

入實驗室做「華生」

如果看過福爾摩斯，一定知道華生是誰。在醫學世界，我們有扮演福爾摩斯的醫生，也有好比華生的醫務化驗師，後者去搜證，提供科學證據，協助前者破解病症背後的原因，對症下藥。今期我們從不同標本出發，探討醫務化驗師如何憑微生物、血液細胞、身體組織和人體化學物質，抽絲剝繭，逐一找出致病真兇。

另外，7月醫管局兩位「重量級」人馬分別有好消息和新動向：主席梁智仁教授獲頒金紫荊星章，表揚他熱心參與公共及社會服務，恭喜梁教授！行政總裁梁栢賢醫生卸任在即，他為醫管局付出十多年，成績有目共睹。《協力》祝願梁醫生的下半場，繼續生活愉快順心。

Meet the ‘Watsons’ at laboratory

If you have read *Sherlock Holmes*, you must be familiar with his friend and assistant Watson. In the world of medicine, if doctors are the Sherlocks, then medical technologists (MTs) are the Watsons who conduct investigation and provide scientific evidence to help doctors solve even the most puzzling cases. In this issue, we shall have a glimpse into the microscopic world to see how MTs identify causes of illness through examining microbes, blood cells, body tissue, and chemical substances in human body.

July brings important news about two ‘big shots’ of HA. Chairman Prof John Leong Chi-yan has been awarded the Golden Bauhinia Star for his distinguished contribution to public and community service; Chief Executive Dr Leung Pak-yin is retiring after serving at HA for more than a decade. *HASLink* offers heartfelt congratulations to Prof Leong and wishes Dr Leung a new chapter in his life.



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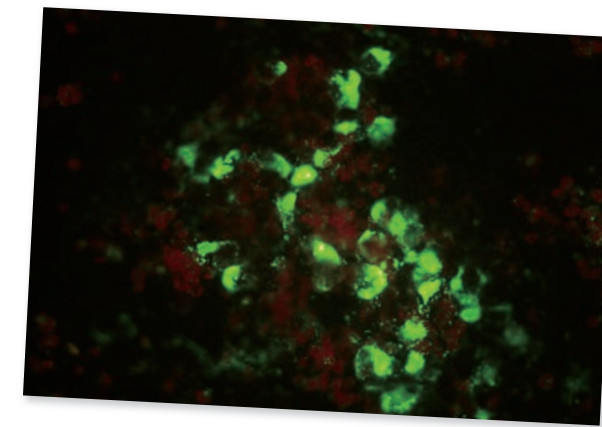
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標本的啟示：從防控感染到監察成效

The revelation of specimen: From disease prevention to effective cures

They are the unseen heroes in Hong Kong's battles against diseases – a team of dedicated medical technologists (MTs) who are detectives behind-the-scenes to hunt down clues that help our frontline medical teams keep the city safe from outbreaks ranging from avian flu, swine flu, lead in drinking water, to SARS. They conduct medical tests on body fluids and tissue samples, as well as painstaking investigations that help clinicians diagnose, monitor, treat, and control the progress of diseases.

Hong Kong has around 3,600 registered MTs, nearly half of them, around 1,600, work for the Hospital Authority (HA) which employs the largest group of these allied health professionals. Chief Manager of Allied Health **Ivis Chung** tells *HASLink* that the HA's team of MTs conducts 42 million medical tests a year on body fluids and tissue. "Demand for MTs is rising and their work is becoming more complex as Hong Kong's ageing population leads to an increase in chronic diseases and infection diseases, and use of targeted therapy," adds Ivis.



▲ 化驗師利用直接免疫熒光測試，快速從病人的鼻咽沫中找尋呼吸道病毒。綠色螢光位置顯示，鼻咽沫中有甲型流感病毒。Direct immunofluorescence test (DIF) is used for rapid diagnosis of respiratory viruses in patient nasopharyngeal aspirate. The fluorescent green shows the presence of an influenza A virus in the nasopharyngeal aspirate.

從早年禽流感、豬流感大爆發到「鉛水事件」，甚至肆虐香港的沙士一疫，醫護人員在前線努力奮戰，幕後其實有一羣埋首實驗室的醫務化驗師默默支援，化驗病人的體液及組織樣本，抽絲剝繭後給病理科醫生提供重要情報，協助醫生執行防控感染、診斷、治療和監測疾病。



▲ 不同顏色的培養基含不同「營養物」，供各類細菌吸收、生長及繁殖。Petri dishes of different colours are filled with specific ingredients which facilitate bacteria culturing.

總行政經理（專職醫療）鍾慧儀稱，現時全港約有3,600名註冊醫務化驗師，其中近一半約1,600人在醫管局工作，是專職醫療中最多人職系的職系。醫管局每年檢驗4,200萬個人體體液和組織等檢測項目，隨著人口老化，慢性疾病愈趨普遍、病症亦愈來愈複雜、傳染病層出不窮和標靶藥物的引進等，社會對醫務化驗師的需求有增無減。

化驗師與病理科醫生合作無間，公立醫院的

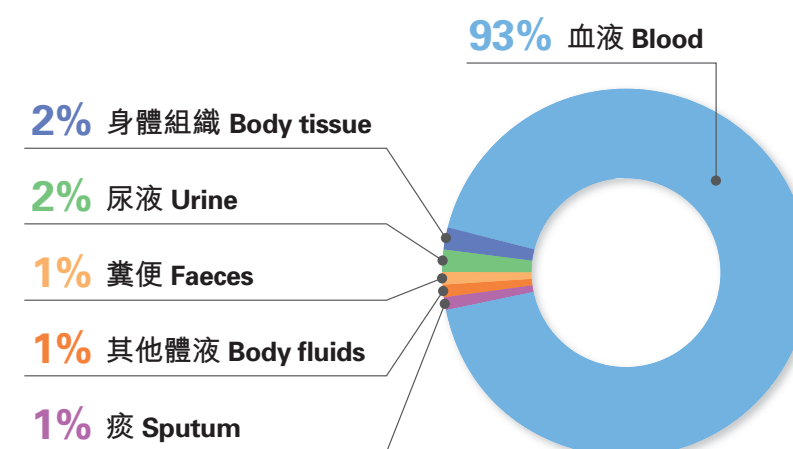
病理學部包括四大範疇：醫療微生物及病毒學、血液及輸血科學、細胞病理學和臨床化學。雖然化驗師檢驗的樣本、檢測的儀器及方法各有不同，但相同之處是大家都本著「一步也不能錯」的宗旨，非常謹慎。「一子錯，滿盆皆落索」，錯的化驗結果可令醫生斷錯症、開錯藥，以致要病人再受皮肉之苦，甚至賠上性命。

社會不斷進步，檢測儀器追上時代，醫務化驗師也要不斷自我增值，才能與尖端的醫學發展接軌。鍾慧儀說，醫管局專職醫療深造學院一直為在職的醫務化驗師提供培訓。「副醫務化驗師入職首三年要完成『木人行』訓練，即三年內在不同的工作崗位吸取實戰經驗；醫務化驗師和高級醫務化驗師則需接受有關病理學的最新發展、管理實驗室、採購儀器、質素保證和人事管理的課程，也有機會到醫管局總辦事處受訓或到海外深造。他們需與時並進，才可為醫生提供最精準的科學實証資料。」



▲ 總行政經理（專職醫療）鍾慧儀稱，醫務化驗師需見微知著，與醫生一起「破案」，偵緝致病元兇。Chief Manager of Allied Health Ivis Chung says MTs are meticulous and attentive individuals who work like detectives to help doctors find the origins of a disease.

標本類別 Types of specimen



行內術語 Laboratory jargons

撈魚 Capturing fish

用人手覆驗「凝血酶原時間」，檢測病人有否患凝血因子缺乏症，而可能導致流血不止。Manually double-checking 'prothrombin time'. It evaluates whether a patient has deficiency in certain clotting factor that might result in abnormal bleeding.

釣魚 Fishing

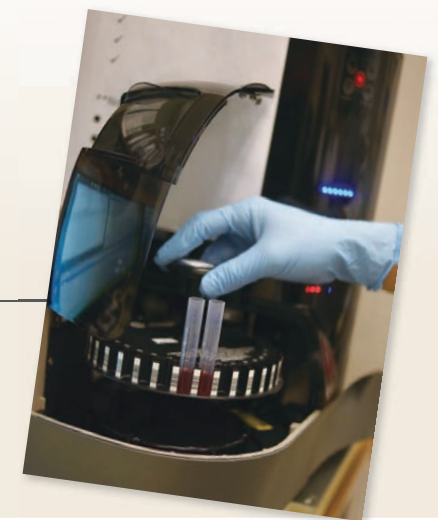
用玻璃片將薄切的細胞組織在恆溫水箱中慢慢平直地取出。Taking out slides of tissue vertically from a waterbath.

屎檔、尿檔 Faeces stall and urine stall

化驗室內檢驗糞便及尿液樣本的地方。The locations where faeces and urine samples are tested.

打機 Machine-beating

把樣本放進化驗儀器。Putting samples into a testing device.



