HONG KONG PHARMACEUTICAL JOURNAL

VOL 30 NO 1 Jan - Apr 2023 ISSN 1727-2874

Hong Kong Pharmacy Conference 2023

18 – 19 February 2023

BEYOND OUR BELIEF

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 Kong

Vol. 30 Supplement 1
Jan - Apr 2023

Welcoming Message

Dear Colleagues,

On behalf of the Organizing Committee, I have the honour to welcoming you to Hong Kong Pharmacy Conference 2023 on 18th – 19th February 2023 at the Hong Kong Convention and Exhibition Centre.

Since early 2020, the COVID-19 pandemic has impacted many of our lives, locally and globally. At the same time, ageing population and its apparent impact to our society remains a major concern across healthcare disciplines. This crisis impacts on healthcare operations, poses new challenges on service delivery, yet it created great opportunities – under the "new normal", many of the challenges turned to driving forces that transform how we provide clinical services. Pharmacists, as core member of the healthcare community, uphold the belief that the profession should strive to be the main driving forces for the betterment of our healthcare system. Indeed, the profession have embraced the daunting challenge amidst the pandemic. Many of us have walked the extra miles and went beyond limit in pursuit of excellence. Inspired by this, the upcoming conference will have the theme title: "Beyond Our Belief" to signify this important era. We hope this conference could provide a platform for the profession to share experiences and lessons learnt, to discuss the challenges ahead, and share wisdoms on how we keep up with continuum of sustaining and advancing pharmaceutical care.

Programme Day 1 will see key opinion leaders to address us on the challenges and opportunities during the COVID-19 pandemic, how it turns into driving force of our future pharmaceutical care, and what pharmacists could do to contribute as a key player in primary and secondary healthcare services. Programme Day 2 would be structured into three unique concurrent streams, namely Clinical Pharmacy Excellence, Advances in Pharmacy Practice, and New Technology & Innovation. Prominent profession leaders would be sharing their success experience on various clinical pharmacy services, the setting up of impactful practice models that helped advancing practice, as well as cutting edge healthcare technologies such as telehealth, eHealth, and smart hospital. There will also be a summit plenary that brings together some of our visionary leaders.

This year, we are hosting our first-ever HYBRID conference, such that participants are welcomed to join either in person to support our colleagues at HKCEC or online - We are excited to announce the launch of our new virtual event platform. The platform contains online conference features including live-stream video webinars, engagement features, e-Posters, virtual booths, etc., with an aim to provide attendees with a refreshing conference experience.

We hope it would be an inspiring and eye-opening event for the pharmacy profession and sincerely look forward to greeting you at the conference.

Yours Sincerely,

Mr. Johnny Sze Ho Wong
Chairman, Organizing Committee
Hong Kong Pharmacy Conference 2023

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Theme Speech 1
The Challenges and Opportunities of Pharmaceutical Care of HA during COVID-19 Pandemics

LEE, Benjamin
Chief Pharmacist, Hospital Authority, Hong Kong

The Hospital Authority (HA) is the statutory body responsible for the major public healthcare services in Hong Kong. HA provides extensive specialist as well as general out-patient services, and takes up about 90% of in-patient needs in the territory. Amidst the heavy service burden attributable mainly to the ageing demography, chronic diseases prevalence and increasing staff attrition, the COVID-19 pandemic since early 2020 has posed extraordinary challenges to HA for decades.

The training of pharmacists comprises pharmaceutical sciences, drug knowledge, dispensing skills and, most important amongst all, the application of the afore-mentioned knowhow in clinical patient care. The pharmacy services team of HA was tasked with different projects right from the beginning of our more than 3-years fight against the pandemic. When faced with the uncertainty and fluctuations in the pandemic development, our pharmacy colleagues have established a cohesive workforce utilizing their pharmaceutical knowledge base, individuals' wisdoms and proficiency in pharmaceutical care skill set to serve the public of Hong Kong. The spectrum of pharmacy services spans from the handling and dispensing of the special COVID-19 vaccines in community vaccination centres to home delivery of antivirals coupled with tele-pharmacy by pharmacists. All were highly demanding tasks which very often had to be accomplished within a short period of time. The pandemic experience has brought pharmacy services in HA to new heights and has opened up new opportunities for service developments.

Theme Speech 2
The Driving Forces Behind the COVID Emergency — The Nightingale Hospital

HARCHOWAL, Jatinder
Chief Pharmacist, University College London Hospitals NHS Foundation Trust, UK

Abstract is not available

Theme Speech 3
Reflecting on COVID Pandemic: The Challenges of Clinical Pharmacy Development in Australia

DOOLEY, Michael
Director of Pharmacy, Alfred Health, Australia

Throughout most of the last three years we have all experienced the many challenges presented by the COVID-19. The pandemic has required us to broaden our thinking and to harness the creativity that exists to develop and adopt solutions to the many problems faced.

The healthcare workforce has been incredibly adaptive during this time to create greater capability and capacity to meet the challenges of the pandemic. This is evident across so many components of the services provided from the adoption of technology through to the expansion in scope of practice of many practitioners and the educational programs supporting this innovation.

We have seen rapid and widespread adoption of digital health that has reformed not only direct patient facing services but also communication and educational initiatives to support this innovation. News models of care have been implemented, sometimes overnight, which would not have been possible without digital health transformation. Much has been achieved but we must continue to critically evaluate the impacts of these changes much more broadly than short term outcomes of those patient populations that have benefit from this innovations.

Practitioners have experienced significant changes to how information in accessed and delivered across many different platforms and forums. As important, has been the need to change the delivery of education programs for undergraduate and postgraduate programs and there has been many examples of the successful integration of digital and education innovation.

Theme Speech 4
Pharmacist Service: A Crucial Piece in Primary Healthcare Development

LAM, David
The Elected Legislative, Council Member for Medical and Health Services, Hong Kong

Primary Healthcare Development opens up a window for the development for Clinical pharmacists in the community. In fact it is a very much needed service.

For decades, doctors in the community are lone practitioners without support from professional peers. We hope to see the establishment of a Community Healthcare Network (CHN) whereby doctors, nurses, dentists, pharmacists, Chinese Medical Practitioners, physiotherapists, psychologists, dietitians and others joining through an online platform to provide multi-disciplinary healthcare services to our patients in the community.

Pharmacists shall provide services related to prescription, drug use counselling, education and advice to the public. Cooperation with HA and offloading a significant proportion of prescriptions to the community will likely form the bulk of the Pharmacists' services. Service targets will be individual members of the community and residents of RCHE. A revamped financing model that ensures cost neutrality or reduction of payment out of pocket will be essential for success of any such development.

Concurrent Session I: Clinical Pharmacy Excellence
The Partnered Charting Model for Clinical Ward Pharmacy Services

TONG, Erica
Deputy Director, Department of Pharmacy, Alfred Health, Australia

This presentation will focus on the development and implementation of a partnered pharmacist medication charting model (PPMC) in the General Medical Unit and Emergency Short Stay Unit, initially in one tertiary teaching hospital in Melbourne, Australia. The model is a collaborative pharmacist prescribing model.

It will also explore the expansion of the PPMC model to seven sites across Victoria with the support of the Victorian Department of Health and Human Services (DHHS). Approximately 9000 patients were recruited over the study period with significant changes to the delivery of pharmacy services to general medical units made across the seven sites. This landmark study demonstrated that the partnered pharmacist charting model not only reduced medication errors but also reduced in-hospital length of stay. This is the largest study of this type internationally that has shown a reduction in length of stay of this magnitude.

The model has now been implemented in many major teaching hospitals in Victoria and other states across Australia, and was funded by the Victorian Health Department for expansion into other clinical settings including Oncology and rural and regional settings. The model has been externally evaluated and demonstrated major improvements in patient care.

Concurrent Session I: Clinical Pharmacy Excellence
How to Set Up a Congestive Heart Failure Clinic in UIC

HELLENBART, Erika
Clinical Assistant Professor, College of Pharmacy, University of Illinois Chicago, USA

Multiple studies have shown that clinical pharmacists, either alone or as part of a multi-disciplinary team can improve the achievement of target doses of heart failure (HF) guideline-directed medical therapy and HF hospitalizations. As such, guidelines recommend pharmacists be involved in the multi-disciplinary heart failure team. This presentation will review the components necessary for effective medication management and discuss the steps required when developing a chronic disease state management clinic. The development of the University of Illinois Health System HF PharmD Titration Clinic will be used as an example, but information provided can be applied to other chronic disease medication management clinics. Over recent years, telehealth visits have increased, which have identified some specific challenges. This presentation will briefly discuss some of the challenges of remote patient monitoring and review potential solutions.

Concurrent Session I: Clinical Pharmacy Excellence
The Clinical Pearls of Oncology and Haematology 2023

FOREMAN, Emma
Consultant Pharmacist, The Royal Marsden NHS Foundation Trust, UK

The landscape of oncology and haematology is rapidly changing. Advances in molecular diagnostics and genetic profiling of tumours we are learning more and more about the cell signalling pathways that drive cancer cells to proliferate and survive, and also how cancers interact with the immune system. This has resulted in an explosion of new targeted treatments and immunotherapies for cancers of all types with more and more new cancer medicines licensed each year. Emma will give you a tour of some of these new treatment modalities and the role of the oncology pharmacist in optimising their use.

