroxine replacement therapy were enrolled. Patients received a 30-minute individual pharmacist education session covering thyroxine adherence, knowledge, and potential drug-related problems (DRPs). The primary outcome was change in self-developed thyroxine replacement therapy knowledge survey score from baseline to week six. Secondary outcomes included number and types of thyroxine therapy-related DRPs identified by pharmacist, and rate of acceptance of pharmacist recommendations.

Results: A total of 24 patients were enrolled. The mean thyroxine replacement therapy knowledge survey score improved significantly from baseline (11.3 ± 2.4) to week 6 (14.6 ± 1.8, p<0.001) after the pharmacist education session. Amongst the 24 enrolled patients, a total of 22 DRPs were identified, with the most common DRP cause being patient-related (72.7%). The acceptance rate of pharmacist recommendations was 100%.

Conclusion: Pharmacist-delivered education improved post-thyroidectomy patients' knowledge to thyroxine replacement therapy. Pharmacists can play a valuable role in optimizing medication management for this patient population.

Ab23
Integration of Smart Technology into Express Dispensing System to Enhance Medication Safety in a Hospital Out-patient Pharmacy

YUEN, PYK; WONG, MY; FUNG, PP
Department of Pharmacy, Caritas Medical Centre, Hospital Authority, HKSAR

Introduction: Under the express drug dispensing (EDS) system, existing drug assembling step depends heavily on supporting staff who manually sort the picked drugs into the corresponding basket. This process is heavily manual and error-prone inherently especially during peak hours, posing risk of delivering drug to wrong patients. Environmental factors also contribute to retrieval of wrong basket of medications at drug issue.

Objectives: Through the application of Drug Order Assembly System (DOAS), we aim to enhance medication safety and improve operation efficiency.

Methods and Materials: DOAS utilizes Internet of Things (IoT) technologies including Bluetooth, radio-frequency identification (RFID), weight sensor and e-ink display on smart drug baskets and assembling panels. Visual identification on prescription number during assembling has been replaced by guiding lights on smart panel. A 'drop to light' feature was adopted upon scanning the drug packets. Weight sensor embedded on the panel can reassure accuracy in assembling and notify users instantly for errors. The workflow is now continuously monitored via the Smart Dashboard Panel and would alert pharmacy staff to follow up timely when abnormalities occurred. During drug issue, guiding light on smart basket would blink upon scanning patient's numbered ticket, ensuring retrieval of correct medication basket for the patient.

Results and Conclusion: In the initial phase of DOAS implementation, prescriptions with single item and all discharge prescriptions were triaged. At November 2023, DOAS on average handled daily more than 500 prescriptions involving more than 1000 items with zero faulty assembly or retrieval wrong baskets at issue point. Integration of DOAS to EDS successfully enhanced medication safety while work efficiency was not compromised. In the next phase, DOAS would be rolled out to other prescriptions. While challenges are anticipated, staff training, continuous software optimization with vendor and hardware upgrades would provide the major driving forces.

Ab24
Comparison of Toxicity of Palbociclib, Ribociclib and Abemaciclib and Impact on Treatment of ER+ve/HER2-ve Locally Advanced or Metastatic Breast Cancer

CHOU, Yat-chi[1,2]; SO, Kai-him[3]; LIM, Wai-li[1]; ZHOU, Rui Keary[2]
[1] Department of Pharmacy, Prince of Wales Hospital
[2] School of Pharmacy, the Chinese University of Hong Kong
[3] Department of Pharmacy, Tuen Mun Hospital

Objectives: According to landmark trials, ribociclib had the highest rate of treatment interruption among the cyclin D kinase 4/6 (CDK 4/6) inhibitors. This study aimed to provide insight into whether the tolerability of ribociclib was inferior to palbociclib and abemaciclib.

Methods: The study was a single-center retrospective three-arm cohort study conducted at the Prince of Wales Hospital (PWH). Patients who were 18 years of age and older, diagnosed with ER-positive, HER2-negative locally advanced or metastatic breast cancer, and were started on any of the three CDK 4/6 inhibitors from January 2019 to December 2022 in PWH were recruited. Electronic patient records were reviewed to capture the rate of treatment modification (composite of treatment interruption, dose reduction and treatment discontinuation). Each of these outcomes were also individually analyzed. Logistic regressions were performed to identify possible significant risk factors for treatment modification.