每當香港有傳染病肆虐，都人心惶惶。令人類致病的微生物可分為四種：細菌、病毒、寄生蟲和真菌。微生物學醫務化驗師最短時間內追蹤感染元兇及源頭，使前線醫護把握治療和控制感染的黃金期，以防傳染病在醫院及社區爆發。

快速檢驗技術是盡早辨識致病元兇的方法。瑪嘉烈醫院及北大嶼山醫院病理學部部門經理**許偉廷**憶述2009年本港爆發人類豬型流感一疫，「當墨西哥和美國發現人類豬型流感病毒個案時，我們已提高警覺，準備應對本港隨時出現首宗確診個案。」化驗師24小時內為疑似感染病人進行快速分子診斷測試，好讓醫生盡早為確診感染病人處方特效藥，減少出現併發症及傳播風險。

針對細菌、真菌等微生物，先進儀器能縮短化驗時間和提升準確度，檢測細菌只需一日，比以前兩日快。當化驗師收到標本後，用24小時在培養基培植出致病細菌、真菌，之後取出一粒純種菌落，以質譜儀利用激光將它「斬件分屍」，根據細菌不同「生物標誌物」特徵鑑定其種類，全程只需數分鐘。



瑪嘉烈醫院及北大嶼山醫院病理學部部門經理許偉廷視每個樣本均是病人的生命，化驗不容有失。Hui Wai-ting, Department Manager (Pathology) of Princess Margaret Hospital and North Lantau Hospital regards each specimen as the life of a patient.

質譜儀準備就緒 隨時驗耳念珠菌 MALDI-TOF stands by for Candida auris test

近年高抗藥性真菌——耳念珠菌神秘地在全球擴散，本港今年6月24日亦出現首宗感染個案。許偉廷說，團隊早已留意耳念珠菌在北美、歐洲及其他區域愈趨流行，特別影響住院的高危病人，故化驗室的質譜儀早已備有快速鑑定耳念珠菌的技術，隨時候命。一旦驗出感染個案便通報醫院，讓前線加強感染控制措施，包括即時隔離治療病人和加強消毒病房。

While the multidrug-resistant yeast *Candida auris* has emerged worldwide recently, Hong Kong recorded its first case on 24 June this year. Hui Wai-ting says that the team has stepped up vigilance after learning about cases found in European countries and the United States which pose a serious health threat to hospitalised patients. The MALDI-TOF in the laboratory can rapidly identify *Candida auris*. Once the yeast is found, medical staff will be notified, and infection control measures enhanced, including surveillance and isolation of infected patient. The wards concerned will be thoroughly disinfected.

微生物 Microbes

緝拿傳染病真兇 Stop microbe transmission with speedy identification



許偉廷解釋，迅速及準確鑑定微生物，有助醫生準確地處方強度適合的藥物，加快病人康復；亦可避免任何病症都用大量重藥，令細菌、病毒有可能變種或出現抗藥性，導致藥石無靈。此外，前線亦可採取適當隔離及感染控制措施，盡快切斷傳播途徑，提升防疫能力。他強調，縱使化驗技術不斷推陳出新，但醫療服務仍是以人為本的事業，不能掉以輕心，化驗師視每個樣本均是病人的生命，不容有失！



質譜儀可在數分鐘內鑑定細菌、真菌等微生物。MALDI-TOF mass spectrometry can provide rapid identification of microorganisms.

Whenever an infectious disease lingers at Hong Kong's doorstep, it stirs up fear. Caused by microorganisms namely bacteria, viruses, parasites or fungi, infectious diseases pose a threat to the community when it is beyond control. Medical technologists in microbiology laboratory contribute to early diagnosis, timely treatment and appropriate infection control measures by performing precise microbiology test and investigation.

"If we can detect enemy fast, it helps our frontline fighters wipe them out quickly and effectively, before they do big harm," **Hui Wai-ting**, Department Manager (Pathology) of Princess Margaret Hospital and North Lantau Hospital recalls the swine flu pandemic in Hong Kong in 2009. "We stepped up vigilance after learning about human swine influenza cases found in Mexico and the US. We expected that the first confirmed case in Hong Kong would turn up sooner or later." Medical technologists performed Polymerase Chain Reaction (PCR) test for flu viruses for suspected flu patients within 24 hours so that clinicians could prescribe Tamiflu the soonest possible, reducing complications and transmission risks.

With technology advancement, rapid identification of microorganisms adds great value to better efficiency and accuracy. For instance, the duration of bacteria identification has shortened from two days to one. Medical technologist cultures bacterial pathogens from specimen onto agar plate. After 24 hours, the pure colony (a single type of bacterium) from the agar plate is identified by MALDI-TOF mass spectrometry – which makes use of matrix-assisted laser to dissect, ablate and desorb bacterial biomarkers with maximum fragmentation so that bacterial types can be identified based on the characteristics of each minute fragment of the bacterium. The whole process takes only a few minutes.

Hui reckons that advanced laboratory technology enables frontline doctors to prescribe the most appropriate type and dosage of drug. This reduces the need for broad-spectrum antibiotic coverage and overuse of 'big gun' which may drive microbe mutation and drug-resistance. Also, patients can recover faster. In spite of rapid technology development in microbiology, Hui stresses that patient-centredness remains the core value upheld by each medical technologist in which each specimen is regarded as the life of a patient, "We can't afford any mistake!"

成人體內大約有五公升血液，其中的成分透露身體的健康狀態。醫護人員可透過檢驗紅血球、白血球、血小板和血色素的數量和形狀，了解人體狀況，例如是否患有貧血和血癌等血液疾病。

瑪麗醫院血液部部門經理**鍾秀蓮**稱，該院每日處理約2,500個樣本。化驗師將每個樣本先登記確認，貼上標籤，然後分類，再用適合的儀器測試，如自動血液細胞分析儀、IH 1000 血液檢查系統、流式細胞儀、凝血機和顯微鏡等。測試前後均進行對照測試，確保儀器準確而快速地完成大量測試。

她以最常見的血細胞分析作例子，化驗師化驗血液時，自動血液細胞分析儀會計算血液樣本細胞數目，一小時內分析數百個樣本。緊急個案可在30分鐘內完成化驗報告，經化驗信息系統送到病房。若病理科醫生需要進一步診斷，化驗師會再作其他測試，如抽取病人的血液和骨髓，使用流式細胞儀進行細胞學測試，利用細胞表面的獨特抗原，辨別細胞種類，幫助醫生診斷血液疾病類型。

有時病人在治療過程之中需要輸血，化驗師的任務就是首先識別病人血液中的抗體，然後從醫院血庫中，尋找抗原呈陰性反應的血製品。若血庫缺乏該類型血包，便立刻向香港紅十字會輸血服務中心索取，確保病人輸血安全。

血液部引入新一代的流式細胞儀，可一次過測試10種血液抗原光譜，比以前四種為多，提升化驗效率。

The department has introduced a new model of flow cytometer, which can test 10 kinds of antigen spectra at a time. It is much more efficient than the old model, which can only test four types of spectra.



An adult has about five litres of blood. The components of which reveal one's health condition. By checking the number and shape of red blood cell, white blood cell, platelet and haemoglobin, one can tell whether a person is suffering from blood diseases, for example, anaemia and leukaemia.

Julia Chung, Department Manager (Haematology) of Queen Mary Hospital, says that the team examines about 2,500 samples daily. Medical technologist first acknowledges receipt of samples by registering and labelling them with a barcode. Then they classify and test the samples with corresponding devices, such as complete blood count (CBC) analysers, IH 1000 blood screening system, flow cytometer, coagulometer and microscope. A control test is performed before and after every test to ensure each test is done in a rapid and accurate fashion.

CBC is a common blood test. Automated CBC analyser counts the number of blood cells with a throughput of hundreds of samples per hour. For emergency cases, it only takes 30 minutes to complete a test and deliver the report to ward via Laboratory Information System. Other kinds of blood tests can be carried out if the pathologist needs them for further diagnosis. For instance, by studying patient's blood and bone marrow with a flow cytometer, medical technologist can identify the cell type by the unique antigen on cell surface. Thus, from the test result, doctors will be able to diagnose the disease type.

Blood transfusion is often needed during the course of treatment. To match suitable blood products, medical technologist first figures out the presence of antibodies in patient's blood, and then search for blood units that are antigen negative in the hospital blood bank or send requests to Hong Kong Red Cross Blood Transfusion Service if it is not available in the blood bank. This matching process ensures safe blood transfusion, and patient safety.

化驗師如發現不正常的細胞，會染片觀察，再交由病理科醫生鑑定是否病變，有需要時再作其他化驗。If abnormal cells are found, medical technologists will prepare blood smears for pathologists' examination. Further tests may be performed if necessary.

血液 Blood

窺探健康密碼

Decode the secret of health from blood



新科技從血液偵測癌細胞 New tech detects traces of residual cancer cells in blood

新科技能助醫生監察病情，為病人提供適當治療。血癌病人接受治療期間或治療後，縱使病情舒緩，體內仍可能剩餘少量癌細胞，這種情況稱為微量殘存疾病，癌症有復發風險。以往血細胞分析和骨髓檢查未必能發現微量癌細胞，現在精密的流式細胞儀可檢測癌細胞的數量，就算在一萬個細胞中只有一個癌細胞，儀器亦能找到。

New technology helps monitor development of disease so that clinicians can adjust follow-up treatment for patients. Minimal residual disease means there is a small number of leukaemic cells in the body during or after treatment when the disease appears less severe. It puts the patient under risk of cancer recurrence. In the past, complete blood count and bone marrow check fail to detect traces of cancer cells. But now, with a highly accurate flow cytometer, we can spot one cancer cell even among 10,000 cells.