Concurrent Session I: Clinical Pharmacy Excellence
The New Paradigm of the Treatment of Metastatic Colorectal Cancer

CHENG, Ashley
Clinical Director of Oncology, CUHK Medical Centre, Hong Kong

Advances in breast and lung cancer drug treatments have made significant progress in recent years. Such cancer patents have benefit from those treatments with enhanced quality of life. However, in metastatic colorectal cancer (mCRC), new innovative efficacious drug treatment with manageable side effects is lacking.

With the advancement in vascular endothelial growth factor receptor (VEGFR) development, there is new light sheds on availability of drug treatment with acceptable outcome and safety profile.

In the past, new innovative drug treatments are from the western R&D pharma companies. Recent release of the FRESCO II study results on Fruquintinib in mCRC has demonstrated the R&D standard of new innovative drugs in Mainland China can stand for challenges, and the quality of clinical study done in Mainland China can reach international quality as well.

Clinical study is done under a controlled environment. Whether the innovative drug can deliver the benefit in real world use is important. Two cases will be shared, and it does offer hope to mCRC patients when 3rd line+ therapy is required.

In the very near future, oncologists will have more choices to select for cancer patients, particularly for mCRC patients, as Mainland's pharma companies have engaged in R&D in new innovative biological treatments and have attained international standards in clinical trials and data presentation.

Concurrent Session I: Clinical Pharmacy Excellence
The Clinical Pearls of Paediatric Pharmacotherapy 2023

PHAM, Jennifer
Clinical Associate Professor, College of Pharmacy, University of Illinois Chicago, USA

Intestinal failure caused by short bowel syndrome (SBS) is a challenging and complicated medical condition that results in significant malabsorption of fluids and nutrients necessitating the use of parenteral nutrition support to sustain adequate growth, hydration and survival. Many of these require lifelong parenteral nutrition while others will go on to require intestinal transplantation. Long-term parenteral nutrition support can cause several complications including intestinal failure associated liver disease, metabolic bone disease, infections, and micronutrient deficiencies. Newer intravenous fat emulsions have shown to prevent and treat parenteral nutrition associated liver disease in infants with intestinal failure. The goal for pediatric SBS patients is intestinal adaptation. Teduglutide, a recombinant analog of glucagon-like peptide-2 (GLP-2), has recently been approved for use in pediatric SBS patients as a novel agent to augment intestinal adaptation. Recent studies have reported teduglutide to be safe and effective in reduction of the need for parenteral nutrition in pediatric patients with SBS.

Concurrent Session I: Clinical Pharmacy Excellence
The Development of Intensive Care Pharmacy Service at a Local Teaching Hospital in Hong Kong

MAK, Raymond
Senior Pharmacist, Queen Mary Hospital, Hong Kong

Hospital pharmacy services in Hong Kong had greatly evolved in the past couple of decades since the millennium year. Pharmacist provision of clinical pharmacy services on wards had grown from a scarce presence to a diversity of clinical specialties, from the busy Medical and Surgical Admission Wards, to the complicated General Paediatrics Ward, Paediatrics and Neonatal Intensive Care Unit, and Haematology and Oncology Wards. To date, Adult Intensive Care Units in Hong Kong remain a realm that is infrequently served by clinical pharmacist. In fact, within the Hospital Authority, there has been only one and the very first successful breakthrough so far in manpower bid in 2022.

It is hoped that similar seeds of service may be planted and flourish elsewhere. In this talk, how the clinical pharmacy service to Adult Intensive Care Unit at a local teaching hospital was conceived and developed will be described. The duties that were expected from pharmacists and a glimpse of examples of our activities and input on the unit will be given. The experience and how it felt to be an Adult Intensive Care Unit Pharmacist will be shared. Importantly, the elements that are thought to be necessary for a successful service development will be discussed.

Concurrent Session I: Clinical Pharmacy Excellence
The Development of Clinical Pharmacy Services in HA: Past, Present and Future

LEUNG, Wilson
Clinical Stream Coordinator (Pharmacy), Kowloon Central Cluster, Hospital Authority, Hong Kong

Over the last 20 years, clinical pharmacy has been rapidly evolving in public hospitals in different clinical specialties, particularly in paediatrics, oncology and internal medicine. Clinical pharmacists have become an integral member of the clinical team to provide pharmaceutical care in paediatric and neonatal ICU as well as in general paediatric wards. In oncology, pharmacists have established their unique role in clinical screening of and patient counselling on chemotherapy prescriptions. Success of this service model has resulted in its roll-out to haematology in phases.

Over the last few years, the development of clinical pharmacy in internal medicine has taken a great step forward in HA. In the inpatient setting, pharmacists are increasingly involved in provision of medication reconciliation at transition of care, facilitation of discharge prescriptions and discharge medication counselling. In the specialist outpatients setting, protocol-based, integrated care pharmacist clinics are being established, starting from anticoagulation and gradually expanding to management of other stable patients with various chronic diseases. Apart from enhancing service quality and improving patient experience, clinical pharmacists can spare doctors' and nurses' time and enable them to focus on medical and nursing care.

Looking ahead, the escalating healthcare demand, ongoing manpower shortage of doctors and nurses, growing number of HA pharmacists who have completed specialised training, and the increasing organizational buy-in would continue to be driving forces of the continual clinical pharmacy development in public hospitals. Given the long SOPD waiting time for new case booking and access block to hospital beds, clinical pharmacy has been viewed as a strategy to increase HA's capacity to tackle the increasing service demand. Lastly, the ongoing development of personalized medicines, telehealth and big-data analytics, etc. would be expected to reshape clinical pharmacy service provision in HA in the years to come.

Concurrent Session II: Advances in Pharmacy Practice
Reshaping the Future of Pharmacy Practice and Education for NCD - A Patient-Centered Perspective

ZHOU, Keary
Senior Lecturer, School of Pharmacy, The Chinese University of Hong Kong, Hong Kong

Similar to many developed countries/regions of the world, NCDs such as cardiovascular diseases, cancers, diabetes and chronic respiratory diseases, represent the leading public health problems in Hong Kong. To address these emerging needs at a regional level, the FHB has initiated the "Towards 2025 Strategy and Action Plan to Prevent and Control Non-communicable Diseases in Hong Kong". To highlight, the steering committee specifically emphasized on achieving disease prevention "through drug therapy and counselling" as one of the 9 targets of this action plan.

Reviewing patient feedbacks and common enquires is one of the most practical ways to examine the inadequacies of the current healthcare system in addressing patients' chronic medications and lifestyle concerns. Strategies to enhance training and establish transdisciplinary partnership with other HCPs are needed to better equip pharmacists in addressing these aspects of care. This presentation will provide a brief overview of the community prevention programs in other countries, and put forward directions on how to leverage the important roles that pharmacists in Hong Kong play in NCD prevention and control.

Concurrent Session II: Advances in Pharmacy Practice
Adult Vaccination in the Time of Covid-19 - A Pharmacist Perspective

PAPASTERGIOU, John
Assistant Professor, Leslie Dan Faculty of Pharmacy, University of Toronto, Canada

The presentation is intended to explore strategies for implementing immunization programs in community pharmacy. Evidence highlighting the success of pharmacist-directed vaccination will be presented. The program will tackle some of the unique barriers presented during the pandemic and explore the role that the pharmacist played during mass Covid-19 immunization. Finally, expansion of pharmacy scope that has occurred as a result of the opportunities created by successful immunization programs during the global pandemic will be discussed.

1. Understand the role of the pharmacist in vaccination
2. Review the evidence that supports the value of pharmacist-directed immunization.
3. Overcome barriers to offering routine immunization in a pandemic environment
4. Explore the pharmacist role in mass vaccination against Covid-19

Concurrent Session II: Advances in Pharmacy Practice
Independent Prescribing in Primary Setting: The UK Perspective

LEUNG, Alex
Head, Travel Medicine and Allergy Services, Acre and Acrefield Surgery, UK

Abstract is not available

Concurrent Session II: Advances in Pharmacy Practice
The Updates of COVID Treatment

HUNG, Ivan
Ru Chien & Helen Lieh Professorship in Health Science Pedagogy, Department of Medicine, LKS Faculty of Medicine, The University of Hong Kong, Hong Kong

Abstract is not available

Concurrent Session II: Advances in Pharmacy Practice
New Service Models in the Community during COVID

CHIANG, Sau-chu
Chairman, Hong Kong Pharmaceutical Care Foundation, Hong Kong

The three-year long Covid outbreak has immensely impacted the normal living of the global population and Hong Kong is no exception. The young, old particularly those with chronic diseases, those elderlies who normally reside in the Guangzhou Province but return to Hong Kong for their normal medical follow ups and obtain their medications, those living in the suburban areas all suffered as their found they could no longer adhere to their routines to obtain their supplies medications as they could no longer travel freely either within Hong Kong or across the border.

These crisis of having interruptions in the supplies of the medications to the patients presented threats to the patients but they also are seen as opportunities to the Hong Kong Pharmaceutical Care Foundation as their pharmacists were able to organize themselves to introduce new several community projects such as the Community Interim Medication Supply, the Community Outreach Project on Medication Management which are innovative and timely calling upon the professional input from the pharmacists to address the urgent needs of the concerned groups.

In this conference session, Ms. Chiang, as the Chairman of the Hong Kong Pharmaceutical Care Foundation, will share the challenges encountered in these community projects which were widely reported in the press as these initiatives are truly new service models which have brought immediate benefits to the community during Covid times but more importantly, have set examples about how pharmacists can play their roles and functions to exert their influence in the primary care health service.