Results: A total of 193 patients were included in the study (palbociclib n=66 patients; ribociclib n=78; abemaciclib n=49). The overall rate of treatment modification did not differ significantly between any of the treatment pairs. Treatment interruption rate was significantly lower for patients receiving abemaciclib compared to those receiving palbociclib (p=0.007) and ribociclib (p<0.001). However, no significant differences were observed for other components. Absolute neutrophil count (ANC) ≤3.7x10^9/L (p=0.004) was identified as the only significant risk factor for treatment modification in the palbociclib group. In the ribociclib group, ANC≤3.7x10^9/L (p=0.009) was a significant risk factor, while the use of topical steroids as premedication (p=0.044) and the presence of bone metastasis (p=0.025) were identified as negative risk factors for treatment modification. No significant risk factors were identified for the abemaciclib group.

Conclusion: There was no significant difference between the tolerability in terms of treatment modification for palbociclib, ribociclib and abemaciclib. Palbociclib and ribociclib should be used with caution in people with low baseline ANC.

Ab26

A Cohort Study: Incidence of Type 2 Diabetes in Patients with Hepatitis C Achieved Sustained Virologic Response by Direct-Acting Antiviral Treatment Compared to Hepatitis C Negative Individuals

CHAN, Wing-sze Susan
Pharmacy Department, United Christian Hospital

Background: Diabetes mellitus is one of the extra-hepatic manifestations recognized among hepatitis C patients. It is discovered that sustained virologic response attainment could lower the diabetes incidence. Oral direct-acting antiviral medications, recommended by the World Health Organization owing to the promising virus eradication rate and good safety profile, might pose an effect on halting diabetes development.

Objective: To investigate the ability of direct-acting antiviral to revert type 2 diabetes mellitus risk in hepatitis C patients comparable to those who are uninfected.

Methods: In this study, the cumulative incidence of type 2 diabetes mellitus was measured in hepatitis C group with sustained virologic response using a direct-acting antiviral versus control group with no hepatitis C. 258 participants were recruited from the hepatitis C clinic in the United Christian Hospital for hepatitis C group where data of 258 patients in the control group with matched age and sex were drawn from Clinical Data Analysis and Reporting System.

Results: Over the one-year studying period, 3.88% and 0.78% of the patients were recorded with type 2 diabetes mellitus incidence in hepatitis C group and control group respectively. There was a statistically significant higher risk of type 2 diabetes development in the hepatitis C group ($OR_{unadjusted}$ 5.16, P = .019, 95% CI 1.12 – 23.79). Multivariate logistic regression identified hepatitis C infection as an independent variable related to type 2 diabetes ($OR_{adjusted}$ 6.51, 95% CI 1.31 – 32.2, P = .022).

Conclusions: Follow-up of hepatitis C patients with sustained virologic response is warranted for surveillance of manifestations after hepatitis C virus eradication.

Keywords: Hepatitis C, direct-acting antiviral, sustained virologic response, diabetes mellitus, extrahepatic manifestations

Ab27

Immune-Related Adverse Events of PD-1/PD-L1 Inhibitors in Non-Small Cell Lung Cancer Patients Concomitantly Treated with Systemic Therapy: A Retrospective Study in a Local Hospital

CHEUNG, Tsz-sing Jason[1]; ZHOU, Keary[2]; SO, Kai-him[3]; LIM, Wai-li[1]
[1] Pharmacy Department, Prince of Wales Hospital
[2] School of Pharmacy, The Chinese University of Hong Kong
[3] Pharmacy Department, Tuen Mun Hospital

Purpose: There is a paucity of data on the local patient profile for immune-related adverse events (irAEs) associated with PD-1/PD-L1 inhibitor use.