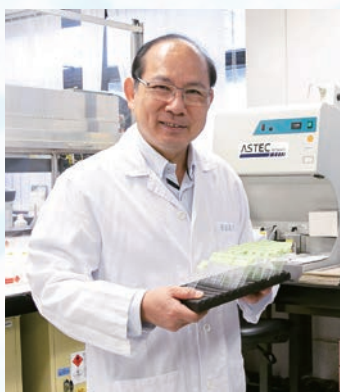
瑪麗醫院血液部部門經理鍾秀蓮表示，該院血液部化驗室24小時運作，主要負責研究血液細胞，並與病理科醫生緊密合作，提供驗血報告作診斷和治療。Julia Chung, Department Manager of Division of Haematology, Queen Mary Hospital, expresses that the Haematology Laboratory operates 24 hours a day. The main tasks are studying blood cells and delivering blood test reports to support pathologists in making clinical decisions on diagnosis and treatment.

在千千萬個組織細胞中找出幾個不正常的細胞，猶如大海撈針，但經化驗師精密組織分析下並非不可能！

解剖病理學化驗師製作和化驗從病人身上切除或抽取的組織樣本，協助病理科醫生以顯微鏡檢視及撰寫報告，幫助前線醫生斷症和制定治療方案，以及分析病人死因。

東區尤德夫人那打素醫院榮譽高級醫務化驗師李少明說，其化驗室每年處理近五萬個來自內科、外科、婦科、腸胃科及泌尿科等的組織及細胞樣本。

最快的解剖病理化驗可有多快？答案是20至30分鐘。化驗師用冷凍切片方法化驗組織，即用-196℃的液態氮將組織標本在百分之一秒急凍結冰。然後，將結冰標本放在-20℃的冷凍切片機內，切成厚六微米切片。最後為標本染色，在顯微鏡下尋找癌細胞位置和種類特性。



東區尤德夫人那打素醫院榮譽高級醫務化驗師李少明說，其化驗室每年處理近五萬個組織學及細胞學樣本。Albert Li, PYNEH Honorary Senior Medical Technologist, says that almost 50,000 histology and cytology specimens are examined annually in the hospital's anatomical pathology laboratory.

男人最痛算這種？ The worst pain men can stand?

檢取病人活體細胞組織多有個方法，包括細針抽取細胞檢查、粗針切片，或外科切片手術。以前列腺癌檢查為例，醫生若在肛門指探及驗血中察覺異樣，會進行「經直腸前列腺穿刺活組織檢查」針管抽活組織檢驗，在超聲波引導下，用針刺穿直腸進入前列腺，刺12至16針抽取組織樣本化驗。

接著病理科醫生選取所需的病變組織放入包埋盒，化驗師用酒精將樣本脫水，加入透明劑和石蠟定型，切成每張厚四微米的切片(右上圖)，放在玻璃片上烤乾及染色，以便在顯微鏡下尋找蛛絲馬跡。

There are different types of biopsy procedures, including fine-needle aspiration, core needle biopsy and surgical biopsy. In prostate cancer examination, if a doctor detects abnormalities in finger test through the anus and in blood test, he will perform a prostate biopsy on the patient under guidance of ultrasound image. Around 12 to 16 samples of tissue will be removed with a needle quickly punching through the rectal wall into the prostate.

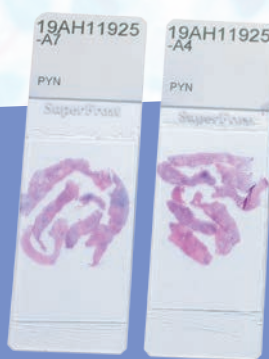
Then, a pathologist takes the required tissue from the patient's specimen, and put it in an embedding cassette. Medical technologist dehydrates the specimen tissue block with alcohol. After adding clearing agent and paraffin wax to the sample to produce a paraffin block, the sample will be manually sliced into sections of four micrometres thick (see top right photo) on a microtome. The section is mounted on a glass slide and stained and ready for microscopic analysis.

人體組織 Cells and tissue

20分鐘知腫瘤良惡 Tell malignancy from 20-minute test

李少明解釋，冷凍切片有助定斷手術治療的範圍和性質。例如外科醫生很難在術前確定需切除的皮膚癌範圍，所以手術時要局部切除皮膚化驗，找出癌細胞的最外圍位置，助醫生決定切除多少皮膚範圍，病人亦毋需承受做兩次手術的壓力。

同一種癌症，可源於不同的基因突變。李稱，醫務化驗師近年運用新一代基因排序技術化驗大腸癌和肺癌的癌組織細胞，找出致癌的基因突變源頭，精準地為癌症患者判斷合適的標靶治療，減少病人試藥時間和治療期間的副作用。他舉例，當肺癌細胞出現EGFR基因突變，初步顯示標靶治療比化療有效，副作用較少，配合現在先進的化驗技術可進一步探索哪一節EGFR基因出現突變，使醫生知道標靶治療藥物會否出現抗藥性，再考慮採用其他較強的藥物。



病理科醫生將大腸病變組織切成厚薄適中的小塊，再交由化驗師製作標本。Pathologists cut colon tumour tissue into thin slices. Then medical technologists produce histological sections of the specimen.

How fast can an analysis be done? It only takes 20 to 30 minutes. In case of urgent intraoperative specimen analysis, frozen section of specimen tissue is prepared by cryosectioning within 20 minutes by rapidly freezing the specimen in liquid nitrogen at -196°C for less than 0.01 second. The frozen specimen is cut to 6 micrometres inside a cryostat at -20°C and stained for histological assessment to identify if there is any cancer cells.

Albert explains, "Frozen section result will influence the surgery to be performed. For instance, surgeons rely on specimen analysis to find out the resection margin of malignant tumour on skin and then determine how much skin has to be removed. In so doing, the risk of undergoing a second operation is reduced.

The same kind of tumour may be caused by different genetic mutations. In recent years, Next Generation Sequencing technology is deployed to analyse colon cancer and lung cancer tissue and detect genetic mutations so that patient can receive precise targeted therapy. This maximises effectiveness of treatment and minimises side effects of drugs. For example, in the case of EGFR genetic mutation of lung cancer, it is reported that targeted therapy has higher efficacy and fewer side effects than chemotherapy. By figuring out specific mutations in the EGFR gene using current technology, clinicians can predict response of the body to specific drugs and whether there are new mutations that account for drug resistance. In the latter case, second line drugs have to be used.

It sounds elusive to look for several abnormal cells among hundreds of thousands of tissue cells. But this is possible through meticulous work of an anatomical pathology medical technologist!

Through tissue biopsy examination, anatomical pathology medical technologists assist pathologists in microscopic examination and report writing, in turn help frontline doctors diagnose a disease and design treatment plan, or even investigate a patient's cause of death.

Pamela Youde Nethersole Eastern Hospital (PYNEH) Honorary Senior Medical Technologist **Albert Li** says that almost 50,000 histology and cytology specimens are examined annually in the hospital's Anatomical Pathology Laboratory. These specimens come from departments of Surgery, Oncology, Gynaecology, Gastroenterology, Urology, etc.

人體內有很多化學物質，如蛋白質、糖、脂類、礦物質、維生素和荷爾蒙等，存於血液、器官組織、細胞和體液等不同地方，維持身體機能。若各種化學物質超出或低於正常水平，或發現不該出現的化學物質，都會致病。化驗師的角色就像偵探，從病人樣本裡找證據，從而在篩檢、診斷、監控和預後四個範疇幫助病人。

瑪麗醫院化學病理部部門經理

陳詠華舉例，糖尿病病

人「篤手指」驗血糖

只能反映病人當時的

血糖水平。若要知道病

人最近兩、三個月血糖控制狀

況，就需檢驗血液中的糖化血紅素。糖

化血紅素是當葡萄糖進入紅血球，與血

紅素結合而成的物質。正常的糖化血紅

素值是4%至6%，糖尿病人宜控制在

7%以下。

由於紅血球平均壽命為120天，葡萄糖依附在血紅素後不易脫落，只要檢查糖化血紅素濃度，便可得知體內最近兩三個月的血糖控制情況，協助醫生制定未來的藥物及行為治療方案。若病人見醫生前才服藥控制飲食，即使篤手指驗血糖「過關」，醫生亦能在糖化血紅素發現端倪。

陳詠華稱，該院化驗室每天處理近5,000個樣本，包括血液、尿液、腦脊液、胸腹水等，化驗結果一般需於一小時（緊急個案）或兩個半小時（非緊急個案）內完成。化驗系統全自動，可同時進行近30種化學測試，高峰期每小時最多處理650個樣本。化驗師輸入所需化驗項目後，樣本便自動按緩急先後傳輸至不同檢驗點，進行離心、分裝、歸類、注入試劑測試、分析結果及自動覆檢等，降低人為錯誤的風險，提高化驗效率。有問題的報告會由化驗師覆檢，再經科學主任或化學病理學家核實。



growth retardation, involuntary movements and cramps, giving insights to early diagnosis and treatment for patients. The unique method has been accredited and recognised by an international External Quality Assessment Program named ERNDIM (European Research Network for evaluation and improvement of screening, diagnosis and treatment of Inherited Disorders of Metabolism).

