

# Abstracts

Tuesday, 16 May 2017

**Plenary Sessions ..... 74**  
P1 to P4

**Symposiums..... 78**  
S1 to S4

**Special Sessions..... 84**  
SS1 to SS3

**Masterclasses ..... 88**  
M1 to M8

**Parallel Sessions ..... 107**  
PS1 to PS4

**Service Enhancement Presentations ..... 117**  
F1 to F4



# Plenary Sessions

P1.1

Quality Health Service

10:45 Convention Hall

## Quality Health Service – NHS England

Keogh B

Medical Directorate, NHS England, UK

P1.2

Quality Health Service

10:45 Convention Hall

## Implementing Patient-centred Care: An Opportunity to Stop, Reflect and Review, and Move Forward Building upon on Your Strengths

Greenfield D

Australian Institute of Health Service Management, University of Tasmania, Australia

Patient-centred care (PCC) is an ideology and approach to healthcare service planning, organisation and delivery that has been practised for over 50 years. However, there is still considerable discussion about how it should shape care organisation and delivery. PCC practice is exemplified by individual and teams that: respect and value individuals who access services, and empowering them as partners in their care; are fully committed to working in partnership with people; seek to provide for individual preferences and needs in the delivery of care; and, help people to express their views so they understand things from the patient point of view. These teams seek to nurture a strong, visible person-centred culture. PCC is recognised as important because of improved care outcomes through engaging patients actively in their care decisions and treatment delivery.

This session presents an opportunity to stop, reflect and review what PCC means for you and your team. We will examine how organisational, team and individual elements reinforce, positively and negatively, the enactment of PCC. We will identify the enablers that promote PCC and improvements in service delivery and care outcomes. Potential barriers that inhibit PCC practice will also be considered. Key questions to reflect upon will include: what are the PCC strengths of your current practice and your team; and, what are you already doing and what might you need to consider changing? Additionally, significant challenges associated with PCC will also be reflected upon. These include: do all patients want PCC; how do the cultural norms of a country influence PCC; and, is it realistically possible to provide PCC for individuals and populations?

Finally, a challenge will be presented. We need to investigate which PCC delivery models, in different environments, work and why. We need teams to take up this challenge, and in doing so, contribute to the international empirical evidence base. Does your team have the courage, capacity and conviction to do so?

## P2.1

## Elderly Services

13:15 Convention Hall B

**How to Tackle the Challenges of the Ageing Population**

Oliver D

Care Quality Improvement Department, Royal College of Physicians, UK

Population ageing is a cause for celebration. It represents a victory for better societal conditions; better preventative and public health; better treatment for long-term conditions and more effective interventions in acute illness and injury. Most importantly, it offers all of us a better chance of a longer and healthier life.

Although many people age well into later life without serious ill-health or disability, the higher proportion of older people in society means a change in population health. In turn our health services and systems need to adapt to be fit for the older population now using them most frequently.

As they age people are more likely to live with multiple long-term conditions including frailty, dementia and age-related disability. In turn they are more likely to be on multiple medications. They are more likely to rely on paid care workers or unpaid family caregivers. They are more likely to enter hospitals, or enter nursing or residential homes and to consult primary care clinicians and more likely to require end-of-life care. They also tend to see more different professionals and transition between different services, in turn leading to poorly co-ordinated care, often compounded by ageist attitudes or service models designed for younger people with single diseases. (NHS Confederation 2016)

Our services need to change to reflect the needs of the older people now using them and especially those with frailty, multi-morbidity and dementia, to support their caregivers and to focus more on proactive care and prevention to reduce crises and enable them to stay at home for longer. <https://www.rcplondon.ac.uk/projects/outputs/future-hospital-commission>

Finally, the skills, training, values and planning of our workforce need to reflect the fact that in modern healthcare, older people are “core business”.

## References:

*Making health and care systems fit for an ageing population, Kings Fund 2014* Oliver D, Foot C, Humphries R.

*“Growing old together” – NHS Confederation 2016*

*Future Hospital Commission – <https://www.rcplondon.ac.uk/projects/outputs/future-hospital-commission> - RCP website*

## P2.2

## Elderly Services

13:15 Convention Hall B

**Hospital Design in the Context of an Ageing Population: Case Studies Rural NSW**

Ballantyne D

Health Infrastructure, NSW Health, Australia

The development of Multipurpose Services (MPS) commenced in NSW in the early 1990s to enable sustainable hospital, medical, aged care or community services, to meet the needs of rural and remote communities across NSW.

The model tailors healthcare needs for the local community by integrating health, aged care services, and emergency and urgent care services, to provide flexible health service delivery – from primary healthcare to acute and residential aged care.

MPS facilities are a key component in providing integrated healthcare across Local Health Districts and the greater NSW Health system. They work alongside other healthcare facilities to deliver the best services possible, including Community Health Services, District Hospital, Regional Health Services and Metropolitan Teaching or Tertiary Hospitals.

## Plenary Sessions

**P3.1**
**Out-of-the-box Management – Innovation and Crisis Communication**
**14:30 Convention Hall B**

### NHS RightCare – Delivering Optimal Healthcare in England

*Cripps M*

*NHS RightCare, NHS England, UK*

NHS RightCare is working across all of the NHS in England to deliver improvements in population healthcare. Via a focus on unwarranted variation, the programme helps every local health economy in the country to identify their best opportunities for population healthcare improvement and deliver transformation in those areas. This will positively impact on the equity of access to and the quality of care for patients, ensuring a consistency that is not reliant on geography and previous local decisions. NHS RightCare's recent growth puts England's work at the leading edge of international initiatives to reduce unwarranted variation and develop optimal solutions at an industrial scale.

**P3.2**
**Out-of-the-box Management – Innovation and Crisis Communication**
**14:30 Convention Hall B**

### Managing the Unthinkable – Crisis Management and Communication

*Ma F*

*The MTR Corporation Limited, Hong Kong*

Crisis management has long been a challenge that has significant impact on corporate success. The impact of organisational crisis has never been felt stronger. The reputation and credibility of organisations are profoundly affected by the perception of their responses and acts or omissions during crisis situations. Senior executives can never anticipate everything that can occur to prepare for the crisis before they happen, however, they are expected to demonstrate a complex set of competencies in responding and managing unforeseen crisis, at the different phases, which may include detection, preparation and prevention, damage control and containment, recovery, and reflection and learning.

Organisations are very cautious of the negative consequences or disruptive aspects associated with crisis and will focus efforts on communications and public relations. This presentation will provide opportunity to explore strategies for the individual and organisation to manage a crisis well. A broader context of crisis management consists of skills and techniques to identify, understand, evaluate and cope with such a serious situation, especially from the moment it first occurs to the point that recovery procedures start.

P4.1

The Changing Culture in Patient-centred Care

16:15 Convention Hall B

**Surgery as Placebo***Harris I**Orthopaedics Department, University of New South Wales, Australia*

Medicines require rigorous testing against other drugs or placebo in order to establish effectiveness. The same is not true for surgery, where practice is largely dictated by tradition and observational evidence. This calls the effectiveness of surgery into question. Placebo surgical studies, when performed, have frequently shown surgery to be relatively ineffective and many procedures, previously thought to be effective, have now been discarded.

This presentation covers the history of surgery as placebo, the reasons why surgery persists despite good evidence, or even in the face of evidence of lack of effectiveness and proposes solutions to the current situation in which much of current surgical practice may be ineffective.

P4.2

The Changing Culture in Patient-centred Care

16:15 Convention Hall B

**Quality Palliative Care Services – the Growing Demand***Goh-fung CR**Division of Palliative Medicine, National Cancer Centre Singapore, Singapore*

Palliative care used to be thought of as end-of-Life care. It is now realised that patients diagnosed with life-limiting conditions may need palliative care for many years before death, and that palliative care does not signal the end of all curative treatments. Rather, it is part of the continuum of holistic care alongside therapies that alter the course of the disease and prolong survival. Palliative care helps to alleviate symptoms, optimise physical and mental function and enables patients and their families to work through the options they have to achieve their life goals.

Public health measures and medical advances have enabled life expectancy to increase, not only in developed economies, but also low and middle income countries, and the whole world faces an ageing population. Technological improvements have provided an increasing array of options that may have an incremental improvement to survival. Governments have difficulty choosing which options, for example, a new drug, should be made available to all, while avoiding an impression of rationing. For the man in the street, as a consumer of healthcare, it is difficult to work out the trade-offs and alternatives. All the more is it important to have that conversation at a personal level to achieve the best quality of life consistent with a person's life goals.

Yet what constitutes Quality Palliative Care? From whose view point do we measure this?

This presentation will refer to the Quality of Death Index produced by the Economist Intelligence Unit, the tools healthcare institutions in different parts of the world use to measure and improve quality of care in palliative care, and ask whether the concerns of all stakeholders, including patients and their families, are being addressed.

# Symposiums

S1.1

Mental Health

13:15 Convention Hall C

## Social Justice for Persons with Mental Illness

*Bhugra D*

*Health Service and Population Research, Institute of Psychiatry, Psychology and Neuroscience, King's College London, UK*

Social discrimination against people with mental illness is common. Stigma against mental illness, against those with mental illness and those who deal with mental illness is also universal. Although various stigma reducing programmes have led to some reduction in stigma, the effort should focus on eliminating discrimination, which can be done through changes in the legal system. The variations in physical and mental health funding at research and clinical levels can be eliminated using legal means. In a survey of 193 member states of the United Nations, four areas of social discrimination - the right to vote, the right to marry, the right to make a will and inherit property and the right to employment – showed that in a majority of the countries there were high levels of discrimination. These observations led to developing a Bill of Rights for people with mental illness. Using models previously successfully employed by minority groups which led to changes towards equality, similar approaches deserve further exploration. Equality rights based funding and outcomes at a global level can offer one way forward. As major psychiatric disorders have underlying biopsychosocial causes and interventions, social determinants of health and interventions can be effected through changes in law.

S1.2

Mental Health

13:15 Convention Hall C

## Stigma/Anti-stigma Campaigning

*Mak IWC*

*Public Awareness Committee, Hong Kong College of Psychiatrists, Hong Kong*

The importance of mental health to our society has gained better recognition in recent years. Yet, stigma related to mental disorders or mental health services is regarded as the main reason for insufficient help-seeking. This presentation will discuss concept of stigma, some global anti-stigma campaigns, and the key principles of how to diminish it.

It will also introduce the local antistigma campaign “Look at Mi” organised by the Hong Kong College of Psychiatrists, and present the preliminary evaluation related to such work.



## S2.1

## Tele-medicine

13:15 Theatre 1

**The Application of Tele-medicine in the Virtual Doctor Programme***Thompson M**Portslade Health Centre, UK*

What is tele-medicine? What is tele-health? E-health? M-health? What are their applications? What are the pitfalls to their applications? We look at the history of tele-medicine, its development in recent years, evidence relating to its application and our own experience of developing a service in Zambia and its potential.

## S2.2

## Tele-medicine

13:15 Theatre 1

**Tele-medicine Consultation in Castle Peak Hospital for Stable Psychiatric Outpatients in Custody***Cheng KM**Department of General Adult Psychiatry, Castle Peak Hospital, Hong Kong***Background**

In Hong Kong, persons in custody receive primary medical care within the institutions of the Correctional Services Department (CSD). Nevertheless, they need to attend psychiatric specialist outpatient clinics (SOPCs) of the Hospital Authority for their mental problems. All along, these patients have to be escorted by CSD staff to attend follow-up at psychiatric SOPCs. For security reasons, they have to be escorted by at least two CSD staff and be handcuffed on every occasion. Such an exposing arrangement inevitably causes much embarrassment and stigmatisation. Furthermore, other patients in the SOPC may also feel uncomfortable seeing such a scene. To address the above problems, this study aims at assessing the benefits of using tele-medicine consultation for a group of stable psychiatric outpatients in custody.

**Methodology**

Eighty six stable outpatients in custody fulfilling the inclusion and exclusion criteria were recruited for tele-medicine consultations in CPH from June 2014 to May 2016. They were compared with 249 matched outpatients in custody attending the usual face-to-face consultations at other SOPCs. Baseline characteristics, difference in General Health Questionnaire scores before and after consultations (PrePost GHQ), the correlation of PrePost GHQ between the first and second tele-medicine consultation sessions, patient satisfaction, significant adverse events and cost analysis were measured. Data were analysed by U-test and Pearson correlation.

**Results and Outcomes**

Compared with the standard consultation group, the tele-medicine group showed a significantly better result in the PrePost GHQ ( $Z = -2.268$ ,  $p = 0.023$ ). The correlation between the first and second tele-medicine sessions also showed a moderate positive relationship ( $r = 0.406$ ,  $p = 0.029$ ). The satisfaction survey showed a favourable response to tele-medicine consultations. No significant adverse events were identified. An average of \$1,850 escort cost was saved for each tele-medicine consultation. The results suggested that tele-medicine consultation is a promising alternative for stable outpatients in custody.

# Symposiums

**S2.3****Tele-medicine****13:15 Theatre 1**

## Application of Tele-medicine in Rehabilitation and Chronic Disease Management

*Hui E**Department of Medicine and Geriatrics, Shatin Hospital, Hong Kong*

Tele-medicine was developed to reach out patients residing in remote areas with limited access to healthcare. In the late 1990s, tele-medicine was pioneered in New Territories East Cluster in collaboration with The Chinese University of Hong Kong. One successful model was delivering multi-disciplinary healthcare to residential care homes for the elderly by the Community Geriatric Assessment Team via real-time videoconference link. Subsequently, another model was introduced, comprising of patient education, training and empowerment by linking up hospital-based nurses and allied health staff with community social centres for senior citizens.

With the rapid advancement of Internet and mobile technology, tele-medicine-related solutions have been increasingly adopted in patient care. Tele-health and tele-care is frequently incorporated to care packages to support patients with chronic diseases. For example, patients with chronic obstructive airways disease and congestive heart failure can be supported at home with remote monitoring systems. Patient bio-data is transmitted to a server with built-in alarm triggers which will alert case managers. Mobile devices readily support real-time audio-video link between the patient and healthcare provider, enabling immediate assessment, advice and treatment.

Some successful models of tele-medicine in rehabilitation and chronic disease management, with evaluation of clinical outcomes and sustainability will be presented in this session.



**S3.1 Rehabilitation in the Community****14:30 Convention Hall C****Keys to Successful Transition into the Community***Low ML**The Salvation Army, Peacehaven Nursing Home, Singapore*

As medical technology advances, patients are recovering from Cerebral Vascular Accident, traumatic brain injury, the older person from fractures, however, the question raised would be where should they receive rehabilitation and what about wellness? Key to success of transition from service to service, to returning home lies within the critical integration and partnership among service providers.

Transitional Convalescent Facility (TCF) birth in December 2012, partnership between a Regional hospital and a Non-Government Organisation (NGO) to provide rehabilitation and wellness programme had saved 255 or 75% of clients from moving into nursing home, reducing disabilities and supporting family in caring for their member in the community. The 24 hours rehabilitation of care that encompasses every discipline of staff to motivate client to have a high sense of independence is one of the key to success in a home environment.

Upon reaching maximum potential, building muscle strength becomes the next important key to success to maintain their mobility including emphasis in building and maintaining muscle strength. Gym Tonic, an exercise programme funded by the Lien Foundation in Singapore had proven some standing result that healthcare staff should start to re-think in promoting health and wellness. The benefit to prevent another fracture, to reduce complication would reduce hospitalisation re-admission thereby reduce health care cost as population ages. It will improve quality of life and reduce dependency for caregiving.

**S3.2 Rehabilitation in the Community****14:30 Convention Hall C****Rehabilitation for a Million – Hospital as a Proactive Interface to Community Rehabilitation***Chow ESL**Department of Medicine and Geriatrics, Tuen Mun Hospital, Hong Kong*

As the major component of holistic rehabilitation, community rehabilitation services cover a broad dimension of rehabilitation goals, including but not limited to, the improvement of impairment, activity and participation. It also serves as an interface with other activities and dimensions of lives in the society.

Tuen Mun Hospital (TMH) Rehabilitation Centre was established in 2007 and serves as the cluster rehabilitation centre under the New Territories West Cluster of Hospital Authority in Hong Kong. The centre, being an integrative part of a major regional hospital, receives a large number of acute and non-acute patients who require rehabilitation with a great dimension of diagnoses, impairment and disabilities. Their needs, as expected, are highly variable. This presentation describes the Centre's development, from initial infrastructural design stage to subsequent service organisation and implementation, and how the hardware and software work together and evolve as a hub between hospital and various community rehabilitation sectors to cater for the rehabilitation needs of a million population. The outcomes and challenges will also be described.

# Symposiums

S3.3

Rehabilitation in the Community

14:30 Convention Hall C

## Rehabilitation for a Million – a Community Rehabilitation Model of New Territories West Community Rehabilitation Day Centre

Lui WF

*New Territories West Community Rehabilitation Day Centre, The Neighbourhood Advice - Action Council, Hong Kong*

### Introduction

The Neighbourhood Advice-Action Council (NAAC) New Territories West Community Rehabilitation Day Center (NCRC) is one of the four community rehabilitation day centres (CRDC) under the subsidy from the Social Welfare Department of the Government of the Hong Kong Special Administrative Region. NCRC provides a holistic rehabilitation training service to facilitate early discharge from hospital, enhance patients' physical function, strengthen domestic and community living skills and help integration into the community.

### Scope of services

The targeted participants for service at NCRC are discharged patients aged 15 and above, and suffered from stroke, neurological or physical impairments that affect their functional performance and in need of continuous rehabilitation training. Our professional team includes physiotherapists, occupational therapists, social workers, nurses, and CMP. Services provided include rehabilitation training, day care or day respite for severely disabled persons, carers' training, home visit and acupuncture service.

### Statistics

In 2016, the total number of new intake cases was 469 cases, with referrals from Tuen Mun Hospital (403 cases), Wu Hong clinic (25 cases), Pok Oi Hospital (five cases), Yan Oi General Outpatient Clinic (four cases) and others (32 cases). New intake case types were stroke (218 cases), pain (175 cases), neurological (25 cases), orthopaedic (16 cases) and others (35 cases). For rehabilitation training, we recorded a total of 3,773 attendants with an average of 314 attendants/month, and 17,825 attendances with an average of 1,485 attendants/month. For day care and day respite, we recorded a total of 698 attendants with an average of 58 attendants/month, and 5,582 attendances with an average of 465 attendants/month.

### Service outcomes

Upon discharge from our centre, we obtained a 100% satisfactory or very satisfactory level from clients via our feedback questionnaire.

### Networking in the community

Our centre also provides further networking of services in the community, including referral to TOHC, a home-based elderly training service; speech therapy and supported employment. These services are further referred through our social workers for suitable clients.

S4.1

Clinical Application of Big Data

16:15 Convention Hall C

**How Could Big Data Improve Quality of Healthcare**

Saria S

*Department of Computer Science, Johns Hopkins University, USA*

The widespread adoption of electronic health data, wearables, and high throughput measurement technologies are leading to explosion of datasets that measure—in a granular way—progression of disease and changes in health over time. The challenge lies in developing technologies and delivery processes that can effectively leverage this data to enable efficient and accurate decision making. Sepsis is the 11th leading cause of death. In this talk, I will do a deep dive in our work in reducing this and other preventable harms in the hospital setting; I will also discuss applications of these ideas in managing patients with complex, chronic diseases.

S4.2

Clinical Applications of Big Data

16:15 Convention Hall C

**Biostatistics Approach to Big Data in Medical Device Development – Automatic Retinal Image Analysis as an Example**

Zee B, Lee J, Chong M, Wang M, Kwok C, Lai M

*Division of Biostatistics, The Jockey Club School of Public Health and Primary Care, The Chinese University of Hong Kong, Hong Kong*

Advances in science and technology will bring many new treatments and diagnostics to the healthcare world. It is equally important to extend the innovation and technology advancements for disease prevention, health promotion, and health systems for prolonging life and improving quality of life in the general population. However, the healthcare demands of the public and the costs to achieve high standard from the healthcare providers are continuously increasing. Effective methods for disease prevention and monitoring would save lives and improve quality of life, reduce the risk of developing serious conditions or complications, and if appropriately utilise, it would reduce healthcare expenditure. Innovative approaches to health information management and in particular innovative disease monitoring techniques are therefore important to ensure that our healthcare services are affordable, accessible, and available both in the hospital and in the community.

In this presentation, we will discuss new biostatistics approaches and research on developments using: (1) cloud and internet computing; (2) mobile health management; (3) machine learning and predictive analytic methods; and (4) automation approach for potential applications that contribute to solving part of the public health problems. We would discuss our own projects, including some of the older projects that were not as successful due to various reasons, and also the “Automatic Retinal Image Analysis (ARIA)” method for stroke risk assessment, early dementia and other vascular related indications as a relatively more successful example. The aim of this presentation is to foster communication for more fruitful collaboration between healthcare professionals and biostatisticians.