Methods: This study reviewed NSCLC patients who received PD-1/PD-L1 inhibitors between June 2016 and August 2022 at the Prince of Wales Hospital. The incidence of irAEs was reported using descriptive statistics. The time to onset of irAEs was described using Kaplan-Meier curves. The relationship between potential risk factors and the rate of irAEs was evaluated using Poisson regression. Cox regression determined the correlation between the rate of irAEs and overall survival (OS). Proportions of patients experiencing irAEs categorized by organ system and the mean time to onset of irAEs were compared.

Results: This study reviewed 138 patients across 7 years, identifying 215 irAE with a median time to onset of 56 days (Range 4 – 702 days). irAE were classified by organ system, with the most common being cutaneous, gastrointestinal, neurological, endocrine, hepatic, and respiratory. The most common grade III/IV was pneumonitis, which led to permanent discontinuation of immunotherapy in all cases. Systemic steroid was the mainstay for treating grade III/IV irAE, with doses ranging from 350mg to 5550mg (Median = 1533.75mg) and treatment duration ranging from 21 up to 138 days. Male gender, active infection, and drinking were significant predictive risk factors. The rate of adverse events was weakly and positively correlated with the overall survival of patients receiving immunotherapy. The rate of irAE was higher in patients concomitantly receiving systemic therapy compared to immunotherapy alone, and there was a small to moderate association between the treatment received and the proportions of irAE categorized by organ system.

Conclusion: Immunotherapy is a paradigm shift in cancer treatment, a more comprehensive understanding can help medical professionals develop more appropriate monitoring and treatment guidelines.

Ab28

What Modalities of Training Enhance the Skills and Knowledge of Healthcare Professionals? A Critical Analysis of Online and Face-to-face Learning and its Implications for Training for Hospital Pharmacists

NG, Tsui-shan[1]; WRIGHT, Josephine-Joy[2]
[1] Pharmacist, Hospital Authority, Hong Kong
[2] Senior Lecturer, University of Worcester, UK

Introduction: The pharmacy continuing professional development (CPD) landscape had shifted towards online learning worldwide, accelerating by the COVID-19 pandemic. Hospital pharmacists in Hong Kong responded positively, with many continuing to prefer online learning due to its convenience and flexibility. This shift has prompted consideration of converting certain face-to-face training programms into online formats while maintaining desired outcomes.

Objective: To investigate whether online delivery of training programmes for hospital pharmacists can maintain or enhance training outcomes without compromising effectiveness.

Methods: The studies selected for this review followed predetermined inclusion and exclusion criteria. Various databases were utilised to search published data for this critical literature review. The "Search" phase employed the PEO (Population/Problem/Patient, Exposure, Outcome) framework, with Medical Subject Headings (MeSH) terms identified via the National Library of Medicine. Truncation techniques and relevant keywords were used to ensure comprehensive search coverage. A structured and critical review of the article contents was performed using the Previewing, Questioning, Reading, and Summarising [PQRS] system.

Results: The main findings suggested that online learning was as effective as, or non-inferior to, traditional face-to-face training for hospital pharmacists, though it had limitations. This form of training had little or no positive effect on practice change. In contrast, interactive face-to-face training proved more effective for skill development and practice change. Consequently, blended learning, which combined online and face-to-face elements, emerged as a promising solution to address the drawbacks of both approaches. Importantly, no single approach was universally applicable, and pharmacists should engage in a diverse range of training programmes to meet different training needs.

Conclusion: Research on the effectiveness of online learning for hospital pharmacists in Hong Kong was lacking, emphasizing the need for further studies within the Chinese population. Investigating this context would address unique challenges and inform the development of online training programmes for hospital pharmacists in Hong Kong and similar settings.

Ab30

Effectiveness of Paediatric Pharmacist Counselling Service on Medication Self-Management Efficacy of Caregivers of Paediatric Patients with Epilepsy

WONG, Hoi-chun Edward
Pharmacist, Department of Pharmacy, Prince of Wales Hospital, Hong Kong

Objective: To assess the effectiveness of pharmacist counselling service in improving epilepsy medication self-management efficacy for caregivers of paediatric patients with epilepsy.