Concurrent Session II: Advances in Pharmacy Practice
From Hospital to Community: The Continuity of Pharmaceutical Care for the High Risk Patient at Discharge

CHEN, Timothy
Head of Pharmacy Practice and Health Services Research, School of Pharmacy, University of Sydney, Australia

Continuity of care as patients are discharged from hospital to home has long been considered a high-risk situation for medication misadventure. This risk is likely increased for patients who: have had one or more changes to their medication regimen whilst in hospital; are taking high-risk medicines (e.g., falls risk increasing medicines, anticoagulant medicines, medicines with anticholinergic and or sedative effects); have been prescribed multiple medicines, often for multi-morbidity (i.e. 5 or more chronic medicines); have cognitive impairment and or reduced literacy, dexterity, mobility amongst other patient or medicine factors. In addition, system-related factors can also contribute to dis-continuity of care. These may include but are not limited to: hospitals and community (primary care) operating under different health jurisdictions; limited interoperability of digital health systems between hospital and community settings; absence or limited professional clarity about roles and responsibilities when patients are discharged – including follow-up; limited or fragmented communication pathways; general quality and timeliness of the effective transfer of "discharge" (handover) summary information to health care professionals practising in primary care, amongst other system factors. The aim of this presentation is therefore to discussion key considerations and strategies for the effective delivery of continuity of pharmaceutical care as patients are discharged from hospital to home, from both a patient and medicine level, to a broader health system level. Effective strategies could include timely post-discharge medication review involving input from both hospital and primary care health care professionals, with system level support to facilitate the delivery of person-centred care. Although this approach may sound simple, it is rarely achieved. Conversely, successful implementation of a well-designed multi-faceted intervention has the potential to reduce the chance of medication misadventure at care transitions.

Concurrent Session II: Advances in Pharmacy Practice
The Pharmacovigilance of Vaccine in Hong Kong

CHAN, Esther
Associate Professor, Department of Pharmacology and Pharmacy, The University of Hong Kong, Hong Kong

Since the start of the COVID-19 pandemic, Hong Kong has become a hub for quality COVID-19 vaccine research. Hong Kong was one of the few jurisdictions globally that approved the emergency use of COVID-19 vaccines from two different technology platforms in early 2021 and were made available to Hong Kong citizens through a public mass vaccination programme. The linked databases of the Hong Kong Hospital Authority and the Department of Health allowed for research on the safety and effectiveness of two COVID-19 vaccine platforms to be undertaken.

Among the research undertaken, study findings on several COVID-19 vaccine studies using data from Hong Kong will be presented: our first COVID-19 vaccine safety paper on the risk of Bell's palsy following COVID-19 vaccinations, which led to an addition to the vaccine package insert and Department of Health consumer information leaflets regarding an adverse reaction of Bell's Palsy observed post-authorization in Hong Kong; an intensive active surveillance programme on the self-reported reactogenicity of vaccine recipients since the launch of mass vaccination programme; two case-control studies to evaluate the risk of severe complications and mortality following 1-3 doses of CoronaVac and BioNTech/Comirnaty and on the effectiveness of two vaccines among patients with diabetes mellitus in Hong Kong. Together, these findings have attracted significant media attention and has contributed to informed vaccination decisions in the general public and vulnerable populations.

Concurrent Session III: New Technology & Innovation
The Telepharmacy Era is Just Beginning

CHAN, Amy
Senior Pharmacist, Queen Mary Hospital, Hong Kong

The World Health Organization (WHO) defines telehealth as "the delivery of healthcare services, where patients and providers are separated by distance. Telehealth uses information communication technology for the exchange of information for the diagnosis and treatment of diseases and injuries, research and evaluation, and for the continuing education of health professionals".

With the advancement of technology over the past decade, telehealth services have been widely applied in many countries. The outbreak of the Coronavirus Disease 2019 (COVID-19) pandemic in recent years has provided the catalyst for the expansion of telehealth service usage around the world.

In Hong Kong, with the support of the Government and healthcare service providers, the usage of telehealth services has increased substantially and is accepted by the public. However, a sustainable development of telehealth service is greatly dependent on "Telepharmacy" and "Medication Delivery" services. "Telepharmacy" is provision of pharmaceutical care by clinical pharmacists to patients through the use of telecommunication technology. It provides comprehensive medication management and enhances therapeutic outcome of patients. "Medication Delivery" provides seamless care for patients using Tele-consultation, so that medications can be dispatched directly from the hospital to patients' home. An accessible, effective and safe medication delivery is essential to close the loop of a patient's virtual journey.

During this session, we will have an overview of the Telepharmacy service in terms of its scope and development trend in the hospital sector of Hong Kong, followed by key guidance on the implementation of medication delivery services. In addition, the Telepharmacy experiences and smart initiatives of Queen Mary Hospital Pharmacy will be shared, as the team has been proactive in developing the Telepharmacy services over recent years.

Concurrent Session III: New Technology & Innovation
Personalised CARDIovascular Risk Assessment for Chinese (P-CARDIAC): A Cardiovascular Disease Risk Prediction Model

CHUI, Celine
Assistant Professor, School of Nursing and School of Public Health, The University of Hong Kong, Hong Kong

Cardiovascular diseases (CVD), including coronary heart disease and stroke, are the most common fatal non-communicable disease globally and responsible for an estimated 18.6 million deaths in 2019. A key component for CVD prevention and treatment involves strengthening the health system, including provision of comprehensive primary care for prevention, early detection, and management of CVD. Assessment of CVD risk is a pivotal step in CVD prevention to inform the introduction or adjustment of risk-reducing strategies. Clinical guidelines suggested the use of risk prediction model on patients with established CVD would benefit for recurrent CVD prevention. Existing popular risk predictions, such as TIMI and SMART2, were developed on the multi-ethnicity's cohorts and standard statistical modelling for building a points system in clinical use. However, previous research demonstrated that their estimated results and performance among Asians were relatively poor comparing with that among Caucasians. Besides, standard statistical modelling is unable to cope with a wide array of variables which could be time-varying as concurrent medications affect risk for recurrent CVD. Therefore, developing a risk prediction algorithm based on Machine Learning (ML) with dynamic time -varying variables and the impact of lipid-lowering therapies for clinical use is needed to address this issue and reduce the healthcare burden among Chinese.

Concurrent Session III: New Technology & Innovation
The SMART Pharmaceutical Care of HA

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To keep up with the rising service volume and for long-term sustainability, Hospital Authority, in its strategic plan for 2022-2027, set out corporate directions and strategies for developing smart hospitals to enable the provision of smart patient care connecting people, processes and services. Along with the organisation fulfilling its service direction to improve patient experience, HA pharmacy must re-invent and re-orientate our service models to go SMART.

In the past few years, the pandemic has caused significant changes to patient behaviour and expectation that fuels HA pharmacy to provide pharmaceutical care in a SMART way. Given the changes, there is an emphasis on a need for HA pharmacists to take on new roles within the healthcare team and its pharmacy service to be more flexible, more joined up and more proactive in the full range of healthcare settings.

During the presentation, HA's latest pharmacy development and some smart initiatives going mainstream across the corporate will be shared with the audience.

Concurrent Session III: New Technology & Innovation
JAK Inhibitors: What is New in Rheumatology?

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Since the launch of biological therapies two decades ago, the treatment landscape in rheumatic diseases has changed dramatically. With the aid of biological therapies, treat-to-target has become a realistic approach for patients in achieving remission or low disease activity. However, there are still limitations, such as immunogenicity and needle injection. Also there is still a proportion of patients who do not achieve remission or low disease activity despite the treatment of biological therapies. Hence, newer treatment options are needed.

In recent years, the treatment of rheumatic diseases is now entering a new era, the era of JAK inhibitors. Janus kinase (JAK) inhibitors are the latest drug class of anti-rheumatic drug for the treatment of several rheumatic diseases. JAK inhibitors are low-molecular-weight compounds, which exert anti-rheumatic effects by suppressing the action of JAK, an intracellular tyrosine kinase. Tofacitinib, baricitinib and upadacitinib are the first 3 JAK inhibitors to become commercially available in Hong Kong. Their applications cover the top 3 rheumatic diseases we often encounter in clinics, which are rheumatoid arthritis (RA), psoriatic arthritis (PsA), and ankylosing spondylitis (AS).

To date, JAK inhibitors demonstrated comparable efficacy to tumour necrosis factor (TNF) inhibitors in terms of proportion of patients achieving remission or the inhibition of radiographic progression. Several head-to-head studies have been conducted recently comparing the efficacy and safety between JAK inhibitors and adalimumab, the current golden standard.

The recent European guidelines on RA, AS and PsA also suggested JAK inhibitors could be positioned alongside biological therapies. That allows physicians to have more options and flexibility in treating rheumatic diseases.

Lastly, the safety profile of JAK inhibitors would be discussed. The findings of the recent ORAL-Surveillance study on tofacitinib suggested JAK inhibitors may have higher risk of major adverse cardiovascular events (MACE) comparing to adalimumab in high-risk population. MACE is a multifactorial condition for patients with rheumatic diseases. A deeper discussion would be included on the risk factors of MACE. Also, safety data from another JAK inhibitors, upadacitinib, would be discussed to provide another angle whether it is class effect or should be seen individually.