# Special Sessions

SS1.1

Mainland China Healthcare

10:45 Theatre 2

## Application of Big Data: Evaluating the Medical Services in Shanghai Public Hospitals

### 上海公立醫院 — 基於大數據的醫療服務評價

Wu JL 鄒驚雷

Shanghai Municipal Commission of Health and Family Planning, The People's Republic of China

中華人民共和國上海市衛生和計劃生育委員會

上海市將大數據和信息化技術應用於醫改，初步建立了基於大數據的改革推進模式，推動醫藥衛生管理方式從傳統管理向現代化、專業化、精細化管理轉變。

主要做法：一是建立住院病種組合指數：基於全市病案首頁個案數據，按照疾病診斷與治療方式進行分組，形成 29 萬多個病種技術組合。某病種組合指數（RW）= 該病種技術組合全市平均費用 / 所有出院病例平均費用。病種組合指數是不同病種出院病例的標化工具，利用該指數實現不同醫院醫療服務產出的可比。在病種組合指數基礎上，可計算醫院、科室或者醫生的平均病種組合指數（CMI），作為醫療衛生服務產出評價參考。二是建立門診病種指數：與住院病種組合指數方法類似，突出人頭概念，淡化人次概念，計算門診病種指數，並同樣可以計算某公立醫院平均門診綜合指數。三是建立費用預估模型標準：通過大數據，分析每一指數對應的醫療費用單價，以及每個單價的費用結構，在此基礎上建立了本市公立醫院醫療費用預估模型，具體包括總費用預估模型、各醫療機構總費用預估模型、門診費用預估模型、住院費用預估模型等。

通過住院和門診病種指數等，可以建立基於標準的公立醫院服務產出評價機制，實現全方位、精細化的評價，客觀反映醫院的病種難度、資源消耗、成本結構、個人負擔等情況。上述評價方法還可以應用於社會公示、費用調控、醫院規劃、崗位設置、床位控制、醫院等級評定等，並逐步與財政投入、醫保總額、績效工資總量核定等掛鉤，促使公立醫院回歸其功能定位，提供合理有價值的服務。

SS1.2

Mainland China Healthcare

10:45 Theatre 2

## Smart Healthcare Innovations in Beijing

### 智慧創新，服務健康

Fang LY 方來英

Beijing Municipal Commission of Health and Family Planning, The People's Republic of China

中華人民共和國北京市衛生和計劃生育委員會

當今科學技術快速發展，信息技術用更高效的操作模式改變了傳統業務流程。智慧醫療是信息技術與生命科學的交叉應用，是面向醫療、康復、護理以及養老的大健康體系，涉及醫療服務、公共衛生、醫療保障、藥品供應保障、健康管理等多個方面。智慧醫療是信息技術與醫療健康服務和管理的深入融合，對醫療服務模式、衛生管理方式、居民健康管理等產生了深刻影響。但在醫療數據、系統安全、建設保障、資源分享、評價體系等方面仍存在一些問題與挑戰。智慧醫療在未來的發展道路上，仍需加強宏觀指導、擴大信息共用範圍，以更好地滿足患者的需求。

## SS2.1

## Simulation in Clinical Training and Assessment

13:15 Theatre 2

**Use of Simulation in Disaster Medicine Training**

Chung HS

*Emergency Medicine Department, Yonsei University College of Medicine, Korea*

Simulation-based training and assessment is playing an increasingly important role in preparing responders, of all disciplines, to disasters and mass casualty incidents to address both technical and non-technical skills. In addition to the focus on skill acquisition, it is important to ensure that responders are able to perform a variety of tasks in unique and challenging situations. These situations include response to mass casualties, natural and industrial disasters, managing disease outbreaks, and preparation for wartime missions. Simulation-based training can be a valuable training modality in these situations as it allows opportunities to practice and prepare for high-risk, and often low-frequency events.

Disaster preparedness training and assessment is a highly complex endeavour. To ensure the highest value of this type of training, special attention should be given to ensure the design of the simulation to be aligned with the specific needs of the targeted learners and the unique characteristics of the systems in which the individuals will perform. Training must include well-defined outcomes, objectives and performance indicators that participants are expected to achieve, and these skills need to be assessed using valid and reliable assessment tools and methods. Results of the assessed performance (individual, team, system) need to be provided with specific feedback and performance improvement planning, to build, sustain and improve the potential to prepare for, respond to, and recover from a wide range of large-scale disaster scenarios.

In this presentation, we will share the lessons learned in developing, implementing and assessing simulation-based programme for disaster crisis events. Attendees will be exposed to several different simulation modalities for preparing healthcare providers in disaster crisis, including table top, part task trainers, full bodies mannequin, and large-scale drill simulation.

## SS2.2

## Simulation in Clinical Training and Assessment

13:15 Theatre 2

**The Art and Science of Debriefing in Healthcare Learning**

So HY

*Quality and Safety Division, New Territories East Cluster, Hospital Authority, Hong Kong*

Effective learning is one of the most important methods to ensure quality in healthcare, especially in an era of rapid change. Experiential learning is one of the most effective methods of learning. However, Professor Dewey already pointed out that "not every experience results in education or learning" long ago. We need to reflect on our experience in order to learn. Debriefing is the process in which the simulation experience are examined, discussed and turned into learning. There are important principles to follow for debriefing to be effective. In this presentation, the Debriefing Assessment for Simulation in Healthcare will be used as a framework to discuss some of those principles, and how these can be used for learning outside simulation will also be discussed.

## Special Sessions

**SS2.3****Simulation in Clinical Training and Assessment****13:15 Theatre 2****Teaching Crew Resource Management with Clinical Simulation: We Learned More than We Taught***Choi YF**Accident and Emergency Department, Pamela Youde Nethersole Eastern Hospital, Hong Kong*

Clinical simulation is such a fascinating tool for staff participants as well as trainers. The Nethersole Clinical Simulation Training Center (NCSTC) of Pamela Youde Nethersole Eastern Hospital has been hosting simulation training as a tool for crew resource management (CRM) since 2014 sponsored by the Hospital Authority. We developed a whole day course with only about 30 minutes didactic content in contrast to most of the local CRM training courses. Two years is over, it is out of our expectation that we as trainers actually learned more than we taught. A phenomenon of social constructivism has been well observed throughout the time and we learned a lot of new perspectives about CRM through debriefing by taking the viewpoints from participants and observations from trainers. The conclusions are: we started to teach CRM without knowing what actually it was from the beginning and the participants enabled us to gain a deeper insight on how the subject worked locally. The power of simulation was beyond our imagination. Besides the above findings, we also appreciated that clinical simulation could possibly be used as a diagnostic tool for micro-culture of a department for educators and management staff to formulate future training strategy.



**SS3.1 Preserve Fertility****14:30 Theatre 2****Surgical Strategies to Preserve Fertility***Li TC**Department of Obstetrics and Gynaecology, The Chinese University of Hong Kong, Hong Kong*

Various operations on the female reproductive tract may adversely affect fertility. Any operations on the reproductive tract of women of reproductive age group must have a sufficiently strong indication to justify the intervention. Medical or less invasive options ought to be considered prior to surgical treatment. When surgery is performed, great care must be taken to preserve tissues and functions. Careful assessment of the functional status of the organ should help to decide whether the affected organ should be removed or reconstructed. The mechanical or electrical energy used should be kept to a minimum to avoid unnecessary damage to healthy tissue. Preventive measures should be implemented to avoid any iatrogenic damage to the fallopian tube, ovary and uterus (especially endometrium) during an operation for women of reproductive age. Difficult intrauterine surgery should be guided by ultrasonography or directed by hysteroscopy if at all possible.

**SS3.2 Preserve Fertility****14:30 Theatre 2****Embryo and Oocyte Freezing to Preserve Fertility***Chung J**Department of Obstetrics and Gynaecology, The Chinese University of Hong Kong, Hong Kong*

With the advancement in diagnosis and treatment of cancer, the overall survival rate in young cancer patients has increased. However, anti-cancer treatment including chemotherapy and radiotherapy are often highly detrimental to the female endocrine and reproductive function.

The fecundity of these young cancer survivors is the key quality of life issue after their recovery. Despite the existence of multiple international guidelines for clinical practitioners on the issue of fertility preservation, many physicians still initiate anti-cancer treatment without detailed consultation on post-treatment fertility.

Fertility preservation refers to the means to preserve the woman's hormonal function as well as fertility from the damage of anti-cancer treatment. A variety of fertility preservation strategies are available and the option of fertility preservation should be individualised for each patient. This presentation aims to discuss the various options of fertility preservation, especially those involving assisted reproductive technology with embryo and oocyte freezing and an individualised approach will be shared.

# Masterclasses

## M1.1 Diabetic Eye Disease: What's New?

10:45 Room 221

### Diabetic and the Eye: An Introduction

Iu LPL

Department of Ophthalmology, Queen Mary Hospital, Hong Kong

Diabetes mellitus is one of the most common causes of visual impairment and blindness in the middle-aged and elderly. Eyes can be affected by diabetes in the form of diabetic retinopathy, diabetic macular oedema, retinal vascular occlusion, ocular ischaemic syndrome and cataract.

Diabetic macular oedema is characterised by accumulation of fluid and macula exudation is due to leakage from abnormal vessels. Recent advances in technology have expanded the available investigation and treatment modalities. Optical coherence tomography provides cross-sectional images of retina and is useful to monitor the disease progress and response to treatment. New treatment options include intravitreal anti-vascular endothelial growth factor agents, intravitreal long-acting steroid and subthreshold macular laser.

Proliferative diabetic retinopathy is a result of poorly controlled diabetes. It is characterised by the presence of neovascularisation and associated with high risk of severe visual loss. Intravitreal anti-vascular endothelial growth factor agents provide effective suppression of neovascularisation. Panretinal laser photocoagulation provides long-term control of vascular proliferation. Surgical intervention is necessary to avoid major complications of vitreous haemorrhage and tractional retinal detachment.

Glycaemic control, management of co-morbidities (such as hypertension and obesity), regular eye screening and prompt intervention are the keys to successful management. This talk will give an overview of how the eye is affected by diabetes and how different eye problems should be managed with illustrative case presentations.

## M1.2 Diabetic Eye Disease: What's New?

10:45 Room 221

### Cost Effectiveness Analysis of the Current Screening Protocol in Detecting Diabetic Macular Edema (DME)

Wong I

Department of Ophthalmology, The University of Hong Kong, Hong Kong

#### Objectives

(1) To compare the sensitivity indexes of the current fundus photo-based screening strategy (Strategy A) in detecting diabetic macular edema (DME) with three new screening strategies involving: (a) removing retinal hemorrhage on fundus photo as a surrogate marker for maculopathy (Strategy B), or (b) adding best-corrected visual acuity (BCVA) measurement and performing optical coherence tomography (OCT) scans on selected cases on top of the current protocol (Strategy C), or (c) adding OCT scans for all subjects in addition to the current protocol (Strategy D). (2) To develop a cost-effective model to identify the most cost-effective strategy.

#### Methodology

In this cross-sectional, observational study, subjects were screened according to the protocol set out in Strategy A, i.e. the current fundus-photo based protocol. BCVA and OCT scans of the macula were performed on all subjects. Each subject was simulated to undergo each of the four strategies. Should maculopathy be detected according to the specific criteria in a particular strategy, it would be recorded and assumed to be referred. Costs of the screening, ophthalmologist consultation, and treatment for up to 12 months were estimated. Quality-adjusted-life-years (QALYs) gained was calculated for each specific strategy. Incremental cost-effective ratios (ICERs) were calculated with Strategy A as the benchmark. The local gross domestic product per capita and US\$50,000/QALY gained were used as references to determine cost-effectiveness.

#### Results

All strategies were found to be "very cost-effective". In particular, Strategy D was found to be most cost-effective among the four. Although it cost the most, it enabled the most QALY gained, hence the cost per QALY gained was the lowest.

#### Conclusion

Incorporating OCT scans of the macula for all on top of the current protocol (i.e. Strategy D) appeared to be more cost-effective than the current protocol. This should be considered in future planning.

M1.3

Diabetic Eye Disease: What's New?

10:45 Room 221

**Prevention of Diabetes Mellitus Retinopathy: Glycaemic Control and Beyond**

Choi CH

Department of Medicine, Queen Elizabeth Hospital, Hong Kong

One important target of diabetes (DM) management is the prevention of diabetes retinopathy (DMR), which is quite common in those with prolonged disease and poor glycaemic control, and can be potentially leading to blindness. Numerous studies confirmed that good glycaemic control can prevent the development or retard the progression of DMR, both in type 1 and type 2 DM patients. More recent studies also revealed that other factors like appropriate blood pressure and lipid control may also be equally important in preventing DMR. Moreover different new classes of hypoglycaemic agents like glycogen-like peptide-1 agonist (GLP-1A) and sodium-glucose co-transporter-2 inhibitor (SGLT-2I) and bariatric surgery may have different specific effects, whether good or bad, on DMR. In future, hopefully we can find out the missing link between DM and DMR, through the understanding of genomic variations, epigenetic transcriptome, metabolome and microbiomes fingerprinting, so that we can provide personalised care to patients.

M1.4

Diabetic Eye Disease: What's New?

10:45 Room 221

**Latest Evidence Basis for Treatment of Diabetic Retinopathy and Diabetic Macular Edema**

Brelan M

Department of Ophthalmology and Visual Sciences, The Chinese University of Hong Kong, Hong Kong

The prevalence of diabetes continues to rise globally and it is now estimated that more than 4 million adults have diabetic retinopathy (DR). As ophthalmologists, we are becoming increasingly challenged in the screening and management of diabetic eye disease. Recently anti-Vascular Endothelial Growth Factors (anti-VEGFs) have revolutionised our management of patients with DR and diabetic macular edema (DME). However, there are still many challenges remained. We are still faced with the difficulty of early detection and prompt treatment of patients with potential sight-threatening retinopathy. The currently available treatments are both costly and have a heavy treatment burden on patients and caregivers. Finally, a substantial proportion of patients is failing treatments despite maximal medical therapy. There are therefore continuous improvements in the management of patients as well as novel therapies becoming available. This presentation will aim to summarise the most recent advances in these areas. The recent published and ongoing clinical trials in DR and DME management will be summarised. The learning objectives for audiences are to appreciate the challenges that still remain in the management of DR and DME and what new treatment options are now available.

# Masterclasses

M1.5

Diabetic Eye Disease: What's New?

10:45 Room 221

## Surgical Management of Diabetic Eye Disease: Recent Advances

Yuen YF

Department of Ophthalmology, Caritas Medical Centre, Hong Kong

Diabetic retinopathy (DR) is a chronic ocular complication of diabetes that is seen to some degree in all diabetes. The rate of progression varies depending on the duration of the disease, glycaemic control, hypertension and genetics. Ocular ischaemia, a result of diabetes-related microvascular injury and reduced perfusion, is the primary stimulus for retinal and iris neovascularisation. Proliferative diabetic retinopathy (PDR) currently remains the more dramatic and sight-threatening complication needing prompt and effective treatment.

Proliferative DR is not only characterised by retinal and iris neovascularisation, and vitreous haemorrhage (VH) but also includes rubeosis iridis, neovascular glaucoma, development of pre-retinal fibrous membranes with tractional retinal detachment (TRD) and sometimes a combined tractional-rhegmatogenous DR. Advanced PDR can include anterior fibrovascular proliferation leading to cyclitic membrane formation and hypotony.

Panretinal laser photocoagulation (PRP) is the standard of care for the treatment of severe non-proliferative and proliferative DR. It works by reducing oxygen demand and decreasing ischaemic-related VEGF levels, thereby resulting in regression of neovascularisation. Studies showed that PRP is able to reduce the risk of severe visual loss by at least 50%.

Pars plana vitrectomy (PPV) is indicated in eyes with advanced DR, including PDR with non-clearing VH and TRD involving or threatening the macula. Fibrovascular proliferations will be removed and PRP is applied intra-operatively. Peri-operative use of anti-VEGF as an adjunctive therapy is also advocated so as to reduce the complication of intra-operative bleeding.

In early NVG cases, PRP remains the mainstay of treatment. However, when synechial angle closure has already developed, PRP may not have significant effect on intraocular pressure (IOP). Surgical intervention with either filtration surgery or a shunt procedure is then indicated to control the IOP.

## M2.1

## Cerebral Revascularisation for Stroke Prevention

13:15 Convention Hall A

**Mechanical Thrombectomy in Acute Ischaemic Stroke – from Science to Service**

Lui WM

Department of Neurosurgery, Queen Mary Hospital, Hong Kong

Intravenous thrombolysis is an effective treatment for acute ischaemic stroke. However, vascular recanalisation rates remain low especially in the setting of large artery occlusion. On the other hand, endovascular intra-arterial therapy addresses this issue with superior recanalisation rates compared with intravenous thrombolysis. Although previous randomised controlled studies of intra-arterial therapy failed to demonstrate its superiority, the failings may be attributed to a combination of inferior intra-arterial devices and suboptimal selection criteria. The recent results of several randomised controlled trials have demonstrated significantly improved outcomes, underpinning the advantage of newer intra-arterial devices and superior recanalisation rates, leading to renewed interest in establishing intra-arterial therapy as the gold standard for acute ischaemic stroke.

In this presentation, the current evidence on endovascular therapy in acute ischemic stroke will be reviewed and the major challenges in the implementation of this therapy will be discussed. We address the challenges of the generalisability of trial results to different patient populations, socio-economic aspect, implementation of endovascular therapy in the acute setting for large populations within various geographical contexts, and approaches to evaluating future innovations in the field of neuroendovascular care.

## M2.2

## Cerebral Revascularisation for Stroke Prevention

13:15 Convention Hall A

**Cerebral Revascularisation: Microsurgical Approach on Stroke Prevention**

Yuen SC

Department of Neurosurgery, Tuen Mun Hospital, Hong Kong

Ischemic stroke is a major cause of morbidity and mortality in our population. Acute stroke treatment has evolved rapidly in the past decade. Once a medical disease, emergent large-vessel occlusions can be effectively treated by neuroendovascular procedures. For stroke prevention, neurosurgeons are actually playing an active role in past decades. Carotid endarterectomy is one of the most well studied procedures in neurosurgery. Large-scale trials have demonstrated definitive benefit in patients with severe carotid stenosis, both symptomatic and asymptomatic. With the introduction of stenting techniques, major trials have not proven these to be superior to carotid stenosis. Carotid endarterectomy remains an important procedure for preventing stroke.

In 1967, Yasargil performed the first successful superficial temporal artery to middle cerebral artery (STA-MCA) bypass. Since then, this procedure has been used to treat cerebrovascular occlusive diseases. Symptomatic internal carotid artery or middle cerebral artery stenosis or occlusion are major indications. However, different studies did not show favourable results except the Japanese EC-IC Bypass Trial. In addition, endovascular techniques also replace bypass for stenosis. STA-MCA still has a role in selected patients who failed to respond to medical treatment and endovascular therapy.

This presentation will share the experience of Tuen Mun Hospital in managing ischemic stroke patients by microvascular procedures, carotid endarterectomy and EC-IC bypass.

## Masterclasses

**M2.3****Cerebral Revascularisation for Stroke Prevention****13:15 Convention Hall A****Cerebral Revascularisation by Best Medical Treatment***Wong KS**Department of Medicine and Therapeutics, Prince of Wales Hospital, Hong Kong*

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## M3.1

## Recent Advances in Management of Distal Radius Fracture

13:15

Room 423 &amp; 424

**Strategies in Fragility Distal Radius Fracture**

Chow YY

*Department of Orthopaedics and Traumatology, Tuen Mun Hospital, Hong Kong*

Distal radius fracture has always been a common clinical entity in orthopaedics practice. When such fracture happens in an elderly patient, it should not be treated as “just another fracture”. The term “fragility fracture” has been used to describe fractures happening in patients with fragile bones. When we grow old, our bones will become fragile. With the global ageing populations, we are facing a rapid increase in such fractures worldwide, Hong Kong is no exception. When a patient presents with fragility fracture of the wrist, it signifies that the patient has come to a stage in his/her life that more and more healthcare service is needed. Focusing on the fracture itself, there has been a lot of advances in the clinical management over the past 10 to 15 years. New implants are now available in market that could allow us to fix fragile bones with much better outcomes than before. Artificial bone substitutes are also very good in filling large bone defects after injury which is not uncommon in osteoporotic bones. Similar to most medical devices, all these new armamentarium are expensive. The other related treatments indicated for this group of patient would include rehabilitation services, pharmacological management of osteoporosis and in some cases, long-term institutionalised care because of the underlying health issues. All of these are very expensive. It is the duty of the clinicians to present these potential problems to the Hospital Authority. Hopefully appropriate long-term plans in prevention and comprehensive management of this fracture will be in place soon. Fragility fracture of the wrist might look apparently simple to many healthcare service policy makers but for sure it is going to impose a big burden to our future healthcare services budget.

## M3.2

## Recent Advances in Management of Distal Radius Fracture

13:15

Room 423 &amp; 424

**Will Casting be Enough for Distal Radius Fracture?**

Chan PT

*Department of Orthopaedics and Traumatology, Tuen Mun Hospital, Hong Kong*

Treatment of distal radius fracture had been evolving for past two decades. Our armamentarium of treatment for distal radius is ever expanding. While there is no golden standard treatment, the old techniques, namely casting, still play an important role in the management of these common fractures.

Close reduction and casting have been the treatment of choice for those of stable fracture. Yet, it is important to identify those unstable fracture or fracture with articular incongruity. These may benefit from other treatment methods. Whilst the outcome in carefully selected cases is acceptable, studies had shown that more than 40% conservatively treated patients will need subsequent operations. Meticulous monitoring to look for loss of reduction is important for success of conservative treatment. Yet, this will place a heavy workload in the busy outpatient clinic.

When the fracture is malunited after casting, trapezoidal osteotomy is an effective method to correct the alignment and improve symptoms. In past few years, we have performed trapezoidal osteotomy in more than 10 malunited distal radius. The clinical outcomes of this procedure are good in most cases.

# Masterclasses

**M3.3**
**Recent Advances in Management of Distal Radius Fracture**
**13:15 Room 423 & 424**

## Outcome with Advanced Technique of Fracture Fixation

Wong HK

Department of Orthopaedics and Traumatology, Princess Margaret Hospital, Hong Kong

Distal radius fractures are common injuries. They can be treated with conservative treatment or operative treatment. Conservative treatment for unstable fractures, displaced intra-articular fractures and fractures irreducible by closed reduction will give rise to poor outcome. Computed tomography is useful in assessing the configuration of intra-articular fractures.