Method: A pre-post study enrolling caregivers of paediatric patients with epilepsy (n = 46) with a recent change in antiseizure medication regimen or doubtful compliance by referral mechanism was conducted at a in Hong Kong acute hospital from October 2022 to April 2023. All participants received a structured pharmacist counselling of two or more sessions. The mean follow-up was 36.6 days and was completed in May 2023. Data were subsequently analysed from May 2023 to June 2023. The primary outcome was the change in scores of the Paediatric Epilepsy Medication Self-Management Questionnaire (PEMSQ). Secondary outcomes included change in seizure frequency and related hospitalization, and patient satisfaction towards the counselling service.

Results: A total of 43 caregivers participated and completed all follow-up surveys (patient mean [SD] age 8.9 [5.8] years, 20 male [47%]). There was a statistically significant difference in the overall PEMSQ mean scores (pre-study mean = 142.93 [95% CI 141.78-143.99], post-study mean = 151.01 [95% CI 149.70-152.27]; F=7.21; p=0.0106), which was mainly driven by an increase in score for "treatment knowledge and expectations" (pre-study mean = 47.47 [95% CI 46.93-47.96], post-study mean = 51.93 [95% CI 51.09-52.70]; F=10.13; p=0.0029) and "adherence to treatment" (pre-study mean = 45.72 [95% CI 45.22-46.19], post-study mean = 48.69 [95% CI 48.64-48.75]; F=9.4; p=0.0039). For secondary outcomes, the change in seizure frequency (Z=–1.642, p=0.051) and related hospitalizations (Z=–1.418, p=0.106) before and after the study did not differ significantly. The counselling service was well received, with an overall mean satisfaction score [SD] of 4.81 [0.44] on a five-point Likert scale.

Conclusion: Medication counselling provided by pharmacists was well received and improves medication self-management efficacy for caregivers of paediatric patients with epilepsy.

Ab31

A Multi Stakeholder Barriers and Enablers Analysis on Integrating Traditional Complementary and Integrative Medicine (TCIM) into Paediatric Palliative Care (PPC)

CHU, Yau-shing William; WU, Xingyue; LAM, Chun-sing Jason; Prof. CHEUNG, Yin-ting
School of Pharmacy, The Chinese University of Hong Kong, Hong Kong, China

Introduction: Children with life-limiting or life-threatening conditions were increasing in recent decades. However, there was an under-utilization of PPC and suboptimal management of distressing symptoms that led to worsening of life function and deterioration of quality of life. TCIM may be a possible approach to alleviate physical, psychological and spiritual sufferings of the paediatric patients and their caregivers. The prevalence for the unreported use of TCIM in PPC was high and the medical management team concerned about the integration of TCIM into PPC due to limited knowledge regarding TCIM interventions.

Aim and Objectives: To provide practical guidance on the integration of TCIM into PPC by summarizing existing evidence and consensus discussion by professionals in the field of PPC.

Methods: Two stages of investigations were performed, including (1) a systematic review to summarise evidence of common TCIM interventions that could be adopted, and (2) a Delphi survey study using Evidence-to-Decision framework to assess perceptions of stakeholders and identify consensus on the recommendations of TCIM. The interventions with a higher level of evidence identified from the review would be assessed in the Delphi survey study.

Results: Twenty-eight randomized controlled trials from the systematic review were assessed for pain and anxiety. Massage, music-based and hypnosis were possibly effective to relieve pain and anxiety. Eight TCIM interventions were identified: Acupuncture for (1) improving motor ability and (2) reduced muscle tone in children with cerebral palsy; Massage for (3) relieving anxiety and depression, (4) reducing pain, and (5) reduced muscle tone in children with cerebral palsy; Music-based interventions for (6) relieving anxiety symptoms, (7) reducing pain, (8) improving motor ability in children with cerebral palsy. All recommendations were positively endorsed by panellists.

Conclusion: TCIM recommendations that were certified could be integrated into PPC for optimizing symptom management and improving quality of life of the patients.