Concurrent Session III: New Technology & Innovation
Meeting the Challenges in Modern Hospital Practice with Pharmacy Informatics: Opportunities and Challenges

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Modern pharmacy practice is full of challenges. Hospital management and pharmacy leaders are all looking for solutions to tackle such challenges and achieve the goal of safeguarding medication safety and quality of service and managing ever mounting healthcare cost at the same time. Closed loop medication management, automation, pharmacy technologies, digitalization, etc. have been well recognized as the key building blocks of a modern hospital pharmacy taking into consideration the complexity in operational needs, complicated medication management processes, incomplete or inadequate access to drug use information, drug supply & logistics complications, etc. In this session, the experience of implementing Pharmacy Informatics in a new private teaching hospital in Hong Kong for better medication management would be shared.

CUHK Medical Centre is a newly established non-profit private teaching hospital in Hong Kong. In line with the hospital's mission of pioneering solutions in healthcare, the Pharmacy is committed to adopt smart models to provide patient-centred pharmaceutical care, with focus on medication safety, efficiency and effective patient outcome. Some highlights include the first implementation of all-in-one automated unit dose dispensing for inpatient as well as an automated multiple dose dispensing for outpatient in Hong Kong. Building on the hospital eMR system as the common platform, the core elements within the medication management cycle are connected together: people, drugs, data and various pharmacy IT systems.

Concurrent Session III: New Technology & Innovation
The Experiences in Fighting COVID-19 Using Traditional Chinese Medicine

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COVID-19 has been declared as a global pandemic since early 2020 and becomes a substantial public health concern. Chinese Medicine (CM) has been well recognised as one of the important measures to fight against the disease in China National COVID-19 Diagnostic and Treatment Guidelines.

Under the fifth wave of COVID-19 outbreak in Hong Kong, the launch of local "CM Anti-epidemic Plans for Clinical Application", advised by the Mainland Chinese Medicine Expert Group of the Central Authorities, provides CM Treatment Plan and Rehabilitation Plan for CM practitioners in the management of COVID-19. Apart from the use of three common proprietary CM (1) *Lianhua Qingwen* Capsules (2) *Jinhua Qinggan* Granules and (3) *Houxiang Zhengqi* Tablets, CUHK SCM has also designed and prepared herbal sachet and several herbal soup mixes as alternatives to support the prevention of the disease and enhance the maintenance of good health conditions at the recovery stage for the members of the public.

CM telemedicine has been encouraged to use for the treatment of COVID-19 in Hong Kong. The observation of tongue body and coating is essential and crucial for CM pattern/syndrome differentiation due to the absence of pulse palpation. From the personal clinical experience and observation during CM telemedicine, patients at different stages of COVID-19 (tested-positive, recovery stage and Long-COVID cases) share certain similarities and differences in both symptom presentation and CM management strategies.

In general, CM is useful in (1) relieving COVID-19 induced symptoms (2) controlling the disease progression and (3) enhancing the recovery of the disease.

Concurrent Session III: New Technology & Innovation
Whole Genome Sequencing in Pharmacogenomics - A Driver for Developing Personalised Medicine

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Pharmacogenomics (PGx) is the study of variability in drug response caused by genetic variations. Before the commencement of a drug prescription, pre-emptive pharmacogenetic testing can be used for predicting a patient's drug response to avoid adverse drug reactions. Patients and the healthcare system can also avoid paying unnecessary costs from wrong drug prescriptions. Numerous studies revealed that pharmacogenetic variations exist across different ethnicities with variable metabolizer phenotypes such as a higher frequency of *CYP2C19* poor metabolizer among non-European populations. A study published in 2021 by Yu et al. revealed pharmacogenetic variants were common in the Hong Kong population and demonstrated the potential of PGx testing in improving patient care and resource allocation in the Hong Kong public healthcare system. Next-generation sequencing offers a more comprehensive overview of a patient's PGx profile compared to traditional testing methods such as PCR, Sanger sequencing and Multiplex ligation Probe Amplification (MLPA) and has the capability to identify rare and novel variants. In particular, whole genome sequencing (WGS) has a higher diagnostic yield and clinical utility among all genetic tests and can be used as a single assay for both genetic diagnosis and PGx profiling. Hong Kong Genome Project (HKGP) is the first large-scale genome sequencing project in Hong Kong that aims to find the diagnosis to prescribe an effective treatment for eligible patients and their family members. The strategic foci of HKGP are promoting the development of genomic medicine and advancing the health of the general population. In pursuit of this goal, advancing research on PGx and using WGS-PGx profiling will be a major driver in incorporating precision medicine and promoting personalized treatment to all.

Panel Discussion:
Primary Healthcare: What we Believe and the Way Beyond?

Primary healthcare (PHC) is the first point of contact for individuals and families in a continuous healthcare process in the living and working community, which entails the provision of accessible, comprehensive, continuing, co-ordinated and person-centered care. Since the release of the PHC Blueprint in November 2022, the roles of Pharmacist in PHC has been fervently discussed within the Pharmacist Professional. The Blueprint has shed the light on enhancing the role of community pharmacists in the PHC workforce; developing the PHC directory for pharmacists; strengthening pharmacists' role in the care protocols of structured chronic disease management and disease prevention in District Health Centre and enhancing the public health training for pharmacists to support development of PHC. Hence the objectives of this Plenary Session are to appreciate the current roles of different pharmacy sectors towards PHC in Hong Kong; how to collaborate with different sectors of Pharmacist Professional within the PHC framework and the future perspectives of Pharmacist Professional development of the PHC.

Ab26

Health and Psychosocial Outcomes in Adolescents and Young Adults (AYA) with Cancer

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Objectives: The health and psychosocial functioning of adolescents and young adults (AYA) are often disrupted by the intersection between the cancer experience and important early-life transitions. This study identified clinical and treatment risk factors of health and psychosocial outcomes among Chinese AYA cancer patients in Hong Kong.

Methods: This was a cross-sectional, multi-centered study conducted at the Prince of Wales Hospital and Hong Kong Children's Hospital. Patients who were diagnosed with cancer between 15 and 39 years old were recruited from the oncology clinics. Cancer/treatment-related symptom burden, neurocognitive problems and emotional distress were self-reported using validated measures. Multivariable general linear models were constructed to identify risk factors of functional outcomes, adjusting for age, sex and diagnosis.

Results: This preliminary analysis included 89 AYA cancer patients/survivors (53.9% female, mean age 32.5±5.6 years). The majority were diagnosed with hematological cancer (25.8%), breast cancers (18.0%) and sarcoma (16.9%). AYA patients who underwent chemotherapy reported a higher physical symptom burden (B=9.84, SE=3.44, *P*=0.005) and psychological symptom burden (B=13.4, SE=5.34, *P*=0.014). More neurocognitive problems were reported in patients who were on active chemotherapy treatment (task efficiency: B=1.92, SE=0.91, *P*=0.040), immunotherapy (task efficiency: B=3.54, SE=1.20, *P*=0.004; memory: B=3.40, SE=1.18, *P*=0.005) and had developed other chronic health diseases (task efficiency: B=2.34, SE=1.15, *P*=0.045; memory: B=2.87, SE=1.13, *P*=0.012). Higher emotional distress was observed among patients treated with chemotherapy (depression: B=2.63, SE=1.01, *P*=0.011) and immunotherapy (anxiety: B=2.96, SE=1.46, *P*=0.045; depression: B=2.84, SE=1.31, *P*=0.034). Strong correlation was indicated between patients' physical symptom burden and emotional distress (all *P* <0.001).

Conclusions: AYA who received immunotherapy and had chronic comorbidities were more likely to have neurocognitive complaints and emotional distress. These findings emphasize the importance of symptom management and supportive care during the cancer care continuum. (Funded by the HKSAR Food and Health Bureau. HMRF Ref 09202846)

Ab09

Implementation of a Computer-assisted Gravimetric Checking System for Chemotherapy Compounding in a Children Hospital in Hong Kong

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Objective: Pharmacy department of Hong Kong Children's Hospital prepared more than 900 cytotoxic products per month. Due to the wide range of body sizes and fluid requirements in children, the compounding of these cytotoxic products often required multiple manipulations, which necessitated stringent supervision during the preparation process. To improve medication safety and quality assurance, a computerized CYtotoxic Product MANagement System (CyMans) was developed and implemented in our pharmacy.

Methods: CyMans was developed as a pharmacy workflow management system with the gravimetric checking module incorporated within. In the final checking step for each chemotherapy product, all products contained in IV bags underwent a gravimetric checking procedure. The final weight of the product was compared with the expected weight calculated by CyMans to ensure that the manipulations during compounding was correct. The calculations were based on specific gravity values provided by manufacturer, and in the case when they were not available, the value was assumed to be one. The acceptance criteria was initially set as ±3%. Later, using big data analysis from our gravimetric checking data it was restricted to a product-specific criteria for better accuracy in pediatrics. The acceptance criteria was set to be ±2% when final volume was greater than 30ml, and kept at ±3% otherwise. Evaluation was performed using the passing rate in gravimetric checking.

Results: Since the launch of the system in mid-July 2021 to September 2022, gravimetric checking was performed for more than 8000 products using CyMans. During that period, 99.2% of products passed the gravimetric checking, and out-of-range products were reviewed to ensure a correct compounding procedure. No medication incidents related to chemotherapy compounding was reported during the evaluation period.

Conclusion: Implementation of a computerized gravimetric compounding function in the chemotherapy workflow management system was found to be an effective and efficient way to improve medication safety.

Ab17

Cost from Asparaginase Utilization in the treatment of Acute Lymphoblastic Leukaemia in Hong Kong Paediatrics Population according to CCCG-2015 Protocol

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Objectives: To evaluate the cost of asparaginase treatment in childhood acute lymphoblastic leukaemia (ALL) in Hong Kong and compare the treatment cost between patients with or without hypersensitivity or adverse reaction from L-asparaginase.