Human body is composed of various chemical substances, such as proteins, sugars, lipids, minerals, vitamins, and hormones. These substances are stored in blood, organs, tissue, cells and fluids of the body to maintain body functions. Illnesses strike when body chemistry is disturbed: chemical levels above or below normal range; or abnormal presence of chemicals in body fluids. The role of medical technologist is to find out evidence from patient samples, and thus help doctors screen, diagnose, monitor progress of disease and make prognosis.

QMH Department Manager (Chemical Pathology) **Anita Chan**

exemplifies the role played by medical technologist in a diabetic patient's journey. The reading on glucose meter only reflects the blood

sugar level of

the patient at

the moment of

test. To get an

overall picture of the average blood sugar levels

over the last two to three months, glycated

haemoglobin in blood will be tested.

The normal glycated haemoglobin

value ranges from 4% to 6%, and

diabetic patients should keep it

below 7%.

When the body processes

sugar, glucose in

bloodstream attaches

to haemoglobin and it is

not easy to fall off. Since red

blood cells in human body survive

for 120 days before renewal, measuring

glycated haemoglobin reflects how well

blood glucose is controlled in the last two to

three months. It helps clinicians formulate

suitable medical treatment plan and advise

patient on behavioural change if necessary. If the

patient takes medicines and is on diet just before

consultation, the doctor will know the patient

'cheats' from the glycated haemoglobin test

result, although his blood sugar level shown on

glucose meter is acceptable.

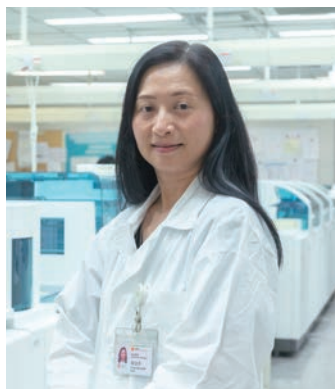
The chemical pathology laboratory in QMH investigates nearly 5,000 samples a day, including blood, urine, cerebrospinal fluid and ascites. Laboratory results are usually generated within one hour (emergency case) or two-and-a-half hours (non-emergency case). The Total Laboratory Automation System performs nearly 30 types of chemical tests simultaneously, processing up to 650 samples per hour at its peak. After medical

technologist inputs required test items, the sample is automatically transferred to different checkpoints for centrifugation, categorisation, sample and reagent dispensing, reaction and testing, analysis, review and counter-checking. The automated system reduces risk of human error and improves efficiency. Medical technologist will review every difficult case, in which some may need to be verified by scientific officer or chemical pathologist.

一毫升腦脊液知神經失調 A millilitre of cerebrospinal fluid debunks neurological disorders

瑪麗醫院化學病理部2018年研發新化驗技術，只需檢驗病人一毫升腦脊液，儀器便可兩個月內檢測病人先天缺乏哪些神經傳遞物質，導致兒童生長遲緩、不自主運動、抽筋等各種神經失調症，以便盡早診斷治療。新技術目前全港獨有，已獲國際認證機構ERNDIM外部品質評估認可。

In 2018, QMH Chemical Pathology Laboratory developed a new testing method using existing equipment which analyses within two months patient's congenital lack of neurotransmitters with only one millilitre of cerebrospinal fluid. With less interference on the test result, it can identify the causes of various neurological disorders such as



瑪麗醫院化學病理部部門經理陳詠華說，每天化驗樣本達5,000個，較廿年前多逾10倍。

Anita Chan says that a total of 5,000 samples are tested daily which is 10 times more than that of 20 years ago.

亞洲最長的「實驗室自動化系統」可同時進行近30種檢測。小圖為系統正在自動為樣本注入化學試劑，進行檢測。The largest Total Laboratory Automation System in Asia can perform nearly 30 types of chemical tests at the same time. It automatically injects chemical reagents into samples for chemical test.



自選兼職招聘計劃 冀達三贏局面

醫院管理局去年12月推出「自選兼職招聘計劃」，目的是建立一個彈性兼職上班的醫護人才庫，申請人可按意願選擇合適的地點及時段上班，省時方便。申請人只需向自選兼職辦公室（辦公室）提出申請，無需再向個別醫院遞交申請。目前正招聘普通科登記和註冊護士，以及專科和非專科醫生。

總辦事處人力資源主管**彭飛舟**醫生稱：「我們一直聽到前線同事的聲音，知道他們沒有時間放假休息或接受培訓。我們希望這計劃能招聘自選兼職員工，紓緩全職醫護的人手，使他們有時間放假『抖一抖』，計劃自己工作以外的日程，達致生活與工作平衡。」同時，人才庫可助公立醫院短期內增加醫護人手，應付季節性服務高峰或其他突發情況。

計劃特色是申請人和醫院都「有得揀」，申請人、全職同事和醫院可各取所需，達致三贏局面。各公立醫院可透過自選兼職辦公室集中刊登招聘廣告，方便申請人自由選擇適合的時間、地點和部門，辦公室也會按合資格申請人的意願主動配對兼職工作，提高效率。配對成功後，申請人須完成入職前的網上培訓，如感染控制措施；另外，辦公室亦會向部門索取兼職員工的評價，供日後配對參考。

計劃推行數月至今，反應良好，截至今年7月5日，已成功配對的有275名申請人，分別派往七大聯網的公立醫院服務。有同事擔心申請人質素良莠不齊，彭醫生解釋，超過七成的申請人都曾在醫管局工作，相信他們對機構文化和臨床工作模式已有一定認識。他續稱，計劃將推展至專職醫療和支援職系人員，並繼續完善招聘方式、流程、薪酬架構和電腦系統等，進一步縮短招聘過程和簡化操作模式。

有興趣人士可登入網頁 <http://www.ha.org.hk/goto/locum/tch.html> 瀏覽詳情，若醫院有意聘用自選兼職申請人，請聯絡自選兼職辦公室（電話：2300 7410）或聯網人力資源部，亦可電郵至 recruitment@ha.org.hk。



▲ 總辦事處人力資源主管彭飛舟醫生表示，計劃讓申請人、全職同事和醫院達致三贏局面。
Dr Pang Fei-chau, Head of Human Resources at HA Head Office, expresses that the locum scheme benefits applicants, full-time staff and hospital, achieving an all-win situation.

完成執業試和實習後，我在瑪麗醫院當過六年全職醫生，完約後在海外進行義務工作。曾回港以兼職身分在冬季流感高峰期間，在瑪麗醫院深切治療部和葛量洪醫院胸肺內科工作。現於白普里寧養中心工作，負責為專科門診病人診症和為末期癌症病人進行家訪。參加計劃全因我希望投放更多時間在落後地區的義務工作。我覺得計劃自由度大，可選擇上班日數和時間，既能一邊工作，保持對業界的了解，亦可一邊做其他事情，一舉兩得！

After completing the licensing exams and internship here, I worked as a full-time doctor in Queen Mary Hospital (QMH) for six years, I then did overseas voluntary NGO work. I returned to Hong Kong during the winter surge periods, once to Intensive Care Unit of QMH and once to the Department of Chest Medicine of Grantham Hospital. I am now serving at Bradbury Hospice under the locum scheme, working mainly in the specialist out-patient clinics and paying home visits to palliative care patients. Joining the scheme allows me time to continue voluntary work in less developed countries. The locum scheme is flexible. I can arrange with the department on working days and hours. As a result, I can stay connected to the healthcare field, with ongoing learning opportunities, while also having the spare time to do other things too.

林淑慧醫生
Dr Sophia Sharon Lamb
自選兼職專科醫生
Locum Specialist Doctor



張靜雯 Quinny Cheung
自選兼職註冊護士（普通科）
Locum Registered Nurse (General)

我目前在屯門醫院的內科及老人科病房工作，因為私人原因，我只能返夜更，即晚上九時至翌日早上七時。我本來是在屯門醫院隔離病房工作的全職護士，希望轉兼職，後來知道此計劃能自選上班時間，覺得自由度非常大，所以『轉軚』參加計劃。

I am working at the Medicine and Geriatrics Department of Tuen Mun Hospital (TMH). Because of personal reason, I can only work night shift from 9pm to 7am the next morning. Before joining the scheme, I was a full-time nurse at TMH, taking care of patients at isolation wards. At first, I planned to switch to part-time, but then I join the locum scheme instead after realising its flexibility in working hours.



Locum scheme creates all-win situation

Locum Office was established last December as a platform to manage the employment of potential healthcare talents on a part-time basis. Enjoying flexibility in selecting working venue and timeslot, applicants can also save time by submitting one application to Locum Office instead of separately to individual hospitals. Current openings include Enrolled Nurse (General), Registered Nurse (General), Non-specialist Doctor and Specialist Doctor.

“Colleagues often reflect to us that they want more time to rest or attend training. We hope the locum scheme can relieve manpower pressure of full-time staff, so that our staff can enjoy more rest time and achieve work-life balance,” says Dr **Pang Fei-chau**, Head of Human Resources at HA Head Office. It is also hoped that the scheme can rapidly increase manpower in public hospitals to support service surges and emergencies.

The scheme meets the needs of applicants, full-time staff and hospitals, and allows flexibility for applicants and hospitals. Public hospitals can centrally place a job advertisement on the platform, which at the same time facilitates applicants to select the suitable timeslot, hospital and

department. Locum Office will then match the available part-time position for qualified applicants. After successful matching, applicants need to receive online training before work, such as infection control. Departments will provide feedback regarding the locum staff to Locum Office for reference in future matching.