Ab32

Proton Pump Inhibitor Induced Drug-Drug Interactions: A Physiologically Based Pharmacokinetic (PBPK) Modeling of SOP001 and its Metabolites

LAW, Puihei[1]; FAN, Xiaoqing[1]; YAN, Xiaoyu[1]
[1] School of Pharmacy, The Chinese University of Hong Kong, Hong Kong

Objectives: A novel antiplatelet agent SOP001 was developed to mitigate clopidogrel resistance due to cytochrome (CYP) P450 2C19 polymorphism. The study aims to develop clopidogrel and SOP001 parent-metabolite whole-body PBPK models, with subsequent application to predict CYP2C19-mediated drug-drug interaction (DDI).

Methods: Model building and simulation were performed in PK-Sim using mean plasma concentration of M15-2 extracted from two Phase I clinical trials. Clopidogrel and SOP001 PBPK models were evaluated both graphically and quantitatively. A PBPK model of omeprazole, a CYP2C19 inhibitor, was incorporated into the PK-Sim for predicting and evaluating plasma concentration of M15-2 in CYP2C19-mediated DDI with clopidogrel and SOP001.

Results: The study successfully developed and evaluated clopidogrel and SOP001 parent-metabolite whole-body PBPK models with adequate descriptive and predictive performance. The mean relative deviation (MRD) is 66%. All geometric mean fold error (GMFE) values of the 32 plasma-concentration time profiles of M15-2 from clopidogrel and SOP001 models fall within the two-fold range of their observed values. Plasma concentration-time profiles of CYP2C19-mediated DDI between SOP001 and omeprazole were evaluated.

Conclusions: The developed PBPK models demonstrate SOP001 is less influenced by CYP2C19 inhibition by omeprazole than clopidogrel due to efficient bioactivation and less CYP2C19 dependent.

Ab33

Towards High-dose Methotrexate Optimization: External Validation of Pediatric Acute Lymphoblastic Leukemia Population Pharmacokinetic Model

WONG, KK[1]; IP, KWE[2]; HUI, KH[3]; LAM, TN[1]

[1] School of Pharmacy, The Chinese University of Hong Kong, Hong Kong
[2] Department of Pharmacy, Hong Kong Children's Hospital, Hong Kong
[3] School of Health Sciences, Saint Francis University, Hong Kong

Objectives: This study is an external validation of a previously reported population pharmacokinetics (PopPK) model developed for the local population for high-dose methotrexate (HDMTX) levels in the pediatric Acute Lymphoblastic Leukemia (ALL) population at the Prince of Wales Hospital (Hui, 2018). Our study aims to compare the performance of 3 similar models developed for pediatric ALL population. Furthermore, this study also evaluated the relationship between methotrexate levels and its adverse effects to facilitate its dose optimization in the future.

Methods: The hematology lab results and demographics of 25 pediatric ALL patients from Hong Kong Children's Hospital who received HDMTX infusion in consolidation phase according to CCCG-ALL-2020 protocol from January 2023 to December 2023 are collected retrospectively. NONMEM and Perl-speaks-NONMEM were used to fit the models to obtain estimates of pharmacokinetic parameters of our subjects. Diagnostic plots, and statistical metrics including Akaike Information Criterion, Bayesian Information Criterion, Root-mean-square error, Mean Absolute Percentage Error, and Mean Percentage Error, were used in validating and comparing the 3 models. Two toxicity outcome measures were used: 1. the change in absolute neutrophil counts (ANC) and 2. the number of days to nadir. Correlation and linear mixed model were performed to test the relationship between the toxicity outcomes and methotrexate levels and fitted pharmacokinetic parameters.

Results: The final data set included 25 ALL patients with 89 methotrexate infusions and 224 concentration records. Our model is found to be superior among the three models based on the statistical metrics. A significant correlation was detected between change in ANC: 1. 48-hour methotrexate level 2. dose per body surface area and 3. dose number in sequence. Methotrexate levels have also demonstrated significant correlation with the alpha-phase half-life.

Conclusions: Our model is successfully validated. A dose optimizer will be developed to fully utilize the model for HDMTX dose optimization.