Methods: It was a retrospective study. Patients with documented diagnosis of ALL and treated according to the CCCG-2015 protocol in Hong Kong were included. Cost of asparaginase, hospitalization and clinic visits during induction and continuation phase, and additional drug cost or procedural cost for managing asparaginase-induced hypersensitivity or adverse reaction were calculated.

Results: Twenty children diagnosed with ALL between 2015 and 2018 and completed the CCCG-2015 protocol were included. All patients were initially treated with L-asparaginase. They switched to PEG-asparaginase or Erwinase if hypersensitivity or adverse reaction arose. Among the 12 low risk group (LR) patients, 6 used L-asparaginase throughout their treatment (average asparaginase cost was USD 2009.62±259.08) while 6 had used both L-asparaginase and PEG-asparaginase (average asparaginase cost was USD 4798.08±1293.34). Among the 8 intermediate risk group (IR) patients, 5 used L-asparaginase throughout their treatment (average asparaginase cost was USD 4366.15±1094.96) while 3 had used L-asparaginase, PEG-asparaginase and Erwinase (average asparaginase cost was USD 78211.97±10709.43). The cost difference was smaller in LR as patients usually required 2 additional doses while IR patients required 6-7 additional doses of PEG-asparaginase. One patient required prolonged inpatient treatment due to hypersensitivity or adverse reaction from asparaginase. The mean hospital cost for a LR patient was USD 24021.69±3728.56 for induction, USD 4350.86±3146.70 for re-induction 1, and USD 2217.95±2137.59 for re-induction 2. The mean hospital cost for an IR patient was USD 31293.59±4354.39 for induction and USD 16728.21±7943.33 for continuation.

Conclusion: Based on the protocol-driven estimation, the major cost driver for the difference in treatment cost between patients with or without hypersensitivity or adverse reaction from L-asparaginase was the cost of asparaginase.

Ab05

Pilot Proton Pump Inhibitor Deprescribing in a Local Hospital: A Pre- and Post-implementation Study

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Objectives: The objective of this study was to examine the local acceptance to proton pump inhibitor deprescribing. This study also explored the success rate of deprescribing and patients' safety gastrointestinal outcome.

Methods: In this prospective pilot study, the pharmacist identified patients with long-term proton pump inhibitors without definite indications, and recommended deprescribing to their prescribers at medical follow-up. After the medical consultation, the pharmacist reviewed the electronic clinical note to see whether the recommendations were accepted. The pharmacist further assessed the patients' recurrent gastrointestinal symptoms, and identified any gastrointestinal-related admissions or resumption of proton pump inhibitors four weeks after the follow-up.

Results: Of the 452 long-term users screened, a total of 61 patients was enrolled and completed the study, without any loss to follow-up. 57 (93.4%) of the deprescribing suggestions were accepted. The majority of proton pump inhibitor orders (86%) were stepped down to regular or as-required histamine-2 receptor antagonists. Of the deprescribed cases, 47 (82.5%) was considered as successful deprescribing. 3 (5.3%) required proton pump inhibitor resumption from gastrointestinal-related conditions. No alarming symptoms or gastrointestinal-related admission, serious adverse events or sudden death were reported during the period.

Conclusions: This study demonstrated high prescriber acceptability to proton pump inhibitor deprescribing in eligible patients identified by the pharmacist according to evidence-based criteria established as a team. Further studies are required to investigate the complete and comprehensive deprescribing processes, with an adequate follow-up timeframe, an integrated tapering schedule and symptom action plan.

Ab30

Vancomycin Population Pharmacokinetic Modelling for Adult Patients in Hong Kong

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Background: One major change in the updated ISDA vancomycin consensus guideline was the advocacy of the use of Bayesian-guide AUC monitoring for dose adjustment in replace of the trough-base surrogate approach. Population pharmacokinetic (PopPK) model is the prerequisite to support the precise dose adjustment by Bayesian Therapeutic Drug Monitoring, as well as empirical dosing. The objective of this work is to develop a PopPK model for vancomycin based on general adult patients in Hong Kong, that could potentially support individualized dosing locally.

Method: A non-linear-mixed-effect PopPK model was developed based on retrospective data from 90 adult patients in a local public teaching hospital. PopPK and covariates model analysis was performed by NONMEM software with First-Order-Conditional-Estimation method.

Results: One-compartment model described the pharmacokinetics of vancomycin in the studied population. This study proposed two final models: (1) objective-function-value-driven model; (2) prior-knowledge adjusted model. For data-driven model, the clearance of vancomycin was noticeably affected by serum creatinine, sex, and age. The typical population clearance (CL) was estimated at 4.31 L/h. No significant covariate was identified for volume of distribution (Vd), with estimated population value at 89.12 L: In prior-knowledge assisted model, direct proportional relationship between weight and Vd was used. Final models were validated internally by goodness-of-fit plots, bootstrapping, and Visual-Predictive plots. External evaluation involved 7 prospectively recruited patients. The mean predictive error (MPE) and root mean square prediction error (RMSE) obtained were reasonable for both models. AUC evaluation of the dosing regimens given to the subject was performed by using the model-predicted CL. Less than 50% of regimens achieved targeted AUC24 range, indicating insufficiency of conventional dosing strategies in routine clinical practice.

Conclusion: Further study should extend the scale of external validation of the models to provide greater confidence in their clinical application for individualized empirical dosing and Bayesian-assisted dosing adjustment.

Ab01

Formulation and Evaluation of Prednisolone Acetate loaded Polymeric Micelles for the Treatment of Ocular Inflammation

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Objectives: Development of polymeric micelles have been done for the treatment of allergic Uveitis. It also lessens the disadvantages of topical insertion, which involves poor patient adherence, poor absorbance in stroma and many more adverse effects.

Methods: The investigation was focused at creating a polymeric micellar system of Prednisolone Acetate for Ocular Drug Delivery. Thin Film Hydration method was used for preparing polymeric micelles. The evaluation of polymeric micelles formulations was done for checking various parameters like entrapment efficiency, micelle size, *in vitro* permeation, *ex vivo* transcorneal permeation, *in vivo* ocular irritation and histology.

Results: Optimized micelles formulation (PA3), with the lowest micelle size of 90.31 nm, least polydispersity value of 0.158, highest entrapment efficiency of 96.0 ± 0.17%, and a cumulative drug permeation of 85.12 ± 1.26% in 8h, was selected to develop pH-sensitive micelles loaded Carbopol in situ gel. The Optimized in situ gel (A4) proved to be superior in its *ex vivo* transcorneal permeation when compared with Market Preparation and pure drug suspension, exhibiting 42.32 ± 0.87% Permeation with zero-order kinetics (r^2 = 0.9944) across goat cornea. Transmission Electron microscopy revealed spherical polymeric micelles trapped in the gel matrix. A series of experiments showed hydration capability, non-irritancy, and histologically safe gel formulation that had appropriate handling characteristics.

Conclusion: For the treatment of uveitis, a controlled release, pH-sensitive ocular formulation that can administer the medicament via topical application to the eye's anterior segment has been created.

Ab03

Outcomes Associated with a Pharmacist-led Clinic for Patients with Type 2 Diabetes Mellitus: A Service Evaluation

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Overseas studies have shown pharmacist-led clinic services, when added to standard of care, could aid attainment of treatment goals and improve therapeutic outcomes. Pharmacist clinic service is an evolving healthcare concept in Hong Kong.

Objectives: To evaluate diabetes-related outcomes (HbA1c, clinic SBP, and complication screening frequency) in a patient group managed by pharmacists in a pharmacist clinic service, as compared to a comparator group managed with usual care.

Methods: This was a retrospective cohort study conducted in the specialist outpatient department of Ruttonjee Hospital from August 2018 to January 2022. The primary outcomes were changes in HbA1c and clinic systolic pressure at 6 months. Secondary outcome was the difference in the proportion of patients with urinary albumin-to-creatinine ratio measurement within 12 months. Drug-related problems identified and interventions implemented during the study were recorded.

Results: 433 patients met the inclusion criteria. Of these, 221 patients were in the intervention group and 212 patients were in the comparator group. Patients in the intervention group achieved significantly larger HbA1c reduction (−0.55% vs. −0.02%, p<0.001). The difference between the intervention group and the comparator group regarding clinic systolic blood pressure was non-significant (−3.74 vs. −1.37 mmHg, p=0.192). Proportions of patients with urinary albumin-to-creatinine ratio measurement within one year increased from 62.5% to 89.5% (p<0.0001). Pharmacists identified 107 drug-related problems. 58 recommendations were made. Of which, 57 (98.3%) were accepted by physicians.

Conclusions: In conclusion, a pharmacist clinic service in a public hospital brought about substantial clinical intervention, and was associated with favourable diabetes-related outcomes, including improved glycaemic control and increased complication screening frequency, when added to usual care.

Ab04

Factors Influencing Choice of b/ts DMARDs In Managing Inflammatory Arthritis from A Patient Perspective: A Systematic Review of Global Evidence and Hong Kong Observations

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Objectives: To investigate factors concerning patients regarding biological/target synthetic disease-modifying antirheumatic drugs (b/ts DMARDs) in treating inflammatory arthritis (IA) by conducting a global systematic review; and to complement scarce evidence in Asia regions by an additional investigation in the Hong Kong context.