Open reduction or arthroscopic assisted reduction and internal fixation can allow accurate reduction of the displaced intra-articular fractures. Internal fixation with angular stable locking plates after restoring the normal anatomy can allow immediate post-operative mobilisation to minimise wrist joint stiffness. There are many different designs of regional specific implants available in the market.

Volar plating is the treatment of choice in most fracture types. It can provide better soft-tissue coverage and less tendon irritation.

Open reduction and dorsal plating may be required in some cases when a volar approach alone cannot achieve anatomical articular reduction and stable fixation. It is technically more demanding and requires careful and well planned soft tissue handling.

**M3.4**
**Recent Advances in Management of Distal Radius Fracture**
**13:15 Room 423 & 424**

## Soft Tissue Complication Associated with Distal Radius Fracture

Yau E

Hand and Microvascular Service, Department of Orthopaedics and Traumatology, Queen Elizabeth Hospital, Hong Kong

Closed reduction and plaster cast immobilisation remain the mainstay of treatment of stable distal radius fractures. For unstable injuries, surgical intervention is indicated. Advancement in surgical techniques and fixation devices over the past decades has enabled surgical fixation stable enough for early mobilisation of the wrist, which in turn hastens recovery. A lot of previously unrecognised soft tissue injuries left to heal through immobilisation were brought to light therefore. More rigorous assessment of outcome of this common fracture also contributes to the recognition of these pathologies. The more common soft tissue complications include triangular fibrocartilage complex (TFCC) tear, carpal interosseous ligament injury and median nerve compromise.

TFCC injury occurs in 40% to 70% of intra-articular fractures of distal radius in young patients. Left untreated, symptomatic distal radioulnar joint instability with chronic ulnar pain can develop. Carpal interosseous ligament injury, scapholunate and lunotriquetral ligaments in particular, can cause carpal malalignment. Pain and early osteoarthritis of the wrist can develop in malaligned carpus. These injuries can be diagnosed by careful pre-operative clinical and radiological assessments. Arthroscopic assessment of the wrist at the time of fracture fixation allows accurate diagnosis of these conditions. The development of "dry arthroscopy" decreases the risk of compartment syndrome associated with traditional arthroscopic technique requiring fluid insufflation of the joint.

Median nerve dysfunction can result from nerve compression by soft tissue swelling or haematoma, or contusion of the nerve diminishing its function masking the evolving compartment syndrome in the carpal canal. The latter mechanism has led to the practice of prophylactic carpal tunnel release by some surgeons in cases of high energy trauma.

Treating distal radius fractures, therefore, does not only involve bony fixation. Satisfactory outcome can only be obtained when associated soft tissue injuries are addressed.

## M3.5

## Recent Advances in Management of Distal Radius Fracture

13:15

Room 423 &amp; 424

**Impact of Distal Radius Fracture Rehabilitation on Patient and Hospital**

Ly CYF

*Physiotherapy Department, Tuen Mun Hospital, Hong Kong*

Fracture distal radius is one of the most common types of fractures which affects different age group. This condition has been a concern for healthcare professionals. The most common cause of distal radius fracture in elderly and children is the high risk of fall. However, its incidence in young adult could not be under-estimated especially in those post-menopausal women.

Rehabilitation period depends on types of injury, different strategies used in management of fracture, as well as the age group. Patient with osteoporotic fracture distal radius related to menopause not only need to bear the expenditure on rehabilitation, but also need to face the challenges of re-fracture as osteoporosis renders simple fracture unstable. In elderly, considering the longer life expectancy and more active lifestyles, the number of fracture distal radius is expected to increase. The most common cause of fracture results from low-energy fall. Fall prevention programme in senile fragility fracture is another challenge faced by healthcare professionals in rehabilitation setting after fracture distal radius. Children after fracture need to undergo training to maximise their physical and functional recovery due to the fact of their high activity level. There is an increasing number of sports related distal radius fracture in adolescent. Due to their high level of physical demand, athletes represent a unique subset of the population. Knowledge of these entities and special consideration for the athlete can help the medical professionals effectively treat these players and help them achieve their goals. Moreover, the prevention of sports injury is crucial.

With the increasing incidence and medical cost on management of distal radius fracture, there is increasing impact on human and monetary resources in hospital level. Also, it is important to analyse the preventive measures and treatment protocols for individuals who are at a high risk of injury. A change in direction on the management approach for this group of patient may therefore be required.

## M3.6

## Recent Advances in Management of Distal Radius Fracture

13:15

Room 423 &amp; 424

**Manage the Functional Outcome Following Distal Radius Fracture**

Lau LCF

*Occupational Therapy Department, Queen Elizabeth Hospital, Hong Kong*

Distal radius fracture is one of the common upper limb injuries presenting to the emergency department. With proper reduction and rigid fixation, early rehabilitation including splinting, mobilisation and functional training could begin immediately to achieve optimal range of motion, strength and functional independence.

Literatures reported ongoing pain and disability could last for more than a year in some population with complications such as stiffness, malunion, delayed return to work and increased incidence of subsequent fracture. Clinicians should understand and address the potential risks including personal and environmental factors, and integrate into clinical decision on management of wrist fractures. Secondary injury prevention for elderly patient should also be addressed.

These reported factors may prolong the rehabilitation period. Intensive and comprehensive intervention by a multi-disciplinary team is needed for a better functional outcome.

# Masterclasses

**M4.1**

## Multi-disciplinary Management of Neurometabolic Disorders

**14:30 Convention Hall A**

### Neurometabolic Diseases: Current Scenario and Hope

Fung CW

Department of Paediatrics and Adolescent Medicine, The Duchess of Kent Children's Hospital at Sandy Bay, Hong Kong

Neurometabolic diseases were a group of inborn errors of metabolism with neurological involvement. Most of these diseases were once thought to be untreatable and patients could end up in a neurodegenerative process. In recent years, the field of neurometabolic diseases has been rapidly expanding:

- (1) Advances in understanding the underlying biochemical and molecular mechanisms allowing some "old and non-metabolic" diseases to be re-classified into inborn errors of metabolism
- (2) Novel diseases have been discovered
- (3) Atypical and milder phenotypes are reported
- (4) The number of potentially treatable neurometabolic diseases is increasing
- (5) Novel treatment strategies are either available or under trials

However, diagnosing neurometabolic diseases remain a major challenge to front-line clinicians. Phenotypic overlap does occur with other non-neurometabolic neurodegenerative or neurogenetic diseases. Use of a panel of laboratory tests for screening within a well-defined clinical context remains a useful approach especially targeted for those diseases that are potentially treatable but may not be picked up through newborn screening. Unfortunately, negative screening does not rule out neurometabolic diseases. Diagnosis relies on a close collaboration between clinical, radiological and pathology specialists aiming at:

- (6) Precise and accurate clinical phenotyping
- (7) Understanding false positivity and false negativity of an individual neurometabolic investigation
- (8) Use of one or a battery of biochemical and/or molecular test(s) to make the final diagnosis

Management can be disease-specific especially for those disorders which are potentially treatable. Otherwise, multi-disciplinary approach would still be universal involving expertise from various allied health professionals and cross-subspecialties.

Through case illustrations and data from a tertiary referral centre for neurometabolic diseases in Hong Kong West Cluster, "HOPE" would be the future for our patients.

**M4.2**

## Multi-disciplinary Management of Neurometabolic Disorders

**14:30 Convention Hall A**

### Imaging Neurometabolic Disease – Piecing Together the Puzzle

Kan E

Department of Radiology, Hong Kong Children's Hospital, Hong Kong

Diagnosing neurometabolic disease is often challenging. The increasing availability of sophisticated diagnostic methods including advanced imaging techniques in magnetic resonance imaging, histopathological and molecular genetic investigational tools and laboratory tests facilitating early and accurate diagnosis have helped to elucidate underlying pathological processes.

Developing an approach using helpful clues in clinical presentation, appreciation of abnormal myelination, pattern recognition (e.g. subcortical vs deep white matter, or frontal vs parieto-occipital), and identification of key imaging features (e.g. contrast enhancement, calcification, cysts and cortical dysplasia) are important clues for diagnosis of these often under-recognised or misdiagnosed diseases.

**M4.3 Multi-disciplinary Management of Neurometabolic Disorders**
**14:30 Convention Hall A**
**Laboratory Investigations of Neurometabolic Disorders**

Yuen LYP

Department of Chemical Pathology, Prince of Wales Hospital, Hong Kong

Neurometabolic disorders can be defined as inborn errors of metabolism (IEM) with prominent neurological manifestations such as seizure and mental retardation. Accurate and timely diagnosis of these disorders is important and yet extremely challenging. One factor contributing to the difficulty is that the signs and symptoms of neurometabolic disorders can be very non-specific and can mimic other common conditions. Also, neurometabolic disorder is very rare and is thus extremely difficult for local paediatric units to accumulate experience. Moreover, some special laboratory investigations are only available in overseas centres which create numerous logistical and financial hurdles to frontline clinical colleagues.

Neurometabolic disorders affect the myriad of human metabolic pathways, each of which may require special laboratory investigations. From a local perspective, laboratory investigations for neurometabolic disorders can be divided into three groups. The first group is the basic investigations, for example, ammonia, lactate, plasma amino acids and urine organic acids. These investigations are readily available and should be requested for patients with suspected neurometabolic disorders regardless of the actual clinical presentation. The second group is the more specific metabolic investigations available locally, for example, urine glycosaminoglycans, urine oligosaccharides, serum very-long-chain fatty acids, serum transferrin isoelectric focusing and cerebrospinal fluid neurotransmitters. These are the screening tests for mucopolysaccharidosis, lysosomal storage disorders, peroxisomal disorders, congenital disorders of glycosylation and specific IEM that affects the synthesis of dopamine and serotonin in the central nervous system. Although they are considered screening tests for certain disease groups, their sensitivity may not be high enough to exclude a disease group by a negative analysis result. The third group is the analysis of disease-causing genes by various genetic or genomic techniques. With increasing clinical application of whole exome sequencing, our reliance on genomic analysis to diagnose neurometabolic disorders has increased dramatically in the past few years and this trend is likely to continue.

**M4.4 Multi-disciplinary Management of Neurometabolic Disorders**
**14:30 Convention Hall A**
**Physiotherapy Management for Children with Neurometabolic Disorders**

Chiu A

Department of Physiotherapy, The Duchess of Kent Children's Hospital at Sandy Bay, Hong Kong

Inborn errors of metabolism are a group of genetic disorders with characteristics of dysfunction of an enzyme or other protein involved in cellular metabolism. Most of these disorders involve the nervous system (neurometabolic diseases) and often present with a complex clinical picture with psychomotor retardation and/or regression, ataxia, hypotonia, and epilepsy and movement disorders. Some of them will have respiratory complications in later stage.

Children with neurometabolic diseases are under multi-disciplinary care in our team. They are referred to physiotherapy as early as in diagnostic stage. Disease progress will be monitored clinically with detailed developmental, neurological and movement assessment. In this presentation, we shall introduce the different clinical assessments for movement disorders, physiotherapy interventions at different stages of the diseases that include developmental, functional and aerobic capacity training, pain and symptoms management, pulmonary care programmes as well as palliative care support. Recent evidences of these practices are reviewed. The importance of collaboration with schools and community partners and empowerment of caregiver's through education and support are also emphasised.

# Masterclasses

## M5.1 Metabolic and Bariatric Surgery in Hong Kong

14:30 Room 423 & 424

### Paradigm Shift – from Bariatric to Metabolic Surgery

Wong SKH

Department of Surgery, Prince of Wales Hospital, Hong Kong

Obesity and type 2 diabetes mellitus (T2DM) are ongoing healthcare problems in Hong Kong. Both diseases are closely related and very difficult to be controlled by current medical treatment. In a survey in 2012, 18.8% of the Hong Kong population has BMI>25kg/m<sup>2</sup> and 3.4% has BMI>30kg/m<sup>2</sup>, which means that more than 150,000 people have severe obesity that required close attention. Since the first adjustable gastric banding was performed in the Prince of Wales Hospital in 2002, effort was made to raise the awareness for both patients and physician on the use of surgery to manage obesity and its comorbidities. Over the last decade, more than 1,000 cases of bariatric surgery were performed and according to the SOMIP database, the morbidity of surgery has significantly improved over the past few years.

On the other hand, T2DM is a more important epidemic health problem than obesity as about 10% of population has T2DM. However, less than 50% of our diabetic patients can achieve optimal glycaemic control of HbA1c<7%. As surgery is the most powerful ammunition for obesity treatment with strong evidence that surgeries can induce remission of T2DM in obese patients, the focus of bariatric surgery has slowly shifted as a treatment option for T2DM. In 2016, a new international guideline is published which recommends obese diabetic patients to consider metabolic surgery especially when their glycaemic control is suboptimal. In most recent International Federation for Surgery of Obesity global registry, Hong Kong has the highest proportion of DM patients who undergo operation and over 60% of our operation is aimed at diabetes resolution. More than 50% of our diabetes patients achieved remission after surgery and the result is encouraging. However, we noted that young-onset diabetes (onset<40 years) is common in Hong Kong. They have higher BMI with poor glycaemic control. Without optimal control, they are more likely to suffer from diabetic complications, which will increase the burden of our healthcare system in the future. We believe that by performing an effective and safe surgery, metabolic and bariatric surgery will be more widely accepted by patients, physicians and health administrators in the future.

## M5.2 Metabolic and Bariatric Surgery in Hong Kong

14:30 Room 423 & 424

### Building a Multi-disciplinary Team

Chan CKO

Department of Surgery, Queen Elizabeth Hospital, Hong Kong

Metabolic surgery is the treatment for type 2 diabetes and obesity using a surgical method. The classical treatment paradigm of type 2 diabetes is education, exercise, diet and medications. However in some patients, disease progression is inevitable despite the best medical treatments used. In such cases, metabolic surgery should be considered as a treatment alternative as studies have shown that established surgical procedures are associated with larger and more sustained weight loss and better obesity-related co-morbidity outcomes (including diabetes remission) as compared to non-surgical interventions. A Multi-disciplinary Metabolic Surgery Service (MMSS) is required in our cluster to deal with the increasing number of patients with type 2 diabetes and obesity.

MMSS was initiated by the Department of Surgery of Queen Elizabeth Hospital in 2015. Current evidence recognises that the outcomes of patients receiving metabolic surgery perform better if the service was provided by inter-disciplinary team of healthcare providers. Therefore experts from various clinical and allied health departments were invited to join MMSS and eventually a multi-disciplinary team was formed. Clinical staffs from our team consist of upper gastrointestinal surgeons, anaesthetists, otorhinolaryngologist, physicians from the intensive care unit, endocrinologists, respiratory physicians and nurse specialists, whereas allied health members consist of clinical psychologists, dietitians and physiotherapists. A case conference with the participation of all MMSS members will be held every six months to study the progress of morbidly obese patients enrolled in this programme. A combined endocrine meeting will be held for patients requiring metabolic surgery for diabetic indications. The choice of metabolic procedure will be based on indications, operative risks, anticipated metabolic benefits and harms on the patient. It is tailored to the patient's condition and will be carried out by the upper gastrointestinal surgeons. Objective assessment after metabolic surgery will provide data on patient satisfaction, achievement on excess weight loss percentage, as well as diabetic control.

The MMSS is a modern example of multi-disciplinary collaboration, providing an international standard of care beyond conventional medical treatment for a special group of patients with morbid obesity and metabolic diseases.



**M5.3 Metabolic and Bariatric Surgery in Hong Kong****14:30 Room 423 & 424****Gist of Anaesthetic Care for the Morbidly Obese***Tsui CSY**Department of Anaesthesia and Intensive Care, Prince of Wales Hospital, Hong Kong*

The physiological and mechanical changes of obesity and treatment must be considered after a bariatric surgery is done for a morbidly obese patient. It is believed that the most common adverse intra-operative event in bariatric surgery is anaesthesia related (1%).

When do we need to do an awake intubation in obesity?

How to reliably assess the presence of obesity hypoventilation syndrome?

Do we need a post-operative intensive care support for bariatric patients and what are the selection criteria?

Can they be suitably extubated post-operatively?

Anaesthetists often encounter difficulty in airway management and ventilation in obese patients. They are also prone to develop early desaturation following apnoea, and the effect can persist long after extubation. Peri-operative sleep disordered breathing (SDB) also poses a significant impact on the overall outcome. The method of maximising oxygenation in these patients will be shared.

Post-operative pain and analgesia are other challenges. The impact of multimodal intra-operative analgesia will be highlighted. Together, their differences in side effect profiles and efficacy in the treatment of post-operative surgical pain in obesity patients will also be discussed.

Obesity is also associated with important systemic changes that can potentially affect the pharmacological profile of anaesthetic drugs. The majority of anaesthetic drugs are strongly lipophilic and unpredictable in dosage. Recent evidence in utilisation of various types of pharmacokinetic model to assist dosing will be reviewed.

Enhanced recovery after surgery (ERAS) methodology has demonstrated consistent benefits in patients undergoing colorectal, urological and thoracic surgeries. Principles of these protocols could be applied to bariatric surgery. The anaesthetic components in its pre-operative, intra-operative and post-operative phase will be reviewed.

**M5.4 Metabolic and Bariatric Surgery in Hong Kong****14:30 Room 423 & 424****Quality Assurance – Credentialing for Safe Metabolic Surgery***Ng E**Department of Surgery, The Chinese University of Hong Kong, Hong Kong*

Obesity is now an endemic condition in many parts of the world. Its associated metabolic complications such as diabetes mellitus, hypertension and dyslipidemia can pose tremendous burden to the healthcare system. Lifestyle modification and medications are the usual measures to deal with these chronic illnesses, but a considerable proportion of patients need more aggressive interventions, such as bariatric/metabolic surgery, to achieve more sustainable control.

There is an increasing trend in the need of bariatric surgical service in Hospital Authority (HA) hospitals. These operations are technically challenging because of the patients' body appeal. Morbidities can be difficult to diagnose and manage, and some may end up as mortality. The resulting medico-legal litigation can be detrimental to both professionals and institutes. Based on experience in the West, accreditation and credentialing are proven effective approaches to reducing death and complications of bariatric procedures.

As a core feature of quality in surgery, accreditation must address three aspects: structure, processes, and outcomes. In the US, accredited centres must report their outcomes to a centralised database. They also need to meet core standard requirements depending on the level of the centre. Low-acuity centres must perform a minimum of 25 procedures every year in order to be accredited to perform bariatric surgery. Revisional procedures or high-risk patients are reserved for comprehensive centres, which need to perform a minimum of 50 cases annually to be accredited. Apart from case volume, there are other standards for accreditation: commitment to quality care, 24/7 critical care support, appropriate equipment and instruments, data collection, and continuous quality improvement process. Credentialing of individual surgeon should also be a key component in accreditation.

It is a high time for HA to review its stance in the development of bariatric/metabolic surgical services. A structured and well-defined accreditation programme is highly recommended. It is of mutual benefit with enhanced patient safety and lower risk of medico-legal litigation.

# Masterclasses

**M6.1**
**Surgical Services at Hong Kong Children's Hospital and Plastic Surgery on Congenital Diseases**
**16:15 Convention Hall A**

## Surgical Services in Hong Kong Children's Hospital

Leung M

Department of Surgery, Queen Elizabeth Hospital, Hong Kong

The Hong Kong Children's Hospital (HKCH) is targeted for service commencement by phases in 2018. HKCH is a tertiary referral centre for paediatric specialty services including oncology, cardiology, nephrology and surgery.

Currently there are three paediatric surgery (PS) centres in Hong Kong, including Queen Mary Hospital, Prince of Wales Hospital, and Queen Elizabeth Hospital (QEH)/United Christian Hospital (UCH) which form a cross-cluster conjoint centre providing PS services to Kowloon Central Cluster and Kowloon East Cluster.

A hub-and-spoke model will be adopted in PS in HKCH and cluster centres. Rare and complex PS cases will be managed mainly in HKCH, together with expertise in other paediatric specialties that promote multi-disciplinary care. In the initial phase of service commencement, tertiary services on neonatal surgery, oncology surgery, cleft anomaly-related primary surgery and complex urology for renal transplant-related children will be provided. Complex PS cases in other subspecialty areas will be gradually translocated to HKCH later. The current paediatric surgeons in the three referral centres will come together, leading PS subspecialty services in different areas.

Due to the geographical proximity of HKCH and regional hospitals in Kowloon clusters, HKCH also provides emergency and secondary PS services in current QEH/UCH service network. Children with acute surgical problems will be transferred to HKCH for further care.

**M6.2**
**Surgical Services at Hong Kong Children's Hospital and Plastic Surgery on Congenital Diseases**
**16:15 Convention Hall A**

## Plastic Surgery on Congenital Diseases: From Cleft Lip and Palate to Facial Clefts

Choi WK

Department of Surgery, Tuen Mun Hospital, Hong Kong

Orofacial cleft is the commonest congenital facial abnormalities. It can be ranging from simple cleft lip with/without cleft palate, isolated cleft palate to more rare conditions with facial clefts. The overall incidence is around 1 in 1,000 live births, and is more prevalent among Asian with incidence up to 1 in 500 live births.

Caring for children with cleft condition is a long term commitment and required multi-disciplinary team involvement.

In this presentation, we will outline our protocol by emphasising the importance of a multi-disciplinary approach. Recent advances and controversies in the field will also be discussed.