Ab34

Drug Repurposing to overcome EGFR TKI Resistance in Non-small Cell Lung Cancer by Biological Network Analysis

NG, Tsz-wai[1]; TING, Ka-yi[1]; TO, Kin-wah Kenneth[1]

[1] Faculty of Medicine, School of Pharmacy, Room 801N, Lo Kwee-Seong Integrated Biomedical Sciences Building, The Chinese University of Hong Kong, Area 39, Shatin, New Territories, Hong Kong SAR, China

Objectives: This study investigated the circumvention of gefitinib- or osimertinib- resistance in non- small cell lung cancer (NSCLC) treatment by repurposing clinically approved drugs using biological network analysis.

Methods: Gene signature of gefitinib- or osimertinib- resistant NSCLC were retrieved from Gene Expression Omnibus (GEO) database, which were then input into L1000 Characteristic Direction Signature Search (L1000CDS2) web tool to compute a list of chemical compounds (perturbations) that may reverse gene expression change in EGFR TKI-resistant cells. Pharmacokinetic properties of these perturbations were compared by SwissADME web tool. Sulforhodamine B assay was performed to evaluate the cell proliferation of gefitinib/ osimertinib-sensitive or resistant NSCLC cell lines after the drug treatment. Median effect analysis was conducted to evaluate the drug combination effect (i.e., synergism, antagonism, or additive effect). Annexin V apoptosis assay and Western Blot Analysis were carried out to investigate the mechanism(s) contributing to resistance circumvention.

Results: Quinacrine, trichostatin A, vorinostat, trametinib, selumetinib, palbociclib were shortlisted for detailed investigation in our study. In gefitinib-resistant NSCLC cell line (H1975), quinacrine, trichostatin A, and vorinostat were shown to potentiate the anticancer activity of gefitinib to different extent. Interestingly, gefitinib-resistant H1975 cells also exhibited MEK hyperactivation. Therefore, the two shortlisted MEK inhibitors (trametinib and selumetinib) could not overcome gefitinib resistance in H1975 cells. In osimertinib-resistant NSCLC cell line (H1975-OsiR), trichostatin A and palbociclib were found to potentiate the anticancer effect of osimertinib. Further studies demonstrated that quinacrine enhanced gefitinib-mediated apoptosis in H1975 cells by inhibiting EGFR downstream signaling molecules (ERK and Akt) and the anti-apoptotic protein (Bcl-2).

Conclusions: Quinacrine, an antimalarial drug for prophylaxis or treatment of active infection, was identified as a potential repurposed drug candidate capable of overcoming gefitinib resistance in EGFR T790M-mutated NSCLC. Quinacrine has been clinically used for decades with well-established safety profile, and its tolerability in combination with other chemotherapeutics was investigated in several clinical trials. Future animal work is warranted to ascertain its usefulness in circumventing gefitinib resistance, which could pave the way for clinical translation.

Ab35
Evaluation of the Medication Delivery Service of the Hospital Authority of Hong Kong: A Cross-Sectional Study

SO, Yi-ting[1]; TANG, Yi-chung[1]; LAM, Ho-tak[2]; YIU, Sui-ki[2]; LAM, Tai-ning[1]
[1] School of Pharmacy, The Chinese University of Hong Kong, Hong Kong
[2] Chief Pharmacist's Office, Hospital Authority, Hong Kong

Objectives: This cross-sectional study aimed to review the Hospital Authority Medication Delivery Service by investigating service users' satisfaction levels, reasons associated with service use, and suggestions from users and non-users. This study also sought to investigate factors possibly affecting satisfaction levels as well as the likelihood of service use, and make corresponding recommendations based on the strengths and limitations identified.

Methods: Service users and non-users were invited to participate in telephone surveys and in-person surveys respectively. The users' satisfaction levels were collected through 13 Likert questions on a 1 – 10-point scale, while reasons for service use and suggestions were collected through open-ended questions. Moreover, the demographics of users and non-users were compared, and regression analysis was used to investigate predictive factors of satisfaction levels and service use.