Methods: This study consists of a systematic review and a cross-sectional survey in Hong Kong. A systematic review of literature following PRISMA was conducted on PubMed, Web of Science, Cochrane and Embase between 1 January 2000 and 1 January 2022. Content analysis was conducted to summarise factors grouped by four themes - Social aspects (SA), Clinical aspects (CA), Medicine characteristics (MC) and Financial aspects (FA) in the decision-making process. One cross-sectional survey among Hong Kong patients with IA was conducted to add to global evidence.

Results: The systematic review resulted in 34 studies. The four themes were presented in descending order consistently but varied with frequency throughout decision-making processes. During decision-making involving medication initiation, preference and discontinuation, MC (reported frequency: 83%, 86%, 78%), SA (56%, 43%, 78%) and FA (39%, 33%, 56%) were the three most frequently reported factors, whereas CA was less studied. Following global evidence, this local survey also revealed that MC factors such as treatment efficacy and the probability of severe adverse events, and SA factors such as the availability of government or charity subsidy, influenced patients' initiation and preference for b/ts DMARDs. Meanwhile, self-estimated improvement in disease conditions (SA), drug side-effects (MC) and drug costs (FA) were associated with treatment discontinuation.

Conclusions: Global and local evidence consistently indicate medicine characteristics and social aspects are important considerations in patients' decisions regarding novel DMARDs. Health policies that reduce patients' financial burden and enhances healthcare professionals' engagement in decision-making and treatment delivery should be in place with an efficient healthcare system for managing inflammatory arthritis optimistically.

Ab06

Impact of Pharmacist-led Lipid-lowering Therapy Optimization for Patients with Diabetes Mellitus: A Prospective Study in North District Hospital

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Objective: Statin therapy has been shown to reduce major vascular events in diabetes but the utilization of statin and management of dyslipidaemia were often suboptimal in clinical settings. This prospective study aims to examine the effectiveness and safety of pharmacist intervention in statin intensity optimization in diabetes. Besides, acceptability of the pharmacist intervention to physicians is investigated.

Methods: Diabetic patients with suboptimal statin therapy and lipid profiles were identified. Recommendation to titrate up statin therapy was proposed by pharmacist to their physicians. After medical consultation, acceptance of the recommendation was reviewed. Patients were followed up on change in lipid profiles, change in 10-year ASCVD risk and statin tolerability after the therapy adjustment.

Results: Of the 151 patients screened, recommendations were proposed to 131 patients. 83 (63.4%) of the recommendations were accepted. The up-titration of statin has resulted in significant reduction in TC, LDL-C, TG and non-HDL-C by 15.8%, 23.4%, 11.1% and 21.1% respectively ($P<0.05$ for all parameters). There was no significant change in HDL-C. 10-year ASCVD risk has decreased significantly from 21.9% to 19.8% after the statin titration ($P<0.001$). Of those patients without statin adjustment, no significant change in lipid profiles and 10-year ASCVD risk was observed. After statin intensity optimization, 6 (7.2%) patients experienced mild adverse events. Two of them were muscle related. No patient in the study discontinued the statin therapy.

Conclusion: This study has demonstrated the success of pharmacist intervention to optimize statin therapy in diabetic patients. The acceptance of intervention significantly improved patient lipid control and cardiovascular risk. Through pharmacist assessment, the optimized statin therapy was associated with high tolerability. Physicians have shown reasonable acceptance to pharmacist recommendations to titrate up statin therapy.

Ab10
COVID-19 Epidemic Impact on the Inpatient Pharmacy Service of a Private Hospital under the Public-Private Partnership Program

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Objectives:
1. To review the medication profile of transferred HA patients
2. To evaluate the inpatient clinical pharmacy service
3. To assess the proportion of transferred HA patients required extra medications after the transfer

Methods: Transferring Hospital Authority (HA) patients to a private hospital is part of the public-private partnership (PPP) program under the COVID-19 epidemic. Pharmacists visited the designated ward of the hospital twice per week to provide medication review service from August to November 2022. 18% of beds in the hospital were reserved for the transferred HA patients. Although patients transferred to a private hospital with their ongoing medication, some patients still need extra medications in response to any change in their latest medical condition.

Results: 68 in-patients were reviewed. Patients are transferred due to rehabilitation, the continuation of a course of antibiotics or anticoagulants, and monitoring of starting new medications. A low rate of clinical intervention was found. 36% of them required extra medications, including gastrointestinal drugs, inhalers, anti-hypertensives, electrolyte supplements, etc., to treat their sudden change in medical conditions.

Conclusions: Minimal drug-related problems can be found among the transferred HA patients, as all patients were clinically stable and should fulfill certain criteria before transfer. Also, the hospital carefully sorted cases transferred to the hospital with suitable specialists and facilities available. However, some patients still required the pharmacy to dispense extra medications for their ongoing medical condition. Most of them were elderly with poly-pharmacy. Pharmacists still have an important role in monitoring patients for rehabilitation after transfer. In the future, pharmacists should carry out this service more frequently to ensure patients use their medications appropriately for transferred HA patients. Last but not least, pharmacists should be involved more in sorting cases from HA from the perspective of medication conditions.

Ab11
Photo-enhanced Ferroptosis achieved by FSP1 Inhibition and Photodynamic Therapy

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Objectives: Photodynamic therapy (PDT) combined with conventional ferroptosis inhibitor has emerged as a promising synergistic strategy in cancer treatment. Nevertheless, the clinical value of the agent targeting the lately identified ferroptosis suppressor protein 1 (FSP1) as a combination with PDT has not yet been examined.

Methods: In this study, the combinational effect of chlorin 6 (Ce6) and ferroptosis suppressor protein 1 inhibitor (iFSP1) on tumour cell viability was examined. A Loewe additivity model was constructed to determine the dose-response relationship with combinations of various concentrations of Ce6 and iFSP1. Later, a dual light-responsive nanoplatform with Photolabile Protecting Group-modified PAMAM (PPG-PAMAM or BMP60) and hyaluronic acid (HA) as the backbone was formulated to encapsulate Ce6 and iFSP1. Such design was targeted to conduct the release of drug and excitation of Ce6 at 520 nm and 650 nm of light irradiation respectively. The physical characteristics of the resultant nanoparticles (BMP60@Ce6-iFSP1) were examined to determine the optimal proportion of the materials. Its cellular activity, including degree of uptake and cytotoxicity, was subsequently tested in A549 cell line.

Results: The additivity model suggested the presence of synergism at high concentrations of the drugs, with implications of a parallel anti-ferroptoic mechanism involved. In vitro, BMP60@Ce6-iFSP1 displayed light-responsiveness and minimal dark cytotoxicity. Furthermore, the nanoparticles presented an enhanced tumour cells uptake and significant cellular cytotoxicity when compared to that of either the individual drugs or nanoparticles without exposure to light stimulation.

Conclusion: The primitive evidence supported the potentiality of a combination between photodynamic therapy and ferroptosis suppressor protein 1 pathway inhibitor as a candidate of cancer therapy. For obtaining more insights, future study is required to examine the pharmacokinetics, pharmacodynamics, and immunomodulating action of BMP60@Ce6-iFSP1 in animal models.

Ab12

Efficacy and Safety of Tofacitinib and Baricitinib Against Infliximab in Hong Kong Patients with Rheumatoid Arthritis

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Objectives: To study the efficacy and safety of tofacitinib and baricitinib, in comparison with one another as well as against infliximab, in treating Hong Kong rheumatoid arthritis patients.

Methods: In this retrospective cohort study, rheumatoid arthritis patients under the Hospital Authority in Hong Kong were identified. Kruskal-Wallis test and chi-square test of independence were used to evaluate the differences and associations between drug therapy and efficacy or safety.

Results: 850 rheumatoid arthritis patients in Hong Kong who were taking tofacitinib, baricitinib or infliximab were recruited. The reductions from baseline of C-reactive protein and erythrocyte sedimentation rate values were roughly 60% and 20% respectively in the first year of treatment for both Janus Kinase inhibitors. The number of admissions due to specific diagnoses were collected as an estimation of the safety profiles and few admissions associated with infections, blood disorders and liver or renal dysfunction were discovered for both drugs.

Conclusions: Tofacitinib and baricitinib illustrated expected efficacy and safety profiles. Infliximab demonstrated similar baseline reductions and tolerable safety data.

Ab13

How Effective is Pharmacist-led Consultation Service on Improving the Safety and Efficacy of Enema Administration?

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Background: Hospital outpatient pharmacy is often busy. It could be a challenging environment for service users to learn the administration of unfamiliar formulations, such as enema, with the conventional way of counselling. However, incorrect administration of enema product is not rare and could result in serious consequences, such as hyponatraemia. This stresses the need to pilot innovative pharmaceutical services to enhance the quality of care provided to patients and carers.

Aim: Our study aims to investigate the impact of educational video on improving the safety and efficacy of enema administration.

Method: A Pharmacist-led consultation service was piloted in Queen Mary Hospital, Hong Kong, between 16th January to 31st March 2022 with 40 subjects recruited. A structured and standardised questionnaire with 6 knowledge questions was used to yield quantitative results to compare subjects' knowledge level on the safe and effective use of Fleet enema, before and after watching the educational video. Satisfaction survey was distributed to evaluate participants' feedback on the service provided. Odds Ratio (OR), 95% confidence intervals (95% CI), Chi-squared P value, coefficient of variation (CV), mean and percentage were used to analyse and present the statistical relationship of the results and findings.