M6.3

Surgical Services at Hong Kong Children's Hospital and Plastic Surgery on Congenital Diseases

16:15 Convention Hall A

**Plastic Surgery for the Ears: Common Otoplastic Procedures in Children**

Tan T

*Department of Surgery, Prince of Wales Hospital, Hong Kong*

Protruding ears and microtia (underdeveloped pinna) are frequently contributed to social derision, especially among school-aged children. For these children, otoplasty can be performed resulting in improved self-image and confidence for both patients and their families. In fact, otoplasty is one of the most commonly performed plastic surgical procedures in children.

Non-surgical correction of certain types of congenital ear deformities (such as prominent ears and cryptotia) may be adopted if started early in the form of auricular splinting. Early splintage has been shown to be effective but requires a high level of expertise and compliance.

There are various methods of surgeries for microtia which revolves around the same concept – harvesting rib cartilage for the framework and putting it under the skin at the ear region. As the ears reach about 85% of adult size at four years of age and the chest wall reaches a satisfactory size for rib cartilage harvest at an older age, most would advocate surgery for microtia children between six and 10 years of age, to provide enough rib cartilage to make an adult ear size. This is at present the most common method for surgical reconstruction of the ear.

Although harvesting rib cartilage for auricular reconstruction has been a well-established surgical treatment for many years, there is risk associated including chest wall deformities, an additional scar, etc. Surgeons have been exploring methods to provide improved cosmetic results with less discomfort without the chest wall scar. Dr Reinisch introduced his technique of biocompatible implant Medpor to fabricate the auricular framework, eliminating the need to harvest rib cartilage.

There has been extensive research on bioprinting ear cartilage but no success in using them in humans as of date.

M6.4

Surgical Services at Hong Kong Children's Hospital and Plastic Surgery on Congenital Diseases

16:15 Convention Hall A

**Plastic Surgery on Congenital Diseases: Management of Vascular Malformation – Surgery or Not**

Lau EYK

*Department of Surgery, Kwong Wah Hospital, Hong Kong*

Vascular malformations (VM) form part of the vascular anomaly spectrum that describes congenital morphological errors of vascular development. Despite being “congenital” (i.e. present at birth), they may not become apparent until later stages in life. While some malformations may be attributed to genetic inheritance, most of them do not have a specific cause. The elucidation of etiology/pathogenesis has remained difficult due to imprecise nomenclatures in the past.

VMs may involve veins, arteries, lymphatics, or in combination. High-flow VMs include an arterial component, while low-flow VMs do not. Although benign in nature, VMs may involve any anatomical structure. Depending on their components and anatomical location, they may cause significant morbidities to patients including skin changes, pain, bleeding, ulceration, recurrent infections, and even heart failure.

Patients with VMs are often referred to plastic surgeons since the integument is most commonly affected. However, as VMs often have a rather diffuse anatomical involvement, surgery may not represent the ideal solution due to excessive surgical morbidity; therefore, referral to a multi-disciplinary team is warranted in most cases. In this presentation, input from different medical specialties and the role of plastic surgeons in the management of VMs are discussed.

## Masterclasses

**M6.5****Surgical Services at Hong Kong Children's Hospital and  
Plastic Surgery on Congenital Diseases****16:15 Convention Hall A****Plastic Surgery on Congenital Diseases: Common Congenital Problems in the Head and Neck Regions***Pang SSY**Department of Surgery, Queen Mary Hospital, Hong Kong*

Congenital head and neck problems consist of a variety of conditions affecting the skin, musculoskeletal system, vascular system and nervous system. From commonly seen pathologies such as pre-auricular sinus, sebaceous nevus, nevus of Ota, to rarer and more complicated conditions like hemifacial microsomia, craniofacial syndromes, plastic surgeons deal with both functional deficit and aesthetic aspects of patients. Some conditions require multi-disciplinary treatment and long-term follow-up as paediatric patients are different from adult patients in growth and development. In this presentation, the spectrum of congenital head and neck problems and treatment outcome in our daily practice will be introduced.

**Territory-wide Massive Primary Postpartum Haemorrhage (PPH>1,500ml) Survey in Hospital Authority Obstetric Units with Recommendations and the Way Forward***Lau KW, Chan LL, Lo TK, Lau WL, Leung WC**Obstetrics and Gynaecology Quality Assurance Subcommittee, Hospital Authority, Hong Kong***Introduction**

Massive primary PPH (>1,500ml within the first 24 hours after delivery) is an important cause of maternal morbidity and mortality. It has been chosen as the clinical indicator for obstetric performance in Hospital Authority (HA) units.

**Objectives**

To study the characteristics of cases with massive primary PPH in order to look for areas for improvement in terms of prevention and treatment.

**Methodology**

A prospective study was performed in 2013 in the eight HA Obstetric Units using a pre-designed code sheet to record the details of all cases of massive primary PPH, including causes, risk factors, mode of delivery, interventions (uterotonic agents, second line therapies and emergency hysterectomy), use of blood products, and maternal outcome.

**Results and Recommendations**

Massive primary PPH occurred in 0.76% (n=277) of all deliveries (n=36,510) in HA Obstetric Units in 2013. Majority occurred after Caesarean sections (84.1%). Uterine atony (37.5%), placenta praevia/accreta (49.9%) and uterine wound bleeding/tear during Caesarean section (24.2%) were the three most common causes. The total median blood loss was 2,000ml (range 1,500-20,000ml). Coagulopathy occurred in 16.2% (n=45). 27.4% (n=76) required Intensive Care Unit/High Dependency Unit admissions. There was no maternal mortality.

Second line therapies (balloon tamponade, compression sutures and uterine artery/internal iliac artery embolization or surgical ligation) were used in 40.1% (n=111). Emergency hysterectomy was required in 8.7% (n=24). A total of 1,052 units packed cells, 670 units platelets, 568 units full plasma and 200 units cryoprecipitate were transfused.

Three areas for improvement were identified after analysis from the database: (1) to increase the variety of uterotonic agents (Carbetocin into HA Formulary since January 2017) for prophylaxis of PPH in those cases with risk factors; (2) to increase the use (and use early) of second line therapies, but also need to watch out for failures; (3) to reduce the incidence of placenta praevia/accreta through education and to improve its management at various levels.

The pre-designed codesheet has been transformed into an electronic form (in use from January 2017) with multiple user-friendly functions in our Clinical Management System to facilitate documentation, clinical audit and root cause analysis of cases with massive primary PPH.

# Masterclasses

**M7.2**
**Massive Primary Postpartum Haemorrhage**
**16:15 Theatre 2**

## Second Line Therapies – Balloon Tamponade, Compression Sutures and Others

Lau WL

Department of Obstetrics and Gynaecology, Kwong Wah Hospital, Hong Kong

Postpartum haemorrhage (PPH) is an obstetrical emergency and remains a major cause of maternal morbidity and mortality. Early use of second line therapies could reduce blood transfusions, hysterectomies, admissions to intensive care units, and maternal deaths. Second line therapies include compression sutures, balloon tamponade and uterine artery embolisation.

B-lynch brace compression suture or its modification is effective in controlling bleeding due to uterine atony. Hwu's stitches (two vertical compression sutures at lower segment) are useful to control bleeding due to placenta praevia/accrta. Balloon tamponade is effective in controlling bleeding due to uterine atony or placenta praevia. Uterine artery embolisation performed by intervention radiologist could be employed either for placenta accreta/percreta prophylactically or in case of failed balloon tamponade/compression sutures on emergency basis. Furthermore, various combinations of these second therapies have been proposed. Early recognition of maternal deterioration is critical to initiate active resuscitation. For example, Obstetric Shock Index (OSI) more than 1, measured at 10 minutes and 30 minutes after the onset of postpartum bleeding could be a useful indicator in estimating blood loss in cases of massive PPH, and in predicting the need for blood transfusion. The OSI was calculated as pulse rate divided by systolic blood pressure. One should be aware of the potential pitfall in the presence of maternal fever or pre-eclampsia. Close monitoring with regular assessment after application of second line therapies is essential to detect any on-going bleeding. We should be prepared for definitive interventions promptly when second therapies failed to arrest the bleeding. Active involvement of consultant, multi-disciplinary team approach and massive transfusion protocol are pivotal to the management of massive PPH. Regular drills and workshops are essential in the dissemination of knowledge, skills and attitude.

**M7.3**
**Massive Primary Postpartum Haemorrhage**
**16:15 Theatre 2**

## Massive Transfusion Protocol in Obstetric Haemorrhage

Lee CK

Hong Kong Red Cross Blood Transfusion Service, Hong Kong

In the last decade or so, coagulopathy associated with tissue damage and ischaemia in trauma has resulted in widespread use of massive transfusion protocol (MTP) in clinical practice. With the use of early and optimal transfusion support to correct coagulopathy and to sustain organ perfusion and oxygenation, patient outcome is enhanced.

In obstetrics, postpartum haemorrhage is serious and life-threatening but can happen without conspicuous clinical symptoms and signs. It is also complicated by serious coagulopathy and bleeding within a short time which needs prompt management including both bleeding control and transfusion support. Therefore, alertness to the impending or ongoing massive haemorrhage remains the crucial factor to call for early use of MTP and team approach in management. However, one should be reminded that MTP relies heavily on timely communication and co-ordination among different parties, namely, haematology laboratory, blood bank and the caring team members, i.e. obstetricians and anaesthetists.

Availability of formula ratio of blood components at blood banks of major acute hospitals with labour ward, greatly facilitates early transfusion support with the obstetrician works to achieve bleeding control. However, a few practical points have to be noted. Firstly, team members should be aware of time lapse from blood components ordered to be ready and the dilutional effects from the fluid used in the resuscitation. If a larger quantity of blood components, in particular, platelet and plasma is required, blood bank and even the blood transfusion service should be alerted early. Secondly, ongoing laboratory assessment of coagulopathy is often necessary to guide further transfusion support. Point-of-care testing measurement of haemostasis in operating room providing early assessment and guidance of ongoing component therapy is becoming more common. Last but not the least, drill training and practice should be regularly performed to allow members familiar with MTP and management workflow.

In summary, availability of MTP allows optimisation of clinical and haematological environment for active resuscitation of the mother who suffers from severe obstetric haemorrhage where a better outcome is anticipated.



**M8.1 Cosmetic Drug/Toxicology****16:15 Room 221****Illicit Slimming Agents: From the Notorious to the Unbelievable***Mak T**Department of Pathology, Princess Margaret Hospital, Hong Kong*

The slimming and beauty service market is huge in Hong Kong and China that is worth billions of dollars. Slimming, being described classically as the balance of energy intake and output, has been commonly tackled by approaches beyond the orthodox diet-and-exercise. Who would have imagined, to achieve a desired body image, drugs that may cause cancer, psychosis, heart attack or suicidal, would be used? The ever-growing demand and supply for slimming agents have created many bio-psycho-social complications, and also a unique field in clinical toxicology. Myriads of pharmaceutical agents intended for slimming purposes, together with the variety of clinical and biochemical presentations, brought a diagnostic challenge for clinicians and laboratories.

As the only tertiary referral toxicology laboratory in Hong Kong, the Hospital Authority Toxicology Reference Laboratory received over 400 requests for suspected slimming agent-related poisoning from all around Hong Kong in the past decade. By analysis, we have confirmed that there is often uninformed use of raw materials for explosives, animal gland tissues, or even soft drugs. We are witnessing the dynamic evolution of the trend in the types and sources of such agents. Our clinical examples demonstrate the important public health implications associated with misuse of slimming agents, as well as the essential role of the Laboratory in the diagnosis of slimming agent-related toxicities.

**M8.2 Cosmetic Drug/Toxicology****16:15 Room 221****Botulinum Toxin – Beauty or Beast***Tse ML**Hong Kong Poison Information Centre, United Christian Hospital, Hong Kong*

Botulinum toxin is a group of proteins synthesised by the clostridium botulinum bacterium. It is extremely potent and specifically lyses the SNARE proteins in the axon endings that are essential for acetylcholine release. This effect of botulinum toxin was first utilised for the treatment of squinted eyes and then for other illnesses with spastic muscles. However the most popular indication now is for uplifting in the face and in other body parts.

While the effect of botulinum toxin on appearance has been so popular, many have forgotten that it is actually a powerful beast. The toxin is the most fatal poison known to the man-kind that as little as one gram of it, if dispersed effectively, can paralyse and kill millions of people.

An outbreak of iatrogenic botulism after illicit botulinum toxin injection for cosmetic purpose was recorded in Hong Kong in 2016. The victims developed muscle weakness that progressed from a few days to weeks after the injections. The majority of the patients were managed conservatively. Three patients with moderate weakness that affected their breathing or swallowing were treated with botulinum antitoxin. None of them required mechanical ventilation and no death was recorded. Illicit products containing supra-therapeutic concentration of botulinum toxin was the likely cause of the outbreak.

## Masterclasses

**M8.3****Cosmetic Drug/Toxicology****16:15 Room 221****Drugs for Muscle: Trifle or Threat?***Wong R**Department of Medicine, Prince of Wales Hospital, Hong Kong*

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Many people use progressive resistance exercise to control and develop one's musculature. However, some bodybuilders take drugs to improve their physical performance and build up their bodies. These agents include anabolic steroids, growth hormone, thyroxine, clenbuterol and insulin. They may cause a variety of adverse effects to the body. In this presentation, the potential health risk of these agents and some local cases will be discussed.

PS1.1

Nursing Services at the Front Door of the Hospital

13:15 Room 221

**Geriatric Front Door Programme – How the Geriatric Nurses Strive to Make the Best Possible Elderly Care**

Lee MY

*Department of Medicine and Geriatrics, Shatin Hospital, Hong Kong*

High medical inpatient occupancy rate up to 114.2% in Prince of Wales Hospital was noted in 2016. Frail elderly Accident and Emergency Department (AED) attendances were likely to be admitted since the current emergency care model does not fit their needs. In the winter surge months of 2016-17, Geriatrics at AED Front Door Team (GFD) was introduced that Geriatric Nurses work together with geriatrician for active diversion screening. Elderly patients aged >65 triaged with category 3 and 4 pending for ward admission in Medical and Therapeutics (M&T) unit by AED physician were screened by brief Comprehensive Geriatric Assessment (domains such as acute illness conditions, cognitive impairment, functional disabilities, frailty, caregivers stress and individualised focused assessments) to decide the appropriateness for geriatrician diversion for direct home or direct transfer to Shatin Hospital for further care. Geriatric Nurses help to coordinate GFD admission diversion workflow in AED such as communication with caregivers, collaboration with Rapid Response Community Team for discharge support and performing focused patient care. With the introduction of Geriatric Nurses in 2016-17 during winter surge period (19 December 2016 to 31 March 2017), 1,035 elderly patients were screened and 377 of them were identified for geriatrician assessment in which 229 patients are successfully diverted eventually. The results showed that the Geriatric Nurses were able to identify a significantly increased number of patients for GFD admission diversion purpose by 2.5 times (148 in 2014-15 vs 377 in 2016-17 and 2 times (187 in 2015-16 vs 377) in 2016-17 respectively, compared with the previous model in which patients were selected by AED senior physicians for geriatrician screening. Geriatric Nurses are competent to identify suitable patients when compared diversion results among three years' period [82 out of 148 (55.4%) in 2014-15, 123 out of 183 (67.2%) 2015-16, 229 out of 377 (60.2%) in 2016-17]. Geriatric Nurses facilitate geriatrician diversion process with proactive initial screening to increase efficiency and throughput, and promote a more elderly friendly emergency care.

PS1.2

Nursing Services at the Front Door of the Hospital

13:15 Room 221

**Extended Roles of Stroke Nurse to Streamline Acute and Hyperacute Stroke Care Service**

Mok MYN

*Department of Medicine, Pamela Youde Nethersole Eastern Hospital, Hong Kong*

Stroke is a very common life-threatening disease, and is the fourth leading cause of death in Hong Kong. There are approximately 13,000 acute stroke admissions in Hospital Authority annually with 80% ischaemic stroke (IS). In view of this, worldwide initiatives have focused on current evidence-based and acute hyperacute stroke care in IS that nurses play a pivotal role in all phases of stroke patient care.

In the past 10 to 20 years, Stroke Nurse (SN) has become a new post with core role as a coordinator in Hong Kong. SN also takes the combined roles as case manager, facilitator, tissue plasminogen activator (TPA) nurse, and has brought in new challenges with an advanced path to become a SN expert; either as Advanced Practice Nurse or even Nurse Consultant to run Nurse-led Clinic in secondary prevention. Moreover, SN not only works independently in planning and leading a team to develop clinical tools, organising team members and departments to expedite activities in stroke care, but also monitors outcomes and initiates quality initiatives to improve care. The increased TPA usage, improved door-to-TPA times, and enhanced department collaboration in running thrombolysis service all serve as strong evidence of what SNs have achieved.

In most foreign countries, SN is only assigned for a single duty. But Hong Kong is relatively short of neurologists, well-trained SNs do support our new challenging service. They follow hospital guidelines and protocols, tailor-make workflows and specific stroke assessment tools for early identification of acute stroke with Emergency Department (ED) to provide appropriate treatment. In other words, SN service has been associated with some operational changes to make things more effective. For better collaboration, "Stroke Nurse/Nursing Team" was formed such that all SNs can work together in rotation on all different jobs, complement with stroke multidisciplinary team support for catering more comprehensive stroke care service from Accident and Emergency Department to community.

In future, roles of SNs will be expanded to stroke rehabilitation care in the continuum of stroke care.

# Parallel Sessions

**PS1.3****Nursing Services at the Front Door of the Hospital****13:15 Room 221****Development on Enhancement of Emergency Nursing Service***Li SP**Accident and Emergency Department, United Christian Hospital, Hong Kong***Introduction**

Longer lives with multiple chronic conditions, increasing complexity in healthcare delivery, higher public expectation and shortage of medical staff have put significant burden to the Accident and Emergency Department (AED) service in Hong Kong. It results in long waiting time for treatment, particularly in those with minor health problems. The enhancement of emergency nursing service (ENS) has been implemented in the AED of Hospital Authority (HA) since 2012. This initiative aims to alleviate the tremendous workloads of medical staff and reduce the waiting time for selected patients with minor injury by empowering specialty-trained emergency nurses with a greater role in treating patients. Currently, there are seven AEDs providing this fast-track, protocol-driven service.

**Objective**

This presentation reports the development of ENS among AED including: (1) the service model; (2) the utilisation; (3) the impact on their AED waiting time; (4) patient satisfaction; and (5) audit results relating to safe practice and quality. Future direction will also be discussed.

**Methodology**

A retrospective review of this service utilisation among seven AEDs was conducted in 2015-16. Data were collected by the Coordinating Committee (A&E) Nursing Subcommittee using a standardised template. Different audit results for the target period were also presented.

**Results**

A total of 9,581 cases were seen among seven AEDs in 2015-16. The mean waiting time of patients using ENS and usual triage category four were 40-82 minutes and 79-227 minutes respectively. Median of waiting time shortened for the target group patients from 19 to 118 minutes.

PS1.4

Nursing Services at the Front Door of the Hospital

13:15 Room 221

**Ambulatory Management of Try off Urethral Catheter – Patient Discharged from AED and Ward**

Tang KCC

Department of Surgery, Kwong Wah Hospital, Hong Kong

**Introduction**

Acute retention of urine (AROU) is defined as an involuntarily voiding and sense of painful in suprapubic area. Most of the male patients who suffer from AROU are associated with benign prostatic hyperplasia (BPH). AROU is very common in elder patients. Traditionally, patients will need to be treated as inpatient until success trial of wean off catheter (TWOC). For those patients who failed TWOC, urethral catheter needs to be reinserted and readmit to urology ward for trial TWOC again.

In order to reduce the unnecessary hospitalisation and unplanned readmission, an Ambulatory Try off Catheter (ATOC) programme is implemented by the cooperation between the Surgery and Emergency Department. The current conventional inpatient care will be tried to transform into outpatient care service.

**Objectives**

(1) To develop a protocol and care pathway on ATOC programme in outpatient setting; and (2) to reduce unnecessary admission.

**Methodology**

Male patients who suffered from urinary retention and admitted to Kwong Wah Hospital with symptoms relief after inserted urethral catheter were recruited. Patients were assessed by physician in Emergency Department, and then referred to ATOC programme in Urology Centre if the inclusion criteria of ATOC pathway were fulfilled. The urology nurse would provide a comprehensive assessment, high-quality urological nursing care and intervention according to the ATOC pathway in outpatient setting.

**Results**

The ATOC programme was implemented from September 2016 to December 2016 with a total of 81 male patients presented to the Emergency Department with AROU. 31 male patients were admitted as the inclusion criteria were not fulfilled. The remaining 55 male patients were recruited to the ATOC programme according to the pathway. This programme reduced the admission rate with AROU by 63.9%. The mean age of these ambulatory care patients was  $73.8 \pm 9.8$  years (range from 42 to 103 years old). The successful rate of wean off catheter in ATOC programme was 62% (34 patients), there were six unplanned admissions (12%) within 30 days; four of them developed AROU again, one patient admitted due to haematuria and one patient admitted due to depression. 16 patients (29%) failed to wean off catheter in ATOC programme. All patients were counseled for urethral catheter reinsertion versus clean intermittent self-catheterisation (CISC). Only two patients succeeded to learn CISC, the remaining 13 patients needed to reinsert the urethral catheter. A total of 55 patients' beds were saved and it could reduce the front-line workload and relieved the bed shortage in surgical ward.

**Conclusion**

The ATOC programme in outpatient setting is effective and safe for patients presented with AROU. It can reduce hospital admission rate and relieve bed shortage in the surgical ward.