Results: 404 users and 450 non-users participated in the surveys. Users were generally satisfied with the Service (M = 80.34%, SD = 10.11%), and the Pharmacist Medication Counselling Service received the highest score (M = 8.88, SD = 1.88) yet had a low utilization rate (15.8%). A higher satisfaction level was predicted by older age and the Hong Kong West Cluster ($F(2, 384) = 521.282$, $p = .005$). Service use was significantly predicted by demographics including younger age, females, higher education levels, and the use of private vehicles. Recommendations on the Service include diversifying promotion channels, emphasizing the Pharmacist Medication Counselling Service, enhance service support, and provide flexibility in service charge.

Conclusions: The Service was generally well perceived. Some areas of the Service, such as the Pharmacist Medication Counselling Service, are worth exploring to further enhance patients' experiences and health outcomes.

Ab36
Development of Nano-in-Microparticle Nasal Powder Formulations for Alzheimer's Disease Treatment via Nose-to-Brain Drug Delivery

LUK, Chun-wing[1]; CHAN, Ho-wan[1]; CHOW, Shing-fung[1,2]
[1] Department of Pharmacology and Pharmacy, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Pokfulam, Hong Kong SAR, China
[2] Advanced Biomedical Instrumentation Centre, Hong Kong Science Park, Shatin, Hong Kong SAR, China

Objectives: There is a pressing need to develop efficacious medications to halt Alzheimer's disease (AD) progression. Nose-to-brain drug delivery has attracted significant attention in circumventing the hurdle of the blood-brain barrier in delivering neurotherapeutics into the brain. Co-delivery of sildenafil (SIL) and curcumin (CUR) could exert a synergistic effect in arresting β-amyloid and tau-driven AD progression. This study aimed to develop SIL-CUR nano-in-microparticle (NiM) nasal powder formulations for AD treatment via nose-to-brain drug delivery.

Methods: SIL-CUR nanosuspensions were fabricated by flash nanoprecipitation using a multi-inlet vortex mixer. The z-average particle size (d_Z) and polydispersity index (PDI) of nanosuspensions were measured by dynamic light scattering (DLS) as a function of time to monitor their physical stability. NiM powder formulations were prepared by co-spray-drying nanosuspensions with protectants (mannitol ± leucine) at varied nitrogen gas flow rates. The aqueous redispersibility and in vitro nasal deposition profile of NiM powder formulations were evaluated by DLS and an Alberta Idealised Nasal Inlet coupled to a Next Generation Impactor, respectively.

Results: The d_Z, PDI, and maintained colloidal stability of SIL-CUR nanosuspensions were 84.85 ± 2.21 nm, 0.226 ± 0.012, and >6 hours, respectively, presenting suitable physicochemical properties for spray drying. The NiM powder formulations demonstrated a satisfactory in vitro nasal deposition profile with a high emitted fraction (>95%) and significant deposition in the olfactory region of the nasal cavity (~20 – 40%) but displayed poor redispersibility. Incorporating leucine in the formulation and nitrogen gas flow rate had statistically significant effects on the redispersibility index but not on the olfactory region deposition fraction of NiM powder formulations.

Conclusions: SIL-CUR NiM formulations demonstrated satisfactory olfactory region deposition profiles for nose-to-brain drug delivery, suggesting its therapeutic potential for AD treatment. Alternative formulation approaches or particle engineering techniques should be explored to improve the aqueous redispersibility of the formulations.

Ab37

The Use of Health Preference Methods for the Valuation of the Chinese Short Warwick Edinburgh Mental Well-being scale

CHOW Ling-hin[1]

[1] Department of Pharmacology and Pharmacy, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Pokfulam, Hong Kong SAR, China

Aims: To explore the feasibility and identify the usability problems of using composite time trade-off (C-TTO) and discrete choice experiment (DCE) methods to value mental well-being states of the Chinese Short Warwick–Edinburgh Mental Well–being Scale (C-SWEMWBS) in Hong Kong, and to explore the potential cultural differences of participants interpreting and performing the valuation tasks between Hong Kong and the United Kingdom.