Results: 90% respondents (n=36) had knowledge level increased after watching the educational video (OR = 5.36, 95% CI = 3.58 – 8.04, P < 0.001). The educational video also led to an increase in average knowledge score from 2.53 to 4.78 out of 6. Age, gender, language, role of participants did not affect the knowledge score obtained (P > 0.05). Participants gave an average service satisfaction score of 26.46 out of 30 (95% CI = 25.64 – 27.28, CV = 0.11), reflecting that they were highly satisfied with the service provided.

Conclusion: Our finding confirmed the value of educational video in boosting users' awareness on the safe and effective administration of Fleet enema. It also enhanced the overall quality of pharmaceutical service provided. Future research could expand the scale of the study by recruiting more participants, investigating other enema preparations and participants' long term knowledge level, especially when applying the service in future telepharmacy model.

Ab15

Hospital Readmission among Patients with Depression: Real-World Evidence for Service Improvement in Hong Kong

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Objectives: The depression rate in Hong Kong increased from 1.3% in 2011 to 6.1% in 2017, which is 60 times the growth rate in the United States over the same period. However, the epidemiology and risk factor analysis of rehospitalization among patients with depression in Hong Kong are still lacking, making these the aims of this study.

Methods: With data provided by the Hong Kong Hospital Authority, incident depression patients diagnosed in 2014 and aged over 11 were included in this study. The number of all-cause readmissions between 2014 and 2019 was analyzed; with the demographics, past medical and drug history, and admission details being used in binary logistic regression to identify the risk factors.

Results: Among 1797 eligible patients, 75.6% of them had at least 1 rehospitalization and the mean number of readmissions was 4.60 between 2014 and 2019. Incident depression patients admitted to Kowloon Central Cluster (OR=2.477; p<0.001), New Territories East Cluster (OR=1.995; p<0.001), and New Territories West Cluster (OR=2.162; p<0.001) had a higher risk of rehospitalization as compared to Hong Kong East Cluster. Comorbid alcohol dependence syndrome (OR=3.711; p=0.032), hypertensive disease (OR=1.799; p<0.001), and heart failure (OR=2.278; p=0.004) posed a higher risk of rehospitalization to patients with depression.

Conclusions: Admitting institutions for incident depression and different comorbidities were identified as risk factors for readmission among patients with depression. Further research into causes and strategies to reduce rehospitalization is recommended.

Ab18

Frequent Antibiotic Prescription and Risk of Encephalopathy Related Hospitalization among People Living with Dementia: A Population-based Cohort Study

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Objectives: Antibiotics although useful in treating infections, have considerable side effects. Concerns for using in population with dementia is growing, due to neurotoxicity and encephalopathy. Risk is hypothetically higher for patients with dementia. This study aims to evaluate the association between antibiotics prescriptions frequency and risk of encephalopathy (seizure and psychosis) for patients with dementia.

Methods: A population-based cohort study is performed using data from Hospital Authority Clinical Data Analysis Reporting System (CDARS). Patients with dementia 65 years old with antibiotic prescription in 2004-2019 was selected and random 30% of patients is included for study. For each antibiotic prescription, frequency of antibiotic prescription received 6-months prior is counted and divided into quartiles. Follow-up of 14-days and 30-days for encephalopathy outcome incidence, then incidence risk ratio (IRR) of each quartile is calculated using propensity matched negative binomial regression with reference to lowest quartile.

Results: Total 29,614 patients are included with 623,590 and 99,879 indexed antibiotic scripts for seizure and psychosis outcome analysis respectively. Frequent antibiotic prescription is significantly associated with seizure outcome when comparing highest quartile to lowest quartile with IRR 4.06 (95%CI 2.82-5.91), risk increase linearly with increased antibiotic exposures along quartile of antibiotics use. But association is not significant for psychosis [IRR 0.88 (95%CI 0.55-1.52)], risk remains insignificant along antibiotics exposure. Similar trends can be seen in sensitivity analysis with different follow up periods, age and existing comorbidities, significant association is seen across sub-groups.

Conclusions: Seizure related hospitalisation is strongly associated with higher frequency of antibiotics prescriptions, a strong dose-response relationship is found between exposure of antibiotic prescriptions and risk of seizure. Excessive use of antibiotics poses additional seizure risk to patients with dementia. Antibiotic should be used with caution and evaluate on indication and necessity, clinicians could look into selecting less neurotoxic antibiotics for patients with dementia.

Ab19

An Evaluation of an Integrated Model for Systemic Anticancer Therapy (IMSACT) Clinic for Oncology Patients Receiving Selected Anticancer Therapy in Queen Elizabeth Hospital

A Retrospective Analysis on Pharmacist Consultation with Subgroup Analysis on Patients Receiving Targeted Therapy for Lung Cancer

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Objective: An integrated model for systemic anticancer therapy (IMSACT) clinic was introduced in Queen Elizabeth Hospital. Under the new model, oncology pharmacist will be integrated into a multidisciplinary team for selected patients as defined in protocol.

This study aims to evaluate the safety and acceptability of the clinic. Primary objectives are to report safety results in terms of protocol compliance and safety incidents. Secondary outcomes included acceptability evaluated by satisfaction surveys and from patients and oncologists.

Method: Patients attended pharmacist consultation in the IMSACT clinic between January and June 2022 will be recruited. Details regarding each consultation will be collected retrospectively through electronic patient record platform. A compliance checklist is developed to assess if each consultation session achieved its predefined outcomes and is documented accordingly. Safety incidents were defined as any unplanned admissions or emergency department attendance within 30 days after each consultation.

Results: A total of 313 patients attended 489 sessions of pharmacist consultation, among which 188 patients and 238 consultations were included in the subgroup analysis. In the subgroup, all consultations were compliant to protocol. Two safety incidents have arisen from 2 (0.84%) patients, both of which were due to COVID-19; and 18 (7.56%) consultations were referred to oncologists. Generally positive feedback was received from 20 patients and 5 oncologists., with comments supporting the expansion of service. Overall satisfaction score from the service were 4.8 and 4.6 out of 5 from patients and oncologists respectively.

Conclusion: The collaborative model as a part of IMSACT is a safe alternative to the current model welcomed by patients and oncologists.

Ab20

Evaluation of Clinical Ward Pharmacist Service at Discharge on Patient Satisfaction, Medication Safety and Efficiency of Discharge Process

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Objectives: Queen Elizabeth Hospital has set up a new clinical ward pharmacist service which focuses on discharge cases since July 2021 and this study acts as an interim evaluation. The primary objective is to compare the patient's perception on discharge medication information received throughout discharge journey before and after service implementation. The secondary objective is to review the number and types of medication discrepancies found at discharge prescription, evaluate the satisfaction of patients and medical staff about the service and evaluate the impact of the service on the time taken to prepare discharge prescription.

Methods: Retrospective data collection was carried out. Pre-service data (control group) and data at 8 weeks after service implementation (study group) were compared. The primary outcome is the change in average scores of patient experience survey about medication information received during discharge. The secondary outcomes include the number and types of medication discrepancies, patient's satisfaction about pharmacist counselling service, satisfaction of medical staff about the service.

Results: A total of 50 patient experience surveys were screened out in both control and study group. Higher scores were observed and shown statistically significance in all four questions after service implementation. The largest increase in scores was observed in question about side effect (Q3), the mean increase was from 2.50 ± 3.49 to 7.39 ± 3.96 [mean difference of 4.89 (95% CI 3.30 to 6.48, P<0.001)]. Nearly 30% of the prescriptions that pharmacists screened were identified with at least 1 unintentional discrepancy and 100% acceptance rate was achieved. The most frequent type of unintentional discrepancies was inadequate drug supplied on discharge prescriptions. High satisfaction was expressed by both patients and medical staff about the new service.

Conclusion: Introduction of ward pharmacists in medication management during discharge process can increase the medication information received by patients and improve medication safety.

Ab22

Impact of Pharmacist-led Pain Clinic on Cancer Pain Control in Patients under Palliative Care: A Pilot Study

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Introduction: Pain relief is one of the targeted management plans in cancer patients under palliative care. Pharmacist-led pain clinic has been shown to significantly improve pain score and reduce adverse effects by opioids in cancer patients recently. This study aimed to investigate the impact of pharmacist's intervention in pain control of cancer patients under local palliative unit.

Methods: This study is a prospective, randomized controlled study conducted from December 2021 to June 2022. Patients were randomized into control group or intervention group. All patients were assessed of baseline pain level, pain management barrier and quality of life (QOL) by Numerical Rating Scale (NRS), validated Taiwan Barrier Questionnaire and McGill Quality of Life Questionnaire respectively. Adherence to pain medications was recorded using 8-item Morisky instrument (MMAS-8). Patients would receive face-to-face or phone assessment with pharmacist before the three physician appointments. Education was provided to intervention group and recommendations would be made to physicians when necessary.

Results: At the interim analysis in June 2022, 30 patients were recruited; in which 15 patients completed the the study. The pain score was significantly reduced from 5.62±2.18 to 3.67±2.57 out of 10 in intervention group (P=0.03) after three pharmacist's consultations. Significant increase was observed in medication adherence from 6.47±1.00 to 7.06±0.81 in the intervention group (P=0.043). Scores for two third of the domains in barrier questionnaire were also significantly reduced in intervention group. No significant changes were observed in terms of QOL for both arms. The intervention acceptance rate by physicians was 58.3%; and the mean patient's satisfaction score was 3.875 out of 5.

Conclusion: Pharmacist's interventions could significantly reduce pain intensity in cancer patients under palliative care and negative belief on opioids. Drug adherence to pain medications was increased significantly. Further studies with larger sample size are required to fully ascertain the impact of pharmacist-led pain clinic.