Implemented for several months, the scheme has received favourable responses. There are 275 successful matches up to 5 July this year and they are now serving in seven clusters. Regarding staff's concerns about the qualification of locum employees, Dr Pang says that over 70% of them have worked in HA before and believes that they are acquainted with HA culture and workstyle of clinical departments. In the future, the scheme may be extended to allied health and supporting staff. Locum Office will simplify and enhance the recruitment process by improving the recruitment method, procedures, salary scale and computer systems.

Applicants can visit www.ha.org.hk/goto/locum for details. Hospitals interested in recruiting part-time staff can contact Locum Office at 2300 7410 or Cluster Human Resources Division, or email to recruitment@ha.org.hk.

自畢業後，我在私家醫院手術室做護士，現正攻讀註冊護士課程，長遠希望在醫管局工作。此計劃剛好讓我可先在公立醫院吸取經驗，熟悉機構文化，有助將來報考全職。同時我可兼顧學業，非常符合所需。我現於將軍澳醫院日間手術中心上班，負責跟進病人術前準備和術後護理。

I worked in operation theatre of private hospital after graduation. I am currently taking a registered nurse programme and hope to work in HA in the future. The scheme can meet my needs because the flexible working hours facilitate my study. At the same time, I can gain experience of working in public hospital and better understand the work culture here, which are helpful when

I apply for a full-time job in HA. Now I work at the Ambulatory Surgery Centre of Tseung Kwan O Hospital, providing pre-operation and post-operation care to patients.

張陳玲 Eileen Cheung
自選兼職登記護士（普通科）
Locum Enrolled Nurse (General)



黃麥超 Wong Mak-chiu

屯門醫院
臨床腫瘤 / 放射科及核子醫學部
部門運作經理
Department Operations Manager,
Clinical Oncology and
Radiology & Nuclear Medicine,
Tuen Mun Hospital

我的病房聘請了一位自選兼職普通科登記護士，她曾在醫管局工作，很快適應新工作。我覺得計劃能吸引一些前同事『回巢』是好事，可減少良莠不齊。我們在編更上作出少許改動，自選兼職同事的早更是早上七時至十一時、中更是下午五時至九時，而夜更則是晚上九時至翌日早上七時，因這些時段是病房最繁忙、最需要人手的時間，希望這編排能配合病房，真正紓緩病房人手緊張的情況。

A locum Enrolled Nurse (General) joins our ward. She adapts to the job easily because she has been an HA staff before. The scheme attracts experienced former colleagues to return to HA and help maintain good service standard. On hospital operation, we adjust the shift arrangement to ease manpower shortage. The duty hours for locum staff are 7am to 11am for AM shift; 5pm to 9pm for PM shift; and 9pm to 7am for night shift because these periods are the peak hours of the ward.



醫管局大會新成員 New HA Board Member

遺傳學專家： 自古成功在嘗試

Geneticist: Nothing ventured, nothing gained

大會新成員陳偉儀教授笑言，現在要「創文件」熟讀本港的醫療發展，生活忙上加忙，但卻樂在其中，特別是走進醫院與前線同事交流。
New HA Board Member Professor Chan Wai-yeo says he enjoys being busy, engaging directly with hospital employees during visits, and is gradually finding out more about Hong Kong's medical development.

Joined the Hospital Authority (HA) Board in April, geneticist Professor **Chan Wai-yeo** determines to share his wealth of international expertise with Hong Kong public hospitals. "Compared with the United States, the study of genetic diseases in Hong Kong is still in its infancy stage with a lack of support of doctors and researchers in the field," he says. "In my new role, I want to share my experience with HA's doctors and healthcare workers to address this knowledge gap."

A graduate of The Chinese University of Hong Kong (CUHK) majored in chemistry, Prof Chan is now Pro-Vice-Chancellor of the university. Furthering his studies abroad, Prof Chan later changed his focus to genetics in the US, spending almost 40 years of his career there. His research interests in recent years include gene regulation, epigenetic diseases and development. Since the 1970s, he researched genetic diseases and participated in the early population screening of Tay-Sachs disease, a Jewish genetic disease, the first such project in the US. He was Head and Principal Investigator of the Section on Developmental Genomics at the National Institute of Child Health and Human Development. Currently he is the executive director of the Association of Chinese Geneticists in America.

Prof Chan's knowledge-sharing with HA began eight years ago when he was invited to share his views on doing genetic screening in hospital, leading to the development of metabolic diseases services for newborn babies in Hong Kong Children's Hospital today.

An eloquent and energetic character, Prof Chan hopes to work closely with HA colleagues to broaden the application and development of genetics in Hong Kong. Recollecting his life motto gained from the experience in a youth leadership camp, he says, "Nothing ventured, nothing gained. You must have the guts to try everything in life as long as it won't kill you. Just go ahead and do it."



陳偉儀教授（左二）早年在美國與團隊鑽研遺傳病與基因的關係。
Professor Chan (second from left) and his team studying genetic diseases in the US in his early years as a geneticist.

「與美國比較，香港在遺傳學方面的發展，仍在起步階段；既沒有系統化的遺傳病服務，亦欠缺前線遺傳學專家或學者。」今年4月加入醫管局大會的陳偉儀教授說：「加入醫管局大會後，我希望能與同事分享經驗，促進香港在遺傳學和基因學方面的發展。」

遺傳學專家陳偉儀是香港中文大學副校長。陳教授在中大唸書時主修化學，後來到美國進修轉攻遺傳學，近年多研究基因調控、遺傳病及人類發育。陳教授在美國工作差不多40年，自70年代開始已在當地進行相關研究，包括當時首個猶太人遺傳病（Tay-Sachs disease）普查，又曾任美國國立衛生研究院國立兒童健康與人類發育研究所發育基因組學實驗室主管及首席研究員，現為美洲華人遺傳學會執行董事。

他與醫管局的淵源可追溯到八年前，當時醫管局正籌劃香港兒童醫院初生嬰兒代謝病服務，剛從美國回港的他獲邀一起討論在醫院發展基因檢測的工作。

陳教授非常健談，充滿活力，憶述年青時因一次領袖營，奠定日後做人的態度：「自古成功在嘗試，做事要有膽量，只要不影響性命就應去嘗試」，他期盼未來有機會與醫管局同事一起工作，分享經驗，加快本港發展遺傳學的步伐。

醫管局大會新成員 New HA Board Member

妙用數字 傳遞意義

Add human touch to HA numbers game

蔡永忠是德勤中國主席，擁有近40多年審計和管理經驗。他說：「冰冷的數字本身沒有意義，唯有解讀



蔡永忠（右二）是壁球和長跑好手。圖為他與香港紅十字會董事會及委員會成員裝扮成卡通人物參加慈善跑，支持紅十字會籌款。
A keen runner and squash player, Philip Tsai (second right) lined up with fellow Hong Kong Red Cross Council and Committee members for a charity event in support of the Red Cross.

數字背後的故事，我們才能向社會大眾傳達核心價值和有意義的訊息。」

這位醫管局大會新成員坦言，醫管局是龐大的機構，轄下近八萬員工，要實現高效的內部及對外溝通甚考功夫。他建議醫管局對外溝通時，不應停留於數字層面，要用數字背後的故事打動人心，提升溝通的感染力。例如不能簡單地說未來需增加多少張病床、撥款和人手等，而要進一步道出數字背後的故事，清楚說明憑藉醫管局員工的貢獻和付出、團隊合作及管理策略，醫管局服務才取得今天的成績，這能增強說服力。

蔡永忠過去曾任紅十字會輸血服務中心醫院管治委員會主席、強積金管理局非執行董事等公職，現任物理治療師管理委員會

"There is a story behind every number. Numbers alone are meaningless. Only by touching up the numbers with a meaning can we convey the essence of our core message and ideas to the public," says new Hospital Authority (HA) Board Member **Philip Tsai**, who is the chairman of Deloitte China and has almost 40 years' experience of planning and managing audits.

HA is a vast institution with nearly 80,000 employees. Instead of just telling people how many beds and grants are needed and how much manpower is required for the future, Philip says it is necessary to convey the human stories behind the numbers. These stories revolve around staff dedication, teamwork, and management strategies which contribute to HA's achievements.

Philip once served as chairman of the Hospital Governing Committee of the Hong Kong Red Cross Blood Transfusion Service (BTS) and non-executive director of the Mandatory Provident Fund Schemes Authority. He is currently chairman of the Physiotherapists Board and deputy chairman of Hong Kong Red Cross. He understands that the way decision makers interpreting numbers determines the effectiveness of policy implementation. "For instance, simply pointing out that we need 260,000 bags of blood a year or 1,100 donors a day fails to convey to people the importance of blood donation," he says, "Therefore in recent years, the BTS has connected its core message more effectively with daily lives through slogans such as *Donate blood before you travel*."

Promoting public policy is similar to leading a professional services firm, Philip believes. "There must be effective use of resources and proper management of clients' demands to ensure smooth operation," he says. "Improving user experience to provide professional services and managing reputational risk to gain public trust also count. I hope to share my experience from the accounting and business sector with HA, and further enhance the communication between HA and the public."