Methods: Eighteen think-aloud interviews were performed in Hong Kong with concurrent and retrospective think-aloud techniques. Participants were asked to perform five C-TTO and five DCE tasks with tailor-made C-SWEMWBS states. Then, the transcripts were transcribed verbatim and translated into English. Lastly, thematic analysis was performed inductively and deductively.

Results: Five themes were generated: (1) Design and structure of the interview, (2) Usability of the valuation tasks, (3) Interpretation of items and response categories, (4) Influences of participants' interpretation of states, (5) Lifetime responses in C-TTO

Conclusions: C-TTO and DCE designed in this study are feasible in Hong Kong and the interpretation and valuation outcomes can be affected by cultural factors locally. Future research can investigate the relationship between cultural factors and derivation of the Mental Well-being Adjusted Life Years by these two valuation methods quantitatively.

Ab38

The Prevalence of Use of Fall-Risk Increasing Drugs and Associations with Fall Events

SER, Ho-ying[1]**; TAM, Kwok-kwan**[2]

[1] United Christian Hospital, Hong Kong Special Administrative Region

[2] School of Pharmacy, Faculty of Medicine, The Chinese University of Hong Kong

Background: Falls in the elderly may cause serious injury that reduces their quality of life and increases the expenditure of the public health care system. They often result from different risks, and one of the prominent risk factors is the use of inappropriate medications.

Objectives: To investigate the prevalence of use of fall-risk increasing drugs (FRIDs) and their associations with incidence of falls in older patients.

Study design: Ambulatory patients aged 65 years or older with fall history are included and matched with those without fall history for matched case-control analysis. Their demographics characteristics and half-a-year medication chart prior to the fall incident are investigated. Relative risk of falls resulting from each FRID use will be reported.

Results: Antiepileptics, gabapentin and pregabalin, were found to increase fall risk with statistical significance. Medication-related fall risk was more prevalent in younger elderly. Tamsulosin, quetiapine, tramadol and anti-dementia medications were identified to increase fall risk with marginal significance. Contradictory result was obtained for antihistamines. Polypharmacy was proven to be associated with fall risks. Such a risk was quantified and found increasing with the number of drugs taking in general.

Conclusion: Prescribers are suggested to cautiously prescribe FRIDs to elderly, especially when prescribing for young elderly. Tramadol should be prescribed prior to GABA-antagonists in non-cancer pain management. Short term use of first-generation antihistamine is considered safe among elderly. Necessary discontinuation of FRIDs and deprescribing can be done to minimise fall risk.

Ab39

Safety and Effectiveness of Oral Anticoagulant Use in Peritoneal Dialysis Patients with Atrial Fibrillation or Atrial Flutter in Hong Kong: A Retrospective Observational Study

LAM, TY Crystal[1]; CHENG, WT Franco[1]

[1] Department of Pharmacology and Pharmacy, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Pokfulam, Hong Kong SAR, China

Introduction: Atrial fibrillation (AF) and atrial flutter (AFL) are common conditions among end-stage kidney disease patients. The guideline suggests long-term anticoagulation in the general population for the prevention of stroke but limited clinical evidence in the peritoneal dialysis (PD) population. This study aims to evaluate the safety and effectiveness of OAC use in PD.

Methods: This study is a retrospective observational study. The study includes patients who are newly diagnosed with AF who were dispensed PD fluid from 2007 to 2022 with or without oral anticoagulation. Propensity score weighting was performed to balance covariates and Cox regression analysis was performed. The primary outcomes were stroke or systemic embolism (SE), bleeding and stroke. The secondary outcomes were ischemic stroke, haemorrhagic stroke, transient ischemic attacks (TIA), SE and gastrointestinal (GI) bleeding.

Results: There were 110 OAC users and 610 OAC non-users. OAC use is associated with an increased risk of stroke or SE. However, it did not result in any increased or reduced risk of bleeding or mortality. The risk of haemorrhagic stroke, TIA, and SE increased in OAC users. No difference in the risk of GI bleeding between the two groups.

Conclusion: The benefits of OACs in PD patients are unclear but OAC use increases the risk of stroke or SE.