## Parallel Sessions

### PS2.1 Healthcare Financing

14:30 Theatre 1

#### Strategic Purchasing for Health System Goals in Pluralistic Financing and Providers Systems

Yeoh EK

*The Jockey Club School of Public Health and Primary Care, The Chinese University of Hong Kong, Hong Kong*

Universal challenges in health systems are centred on escalating costs of healthcare, demand generated by the chronic disease burden and rising expectations of populations for better and safer healthcare. This has created an environment where government's role in raising and allocation resources for healthcare has moved beyond one of a passive funder to an active and strategic role of purchasing for health system goals.

Strategic purchasing can improve the health system performance through effective allocation of financial resources to providers. Strategic purchasing involves five sets of decisions:

- (1) Who should be purchasing and what are the roles of the individual, and complementary agents including the government, third-party payers, and employers in the context of pluralistic financing and provider health systems
- (2) For whom to purchase in the context of different financing and provider health systems
- (3) What interventions or services should be purchased, taking into consideration population needs, national health goals and priorities, and cost-effectiveness
- (4) From whom to purchase, whether to produce or to select and contract service providers, giving consideration to capacity and supply, service quality, efficiency and equity
- (5) How services will be purchased and at what price, including contractual arrangements and how providers will be paid taking into account the inherent incentives in different provider payment mechanisms

Strategic purchasing should lead to a maximisation of overall health gain from available resources (i.e., increased allocative efficiency), however it imposes considerable demands on purchasers, requiring capacity, data and intelligence.

### PS2.2 Healthcare Financing

14:30 Theatre 1

#### Population-based Resource Allocation

Yeoh EK

*The Jockey Club School of Public Health and Primary Care, The Chinese University of Hong Kong, Hong Kong*

Resource allocation is a mechanism for distributing resources between competing claims to meet certain pre-specified goals. There are various approaches for resource allocation including political patronage, historical, bid-based, expenditure-based, and formula-based using either case/activity or capitation. The capitation approach based on population has the potential to address equity in healthcare provision and provides incentives for efficiency. To be effective, the population-based model needs to be able to estimate resource needs according to the healthcare needs of the population served and ensure all key parameters, including factors affecting healthcare needs and health seeking behaviour which represent demonstrably material influences on the need to consume the service are included (Smith, Rice and Carr-Hill, 2001). In the Hospital Authority's context, population based resource allocation is to foster equity between clusters as well to drive changes in the healthcare system without causing unintentional and undesirable impact on existing baseline services. Cross-Cluster movement of patients also needs to be addressed. A refined population-based resource allocation model alone is necessary but not sufficient to direct resources to where they are most needed. Population-based resource allocation needs to be an integral part of a holistic approach of strategic service and resource planning and management. The model will generate business intelligence and facilitate better understanding of healthcare needs and the optimal mix of services required and it is crucial to examine how this can be applied in the resource and service planning and provision to enable the cluster population, access to a comprehensive range of healthcare services. A conceptual framework linking the three key dimensions, i.e., population healthcare needs, service planning and resource planning will be discussed at the presentation which will enable the development of a comprehensive analytical framework to achieve the goals of equity and efficiency in cluster healthcare provision and utilisation.

**Model Development for Population-based Resource Allocation**

Zee B, Chong M, Yeoh EK

*Division of Biostatistics, The Jockey Club School of Public Health and Primary Care, The Chinese University of Hong Kong, Hong Kong*

**Introduction**

The main aim of resource allocation is to drive efficiency and equity in healthcare provision, and to foster the goal of equity between clusters in the long run as well to drive changes in the healthcare system without causing undesirable impact on existing baseline services. In this presentation, we would introduce an analytical framework of a population-based resource allocation model which is typically useful for addressing a number of specific issues encountered in Hong Kong.

**Methodology**

The model was developed with respect to six core services including acute inpatient, non-acute inpatient, special outpatient clinic, primary care, accident and emergency, and allied health outpatient. The designated services, private services, and other policy directed initiatives were taken out from the modeling process. We would show how the models with variables on demographic, socio-economical, epidemiological, clinical, geographical, and other factors such as unmet needs and supply were introduced and finally being incorporated. Two stage random effect models were being developed using data from 2011/12 to 2013/14 and then validated using data from 2014/15 and 2015/16.

**Results**

The model effects were highly significant and the correlation coefficients were in the range of 0.83-0.90 for all six core services. The goodness-of-fit of the models was good in both the estimated amount of services from the model as well as the total cost for each services after an average unit cost was used to carry out in the estimation. We have also developed the methodology on assessing the impact of population mix, and the impact of cross-cluster flow.

**Conclusions**

The population-based resource allocation model is feasible and is shown to have high accuracy. Future applications can be developed based on the model with good data and simulation of factors such as supply factor to help guide future healthcare resource allocation and other policy decisions.



## Parallel Sessions

**PS3.1**    **Nurse Clinic**

**14:30**    **Room 221**

### **Chemotherapy Nurse Clinic in Contributing the Clinical Pathway for Managing Post-treatment Complications with Improved Outcome**

*Liu TK*

*Department of Clinical Oncology, Prince of Wales Hospital, Hong Kong*

Chemotherapy is a major cancer treatment and is mainly delivered in ambulatory setting. But various significant and predictable treatment related side effects are common, and most of them occur between treatment cycles. Patient needs to manage the toxicities and symptoms at home that can directly affect patient's quality of life, tolerance of treatment, treatment decision or even treatment outcome. Therefore, effective toxicity assessment and prompt symptom management are important. Nurse-led chemotherapy review has been reported benefits such as increased capacity and reduced waiting time etc.

From UK experience, nurse-led chemotherapy review had been shown to be as effective as doctor-led chemotherapy review in various therapeutic areas but there is no "golden model" for establishment of the service. It can be designed for specific disease or chemotherapy agent, with or without on-site oncologist support, accessible or not to non-medical prescribing, which depends on the local arrangement.

In Hong Kong, non-medical prescribing is not adopted due to legal and regulation policy, and the role of registerable advanced nurse practitioner is not yet established. Despite those limitations, nurse-led chemotherapy review clinic is the priority of development across six oncology centres. Although no one model fits all chemotherapy nurse clinic, there are certain universal principles. Nurses should not duplicate the medical model or provide stand-alone service. Hence, the chemotherapy nurse clinic focusing on treatment-induced toxicity grading, assessment and the related management is appropriate for our local setting. This model has been adopted in the oncology centre of the Prince of Wales Hospital that first target the group of head and neck patients undergoing concurrent chemoradiotherapy. It aims at adding nursing values to chemotherapy service by providing holistic care and family support, and performing advanced nursing practice such as patient examination, including skin status, oral cavity condition and nutritional status, toxicity assessment and management of symptoms during treatment, making referral to other appropriate healthcare professionals, etc. Improved patient outcome with less unnecessary hospitalisation, less weight loss, better coping for nutritional problem and psychological support were demonstrated in a two-year prospective survey. Feedback from the medical colleague was positive because the consultation time could be shortened and patient-focused concerns can be addressed more effectively.

**PS3.2**    **Nurse Clinic**

**14:30**    **Room 221**

### **Effectiveness of Diabetes Nurse-led Clinic in Treating People with Type 2 Diabetes Mellitus**

*Leung ELY*

*Department of Medicine, Queen Mary Hospital, Hong Kong*

#### **Background**

It is estimated that the prevalence of diabetes mellitus (DM) in China would be increased from 98.4 million people in 2013 to 142.7 million by 2035. This rapidly growing prevalence will inevitably put heavy burden to the healthcare system. Nurse-led DM management programmes have been proven effective in western countries. However, studies to evaluate nurse-led DM intervention in Chinese were inadequate. Awareness of cultural sensitivity in those effective nurse-led programmes to Chinese is important. Therefore, a study was conducted to evaluate the effectiveness of Diabetes Nurse Clinic (DMNC) in improving glycaemic control of Chinese patients with type 2 DM.

#### **Methodology**

It is a 24-week randomised controlled study. 150 Chinese patients with type 2 DM of sub-optimal glycaemic control, i.e. at HbA1c level between 7.5% and 9.5% were recruited. Patients in the intervention group received Diabetes Self-management Education (DSME) and protocol driven medication intensification, which were arranged in three bimonthly DMNC visits and a telephone call one month following each DMNC. Patients in the control group received usual group DM education and medical care. The primary outcome was measured in haemoglobin A1c (HbA1c) level.

#### **Results**

The mean age of the 150 patients was 63.6 + 9.7 years, with a mean duration of DM of 13.7 + 8.5 years. At baseline, the 75 patients in the intervention group and 75 patients in the control group had no significant differences in all clinical characteristics. At 24 weeks, patients under the management in the DMNC had the HbA1c level significantly reduced by 0.7% (95% CI = 0.4% to 1.0%,  $p < 0.001$ ) more than those under usual care. The corresponding reductions in the intervention and control groups were 1.0% (95% CI = 0.8 to 1.2,  $p < 0.001$ ) and 0.3% (95% CI = 0.1 to 0.6,  $p = 0.002$ ), respectively.

#### **Conclusions**

This study provided evidence to support that DMNC could improve glycaemic control of Chinese patients with type 2 DM of sub-optimal glycaemic control. DMNC is a routine medical care is therefore recommended for Chinese patients with type 2 DM.

PS3.3

Nurse Clinic

14:30 Room 221

**Review of Nurse Clinic**

Lee SWY

*Nursing Services Division, Hospital Authority Head Office, Hong Kong*

Nurse clinic has long been an integral part of the out-patient services in Hospital Authority (HA). It is a structured healthcare service led by a nurse who possesses the clinical competence and ability to make care decisions, provide advance nursing therapeutics and make appropriate referrals. The nurse clinic plays a vital role in HA's healthcare delivery continuum, it improves not only the patient access to outpatient services but also the continuity of care.

In response to the recommendation of HA review in 2015, a formalised "Reviewed Model of Nurse Clinic in Specialist Out-patient (SOP) Services" is introduced to shorten the waiting time for SOP services and minimise the disparity of service provision across clusters.

The new model targets low-risk, high-volume cases in SOP services, and promotes early attention to patient's problems by nurses and triage cases for early medical consultation if clinically indicated according to distinguished criteria. Targeted patients will attend their pre-medical consultation in the nurse clinic, where a nurse will perform an initial assessment, preliminary workup and nursing intervention. Subsequent medical and/or nurse clinic follow-up will then be arranged for patient promptly according to individual's care plan and clinical needs. Doctor could conditionally discharge the patient from SOPC through nurse clinic, where nurses would assess and discharge the patient if pre-set criteria or conditions are met.

Operational aspects such as definition of waiting time, service throughput, related key performance indicators are included in the review. This review model would benefit high-pressure areas and specialties of SOP clinics.

# Parallel Sessions

PS3.4

Nurse Clinic

14:30 Room 221

## Multi-disciplinary Approach in Trial without Catheter

Yim MS

Department of Surgery, Princess Margaret Hospital, Hong Kong

### Objectives

Hong Kong has an ageing population with continuing growth in public healthcare service demand. In Princess Margaret Hospital, readmission for trial off urinary catheter has a great impact on hospital resources. In view of the situation, the multi-disciplinary approach in catheter management and the trial wean off catheter (TWOC) model is adopted to aim at reducing unnecessary hospital admission.

### Methodology

According to the TWOC model, community nurse accepts referrals from surgical and medical units based on the following criteria:

- Bed ridden patient
- No significant problem when inserting catheter

### TWOC

- Successful TWOC: patient passed urine and residual urine is less than 300ml.
- Unsuccessful TWOC: failed voiding and residual urine more than 300 ml. Advance special outpatient clinic within six to eight weeks.
- Doubtful case: void less than 100ml urine or residual urine less than 100ml.

### Roles of Urology Nurse Consultant

- (1) To coordinate with community nurse on the TWOC model; and to provide training and support community nurse when in doubt.

### Results

In 2016, there were 170 patients referred to community nurse according to TWOC model. Of the 41% failed TWOC, 1% was readmitted for inpatient TWOC and 40% were treated in outpatient clinic. Urologist reviewed patient within eight weeks after urinary catheter reinserted. Nurse consultant received daily call from community nurse and provided clinical support when enquiries with case management were made.

### Conclusion

The TWOC model has successfully eliminated unnecessary hospital admission and improved patient's quality of care. This project can further improve resource allocation and patient care if the service extends to urology patients in orthopaedics and neurosurgery unit.

**PS4.1 3D Printing in Medicine I****16:15 Theatre 1****How Does 3D Printing Bring Healthcare into a New Dimension?***Morris J**Department of Radiology, Mayo Clinic, USA*

3D printing has its origin in manufacturing and rapid prototyping. At the Mayo Clinic we began 3D printing 11 years ago providing anatomical models created from imaging in preparation for successful separating a set of conjoined twins. From that first case we quickly realised that we were providing a tool that allowed a deeper understanding of complex anatomy in a way not possible from the imaging alone. Since the origin of our anatomic modeling laboratory we have grown to provide complex anatomical models to all surgical and medical subspecialties within our enterprise. Our laboratory is centralised in the department of Radiology and has grown exponentially over the past decade in response to clinical needs and improved patient care. In this presentation, the audience will learn how we have been able to advance surgical and medical care at Mayo Clinic by integrating this disruptive technology into the hospital setting. We will discuss case scenarios throughout varied clinical/surgical applications, quality control measures, in-house manufacturing vs outsourcing, laboratory structure and personnel, regulations, barriers for implementation, and most importantly how we have improved the care our patients receive. In this presentation, we will demonstrate how 3D printing is already bringing The Mayo Clinic into the next dimension of healthcare.

**PS4.2 3D Printing in Medicine I****16:15 Theatre 1****How Could 3D Printing Revolutionise Medical Training?***McMenamin P**Director, Centre for Human Anatomy Education, Monash University, Australia*

3D printing (or additive manufacturing) is often promoted as one of the most significant modern technological advances and evidence of its utility in medical education, surgical planning, procedure guidance, and simulation has already begun to emerge. In our laboratory, we set out to discover new methods to copy high quality human cadaveric dissections that would allow us to widely disseminate these copies outside the anatomy facility on our main campus to Monash facilities that were covered by the Anatomy Act. We developed methods to scan (CT, MRI, Laser), segment and create 3D files for printing. These multicolour single material prints have been deployed in teaching in Australia and overseas and have been found in a randomised control trial to perform better than cadaver dissections for student learning of normal anatomy. We are currently using our experience in 3D data acquisition, 3D printing, moulding and casting to develop surgical simulators made of biomimicry materials. Whilst it is early days we have made promising progress that make it possible to dream of a day when students can dissect an accurately simulated cadaver removing the need for bequeathed bodies, embalming and storage of cadavers with all the inherent risks of handling human material. It would also allow access to anatomical replicas in any hospital surgical simulation laboratory or training facility. It is clear from most surveys of medical training that there is a growing demand for surgical simulation to greatly accelerate the learning curve for medical trainees in procedures and surgical interventions. We hope to illustrate how use of accurate anatomical data from patients and cadavers can be integrated into bespoke surgical training devices.

## Parallel Sessions

PS4.3

3D Printing in Medicine I

16:15 Theatre 1

### Application of 3D Printing in Queen Elizabeth Hospital: a New Page of Healthcare Advances

Ng GWY

*Multi-disciplinary Simulation and Skills Centre, Queen Elizabeth Hospital, Hong Kong*

In the past, clinical staff mostly worked with two-dimensional images to gain insight into pathologies that requiring excellent visualisation skill. The use of 3D printing in medical service has advanced medical practice to a new era. 3D printing allows three-dimensional assimilation of the real physical objects with the use of 2D images, software, and printer. The technology allows clinical staff to make use of patient specific models to provide: (1) surgical planning and trial runs; (2) education and training; and (3) medical device prototyping. The 3D Model Service Development and Strategic Planning Committee (3DSSC) was established in 2016 in Queen Elizabeth Hospital (QEH) under a structured governance involving management and clinical representatives. Goals of the Committee include facilitating innovations and developing skills and competency in using 3D models to enhance training/clinical practice and improve clinical outcomes. In this session, the implementation of 3D printing service in QEH, the overall logistic and production line, applications and treatment outcomes of 3D models in clinical uses, and future directions and implications to our clinical service will be shared.

**F1.1**
**Better Manage Growing Service Demands**
**10:45 Room 421**

## Discharge Lounge – Proactive Model to Success

Chan R, Ho B, Chan SP, Chung TK, Tung M, Wong E, Lo S, Chan HS, Wong TF  
Central Nursing Division, Hospital Authority Head Office, Hong Kong

### Introduction

Access block has always been an issue in Prince of Wales Hospital (PWH) due to insufficient inpatient bed capacity especially during winter surge period. Lack of beds early in the day was a major cause for delayed admission, which in turn placed the Accident and Emergency Department at risk of overcrowding and diversion. The implementation of Discharge Lounge (DCL) aims to improve patient flow and discharge efficiency since 2015. Continuous improvement was done to increase utilisation and improve service quality throughout these years. In 2017, by incorporating past experience and ongoing feedback from all stakeholders, further enhancement was performed to provide better patient service and increase capacity.

### Objectives

(1) To speed up discharge process so as to reduce inpatient bed hours during winter surge period; (2) to provide a better environment and quality services for discharged patients while waiting home/for transfer.

### Methodology

This programme consists of various dimensions of initiatives which are summarised as follows:

- (1) Expand service capacity from 12 sitting places to 18 sitting places.
- (2) Provide new recline chairs and two wall-mounted televisions to enhance patient comfort and safety.
- (3) Increase manpower to enhance the capacity of case screening in wards and have better quality of nursing care and patient education in the waiting room.
- (4) Reengineer the patient flow and workflow by consolidating the screening process of “Dual Channel” to boost its effectiveness and efficiency.
- (5) Intensify the work of promulgation among departments and clinical staff in various communication platforms, such as meeting and forum.

Outcomes were evaluated in various perspectives which include daily collection of admission data in DCL for statistical analysis in which comparison of attendance rate with previous years were made. The inpatient bed hours were calculated; and patient satisfactory survey was also conducted for all attendances.

### Results

Up to 31 March 2017 (62 work days), the average number of attendance was 14.1 patients per day. There was a significant increase when compared with the same period last year with an average of 4.8 patients per day more than that of 2016. Statistically, significant difference was noticed in the number of attendance over 2015, 2016 and 2017 with one-way ANOVA ( $F=133.9$ ,  $p<0.05$ ). In view of bed management, 2129 inpatient bed hours were saved just from January to March of 2017. This has been increased by 48.3% when compared with the same period of last year. Moreover, 96.1% of attendants showed satisfaction with the DCL services. In conclusion, the DCL is effective in reducing inpatient bed hours and providing quality care to patients while waiting for discharge.

# Service Enhancement Presentations

F1.2

Better Manage Growing Service Demands

10:45 Room 421

## An Effective Bed Management Strategy Alleviating Access Block Problem in Prince of Wales Hospital

Chan SP<sup>1</sup>, Ho B<sup>1</sup>, Tong M<sup>1</sup>, Chung J<sup>2</sup>, Kwok A<sup>3</sup>, Chui ST<sup>4</sup>, Chan J<sup>5</sup>, Tong A<sup>6</sup>, Chau M<sup>7</sup>, Chang S<sup>8</sup>, Chan A<sup>9</sup>

<sup>1</sup>Central Nursing Division, <sup>2</sup>Accident and Emergency Department, <sup>3</sup>Medicine and Therapeutics Department, <sup>4</sup>Surgical Department, <sup>5</sup>Orthopaedics and Traumatology Department, <sup>6</sup>Intergraded Ward, <sup>7</sup>Gynaecology Department, <sup>8</sup>Oncology Department, <sup>9</sup>Pediatric Department, Prince of Wales Hospital, Hong Kong

### Introduction

Prince of Wales Hospital (PWH) is under increasing pressure to meet with the service demand due to a growing and ageing population in Shatin district. With limited acute hospital bed capacity, access block has always been an issue, which resulted in overcrowding in Accident and Emergency Department (AED), treatment delay and patient dissatisfaction. Therefore, there is an imminent need to reduce access block so as to maintain quality and safe patient care.

To achieve our goal of assuring all patients waiting for admission in AED would be taken care of in a timely manner, Central Nursing Division (CND) took the lead to work with departments and devised a proactive bed management mechanism that has been implementing in PWH since 14 November 2016.

### Objectives

To set up a proactive mechanism for bed management in PWH that enables timely arrangement of inpatient beds for AED patients waiting for admission and minimises cases waiting for admission in AED >12 hours.

### Methodology

To achieve our goal in setting up an effective proactive bed management system, several principles were adopted in this enhancement programme: (1) Assign on-site designated persons to be responsible for bed arrangement; (2) define regular time slots to screen AED waiting cases; (3) initiate early preparation in bed arrangement; (4) encourage early escalation of support mechanism if necessary.

To ensure full coverage of the bed management mechanism, we have identified different bed coordinators and screening time for AED cases in three specific time zones. In addition to the usual arrangement of patient admission between AED and wards, designated bed coordinators would screen cases in AED in a specific time slot and then proactively plan and arrange beds for all patients to be admitted within their shift. If any difficulty was predicted, bed coordinators were advised to make early contact and seek support from senior managers and other departments.

Information on this mechanism and a list of departments' bed coordinators with their contact phone numbers were denoted and uploaded to iCND webpage for easy reference.

### Results

In 2016, the percentage of access block with waiting time for admission >12 hours was ranged from 0.7% to 13.7% per month before the commencement of this proactive mechanism. The hospital is very pleased to find that, after this initiative was in effective in mid-November, the percentage of access block with waiting time for admission >12 hours has been drastically decreased to 0.02% in December 2016 and further to 0% in January 2017. The proactive bed management mechanism has been proven effective in enhancing patient flow and reducing access block problem in hospital.