Ab23

To Evaluate a Face-to-face and Telepharmacy Combined Pharmaceutical Care Service Model for the Management of Chronic Kidney Disease Mineral Bone Disorder

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Background: Medication non-compliance has been a major problem that led to sub-optimal management of CKD-MBD. Patients with low medication compliance often result in calcium and phosphate imbalance, which could increase the risk of developing renal osteodystrophy and vascular calcification. Previous studies have suggested that pharmacist intervention can optimize drug use in CKD-MBD and improve calcium and phosphate balance. This study targeted to examine whether providing additional telepharmacy follow-up to end stage renal disease patients could confer additional benefits for the management of CKD-MBD.

Method: This is a prospective interventional study with historical control. Subjects were recruited by nephrologist referral and received care under a standardized service model. Within the service model, all subjects received a one-off pharmacist consultation, while those with suboptimal disease control or low medication compliance were invited for additional telephone follow-up. Patients were followed for 6 months, and the results were compared with 6 months of historical data.

Result: This study recruited 41 subjects and 22 subjects were invited to receive monthly telephone follow-ups. Patients who participated in this study showed improvement in calcium (-0.11 mmol/L, p=0.002) and phosphate (-0.19 mmol/L, p=0.005) levels between month 0 to 3. Due to the progressive nature of CKD-MBD, a similar but weaker numerical change is observed between month 0 to month 6 (Calcium -.0.08, p=0.014; Phosphate -0.05, p=0.297) There is also an improvement in medication compliance, with a significant decrease in the number of patients who have missed dose due to forgetfulness (-17%, p=0.035) and the number of patients with DRP (-31.8%, p<0.001).

Conclusion: The service model examined in this study showed a general benefit to medication compliance and disease management of CKD-MBD in end stage renal disease patients.

Ab24

Drug Utilization Review of Fluticasone furoate 100mcg/ Umeclidinium 62.5mcg/ Vilanterol 25mcg (Trelegy) on Adult Patients with Chronic Obstructive Pulmonary Disease (COPD) in North Lantau Hospital (NLTH) and Princess Margaret Hospital (PMH)

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Objectives: This study aims to evaluate the compliance of Trelegy (Fluticasone furoate 100mcg/ Umeclidinium 62.5mcg/ Vilanterol 25mcg) under the Hospital Authority Drug Formulary (HADF) indication and to evaluate the clinical outcome of Trelegy after patients were switched to the inhaler.

Methods: Individual patient profiles of COPD patients ≥ 18 years old who were initiated with Trelegy under the care of the Department of Medicine & Geriatrics between September 1st 2020 to December 31st 2021 at the Specialist Out-Patient Clinic or upon hospital discharge at Princess Margaret Hospital/ North Lantau Hospital were screened to identify the indications of use of Trelegy and potential drug-related problems.

Results: 22 (31.4%) out of 70 patients were prescribed Trelegy according to the listed indication as stated in the HADF. There was no statistical difference in the number of moderate to severe exacerbations within 6 months and 12 months, respectively, before and after initiation of Trelegy (1.0 vs. 0.6, p = 0.080; 1.6 vs. 0.9, p = 0.159). There was no statistical difference in the number of hospitalizations due to COPD exacerbation within 6 months and 12 months, respectively, before and after initiation (1.0 vs. 0.5, p = 0.085; 1.5 vs. 0.8, p = 0.122).

Conclusion: There was no statistical difference in the number of moderate to severe exacerbations and number of hospitalizations due to COPD exacerbation within 6 months and 12 months, respectively, before and after initiation of Trelegy. The majority of prescriptions filled for Trelegy at two hospitals in Hong Kong did not meet HADF prescribing criteria under the definitions defined in this study.

Ab25

Inappropriate Use of Proton Pump Inhibitors in Hong Kong Elderly with Polypharmacy: A Drug Utilisation Review and Pilot Deprescribing Study to Reduce the Inappropriate Use

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Objectives: Recent studies identified the long-term use of proton pump inhibitors (PPIs) could be potentially harmful. To better manage polypharmacy, the concept of "deprescribing" arose proactively to remove drugs from the elderly's chronic medication list. This study aimed to describe and identify clinical factors associated with inappropriate PPI prescriptions, and to quantify the efficacy and safety of a pharmacists-led PPI deprescribing service.

Methods: This retrospective study recruited a total of 191 patients for the drug utilisation review (DUR) and 23 patients for the pilot deprescribing study from a public acute hospital in Hong Kong. Prescription drug data, medical records and pharmacist's notes were gathered and analysed. Reflux Symptom Questionnaire 7-day recall (RESQ-7) was administered during patient interviews and 4-week post telephone follow-up to evaluate the efficacy of deprescribing.

Results: The median duration of long-term PPIs use was 213 [IQR: 104.57 – 321.43] weeks. 20.9% of the PPI prescriptions were deemed to be potentially inappropriate according to protocol set by geriatricians of the study hospital. Only patients taking more chronic drugs (OR: 1.255 [CI: 1.023 – 1.540]) were associated with an increased likelihood of having an appropriate indication of PPI. For the pilot deprescribing study, the primary reason to deprescribe was "no ongoing indication". Physicians accepted over 80% of pharmacists' recommendations. Although there was no significant difference in patients' reported symptoms measured by RESQ-7 before and 4-week after deprescribed PPI, a shorter duration of PPIs usage prior to intervention could predict worsened heartburn symptoms by 4-week post-intervention.

Conclusions: Local DUR identified one-fifth of PPI prescriptions were potentially inappropriate. Proactive pharmacists' interventions on deprescribing PPI were well accepted by physicians without causing significant safety concerns. Future work supports standardising protocol on deprescribing proton pump inhibitors in the elderly with polypharmacy.

Ab27

Cost-Effectiveness Analysis of Pharmacist Participation in Multidisciplinary Critical Care Teams

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Objectives: High risk of drug-related adverse events is present in intensive care units (ICU) due to the severity of illnesses and complexity of medication regimens. This study aims to evaluate the potential cost-effectiveness of pharmacist participation in multidisciplinary ICU teams in public hospitals in Hong Kong.

Methods: Decision Tree modeling was employed as the decision analysis tool to compare the potential clinical and economic outcomes of pharmacists participating in multidisciplinary critical care teams with those under no pharmacist participation. Model inputs of direct cost, clinical effectiveness, and utility were derived from literature review, while model outcomes included Disability-Adjusted Life Year (DALY) and total direct cost. Base-case analysis was conducted to determine cost-effectiveness presented as incremental cost-effectiveness ratio (ICER). Sensitivity analysis was performed to examine the robustness of the results.

Results: Pharmacist participation in multidisciplinary critical care teams is found to be more costly, with HK$1559 more than the group under no pharmacist participation; and more effective of 0.6738 DALYs averted. In sensitivity analysis, it was shown that pharmacist participation contributed to averting incremental DALY 100% of the time and cost-saving 36.32% of the time. The influential factor to total direct cost was the relative risk of length of stay (LOS) in ICU. Pharmacist participation would be considered cost-saving when the relative risk of LOS is lower than 0.944.

Conclusion: Pharmacist participation appears to be a cost-effective option compared with no pharmacist participation in multidisciplinary critical care teams for public hospitals in Hong Kong. Further studies would be warranted to validate the outcomes of pharmacist participation.

Ab28

Repurposing of Putative Histone Deacetylase Inhibitors to Overcome Osimertinib Resistance in Non-Small Cell Lung Cancer

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Objective: The study investigated the circumvention of osimertinib resistance in the treatment of non-small cell lung cancer (NSCLC) by repurposing non-oncology drugs with putative histone deacetylase (HDAC) inhibitory effect.

Method: Putative HDAC inhibitors were identified by a bioinformatics tool called "DRUGSURV". HDAC inhibition was verified by measuring histone acetylation level by Western blot analysis and further confirmed by nuclear extract-based HDAC activity assay. The potent HDAC inhibitor (vorinostat/SAHA) was used as a control for comparison. Sulforhodamine B assay was conducted to evaluate the cell proliferation of osimertinib-sensitive and resistant NSCLC cells after treatment with osimertinib in the presence or absence of HDAC inhibitors. Annexin V apoptosis assay and propidium iodide-based cell cycle analysis were conducted to evaluate the mechanism of resistance circumvention. The expression of selected oncogenic signalling molecules was also measured by Western blot analysis.

Results: Flunarizine, an antihistamine drug for vertigo, was found to significantly increase histone H3 acetylation in a concentration- and time-dependent manner in NSCLC cell line H1975. Flunarizine's HDAC inhibitor effect was further verified to inhibit HDAC activity of H1975-derived nuclear extract by a commercially available HDAC activity assay kit. Flunarizine was then selected for osimertinib resistance reversal evaluation in two osimertinib-resistant NSCLC cell line models (H820 and H1975-OS2). Flunarizine was shown to be more effective in potentiating the anticancer effect of osimertinib in H820 cells harbouring epidermal growth factor receptor (EGFR) T790M mutation and *MET* amplification. The circumvention of osimertinib resistance by flunarizine was associated with inhibition of the Akt signalling pathway and potentiation of apoptosis.

Conclusion: The antihistamine drug, flunarizine, was identified as a novel HDAC inhibitor capable of overcoming osimertinib resistance. As flunarizine has been in clinical use with a favourable safety profile, further investigation is advocated to facilitate its rapid translation to clinical application.