主席及香港紅十字會副主席。他明白決策者對數字的解讀和分析會影響推行政策的成效。他舉例說：「以推廣捐血運動為例，若只簡單地說本港每年需要26萬袋血、每日要有1,100人捐血才能達標，很難令公眾明白恆常捐血的方法和重要性。反而近年輸血服務中心以『旅行前先捐血』為推廣口號，連繫捐血與日常生活，感覺較『貼身』，容易說服市民。」

他認為，推動公營機構政策與管理會計師樓的原理和方法很相似，「兩者都必須有效運用資源和妥善管理供應及需求，才能令機構運作順暢；注重用家體驗，從而提供專業服務；妥善管理聲譽風險，爭取大眾信任。我期望今後能將自己在會計和商界累積的經驗和思維引進醫管局，致力拉近機構與公眾的關係。」

理順管理過程 你我意見齊發表

Your views count in streamlining management processes!

為檢視和理順行政效率，醫院管理局今年3月底成立專責小組，集中檢視四大範疇，包括（一）簡化資源申請程序；（二）理順專科統籌委員會和中央委員會的會議安排；（三）理順聯網和醫院層面的行政會議安排；及（四）理順醫管局大會及轄下委員會的決策程序或授權安排。梁智仁教授出任小組主席，成員包括八位大會成員：陳家亮教授、范鴻齡先生、林奮強先生、劉澤星教授、梁卓偉教授、羅鳳儀教授、謝曼怡女士及王沛詩女士。

小組4月開展工作，在簡化行政程序的前提下，重新檢視現況，至今已舉行四次會議。7月初，小組與醫生、護士和專職醫療的職員組別協商委員會委員會面，聆聽同事的意見。小組非常重視同事的想法，在制定相關建議時會一併考慮各位提出的意見。同事若對以上四大範疇有任何想法，歡迎8月11日或之前電郵至 staffru@ha.org.hk，您的意見對小組工作至為重要。小組完成檢討後，今年11月會經由行政委員會向大會提交建議。

小組主席**梁智仁**教授表示：「醫管局作為公營機構，必須確保有效管治及善用公帑，助前線同事有效地工作，服務病人。商議決策和討論政策時，跨部門的統籌是必要的，但我們相信當中流程有檢視空間。我們期望能透過各種渠道，集思廣益，了解不同持份者的想法，歸納一些可行的建議，理順有關會議，提升工作效率。」

Hospital Authority (HA) established a Special Task Group (STG) in late March this year to review and streamline administrative efficiency, with specific focus on (1) simplifying resource bidding process; (2) streamlining meetings of coordinating committees (COC) and central committees (CC); (3) streamlining other management meetings at cluster and hospital levels; as well as (4) delegation or streamlining the decision making process of the HA Board and its committees. The STG is chaired by HA Chairman Professor John Leong Chi-yan, with eight HA Board Members joining, including Prof Francis Chan, Mr Henry Fan, Mr Franklin Lam, Prof Lau Chak-sing, Prof Gabriel Matthew Leung, Prof Agnes Tiwari, Ms Elizabeth Tse and Ms Priscilla Wong.

The STG commenced work in April and has conducted four meetings so far. It is re-visiting respective current situation to identify rooms for streamlining and enhancement. In early July, the STG has met with the Staff Group Consultative Committees of the doctor, nurse and allied health groups to directly listen to their views. The STG treasures staff's views and will take into account in reviewing the above focus areas and recommending enhancement proposals. If you have any comments on any of the four areas under review, please email your opinions to staffru@ha.org.hk by 11 August. Your input is instrumental to the review. The plan is to complete the review and submit findings and recommendations to the Board via the Board's Executive Committee by this November.

Prof **John Leong Chi-yan**, Chairman of the STG says, "HA, as a public organisation, has to ensure effective corporate governance and prudent use of public funds so that our frontline colleagues can effectively do their job and deliver quality patient service. Discussions on strategy and policy involving different departments are essential in the decision-making process. However, we understand that there is room for improvement in streamlining management processes at different levels. Therefore, we hope to collect views from various stakeholders and formulate feasible recommendations where practicable."



小組在7月初與醫生、護士和專職醫療的職員組別協商委員會面，聆聽大家意見。
The Special Task Group met the Staff Group Consultative Committees of doctor, nurse and allied health groups in early July.



HA 八卦掌門人
HA chatterbox

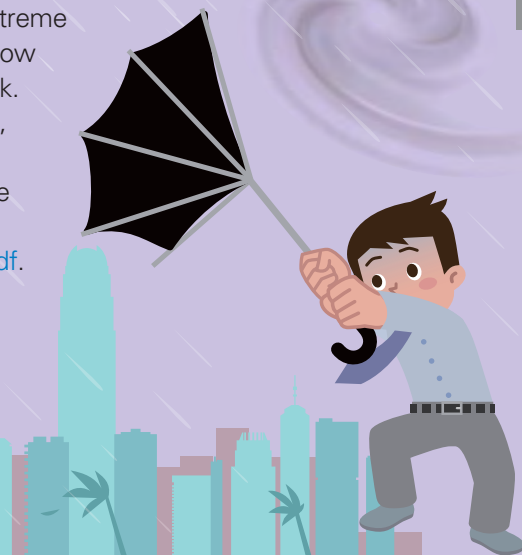
「極端情況」之

Work arrangement under 'extreme condition'

踏入夏天，又到颱風暴雨頻繁季節。Helen 知道政府公布咗新修訂嘅《颱風及暴雨警告下工作守則》。如因超強颱風出現「極端情況」，即公共交通服務嚴重受阻、廣泛地區水浸、嚴重山泥傾瀉或大規模停電，政府可能發出「極端情況」公布。喺「極端情況」生效期間，即八號颱風警告取消後兩小時期間，除咗必要人員，同事應留嚟原來地點或安全地點，唔駛趕住返工。記得留意兩個鐘期限屆滿前，政府有無延長或取消「極端情況」公布。「極端情況」取消後，同事應根據復工安排返工。如果路程有延誤，要盡快通知主管，以便適當調配。詳情可瀏覽內聯網通告：<http://ha.home/circular2/Ops-2019-12.pdf>

Typhoons and rainstorms are a regular summer occurrence in Hong Kong. Helen learns that the government has announced a revised *Code of Practice in Times of Typhoons and Rainstorms*. Under 'extreme condition' caused by super typhoons, like serious disruption of public transport services, extensive flooding, major landslides or large-scale power outage, government may issue an 'extreme condition' announcement.

When 'extreme condition' is in force, i.e. the two-hour period after cancellation of Tropical Cyclone Warning Signal No.8, apart from essential staff, staff should stay in their current place or safe places. By the end of the two-hour period, stay alert to government's announcement that whether 'extreme condition' will be extended or cancelled. Once 'extreme condition' is over, colleagues should follow the work arrangement and resume work. If there is any delay on the way to work, inform your supervisor on appropriate arrangement of work. For details, please visit the circular on intranet: <http://ha.home/circular2/Ops-2019-12.pdf>.



一圖睇明
返工安排

Work arrangement
in brief

新系統方便易用 助你搵工升職



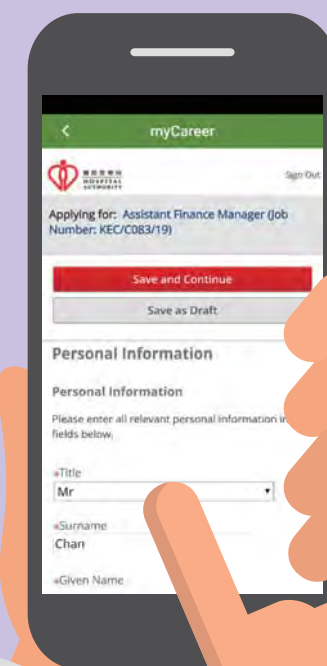
New eRecruitment system makes job search in HA easy and fast

HR 今年4月底推出全新網上招聘系統 (Taleo)，大家除咗可透過電腦、手機或平板電腦瀏覽同申請職位外，仲可以用埋人力資源應用程式 (HR App) 搵工。新系統加強咗搜尋功能，只要輸入關鍵字就可搜尋心水職位。

新系統亦將申請表格嘅問題歸類，助你建立個人檔案。你亦可選擇「上載履歷表」，系統會自動辨認 PDF 及 WORD 等文件格式，並嘗試自動填寫申請表格內的相關欄位。若未能一次過填晒資料，申請表可存為草稿，等你隨時繼續完成餘下嘅程序。

大家最好預留時間熟習使用新系統，留意首次使用新系統時需要重新登記帳戶一次便可，提交申請前記得上載同 double check 所需文件同資料，千祈唔好截止前一分鐘先提交申請呀！

同事依家可以用 HR App 申請職位，真係超方便！
HA staff can now submit job applications via HR App anytime and anywhere.



A new eRecruitment system – Taleo – has been introduced in HA since late April this year. You can now view vacancies and submit applications not only through computer, mobile device or tablet, but also by HR App. The new system has a strong search function, enabling you to quickly hunt your desirable job through keyword search.

Taleo is designed to categorise job requirements which helps you set up a personal profile while you answer questions through the application form. If you upload your resume in PDF or WORD format, the system would try to auto fill the corresponding fields on the application form. If you cannot finish the application in one go, don't worry – save it as draft and continue when you have time.

Just a gentle reminder: You need to register an account once for the first time you use the new system. Make sure you reserve enough time to walk through the application procedures, ensure that all required documents are uploaded and double check all details before submission. Don't miss the deadline!