F1.3

Better Manage Growing Service Demands

10:45 Room 421

**Service Accessibility Monitoring of Cancers in Hospital Authority by Data Mining Approach***Fan ESH<sup>1</sup>, Tong AYH<sup>2</sup>, Woo PPS<sup>3</sup>, So WY<sup>1</sup>, Cheng MCY<sup>4</sup>, Cheng ITH<sup>4</sup>, Chung APM<sup>4</sup>, Wan CH<sup>3</sup>, Chi KKH<sup>3</sup>**<sup>1</sup>Quality and Standards Department, Quality and Safety Division, <sup>2</sup>Public Health and Information Service, Information Technology and Health Informatics Division <sup>3</sup>Health Research and Planning Department, Statistics and Workforce Planning Department, Strategy and Planning Division, <sup>4</sup>Clinical Information Support Systems Team 3, Information Technology and Health Informatics Division, Hospital Authority Head Office, Hong Kong***Introduction**

In 2014, one person in Hong Kong got diagnosed with cancer in every 17.7 minutes (29,618 new cases in 2014 from Hong Kong Cancer Registry). Some cancers are more aggressive and require prompt treatment while others are more benign which allow more time for assessment and treatment planning. Cancer diagnosis is very stressful for the patients and their family. Information of clinical service access for different cancers is important for quality clinical service delivery, better clinical outcomes, and benefits of the patients and their family.

**Objectives**

Cancer treatment waiting time is used to monitor the Hospital Authority (HA) service accessibility for selected cancers preferably with a homogenous patient care pathway. A typical example is that colorectal cancer ranked the first in 2014's cancer incidence of the Hong Kong Cancer Registry. The waiting times and their trends serve as a gauge on how well the cancer care system is working and provide valuable insight on resource allocation at current stage and for future service planning. As such, monitoring the treatment waiting time of colorectal cancer can help healthcare executives to enhance clinical governance and accountability on:

- (1) Understanding the current situation of access to cancer treatment
- (2) Understanding and analysing the bottlenecks
- (3) Planning for future resources to remove the cancer treatment access blocks
- (4) Directing resources to pressure areas

**Methodology**

In HA, Clinical Management System captures clinical data for patient care, including diagnostic histopathology laboratory result, surgical operation procedure, chemotherapy dispensing and radiotherapy data. The clinical data is then available in the integrated Clinical Data Repository which enables analyses and sustainable measurement of cancer treatment waiting time. Data definition and cancer waiting time measurement (from laboratory cancer diagnosis to cancer treatment including surgical operation, chemotherapy and radiotherapy) has been standardised by HA Statistics Department. Subsequent automation of monthly cancer treatment waiting time report generation and making the timely information available to executives and clinical staff is then done via Management Information Portal. Clinical Data Analysis and Reporting System facilitates patient list drill down for cases review and pressure areas for improvement measure identification.

**Results**

Starting from 2009, the Hospital Authority has developed Key Performance Indicators to monitor the waiting time of two cancers (i.e. colorectal and breast cancer) which ranked the top five of local cancer incidence. The collaborative project from different stakeholders including Clinical Coordinating Committees, HA Statistics Department, Information Technology and Health Informatics Division as well as Quality and Safety Division has revolutionised the performance management on healthcare process, digging out important critical disease management information from clinical data in HA IT systems and efficiently disseminating the updated information to the stakeholders for clinical service delivery improvement.

# Service Enhancement Presentations

F1.4

Better Manage Growing Service Demands

10:45 Room 421

## Stratified Upper Limb Training Programme for Stroke Patients in Rehabilitation Stroke Unit in Occupational Therapy Department of Tuen Mun Hospital

Lam CM, Cheung WL, Cheung TY, Poon HK

Occupational Therapy Department, Tuen Mun Hospital, Hong Kong

### Introduction

Every year, stroke affects millions of people worldwide, leaving survivors with different severities of disabilities affecting their daily activities (World Heart Federation). Upper limb function training is one of the key interventions of occupational therapy in stroke rehabilitation. To address the high volume of stroke patients in need of rehabilitation in Tuen Mun Hospital, occupational therapists introduced stratified upper limb training programmes to remove constraints of limited inpatient rehabilitation training capacity.

### Objectives

To stratify training activities according to the severity of upper extremity impairment of stroke clients in the Rehabilitation Stroke Unit.

### Methodology

Stratified Upper Limb Training Programme for stroke patients:

The Hong Kong version of the Functional Test for the Hemiplegic Upper Extremity (FTHUE-HK) is adopted as the stratification tool. It is a standardised upper limb assessment of stroke patient in Hospital Authority settings. The assessment includes seven functional levels of upper limb of stroke patients. The programme will stratify clients' upper extremity impairment into mild, moderate and severe groups. Treatment components and treatment intensity are allocated according to the stratification level.

Level 1 to level 2: For clients with severe motor impairment of upper extremity and functional deficits, individual bedside activities of daily living training will be implemented in wards. Emphasis will be on proper position, support of upper limb and weight bearing activities during activities of daily living training and seating system prescription.

Level 3 to Level 4: Clients with moderate impairments who also demonstrate high motivation and active participation in training, repetitive and high intensity training programme will be provided in integrated rehabilitation area. Besides individual training time by occupational therapist, patient will also attend group training programme which includes robotic-assisted training, virtual reality, Modified Constraint Induced Movement Therapy and conventional training. The use of robotic technology in guiding highly specific training regimes might allow a sufficient number of repetitions to be delivered in a motivating environment.

Level 5 to level 7: Clients with mild impairments will also receive group activities training which emphasises on hand functional training with virtual reality for fine motor training and object manipulation.

### Results

Stratified upper limb training programme can triage patients for different levels of training programmes according to upper extremity functions. Through this programme, stroke patients are able to receive daily intervention, ranging from individual therapy to group based training, from basic positioning/facilitation to advanced technology such as virtual reality and robot-assisted training. Through empowerment and designation of training tasks, assistants are able to focus and develop operation skills on advanced technology.

F1.5

Better Manage Growing Service Demands

10:45 Room 421

**Thyroid Triaging Programme for Early Diagnosis, Timely Referral, and Prompt Management of Thyroid Diseases**Loong CHN<sup>1</sup>, Woo YC<sup>1</sup>, Lam JKY<sup>1</sup>, Leung ELY<sup>1</sup>, Yuen MMA<sup>1</sup>, Lui DTW<sup>1</sup>, Lee PCH<sup>2</sup>, Lee ACH<sup>1</sup>, Tan KCB<sup>2</sup>, Lam KSL<sup>2</sup><sup>1</sup>Department of Medicine, Queen Mary Hospital, <sup>2</sup>Department of Medicine, The University of Hong Kong, Hong Kong**Introduction**

New case referrals to medical thyroid specialist outpatient clinic have increased from 198 to 412 cases annually from 2010 to 2016. The new case waiting time has increased alarmingly from 18 to 35 weeks despite the provision of extra quota. To address the growing demand of service, a new two-step triage system, the Thyroid Triaging Programme (TTP), has been piloted since 2015.

**Objectives**

To evaluate the effectiveness of TTP, and (2) to monitor the new case waiting time of high risk patients in thyroid clinic.

**Methodology**

Patients referred to thyroid medical specialist outpatient clinic between October 2015 and October 2016 were assessed in the TTP. Patients were triaged to high-risk, potential high-risk and low-risk groups based on various criteria, including their latest clinical and biochemical information. While high-risk and low-risk patients were offered early and routine appointment respectively, potential high-risk subjects were assessed in a nurse-led clinic, where patients' clinical information was gathered and verified using the hospital's Computer Medical System. Further investigations including blood tests, ultrasound and thyroid scan, as well as early clinic appointment were arranged for indicated patients according to a pre-defined protocol. Medications would be initiated and titrated by an endocrinologist when necessary. Those who did not need such interventions would be provided routine clinic appointment.

**Results**

412 patients were referred to thyroid specialist outpatient clinic during the mentioned period. The mean age of patients was 46±15 years. Among the new case referrals, 123 (29.9%) were triaged to high-risk group, 70 (16.9%) to potential-high-risk group, and 219 (53.2%) to low-risk group. Among the potential high-risk group, 58 (82.2%) patients required further investigations including thyroid scan (n=14, 24.1%) and fine needle aspiration of thyroid (n=10, 17.2%). 48 (68.5%) patients initiated anti-thyroid drugs and/or required dosage titration. 49 (70.0%), 11 (15.7%) and six (8.5%) patients had Graves' disease, multi-nodular goiter and thyroiditis respectively. Three (4.2%) cases of thyroid cancer, and incidentally, three non-thyroid diseases, one lung cancer, one thymic cancer, and one Cushing's syndrome were diagnosed early through this programme. They were referred to appropriate specialties for further management. The clinic waiting time for the potential high-risk group who needed early medical attention was significantly shortened compared with the low-risk group (7±3 vs. 35±14 weeks, p<0.001).

The TTP demonstrated an effective model to enhance the provision of specialist service to indicated patients in a more timely and efficient way. It facilitated early medical decision as investigation results had been ready in the first clinic consultation. The nurse-led clinic in this programme facilitated early identification of high-risk patients and shortened their waiting time. Extending the nurse-led clinic coverage to all new referrals is worthy of consideration.

# Service Enhancement Presentations

F1.6

Better Manage Growing Service Demands

10:45 Room 421

## Co-care Service Model for the Care of Patients on Ventilator in General Wards of Queen Elizabeth Hospital

Ng LY<sup>1</sup>, Tsang KW<sup>2</sup>, Liu YW<sup>3</sup>, Kwong MK<sup>1</sup>, Kwong MC<sup>1</sup>

<sup>1</sup>Central Nursing Division, <sup>2</sup>Medical Department, Queen Elizabeth Hospital, <sup>3</sup>Central Nursing Division, Kowloon Central Cluster, Hospital Authority, Hong Kong

### Introduction

From July 2014 to June 2015, there are 3,792 ventilator cases in medical wards. Not less than half of the patients on ventilators are in their end-of-life with life expectancy from days to weeks. Distress of families and patients in the critical physical condition are observed. Distress encounter when patients on ventilator include fear of critical condition; anxiety of sudden change of condition; inadequate care related to intubated and symptom which the patients cannot expressed. As a matter of fact, family may face ethical and psychological dilemma, making them difficult to cope with the discussion of Do-not-attempt Cardiopulmonary Resuscitation. Some family members may avoid it, or anxiety is aroused. Also, in addition to taking care of the stressful families, staff may encounter stress when taking care of the patients on ventilators in a congested environment, not preparing to discuss the end-of-life issue, finding it difficult to arrange flexible visiting hours. Therefore, a Co-Care Service Model with the collaboration of the Parent Team, Ventilator Team with the support of Palliative Care Team was implemented in April 2016.

### Objectives

(1) To enhance care and promote quality of life for patients who are on ventilator in general wards of Queen Elizabeth Hospital; (2) to facilitate communication with patients, family members and parent team for the decision of treatment plan; and (3) to minimise futile CPR and other life sustaining treatment while patients are at their end-of-life.

### Methodology

The service was implemented in two phases:

Phase I - Medical department and referrals from non-medical department, except Intensive Care Unit (ICU) and High Dependency Unit (HDU) Phase II - extend to all adult patients who are on ventilators in all wards, except ICU and HDU Patients who are on ventilator are under the care of the parent team, supported by the ventilator team and the Palliative Care Nurse when the parent team agrees the involvement of the APN (PC).

The APN (PC) will:

- Discuss with parent team on the treatment plan Follow up with the patient and contact their family member for the goals of care
- Provide advance nursing care and support family
- Initiate advance care planning if appropriate
- Promote better communication among patient, family and the parent team
- Provide care in the last days of life and after death
- Provide bereavement support by phone and condolence card

### Results

(1) Statistics of care provision:

From April 2016 to August 2016, 157 patients in total were assessed. Of which, 101 patients (64%) were recruited with the parent team's agreement. Among them, 67 patients' family members had face to face interviews, and 31 family conferences were conducted for emotional support; discussion and decision making of the treatment and care preference. After thorough and detailed discussions, 28 ventilated patients had undergone terminal extubation with the agreement of both parent team and their families.

(2) Recipient satisfaction survey was conducted in August 2016:

There was 30% returned rate and all the respondents were highly satisfied and satisfied with the service.

F1.7

Better Manage Growing Service Demands

10:45 Room 421

**A Self-developed Tracing System to Enhance Medical Record Security through “Registered Mail” Mechanism***Leung HK<sup>1</sup>, Lee HW<sup>2</sup>, Tsang KY<sup>3</sup>, Hau ITY<sup>3</sup>**<sup>1</sup>Health Information and Records Management and Supplies, Kwong Wah Hospital, <sup>2</sup>Information Technology Unit, <sup>3</sup>Health Information and Records Management, Kwong Wah Hospital, Hong Kong***Introduction**

Medical record security has always been a big concern for hospitals especially during their transferal. Due to the redevelopment of Kwong Wah Hospital (KWH), the Central Medical Record Store (CMRS) has been relocated to the Kwong Wah Building at Kowloon Hospital (KH). Inter-hospital transfer of medical records between two hospitals become unavoidable. In view of this, Health Information and Records Management Department and the Information Technology Unit have collaboratively developed a Medical Record Identification System (MRIS), which serves to trace the path of medical records transfer on each delivery point. The system has been launched since May 2015.

**Objectives**

To enhance medical record security through providing detailed information on the transfer route of medical record between KWH and KH.

**Methodology**

- (1) An unique box ID with barcode was assigned to the transfer box by MRIS system.
- (2) Each medical record to be sent out was marked as loan out status in Medical Record Tracing System (MRTS).
- (3) Box ID was recorded in MRTS for each medical record before loading the records into transfer box.
- (4) Tie barcode label on every transfer box.
- (5) Register the transfer boxes on each delivery point along transportation route. This makes medical record tracing more accurate. An example of transportation from KH to KWH is indicated as follow:
  - (i) In CMRS (KH): Every transfer box will be confirmed departure via barcode scanning. The boxes are then loaded on truck and delivered to KWH.
  - (ii) At Portering Team (KWH): Barcodes are scanned to notify box receipt, which will then be delivered to ward or clinic.
  - (iii) In Ward/Clinic (KWH): Each record will be confirmed arrival via barcode scanning.
- (6) Prompts will be automatically generated by MRIS to remind sender for any outstanding transfer box which have not yet been confirmed arrival after 24 hours.

**Results**

19,430 boxes of inpatient and outpatient medical records had been transferred between KWH and KH as of 31 March 2017. Zero loss of medical record during transfer had been reported since launching of MRIS.

The detailed registration of the transfer pathway is efficient in enhancing medical record security. The system is further promoted to other departments such as Allied Health in 2016.

# Service Enhancement Presentations

F2.1

Staff Engagement and Empowerment

13:15 Room 421

## Less Restraint Less Fall

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### Introduction

Based on the hospital statistics in 2013 showing a high patient fall rate and high prevalence rate on physical restraint (PR) for fall prevention, a multi-disciplinary continuous quality improvement (CQI) project on “Less Restraint Less Fall” has been proposed to minimise restraint in patients who have been restrained for fall prevention. Members including doctor, nurses, physiotherapists and occupational therapists have held meeting quarterly and half-yearly since November 2014 to review the collected data for further discussion and planning.

### Objectives

(1) To minimise PR in high risk fallers; (2) to reduce fall rate; and (3) to change the frontline staff culture in using physical restraint to prevent patient falls.

### Methodology

- (1) Convenience sampling was used for data collection in the programme. All physical restrained patients in pilot ward(s) for fall prevention were recruited in the programme during the pilots (first pilot ward trial run from 3 July to 2 October 2015; and the first and second pilot wards joined the programme from 1 March to 31 August 2016).
- (2) Data was collected through direct observation, checking patient notes and nursing records and asking nurses for the details.
- (3) An Advanced Practice Nurse from Central Nursing Division was assigned to monitor the prevalence PR rate and patient fall rate monthly; clarify the programme's documentation and solve staffs' queries on the programme immediately at least twice per week.
- (4) The fall nurse and ward staffs (including doctors, occupational therapists, physiotherapists, and supporting staff) have been briefed the work flow and document related to the programme in advance.
- (5) The progress and results were briefed regularly at meetings of the Multi-disciplinary CQI Project: Less Restraint Less Fall.

### Results

A rehabilitation (REH) ward was chosen to pilot run the PRR Programme for High Risk Fallers from 3 July to 2 October 2015. The prevalence PR rate for the reason of fall prevention dropped from 93% to 33.3% (average: 51.5%). However, there were no remarkable changes on the fall rate. We noted incidentally that frontline healthcare members consider as a hazard with try-off physical restraint for those high risk fallers with dementia/delirium. The programme has also been launched at another REH ward together since March 16. 30% of the recruited patients had been released successfully before discharge. From on-site observation, both wards' prevalence PR rate were noted with a decreasing trend. Both ward's fall rate had achieved an improving outcome. The programme could enhance multi-disciplinary staff to gain awareness on fall risk and to implement less restraint care. The PRR Programme for High Risk Fallers gives evidence on “less restraint less fall” in a multi-disciplinary approach. Findings from September 2016 to January 2017 showed that, there was also a 27% successful rate to wean off PR till the patient discharged. 24 falls were reported (14% less than that reported in the period of March to August 2016). The programme would be handed over to Rehabilitation and Extended Care Department.



### Success of Preventing Multiple Drug Resistant Organisms Spread by the Enhanced Infection Control Measures in High Risk Nursing Procedures

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#### Introduction

Repeated outbreaks and persistent spreading of Multiple Drug Resistant Organisms (MDROs) including Vancomycin-Resistant Enterococci (VRE), Multiple Drug Resistant Acinetobacter (MDRA) have been seen in Queen Elizabeth Hospital (QEH) since 2012. Carbapenemase Producing Enterobacteriaceae (CPE) is also a major public health challenge because of limited therapeutic alternatives. Poor hand hygiene compliance is considered to be one of the contributing factors for spreading MDROs. Furthermore, VRE and CPE, and MDRA are found in very high numbers in the stool and respiratory secretion of the patients infected or colonised with these MDROs, respectively. The environment around these patients can be easily contaminated during daily nursing procedures.

#### Objectives

To assess the effect of a comprehensive infection control programme including enhancement of hand hygiene, and development of nursing care workflow with enhanced infection control measures for four high risk nursing procedures in controlling the spread of VRE, CPE and MDRA in the Department of Medicine of QEH.

#### Methodology

The study is designed as a retrospective observational study.

Task Force on MDROs was formed under the Medical Infection Control Working Group of the Department of Medicine. Four high risk nursing procedures for spreading MDROs were identified and a comprehensive infection control programme called Hand Hygiene PLUS FOUR Programme (Enteral Feeding, Wound Care, SpUtum Suction and Napkin Round) was developed and instituted since 2014. Hand hygiene enhancement programme via real-time feedback was performed by Medical Infectious Diseases Nurses. An independent hand hygiene audit was conducted by the hospital infection control team. Nursing care workflows with enhanced infection control measures were implemented by phases in all medical wards. Nursing training for these four nursing procedures including lectures, workshops at the Simulation Training Centre and on-site briefing were provided to frontline nursing staff, ward supporting staff and student nurses. Audit and monitoring were also conducted to ensure good compliance. The numbers of new patients with cultures positive for VRE, CPE and MDRA were compared before and after the intervention.

#### Results

Overall hand hygiene compliance rate was significantly improved from baseline by around 40% to 90%. Implementation of the four nursing care workflows with enhanced infection control measures in all medical wards was completed. The annual numbers of new VRE and MDRA cases in QEH significantly dropped from a peak of 252 cases and 67 cases to 13 cases and two cases (per 1,000 patient days) respectively after implementation of the Hand Hygiene PLUS FOUR Programme. Furthermore, there was no CPE outbreak despite there were many sporadic cases (47 patients with CPE) during 2015-16.

#### Conclusion

The Hand Hygiene PLUS FOUR programme which enhanced infection control measures for high risk nursing procedure was effective in stopping MDROs spread in the hospital.



# Service Enhancement Presentations

F2.3

Staff Engagement and Empowerment

13:15 Room 421

## A Cohort Study on Protocol-based Nurse-led Outpatient Management of Post-chemotherapy Low Risk Febrile Neutropenia

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### Introduction

Traditional management of post-chemotherapy febrile neutropenia requires hospital admission and intravenous administration of broad spectrum antibiotics. Risk stratification approach is now adopted according to international guidelines in which low risk patients can be treated less aggressively with oral antibiotics without compromising the outcomes. We therefore developed a pilot programme consisting of patient education, empowerment on self-management and specialist nurses input to put forward the management in outpatient setting, with the hope to reduce the cost to healthcare system and psychological burden to patients related to hospitalisation.

### Objectives

(1) To evaluate the efficacy and safety in managing low risk febrile neutropenia patients by a protocol-based outpatient programme; and (2) to compare the outcome with standard inpatient care.

### Methodology

This is a prospective, non-inferiority cohort study carried out in a single oncology centre. Patients with solid tumors, low risk febrile neutropenia with Multinational Association of Supportive Care in Cancer (MASCC) score  $\geq 21$  and good performance status (ECOG 0-1) were included. Eligible patients were observed in day centre for four hours after first dose of oral antibiotics and educated about self-monitoring of symptoms and daily body temperature before discharge. Telephone and clinic follow-up were arranged by specialist nurses in following week to assess the progress. Primary outcomes included success rate of outpatient treatment which defined as defervescence of fever without change in antibiotics, and hospital admission and major adverse events related to febrile neutropenia. Mortalities and compliance to follow-up will also be evaluated.

### Results

From September 2014 to December 2016, a total of 38 patients were enrolled. Almost all were female with breast cancers (except one male patient with lung cancer). Majority of patients (94.7%, n=36) were managed successfully as outpatient. Only two patients required subsequent hospital admissions due to persistent fever. Success rate was non-inferior to the historical cohort managed as inpatient (95% confidence interval 0.827-0.985; non-inferiority margin of 0.825). No mortalities were observed. Compliance to programme was satisfactory (100% to telephone and nurse clinic follow-up; 80.5% to daily body temperature monitor).

### Conclusions

Outpatient management of low risk febrile neutropenia is effective and safe through the implementation of a comprehensive protocol-based programme with joint effort and engagement among medical staffs, oncology nurses and patients.

**Simulation Training Programme for Newly Deployed Nurses in an Isolation Ward***Si MD, Leung LM, Tang SK, Ng YB**Department of Medicine and Geriatrics, United Christian Hospital, Hong Kong***Introduction**

The transition from a nursing student to a qualified nurse is stressful. Nowadays, simulation-based training provides a risk-free environment to strengthen clinical skills and responsiveness. It has also been shown to increase confidence by reinforcing basic techniques, promoting patient safety, developing communication skills, and improving decision-making, critical-thinking and team working. In order to consolidate newly deployed nursing staff's clinical skills closer to the isolation ward practice, a simulation training programme was developed and launched in November 2016.

**Objectives**

The programme aimed to:

- (1) improve response in handling critical and deteriorating conditions;
- (2) apply proper infection control precautions in different clinical scenarios;
- (3) consolidate confidence and competence in daily nursing practice in an isolation ward;
- (4) enhance effective communication skills among healthcare team;
- (5) synchronise with nursing practice to a given hospital guideline.

**Methodology**

12 newly deployed nurses in an isolation ward were invited to participate in the programme. Two identical sessions were conducted. Each session consisted of three scenarios in 90 minutes. The scenarios included resuscitation on highly infectious patients, fall management, and handling of medication incident. A manikin was used and the simulated vital signs were displayed on a monitor according to the change of conditions. Debriefings were conducted immediately after each scenario as a reflective learning experience. Participants were asked to review their performance and the facilitator would provide additional feedback. The training experience was evaluated with a self-designed questionnaire.

**Results**

Three enrolled nurses and nine registered nurses participated in the training. They were given a questionnaire using 6 Likert scale to evaluate the programme after simulation. The overall evaluation was very positive. Regarding the training outcome, all participants rated agree or strongly agree that the training objectives were met and the training experience was useful for their work, as the simulation scenarios reflected clinical cases in real life. They expressed that they were more aware of the infectious status of patients and how it may affect patient care. They could synchronise with the nursing practice to hospital guidelines especially the infection control precautions from different patients. The debriefing also successfully reflected how they performed and what could do better.

Regarding the programme structure, up to 90% of participants rated "agree" to "strongly agree" that the training content was logically organised and well prepared. 90% participants also agreed or strongly agreed that the trainers were knowledgeable and the instructions given were easy to follow. For the venue and facilities, all participants rated "agree" to "strongly agree" that the location and equipment provided were adequate and comfortable.

**Conclusion**

The simulation training programme provides a risk-free environment and able to prepare the newly deployed nurses in coping with the workflow in isolation ward. In the future, simulation training programme will be extended to nurses who would be trained as duty in-charge so that they can be more confident in handling incidents and emergency situations.

# Service Enhancement Presentations

F2.5

Staff Engagement and Empowerment

13:15 Room 421

## Upholding Person-centred Care: Two Years' Staff Engagement Experience in Shatin Hospital and Bradbury Hospice

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### Introduction

"Person-centred care approach" to daily practice is not new to healthcare professions working in the Hospital Authority. Yet, how to translate the concept into practice would be a challenge to senior management. With reference to the model of "person-centred care made simple" developed by the Health Foundation UK (2014), the initiative in building a person-centred care culture started off with staff engagement. A series of workshops commenced in 2015, using facilitation and reflective mode of learning to engage staff.

### Objectives

The four principles of person-centred care which encompass compassion and respect, coordinated, personalised care, empowering people to live independently, were key focuses of reflective learning. The aim was to arouse participants' awareness towards a person-centred care approach in not only appreciating the concepts, but the application to daily practice.

### Methodology

A pre-observational study of nurse-patient interactions was conducted at 18 wards in February 2015. The personal distraction framework used in dementia care from Kitwood & Brafford (1997) was used to note the interactions. 11 video clips were developed based on the observed interactions. The first workshop started off with participants involving the Hospital Chief Executive, General Manager Nursing, Consultants and Nursing Managers. A total of nine half-day workshops was conducted in 2015. To uphold the momentum, another eight sessions of one-day reflective and experiential workshops for nurses and patient care assistants respectively were held in 2016. By facilitating case discussion, experiential and reflective sharing, participants were involved to act as patient to try on thickened drink, being restrained, wearing pops to simulate impaired vision and limb weakness etc. The feedback from participants of the workshops was analysed.

### Results

Around 30% of nurses attended the 2015 workshops. The feedbacks were categorised as: (1) approaching patients; (2) delivering care; (3) empowering patient; and (4) good attitude of staff with a supportive work environment. A "Small Change with Big Difference" idea was thus generated. This involves encouraging all staff to introduce themselves by name and profession when meeting a new patient, and also greeting patients with their preferred name. In 2016, 45% of nurses and 64% PCAs attended the one-day workshop. Participants demonstrated involvement by active participation in discussion and simulation activities.

With an aim to raise awareness of staff working towards a person-centred care approach, we always ask whether what we do is good for both patient and our staff instead of skewing to either the patient or staff. Person-centred care is not a simply "nice to have" slogan, but should be essential in nursing care.

**Express Queue Service in Specialist Outpatient Clinic Pharmacies**

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**Introduction**

Over the years, different measures had been adopted to address the waiting time of Specialist Outpatient Clinic (SOPC) pharmacy to meet increasing service demands. Yet, major process re-engineering would be necessary to realise further achievements. An analysis on prescription data found that a significant proportion of prescriptions contained only one drug item. Upon further deliberation, a model of "pharmacy express queue" in SOPCs to give priority to single-item drug prescriptions with proper IT infrastructure support has been developed. Prince of Wales Hospital (PWH) and Queen Elizabeth Hospital (QEH) pharmacy had been selected as pilot sites for the project before further rollout to other SOPC pharmacies.

**Objectives**

(1) To improve dispensing efficiency and reduce patient waiting time at SOPC pharmacy; (2) to enhance overall patient satisfaction on drug collection at SOPC pharmacy; and (3) to improve staff morale and job satisfaction.

**Methodology**

- (1) Analyse the number and type of "single item" drug prescriptions;
- (2) Re-engineer pharmacy dispensing workflow to enable express queue service for "single item" prescriptions;
- (3) Enhance pharmacy IT system to serve multiple queues;
- (4) Promulgate service change to patients, provide conspicuous guidance in the waiting halls, and manage expectations.

**Results**

With the collaborative efforts of the Chief Pharmacist's Office, hospital pharmacies and Hospital Authority IT service, the programme had been piloted with promising results. The benefits of this project include significantly decreased waiting time for "single item" prescriptions, with an average waiting time less than 30 minutes for the express queue. More importantly, there was no impact on the waiting time for patients collecting medications through normal queueing. In addition, there was less congestion in the waiting hall, reduced patient enquiries and complaints. The number of uncollected medications was significantly reduced. The staff overtime hours was also decreased.

# Service Enhancement Presentations

F2.7

Staff Engagement and Empowerment

13:15 Room 421

## Make a Change in Eight STEPS – Ensuring Correct Patient Identification in Accident and Emergency Department of Pok Oi Hospital

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### Introduction

It is the responsibility of every healthcare worker to ensure correct patient identification. Wearing 2D barcode wristband is a helpful procedure in ensuring this, and in inpatient wards, with the use of unique patient identification (UPI) device, the accuracy and safety is enhanced, especially in the collection of laboratory specimens. However, this is not a common practice in local Accident and Emergency departments (AED). The AED of Pok Oi Hospital (POH) is the third AED to roll out the application of 2D barcode wristband to all attending patients. In order to ensure a smooth change, careful planning and staff engagement are essential. The main concern among staff is increased workload and stress. The stress comes mainly from unfamiliar workflows. A common query was “why do we need to change?” Kotter’s Eight-step Change Model is applied to introduce this new practice.

### Objectives

(1) Communication with staff so that they understand the need to change, what is to be changed and how this change is made; (2) Participation of staff in the change process; (3) Correct steps to ensure correct patient identification in laboratory specimens collection.

### Methodology

8-Step Model was applied:

- (1) Create urgency – sharing of patient misidentification incidents to staff.
- (2) Form a powerful coalition – identify change leaders from the department and invite them as team members.
- (3) Create a vision for change – ensure the idea is simple and understandable.
- (4) Communicate the vision – talk about the new practice in every occasions and address staff’s concerns.
- (5) Remove obstacles – acknowledge their worrisome thoughts, let the staff understand how technologies can help.
- (6) Create short-term wins – publicly recognise staff who helps in the project.
- (7) Build on the change – encourage feedbacks, analyse the feedbacks, improve the workflow.
- (8) Anchor the change in corporate culture – report the progress and highlight those achievements in every occasion, publish the successful stories.

### Results

Application of 2D barcode wristband to all AED patients in POH commenced in December 2016. Staff complied with the new workflow and no patient misidentification incident was found in the laboratory specimen collection so far since implementation.

**A Pilot Study to Investigate the Effect of Group-based Activity Programme on Health Related Quality of Life for Patients with Musculoskeletal Injuries in Our Work Rehabilitation Programme***Chan SMV, Leung MYV, Au LYF**Occupational Therapy Department, Prince of Wales Hospital, Hong Kong***Introduction**

Musculoskeletal disorders were one of the biggest work related problems (Antonio, 2013). Patients displayed significant pain and functional limits mentally and physically after musculoskeletal injuries especially in lower back and lower limbs. Therefore, activity programme was frequently advocated for the management of musculoskeletal disorders. It was because the health status had recently become a major concern in outcome measures for people with musculoskeletal disorders.

**Objectives**

To investigate the effect of group-based activity programme on health related quality of life (HR-QOL) for patients with musculoskeletal injuries in our work rehabilitation programme.

**Methodology**

This randomised controlled trial study recruited patients referred to work rehabilitation programme from January 2015 to August 2015 in the Occupational Therapy Department. They were suffering from either low back pain (LBP) or lower limbs injury (LL). A group-based activity programme of six sessions in total, combining stretching exercises, progressive muscle relaxation and Ba Duan Jin practice was administered to the intervention group. They completed a self-reported survey using Chinese version of SF-36 (eight domains of health) at baseline (week one) and post intervention (week six) as the primary outcome measure of health status. Wilcoxon Sign Rank test was used to compare the pre-test and post-test scores of the eight domains in SF-36 of control and intervention group, and gender and injury group. Mann-Whitney U test was used to compare the pre-test and post-test scores of the eight domains in SF-36 between the control and intervention group, and gender and injury group.

**Results**

There were a total of 22 subjects including 16 subjects (73%) with LBP and six subjects (27%) with LL for data analysis. There were 11 subjects in each group. After six-week group-based activity programme, the intervention group had significant improvement in two areas of improvement including role physical health ( $p=0.041$ ) and bodily pain ( $p=0.012$ ) than control group. The LL group showed four areas of improvement including role physical health ( $p=0.039$ ), vitality ( $p=0.003$ ), bodily pain ( $p=0.023$ ), general health (0.014) than LBP group. However, there was no statistical difference between male and female group. Finally, the subjects had positive feedback and good satisfaction with the objectives and information of this programme. So, this pilot study suggested that a group-based activity programme had a significant and positive effect on the improvement of overall HR-QOL for patients suffering from LBP and LL in work rehabilitation programme. However, in view of the small sample size, short duration of intervention, subjective and single outcome measurement, further studies are recommended using objective measurements for assessing dysfunction in individuals with LBP and LL.

# Service Enhancement Presentations

F3.2

Clinical Safety and Quality Service I

14:30 Room 421

## Multi-centre Project for the Evaluation of the Effectiveness of Diabetes Nurse Clinic on Patients with Newly Diagnosed Type 2 Diabetes Mellitus

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### Introduction

Diabetes mellitus (DM) is a chronic disease that relies on patients' day-to-day self-care to achieve good glycaemic control so as to reduce the risk of developing diabetes-related complications and healthcare burden. In Hong Kong, Diabetes Nurse Clinics (DMNC) is established at seven clusters of Hospital Authority to manage and empower diabetes patients.

### Objectives

To evaluate the effectiveness of DMNC in empowering newly diagnosed type 2 diabetes' self-care efficacy.

### Methodology

A multicentre project was conducted during the period from November 2014 to June 2015 to evaluate the effectiveness DMNC. Patients diagnosed type 2 DM within two year, able to understand Chinese, and not on insulin therapy were recruited from five hospitals, including Our Lady of Maryknoll Hospital (OLMH), Tuen Mun Hospital (TMH), Pok Oi Hospital (POH), Queen Elizabeth Hospital (QEH) and Queen Mary Hospital (QMH). They were allocated to Diabetes Self-Management Education (DSME) programme either individually or in small group stressing importance of diabetic control, ways to achieve good diabetic control by understanding oral anti-diabetic medications, healthy diet, regular exercise, blood glucose monitoring, hypoglycaemia management and foot care knowledge.

Outcome measurements included glycated hemoglobin (HbA1c), lipid profiles, body mass index (BMI), and two validated scales "Summary of Diabetes Self-Care Activities" (SDSCA) and "Diabetes Knowledge" (CKDN).

### Results

113 patients were recruited, 70 patients (61.9%) were male, 43 (38.1%) were female. Age ranged from 21 to 83 years old (mean 54.9 + 11). More than 50% were working class, 88 (77%) have secondary education level and 14 (12.4%) were smoker. 76 patients (69.1%) were on oral anti-diabetic medications at recruitment.

Pre- and post-intervention evaluation showed significant improvement in glycaemic control with mean HbA1c from 7.89 to 6.89% ( $p=0.000$ ); LDL-cholesterol from 2.75 to 2.43 mmol/L ( $p=0.000$ ); total cholesterol from 4.84 to 4.37 mmol/L ( $p=0.000$ ). CKDN showed that subjects had significant improvement in DM knowledge from 5.4 + 2.5 to 6.7 + 1.6 ( $p<0.00$ ); SDSCA also showed significant improvement in following healthy diet ( $p=0.000$ ); regular exercise ( $p=0.000$ ); self-monitoring of blood glucose ( $p=0.010$ ) and foot care ( $p=0.000$ ).

DM Nurse Clinic is effective in improving glycaemic and lipid control through empowering newly diagnosed type 2 diabetic patients on self-care knowledge and behaviour change. And it is suggested to conduct the project with longer duration so as to assess its efficacy on long-term effects in maintaining healthy lifestyles, reducing both metabolic and cardiovascular risk factors.



F3.3

Clinical Safety and Quality Service I

14:30 Room 421

**A Pilot Project: Implementation of Duplication Checking for Ultrasound Examinations in Princess Margaret Hospital**

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**Introduction**

Radiology examinations are commonly applied in clinical settings for diagnoses nowadays. In view of the huge demand for radiology examinations, there is a need for optimal use of resources by reducing duplicated requests. Princess Margaret Hospital (PMH) was the pilot site to apply the duplication checking feature for ultrasound examinations in the Clinical Management System (CMS). The pilot project started on 1 February 2016. The efficacy of reducing duplicated requests was reviewed after nine months.

**Objectives**

To reduce duplicated requests of ultrasound examinations in PMH.

**Methodology**

In the Generic Clinical Request System (GCRS) of CMS, a duplication checking feature was designed for radiology requests. A pilot was done in PMH on all radiology requests raised through GCRS. Duplication prompt would alert clinicians at the time of request if the same ultrasound examination had been requested within a defined period. Clinicians will be prompted to reconsider the request if: (1) the same ultrasound examination was requested in PMH GCRS within 30 days; (2) the same ultrasound examination in PMH Radiology Information System (RIS) with appointment within 30 days; and (3) the same ultrasound examination in PMH RIS with registered date within 30 days. Clinicians can opt to proceed with a reason or abort the request directly. The system would record the actions taken by clinicians upon the duplication prompt, so that the efficacy of the duplication checking can be reviewed.

**Results**

After nine months of implementation of the duplication checking feature, statistics was collected and results showed that one in 10 (1,749 out of 17,550) of the ultrasound requests were duplicated according to the defined criteria. Among the duplicated requests, around 30% (522 out of 1,749) of the requests were finally cancelled upon the duplication prompt.

**Conclusion**

The duplication checking feature is effective in reducing the duplicated ultrasound requests in PMH. The results were reviewed by Coordinating Committee in Radiology, and the Clinical Request and Decision Support Working Group. It was concluded that the pilot was effective in preventing duplicated ultrasound request, and the feature would be adopted in the CMS of all Hospital Authority hospitals.

# Service Enhancement Presentations

F3.4

Clinical Safety and Quality Service I

14:30 Room 421

## Prediction of Length of Stay from Recovery Factors in Psychiatric Rehabilitation

Lai FHY<sup>1</sup>, Chiu JCK<sup>2</sup>, Tse PLC<sup>1</sup>, Chiu FBF<sup>1</sup>, Fan SHU<sup>1</sup>, Cheung JCC<sup>1</sup>, Chan ASM<sup>1</sup>, Ho ECW<sup>1</sup>, Tse TLY<sup>1</sup>, So BTY<sup>1</sup>, Tsui JWM<sup>1</sup>, Cheung JPH<sup>1</sup>, Chen EWC<sup>1</sup>, Chan SHY<sup>1</sup>, Wong SKM<sup>1</sup>

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### Introduction

The recovery of individual clients in psychiatric rehabilitation is a unique personal experience (Davidson et al., 2006). An objective measure of the effectiveness of recovery has long been advocated in foreign countries (Frese et al, 2001; Repper & Perkins, 2006). To embrace the objective effectiveness measure, the recovery model should follow directions with evidence-based implementation, as well as guide the development of recovery programme. Farkas (2007) model of recovery, which involved those advantages, was adopted in our setting.

### Objective

To evaluate a group of inpatients with mental illness participating in a three-week recovery-based occupational therapy programme. All 60 subjects recruited would participate in a series of goal setting trainings, psycho-educations, empowerment activities and therapeutic groups.

### Methodology

Clients' level of hope was assessed by Chinese Hope Scale (CHS) which composed of items of agency (i.e. goal-directed energy) and pathways (i.e. planning to accomplish goals) domains. Moreover, the Chinese Short Warwick-Edinburgh Mental Well-being Scale (CSWEMWBS) was used to assess mental well-being of clients. Furthermore, the Chinese Illness Management and Recovery Scale (CIMRS) was used to examine their knowledge about mental illness, adequacy of social support, notify their treatment adherence, document relapse prevention planning, and to verify coping efficacy.

### Results

All 60 subjects showed improvement in generating routes to recovery goals ( $p < .01$ ), enhanced capacity in initiating ( $p < .05$ ) and maintaining the actions to reach their recovery goals ( $p < .05$ ). A regression analysis was conducted to predict clients' length of stay with those recovery measures. The regression model was able to predict a significant proportion of variance in patients' length of stay ( $R^2 = .32$ ). Agency subscales in the Chinese Hope Scale contributed significantly to the regression model ( $\beta = .21$ ), while the feeling of getting closer to other people contributed ( $\beta = .09$ ), feeling relaxed ( $\beta = .11$ ), dealing with problems well ( $\beta = .09$ ) in CSWEMWBS showed their significance. Moreover, the involvement of family and friends in recovery ( $\beta = .09$ ) and increased in knowledge of recovery ( $\beta = .12$ ) showed significant contribution in illness management and recovery.

A number of recovery factors shown to be a significant predictor. Nevertheless, further studies with larger samples from more diversified populations are suggested for generalisation of the results. Moreover, the study period can be longer in exploring further outcomes of recovery.

F3.5

Clinical Safety and Quality Service I

14:30 Room 421

### Multi-centre Collaboration Project: Evaluation on the Effectiveness of Diabetes Nurse Clinic in Treating Patient Who Needs Initiation of Insulin Therapy

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#### Introduction

Clinicians are facing challenges when advising patients with type 2 DM to start insulin. Resistance on initiating insulin therapy includes both psychological and knowledge based barriers. Hence referring patients to Diabetes Nurse Clinic (DMNC) for insulin initiation is regularly practised in Hong Kong. However, inadequate studies were conducted to evaluate these nurse-led DM intervention.

#### Objective

To evaluate the effect of DMNC on diabetic patient who needs initiation of insulin therapy.

#### Methodology

It was a multi-centred, and pre- and post-intervention evaluation, which was done from November 2014 to June 2015. 130 patients, who have been referred to DMNC for starting insulin therapy, were recruited from Yan Chai Hospital (YCH), United Christian Hospital (UCH) and Queen Mary Hospital (QMH). Participants received Diabetes Self-management Education (DSME) with instruction of insulin administration to patients and/or their care-givers in DMNC.

#### Results

The 130 participants had a mean age of 60.5 years old (SD=11.8, range=27 to 87), with a duration of DM at a mean of 11.9 + 9.2 years. Their mean total contact time in DMNC was 147.2 + 66.0 minutes.