壓力變動力 「通波仔」傳心術

醫院在人手緊張的情況下拓展服務，殊不容易。明愛醫院心導管室團隊心繫病人，化壓力為動力，去年中克服重重困難，加強冠狀動脈介入治療（俗稱「通波仔」）服務。他們深信能夠把病人從鬼門關拉回來，是醫護人員最鼓舞的事，且聽他們分享兩個難忘個案。

魔術奇遇記 醫患變師徒

業餘魔術師李先生七年前知道自己有心律不正，有心肌梗塞的風險，需長期服食降血壓丸。去年，他在自己店舖開張之日表演魔術，期間突然心口發痛，全身冒冷汗，面色轉白，眼前突然昏黑暈倒。觀眾以為是表演的一部分，後來發覺不對勁，立即召喚救護車到場。

李先生當日下午5時送抵明愛醫院，仍在門診看症的內科及老人科心臟顧問醫生**趙志旋**被深切治療科同事急召。趙醫生見情況危急，即集合心導管室的醫護團隊搶救病人。造影檢查顯示，李先生三條主要供應血液給心臟的冠狀動脈血管分別100%、80%及40%堵塞，引發心源性休克，有生命危險，需即時進行通波仔手術。黃金90分鐘內，醫護先為李先生局部麻醉，在X光技術引導下用前端置有球囊的導管，經手腕動脈引導至心臟一條最淤塞的血管位置。然後擴張球囊並植入金屬支架，防止血管再度縮窄，最後把球囊放氣，連同導管取出體外。醫生三個月後再為李先生做手術打通另一條80%阻塞的血管。

李先生憶述，「住院期間，護士晝夜檢查我身體狀況，一個病人有事，十幾名醫護人員為我勞碌奔波，把我從鬼門關拉出來，真是畢生難忘。」

李先生與趙醫生現成為朋友，他更在公餘時間教趙醫生魔術，其中一項正是「通波仔」絕技！趙醫生其後常在同事聚會「露兩手」表演魔術，令同事拍案叫絕呢！

兩箱雞蛋謝醫護

一名約60歲的男病人心臟病發，心臟停頓，並出現心源性休克，瀕臨死亡邊緣。趙醫生與團隊一邊為病人插喉及進行心肺復甦術，一邊通波仔，盡力救回病人，病人最終康復出院。

兩星期後，一名女士推了兩箱雞蛋到病房。眾人疑惑之際，她說自己是該男病人的太太，他們一家以雞蛋批發維生，家境並不寬裕。若沒團隊救命之恩，恐剩下孤兒寡婦，於是把店裏的雞蛋拿來，送給團隊。最後，團隊每人快樂地享受人生最美味的雞蛋。



▲ 李先生將香港魔術家協會頒發給他的入會20周年紀念禮物，轉贈搶救他的趙志旋醫生。
To Mica, giving the commemorative gift from Magicians' Association of Hong Kong which recognises his membership of 20 years to Dr Alex Chiu is a great way to express gratitude.

每周兩節服務 惠及更多病人

深水埗是人口老化急速的社區，加上心肌梗塞有年輕化趨勢，市民對通波仔手術的需求日漸上升。明愛醫院去年中加強通波仔手術服務，由以往每周節（4小時）增至兩節（8小時），並開展在辦公時間內入院的急性心臟病（STEMI）病人即時進行通波仔手術。每年受惠病人總數由約140宗增至約230宗，當中大部分病人可在原區接受手術，毋須轉送至其他醫院。另外，加強服務後，病人預約通波仔輪候時間，亦由以前的四個月縮短至兩個月。

部門運作經理（深切治療部）**黃潔鳳**表示，為配合心臟科的全面服務發展，除了心臟科護士外，部門亦為深切治療部護士提供協助醫生進行通波仔及心臟加護護理的培訓，以便靈活調配護士人手，迅速協助危急心肌梗塞病人接受通波仔手術。

Turn stress into motivation: PPCI connects

Striving for service extension amid resource constraint is not easy at all. Staying motivated under stress, the Cardiac Catheterization Laboratory (CCL) team of Caritas Medical Centre (CMC) has enhanced primary percutaneous coronary intervention (PPCI) service in mid-2018. The following two moving stories show how the team stay uplifted by saving lives.

The magic of rapport

When heart attack strikes, no magic can help! Mica Lee, an amateur magician, learned that he had arrhythmia seven years ago and was prescribed antihypertensive drugs to reduce the risk of myocardial infarction. On the opening day of his shop last year, he suddenly felt pain in chest during a performance. Sweating all over the body, his face paled and finally fainted. At first, the guests thought that he was performing magic tricks. But later, they called an ambulance when they realised that something was unusual.

Mica was admitted to CMC at 5pm while Dr **Alex Chiu**, a cardiologist cum consultant in medicine and geriatrics, was still seeing patients at outpatient clinic. After receiving an emergency call from Intensive Care Unit (ICU), Dr Chiu assembled CCL team for resuscitation without a second thought when he saw Mica's critical condition. The angiographic examination showed that Mica's three coronary blood vessels that mainly supply blood to the heart were 100%, 80%, and 40% blocked by atherosclerotic plaque. He experienced cardiogenic shock and required immediate PPCI. The procedure was performed under local anaesthesia within the golden standard of 90 minutes. With the use of X-ray, the balloon-tipped catheter was threaded through blood vessels in the wrist into the heart where the coronary artery was mostly affected. With the tip covered with a stent, the balloon was expanded to restore blood flow and was put in place. Finally, the balloon was deflated and withdrawn. Three months later, Mica underwent another PPCI to restore blood flow of the 80% blocked blood vessel.

"During hospitalisation, nurses closely monitored my physical condition day and night. It left me an indelible memory that the medical team toiled for the betterment of patient care," Mica recalls.

Mica and Dr Chiu have become friends since the operation. Dr Chiu learns magic tricks from Mica during leisure time. In particular one of the tricks relates to PPCI. Dr Chiu performs in colleagues gathering and wins resounding applause!



▲ 醫護認為兩箱蛋的意義非凡。
To the CCL team, what counts most is not the eggs, but the value behind.

Service extension benefits more patients



▲ 護士在手術室外監察手術過程，包括病人維生指數及心電圖變化。
Nurses stand by to monitor the procedure, especially watching closely in vital signs and electrocardiogram readings.

With dual causes of ageing population and more people suffering from myocardial infarction at a young age, Sham Shui Po is seeing an escalating demand for PPCI. Since mid-2018, CMC has extended PPCI service from one session (4 hours) to two (8 hours) a week. Also, PPCI service has been provided for ST-segment elevation myocardial infarction (STEMI) patients during office hour. The number of patients benefiting from it has increased from about 140 to 230, in which most of them can be treated at CMC without referral to other hospitals. Also, the waiting time for elective PPCI has halved to two months.

CMC Department Operations Manager (ICU) **Gladys Wong** elaborates that apart from cardiac nurses, training is provided to ICU nurses to strengthen their capacity on handling PPCI cases and cardiac nursing care. This ensures flexible and prompt manpower allocation to assist with PPCI.



▲ 「化壓力為動力」是明愛醫院心導管室團隊的打氣金句。
CCL team at CMC takes 'turning stress into motivation' as faith in work.



在檢查和包裝區，同事檢查儀器清洗後是否完好，組裝複雜的手術儀器，並測試功能，最後包裝並貼上化學指標，才進入滅菌程序。In the inspection and packaging area, staff check, assemble and test the devices, and add chemical indicator on the package before sterilisation.

無菌儀器的消毒基地

The heart of sterile supplies

若要手術順利進行，除醫護人員的努力外，儀器的無菌處理也非常重要。威爾斯親王醫院無菌物品供應部（SSU）去年獲亞太感染管制協會頒發「模範消毒供應中心」獎項，是本港首間公立醫院獲得此殊榮。病房經理陳錦秀解說清洗及消毒過程，看似簡單，卻暗藏大學問，每個細節都要做到最好，才能確保病人安全。

陳錦秀稱，要使儀器無菌，需經過清洗、消毒、滅菌三大步驟，然後八小時內送到用家手中，如遇上緊急手術，更要在四小時內完成，將儀器送到手術室。「每個程序都有嚴格規

定，如同事會先按物料、種類和體積分類，較脆弱的儀器用手洗，其他用清洗機清洗；經過清水洗滌、清潔劑清洗、過水後，進行第一次攝氏93度高溫消毒程序；然後再檢查和包裝儀器，貼上化學標籤，進行第二次攝氏134度蒸氣滅菌程序。化學標籤正常變色和生物測試及格，顯示滅菌過程有效；最後將已徹底滅菌的儀器放進儲存庫或送到手術室和病房。」

整個清洗過程中，SSU 分隔為污染區和潔淨區，處理儀器的流程是單一方向，避免兩區的儀器交叉污染。同事完成一個程序後需在系統記錄，以便

即時追蹤儀器位置，提升工作效率及病人安全。

她表示：「新同事需接受六周密集式課堂培訓，然後邊學邊做18周，熟習整個流程和所有儀器的清潔方法。此外，每周有一節培訓，助同事溫故知新。每當醫院引入新款手術儀器時，會邀請供應商講解儀器的特性和清洗方法。」資深護師梁敏瑤補充：「我們與手術室同事緊密溝通，交流清洗和檢查儀器的注意事項，製成『風險提示卡』，還將儀器的相片、資料、組裝方法的短片等放在系統內，供SSU和手術室同事參考。」

現時威院的SSU全年無休，每日24小時提供儀器清潔、消毒和滅菌服務，包括手術儀器、植入物料、麻醉用品和敷料等，供給威院、沙田醫院、沙田慈氏護養院、白普理寧養中心和四間門診使用，亦與聯網另外兩間中央消毒物品供應部互相支援。部門每天處理約250台手術室儀器和400多件獨立包裝儀器，以及二千多件病房物品，一年處理近110萬件儀器，服務量非常龐大。

Sterile supplies are indispensable to successful surgery apart from exertions of staff working on the operation. Prince of Wales Hospital (PWH) Sterile Supplies Unit (SSU) received the Central Sterile Supplies Department Centre of Excellence Award last year from Asia Pacific Society of Infection Control, making it the first winner of this title among all public hospitals in Hong Kong. The cleaning and sterilisation procedures entail extensive expertise. Ward Manager **Chan Kam-sau** explains the process to *HASLink* and emphasises that being meticulous about every tiny detail is key to guaranteed patient safety.