For glycaemic control, there was a significant reduction in HbA1c level at the end of the intervention (10.1 + 2.1% at baseline versus 7.9 + 1.2% at the end of intervention,  $p < 0.001$ ). In view of other metabolic risk factors, there was significant reduction in triglycerides ( $p < 0.001$ ), LDL cholesterol ( $p = 0.04$ ) and significant improvement in the HDL cholesterol ( $p = 0.014$ ). However, there was a minor but significant increase in body mass index at the end of the intervention (mean increase=0.2190, 95% CI=0.4376 to 0.0001,  $p = 0.05$ ).

To measure the effect of DMNC interventions on participant's distress level, there was significant improvement ( $p < 0.01$ ) on the Diabetes Distress Screening Scale (DDSS) at the end of the study. There was also significant improvement ( $p < 0.01$ ) on Insulin Related Stress Score (IRSS), which measured participants' distress level specific to insulin therapy.

For desirable diabetes-related behaviour changes, Summary of Diabetes Self-Care Activities (SDSCA) indicated a significant improvements on general diet ( $p = 0.004$ ), DM specific diet ( $p = 0.020$ ), self-monitoring of blood glucose ( $p = 0.001$ ) and hypoglycaemia management ( $p < 0.001$ ).

#### Conclusion

Apart from improving clinical outcomes, DMNC is also effective in decreasing distress levels and facilitating desirable lifestyle modification of diabetes patient who needs initiation of insulin therapy. DMNC as a routine medical care is therefore recommended.

# Service Enhancement Presentations

F3.6

Clinical Safety and Quality Service I

14:30 Room 421

## Evaluation of Rheumatology Nurse-led Clinic in Managing Patients with Rheumatoid Arthritis: A Retrospective Study

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### Introduction

Rheumatoid arthritis (RA) is a chronic, systemic, autoimmune disease characterised by inflammation of the synovial joints. Management of RA patients is usually provided by rheumatologists only. Enhanced care provided by rheumatology nurses between rheumatologist consultations may have beneficial effects in terms of symptom control. In Hong Kong, whether rheumatology nurse care model can lead to favourable patient outcomes remain uncertain.

### Objectives

To examine the clinical effectiveness of rheumatology nurse-led clinic in controlling disease activity as expressed in change of Disease Activity Score in 28 joints (DAS28) in RA patients compared with usual care led by rheumatologists only.

### Methodology

It was a retrospective study. Two historical groups of RA patients (30 patients in each group) were identified from attendance records between 1 January 2015 and 20 July 2015 at the rheumatology outpatient clinics of a regional hospital. Group one comprised of patients who attended rheumatology nurse clinic between doctor consultations in the clinic. Patient education delivered by the rheumatology nurse included disease mechanism and self-assessment of disease activity. Medication adherence was checked and importance of medication adherence was reinforced. RA treatment could also be intensified if needed. Group two comprised of patients managed by rheumatologists only. Primary outcomes were changes in disease activity (DAS28) at follow-up visit after the doctor clinic and nurse clinic.

### Results

The mean follow-up duration for the study cohort was 20 weeks (median: 22.5 weeks). Patient global assessment and DAS 28 were similar for both groups at baseline. At follow-up, patient global assessment and in group one decreased from mean  $\bar{A} \pm$  SD: 42  $\bar{A} \pm$  24.7 at baseline to 28.7  $\bar{A} \pm$  24.6 at follow-up, which was approaching the minimal clinically important improvement (MCII= -15). With regards to DAS28, there was an 8.2% decrease (absolute change: -0.38  $\bar{A} \pm$  1.14) in DAS28 in group one, suggesting a trend of improvement ( $p=0.081$ ). The corresponding decrease in group two was 1.2% (absolute change: -0.05  $\bar{A} \pm$  1.47) and such decrease was not significant ( $p=0.863$ ). Changes in DAS28 did not exceed minimal clinically important improvement in both groups (MCII= -1.2).

This study demonstrates short-term benefits of a nurse-led programme on RA disease management. Future multi-centre studies with a randomised controlled design and a larger sample will be required to confirm our findings.

F3.7

Clinical Safety and Quality Service I

14:30 Room 421

**Streamline Care Pathway for Cancer Patients at Risk of Febrile Neutropenia after Chemotherapy Treatment**

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**Introduction**

There is an exponential increase in the use of chemotherapy for cancer. A high proportion of chemotherapy treatment is delivered in ambulatory setting. Neutropenic sepsis is a well known and life-threatening complication of chemotherapy due to bone marrow suppression, which is predictable, preventable, and manageable that early, goal-directed resuscitation and urgent administration of broad-spectrum antibiotics have proven benefits on the outcome.

**Objectives**

(1) To analyse and identify problems in the management of patients presenting with post-chemotherapy febrile neutropenia (FN) in the emergency access as well as its impact on patient outcomes; (2) to develop solutions and streamline pathway; and (3) to evaluate the impact after implementation of a clinical pathway for post-chemotherapy FN.

**Methodology**

This is a pre- and post-study of the impact of a clinical pathway for post-chemotherapy sepsis in malignancy patients. It took place in six Oncology Centres of Hospital Authority that was supported by Oncology Specialty Advisory Group. A quality improvement process and two retrospective chart reviews were conducted. The first survey was between November 2012 and September in 2013 of 207 patients identified being admitted to oncology wards due to FN and receiving chemotherapy within one month. A standardised protocol was conducted to direct the flow of FN patients through emergency department, as well as structured patient education and written information were developed to the identified "high-risk" patients to facilitate a streamlined process for prompt identification and treatment. The second survey was between May and July in 2016 with 53 patient recruited in a similar way after implementation of new clinical pathway. Data collected in the second survey (pathway group) was compared with the first survey which served as historical referents.

**Results**

Compared with referent group, pathway group had significantly more patients receiving chemotherapy alert card (15% vs. 64%,  $p < 0.001$ ), having blood culture done (26% vs. 77%,  $p < 0.001$ ) and having antibiotics given at emergency access (16% vs. 66%,  $p < 0.001$ ). Pathway group were associated with a significantly shorter mean door-to-needle time (126 minutes vs. 266 minutes;  $p < 0.001$ ) and significantly more patients having antibiotics given within one hour (57% vs. 11%;  $p < 0.001$ ) than referent group. Adverse outcomes including intensive care unit admission, disseminated intravascular coagulation, etc. were reported in 8% and 5% patients of pathway and referent group ( $p = 0.44$ ) respectively. Mean length of hospital stay was seven days in pathway (range 2-15) and referent group (range 2-53).

**Conclusion**

Implementation of pathway for the oncology centres and their affiliated hospitals can effectively shorten door-to-antibiotic time to meet the international standard of care in neutropenic sepsis patients. The compliance rate was also high. We proved that effective implementation of the care pathway is feasible across departments through excellent teamwork among oncology and emergency nurses, physicians, pharmacists, etc.

# Service Enhancement Presentations

F4.1

Clinical Safety and Quality Service II

16:15 Room 421

## Prevention of Neonatal Extravasation Injuries: The Experience of a Neonatal Unit in Hong Kong

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### Introduction

Extravasation injury (EI) develops when intravenous fluid leaks into the surrounding tissue. It is a serious injury of patient receiving intravenous therapy and medication. Extravasation injury remains the most common iatrogenic complication in high-risk patients resulting in pain, skin necrosis, nerve damage, scarring, or even permanent contracture.

Neonates who are unable to verbalise pain, with blood vessels of smaller size, and less mature skin are particularly at risk of this iatrogenic complication. Due to the potential risks and harms of extravasation, an evidence-based clinical practice guideline (CPG) was developed and implemented to prevent this iatrogenic complication.

### Objectives

(1) To prevent neonatal peripheral intravenous EI in a local neonatal unit; (2) to improve nurses' knowledge and practices on prevention and management of neonatal peripheral intravenous EI.

### Methodology

An evidence-based CPG on prevention and management of neonatal peripheral intravenous EI was developed and implemented using multi-faceted training strategies. Incidence of neonatal peripheral intravenous EI was evaluated with an observation period of 143 days before and after CPG implementation respectively. Nurses' knowledge and practice on prevention and management of neonatal peripheral intravenous EI were evaluated immediately before and six months after completion of multi-faceted training.

### Results

213 neonates participated in the study with 104 and 109 neonates recruited in control and intervention groups respectively. Data was analysed using independent t-tests. Both groups were homogenous with no significant difference in demographics ( $p > 0.01$ ). There were significantly fewer neonates in the intervention group with peripheral intravenous EI ( $p = 0.012$ ). Incidence of peripheral intravenous EI per 1,000 days in the control and intervention groups were 14.04 and 2.904 respectively.

53 nurses completed the study. Results of paired t-tests indicated that the mean scores of both nurses' knowledge and practice in post-test were significantly higher than pre-test ( $p < 0.01$ ).

### Conclusion

Implementation of CPG can significantly reduce the number of neonates with peripheral intravenous EI. Nurses' knowledge and practice on prevention and management of neonatal EI were significantly improved. CPG will be disseminated to staff in the neonatal unit for routine use after the study.

**The Implementation of an Integrated Observation Chart with Newborn Early Warning Signs to Facilitate Early Observation of Infants at Risk of Clinical Deterioration***Chan MY, Shek CC, Kwong T, Lee M, Liu HL**Department of Paediatrics and Adolescent Medicine, Princess Margaret Hospital, Hong Kong***Introduction**

Different observation charts were used in Special Care Baby Unit (SCBU) of Princess Margaret Hospital (PMH), with no reference range of significant clinical signs for screening at-risk infants. This hindered early recognition of infant's clinical deterioration and effective team communication, as well as taking appropriate interventions promptly.

**Objectives**

(1) To develop an Integrated Observation Chart with Newborn Early Warning Signs (NEWS) to identify infant's clinical deterioration for taking appropriate interventions in SCBU; and (2) to evaluate its discrimination ability in screening infant for Neonatal Intensive Care Unit (NICU) admission.

**Methodology**

A retrospective chart review diagnostic study was conducted in SCBU of PMH. All infants transferred from SCBU to NICU for step-up care and matched controls without NICU admission from February 2015 to January 2016 were recruited. A draft of NEWS was developed by an expert panel including neonatologist and neonatal nurses. Subjects were divided into training (70%) and testing set (30%) for chart modification and testing respectively. The modified versions were discussed by the panel to develop the finalised versions of NEWS.

**Results**

108 infants were recruited (64 males, mean age:  $0.79 \pm 2.96$  days), 36 were transferred to NICU. NEWS included temperature, abdominal distention, cardiovascular, respiratory, neurological and physiological status. Three colour zones indicated consultation urgency, where red showing the need for immediate consultation. The sensitivity and specificity were 80.6% (95%CI: 65.0%-90.3%) and 90.3% (95%CI: 81.3%-95.2%) respectively.

NEWS could facilitate early identification of infant's clinical deterioration and provide guidance for nurses to initiate appropriate intervention to improve patient outcome.



# Service Enhancement Presentations

F4.3

Clinical Safety and Quality Service II

16:15\_Room 421

## Risk Management Enhancement Framework in New Territories West Cluster on Risk Register Development and Performance Monitoring Process

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### Introduction

Risk register is one of the important tools to manage the risk of an organisation. Each year, risk registers (RRs) have to be formulated at the cluster, hospital and departmental levels to facilitate risk monitoring and implement risk mitigation actions. Cluster management was aware that there should be strong linkage among different levels and a more objective method to develop the RRs should be adopted. In view of this, the New Territories West Cluster Quality and Safety Division had been working with the Hospital Authority (HA) Head Office in revamping the risk management framework and RR development process since 2014.

### Objectives

(1) To strengthen the framework in risk identification, monitoring, reporting and RRs development process; (2) to provide a common risk language for better communication; (3) to develop an Electronic Risk Register System (eRRS) to enhance reporting of RRs; and (4) to timely update risk performance by using a standardised Risk Control Sheet.

### Methodology

Both bottom-up and top-down approaches were adopted in the development of RRs. Firstly, departments formulated their departmental RRs (e.g. top three to five risks) which the development process was facilitated by workshops. Departmental incident trends were provided to facilitate their consideration and a new NTWC risk taxonomy was used to standardise the common risk terms with reference to the numbering system of the Hospital Accreditation criteria. Further, an Electronic Risk Register System (eRRS), which was jointly developed with Information Technology Department of Hospital Authority Head Office to facilitate frontline departments' submission. The eRRS could facilitate aggregation of department RRs for hospital management to formulate the hospital's RRs. The cluster RRs would then be formulated with reference to the hospital RRs and cluster-wide data. All cluster/hospital RRs would be endorsed by the Cluster/Hospital Management Committee. After that, risk custodians were identified for planning risk mitigation actions and monitoring the risk performance. All actions would be documented in Risk Control Sheets and the risk performance would be reported to the senior management regularly.

### Results

Workshops were held for departments to familiarise with the RR development process. Quarterly incident trends were provided to departments for their consideration of risk registers with positive feedback. Department managers welcomed the eRRS which facilitated RR reporting. Also, cluster/hospital management were regularly and timely updated on risk performance and Risk Control Sheets. It can be concluded that the new initiatives have enhanced the implementation of risk management with the new framework and tools.

**The Effectiveness of Conservative Treatment on Patient of Different Onset Time with Carpal Tunnel Syndrome***Lam CY**Occupational therapy department, Queen Elizabeth Hospital, Hong Kong***Introduction**

Carpal tunnel syndrome (CTS) is one of the most common medical conditions presented in outpatient clinic of our department. General practice for treating CTS are customised resting splint with wrist in neutral position, nerve and tendon gliding exercises, and work tasks advice. However, the effectiveness of these treatment combinations on patient with different onset time is not well-documented.

**Objective**

To evaluate the effectiveness of conservative treatment on CTS patient of different onset time.

**Methodology**

385 new cases of carpal tunnel syndrome in Occupational Therapy Department of Queen Elizabeth Hospital were reviewed by convenience sampling from April 2013 to March 2015. Data were taken at baseline, three months, six months and upon discharge. The selected cases will be allocated into three groups (Group one: 0 to three months; Group two: three to six months; Group three: more than six months) according to onset time. Treatment outcome will then be analysed with combination of treatment modalities (Treatment one: Night wrist splint; Treatment two: Night wrist splint + advice on work; Treatment three: Night wrist splint + tendon gliding exercise; Treatment four: Night wrist splint + advice on work + tendon gliding exercise). Outcome measures include night numbness, day numbness, Phalen's test, Reverse Phalen's test, Tinel sign, static 2-point discrimination and strength.

**Results**

Significant improvement was found in night numbness with treatment two and treatment four within first three months in group one. Day numbness was significantly improved with treatment four, whereas thumb 2 point discrimination was improved with treatment two. Similarly, improvement in day and night numbness was found with treatment two and four within first three months in group two. The effect sustained for six months. Day and night numbness was found to be improved with all treatment combinations in group three. Moreover, treatment four was also effective in improving strength in this group of patient.

This study demonstrated that treatment with night splint combining work advice is the most effective treatment programme in improving day and night numbness in patient with disease onset time less than six months. Whereas using night splint alone is already effective in improving day and night numbness in patient group with onset time more than half a year. The results suggest a clearer direction for programme planning on treating CTS patients.

# Service Enhancement Presentations

F4.5

Clinical Safety and Quality Service II

16:15 Room 421

## Seeing before Doing, and Achieving an Operation with Better Quality and Patient Safety – Filmless Operating Theatres Project

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### Introduction

Radiology images are crucial in supporting an effective treatment. Surgeons can make use of radiology images (e.g. Computed tomography thin cuts) for pre-operative planning before operations. Filmless Operating Theatres (OT) Project is a three-year corporate-wide project that aims at facilitating surgical services and modernising Hospital Authority (HA) through implementation of filmless technology. It covers 23 HA hospitals from seven clusters with about 230 OT rooms, and involves specialties like neurosurgery, surgery and orthopaedics and traumatology, etc.

### Objectives

This project aims to facilitate clinicians' viewing of radiology images in OT rooms, and enhance pre-operative planning which facilitates operations with improved accuracy, quality and patient safety. A central, corporate-wide radiology infrastructure, allowing an automated, cross-cluster image retrieval in a secured approach, has been developed to support the rapidly growing demand from various clinical specialties.

### Methodology

A feasibility study was conducted in four major acute hospitals during 2013/14 to review service needs, and explore technology standard and IT infrastructure requirement to support operations. The project officially commenced in 2015/16 with development of the three-level technology standard.

Governance structure was set up at both Head Office (HO) and cluster levels to facilitate project preparation and implementation. At HO level, the Project Steering Committee leads and advises on the overall direction including project planning, implementation, and monitoring. HO project team takes a central coordination role in project planning and progress monitoring; and collaborates with Coordinating Committees (COCs), other HO departments and cluster teams in project tasks, e.g. technical support, training and risk mitigation measures. At cluster level, local project teams collect user requirements and feedbacks, submit implementation plan, monitor deliverables and report to local governance.

### Results

About 240 sets of viewing equipment and 370 image processing systems will be installed upon Project completion in March 2018. Enhancement of the central, corporate-wide radiology image storage enabled a streamlined and automated workflow in image request and retrieval. Besides, it helped mitigate the potential risk of losing patient data due to the use of removable storage devices in the past. Clinicians are positive about this robust pre-operative planning workflow model as they can virtually see or simulate operations with facilitation of radiology images. A sustainable specialty-based training is important in continuous quality improvement, HA therefore rests upon respective COCs' contribution and coordination to meet their specific clinical application needs.

F4.6

Clinical Safety and Quality Service II

16:15 Room 421

**A High Accessible and Measurable Approach in Train-the-trainer Workshop: Theoretical and Simulation Training on Pain Assessment and Management***Leung PNC<sup>1,2</sup>, Cheong DL<sup>1,2</sup>, Aboo GH<sup>1</sup>**<sup>1</sup>Nursing Services Division, <sup>2</sup>Working Group on Pain Assessment and Management, Pamela Youde Nethersole Eastern Hospital, Hong Kong***Introduction**

Pain is a common symptom of patients in acute hospitals. In 2010, a regional acute care hospital endorsed a clinical protocol on Pain Assessment and Management to ensure patients are assessed and continuously evaluated of pain; and to carry out nursing interventions to minimise pain.

To seek for continuous improvement, nursing audits identified two major areas for improvement, including accurate and timely nursing documentation, and non-pharmacological nursing interventions for pain relief.

**Objectives**

(1) To improve accuracy and timely nursing documentation; and (2) to promulgate the non-pharmacological nursing interventions for pain relief.

**Methodology**

Highly accessible and measurable of Train-the-trainer Workshops for nurses, including theoretical and practical simulation training, were conducted in April and May 2016. Theoretical session included physiology of pain and basic principles of pain management, nursing assessment and documentation, nursing interventions and reporting. Simulation training with three clinical scenarios, cancer pain, chest pain and post-operative wound pain enabled participants to practice what they learnt in theoretical session.

**Results**

In two identical workshops, 45 participants attended the pre- and post-tests, showing 12% improvement in answering the quiz correctly. Participants were able to conduct accurate pain assessment and documentation, and carry out non-pharmacological interventions for pain relief to patients, and use iSBAR for reporting in simulation training. Overall, this workshop gained positive feedback with overall satisfaction scored 5/6. Participants appreciated lots of useful and up-to-date information for sharing throughout the theoretical and practical sessions. It achieved measurable effectiveness.

Meanwhile, a list of departmental trainers and training information are available on Nursing Homepage. Trainers are responsible to conduct training to nurses in their respective units. To facilitate and strengthen knowledge and clinical practice after training, on-line quiz with 20 questions was developed to encourage all nurses to attempt it after training. 1,301 (95%) nurses in total completed the quiz and 1,132 (87%) nurses answered 16 questions or more correctly within eight months. It achieved high accessibility and effective measurable outcomes.

**Conclusion**

Hospital has articulated and implemented a standard of practice in pain assessment and management. Continuous education and evaluation are important to sustain and improve the quality of pain management. Nurses showed improvement on pain management and demonstrated skillful practice on non-pharmacological interventions for pain relief in simulation training. For continuous improvement, an evaluation audit will be conducted.

# Service Enhancement Presentations

F4.7

Clinical Safety and Quality Service II

16:15 Room 421

## Enhanced Registry for Safer Heart Transplant

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### Introduction

Comprehensive information of potential recipient in Heart Transplant Registry.

New system intelligence for retrieving latest blood group of potential heart transplant recipient.

Heart Transplant Team can get compatible recipient list by entering donor's reference number with blood group retrieval.

### Objectives

Two new features will be highlighted. One of them can facilitate Heart Transplant Team members to retrieve latest blood group of donor and recipient from blood bank instead of inputting corresponding blood group manually. This new feature can improve safety and reduce risk of transcription error.

Another new feature is that Heart Transplant Team members can get the donor's information including blood group by scanning the barcode of Donor Reference Number. This new feature can improve safety and facilitate Heart Transplant Team to retrieve correct donor's information.

### Methodology

Hospital Authority (HA) Information Technology team developed the Organ Registry Transplant System (ORTS) for heart transplant in April 2016. The enhanced registry allows Heart Transplant Team members to enter more comprehensive clinical data of potential recipients. This can assist Heart Transplant Team to get a more comprehensive picture for organ allocation.

HA IT team developed the linkage with Blood Bank to ensure the latest blood group of donor and recipient can be retrieved from system.

A system generated donor reference number would be assigned to each potential donor. For confidentiality purpose, organ donation coordinator would give this number for transplant team's reference. System will retrieve the corresponding donor's information when Heart Transplant Team members scan or input the unique number for organ allocation.

### Results

As a result, comprehensive recipient record and automatic blood group retrieval can provide benefits as follows:

Content of clinical records can be enriched.

Accurate blood group of donor and recipient can be retrieved.

Transcription error of blood group can be avoided.

### Conclusion

The enhanced Heart Registry for Organ Transplant is effective in retrieving an accurate and latest blood group of the donor and recipient.