Before handing over to users, all instruments go through standardised procedures of cleaning, disinfection, and sterilisation within eight hours. For emergency surgeries, the fast track turnaround time is about four hours. "All items are first classified by material, type and size. Delicate instruments are washed by hand while others by washer disinfectors. After cleaning by water and detergent, they are thermally disinfected with hot water at 93°C," says Kam-sau. "Moving on to inspection and packaging area, all devices are checked and packed with chemical indicator added before they are sterilised by 134°C steam. Normal colour change on the chemical indicator and passing biological test represent effective sterilisation. Lastly, the sterile supplies are stored in a sterile store or sent to users at operation theatres (OT) and wards."

On facility design, dirty and clean areas are physically separated from each other and only unidirectional workflow is allowed in order to prevent

cross-contamination. In each procedure, every piece of device has to be recorded in the Surgical Instrument Tracking System which allows instant tracking and tracing of devices for better work efficiency and patient safety.

"New recruits have to undergo six-week intensive class training and then 18 weeks on-the-job training to familiarise themselves not only with the overall workflow but also cleaning skills of all equipment," explains Kam-sau. "There is also a training session once a week to refresh colleagues' working knowledge. Whenever a new surgical instrument is introduced, vendors are invited to explain the equipment features and specific cleaning requirement." Advanced Practice Nurse **Yoyo Leung** adds, "We work closely with colleagues at OT to exchange on cleaning and safety precautions, and produced 'Risk Alert Card' together with photos of the corresponding device, component details and videos of assembly instruction which are put onto the tracking system for SSU and OT colleagues' reference."

SSU operates 24/7 throughout the year to offer cleaning and sterilisation service for devices such as surgical instruments, surgical implants, anaesthetic devices and dressings for PWH, Shatin Hospital, Cheshire Home, Shatin, Bradbury Hospice and four general outpatient clinics, and mutually support the other two Central Sterile Supplies Departments in the cluster. The annual throughput of SSU is about 1.1 million sterile items, with a daily throughput of 250 sets of surgical instruments, 400 individually packed devices and over 2,000 ward items.



威爾斯親王醫院無菌物品供應部病房經理陳錦秀（右）和資深護師梁敏瑤稱，SSU的責任是確保儀器潔淨無菌、完好無缺，使手術安全進行，確保病人安全。Ward Manager Chan Kam-sau (right) and Advanced Practice Nurse Yoyo Leung express that SSU is committed to delivering quality disinfection and sterilisation service to ensure patient safety.

特別儀器點樣洗？

How are special devices washed?



鑽石刀 Diamond knife

用途：用於眼科和腦科手術。

Usage: Used in eye and brain surgeries

洗法：刀片厚度只有0.2至3毫米，既薄又小巧易損，只能用清潔劑和蒸餾水手洗，然後用70%酒精消毒。

Cleaning method: The sharp and delicate blade is as thin as 0.2 to 3 millimetres. Wash it with detergent and distilled water by hand and then disinfect it by 70% alcohol.



TN05D 導航儀器

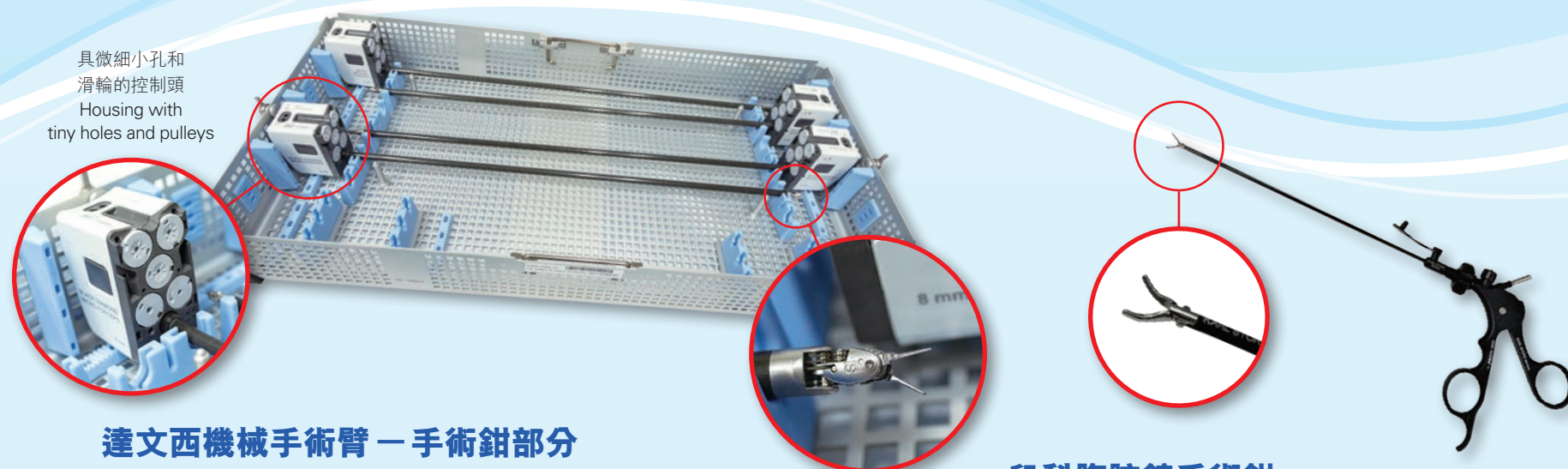
TN05D Micro Targeting Drive

用途：由多件細小組件組成，共有26粒直徑只有1至2毫米的小螺絲。儀器協助醫生加快確定手術位置。

Usage: Assist surgeons in targeting at the exact operation area. It has tiny components such as 26 embedded screws each with a diameter of only one to two millimetres.

洗法：清洗前，要先檢查所有組件是否齊全，拆至較小部分，方便清潔。清洗後要裝回原型，滅菌後讓手術室同事即時使用。

Cleaning method: Check if all parts are intact before cleaning. Disassemble to smaller parts for effective cleaning, and assemble them again before packaging and sterilisation so that they can be readily used at OT.



達文西機械手術臂 — 手術鉗部分

Da Vinci Xi Instrument – Forceps

用途：協助進行複雜外科微創手術。

Usage: Used in complex minimally invasive surgery.

洗法：首先在加入清潔劑的清水浸30分鐘，然後仔細沖洗控制頭的小孔和滑輪，防止縫隙藏有血漬。然後再用清潔劑和清水洗淨。入清洗機前放進固定架，協助有效清洗和防止水力太大，令組件移位。總清洗時間是普通儀器的兩倍。

Cleaning method: First, soak the instrument in water with detergent for 30 minutes. Flush the tiny holes and pulleys to remove blood stains. Rinse them with detergent and water. Before putting it into washer, affix it in a holder to facilitate cleaning and also to prevent damages by strong water pressure. The total cleaning time is twice that of ordinary instruments.

兒科腹腔鏡手術鉗

Paediatric laparoscopic dissecting forceps

用途：分離幼細的人體組織和血管。

Usage: Separate fine tissue and blood vessels

洗法：用清潔劑和蒸餾水手洗，然後再用超聲波機和清洗機清潔。因尖頭部分比較脆弱，精細而易損耗，為安全起見，使用30次後便要更換。

Cleaning method: Wash them with water and detergent by hand. Then clean them in ultrasonic cleaner and washer disinfectant. The forceps are delicate and easy to wear off, so for safety reason they are replaced after being used 30 times.



梁智仁教授獲頒金紫荊星章

Professor John Leong Chi-yan awarded Gold Bauhinia Star

7月1日傳來好消息！主席**梁智仁**教授獲政府頒發金紫荊星章，嘉許他熱心參與公共及社會服務，以過人的專業才華和超卓領導，推動香港公立醫院發展，應對人口老化對公共醫療服務帶來的挑戰。

醫管局今年另外有12位現任成員和同事獲頒授勳銜及嘉獎，表揚他們對社會的貢獻和傑出表現。

《協力》謹此祝賀各位獲頒授勳銜、行政長官社區服務獎狀，或獲委任為太平紳士的醫管局大會成員、區域諮詢委員會及醫院管治委員會委員和同事。

Professor **John Leong Chi-yan** has been inaugurated by the HKSAR Government on 1 July into the list of Gold Bauhinia Star (GBS) honourees for his dedication and distinguished contribution to public and community service. Greatly respected for his professional acumen, Prof Leong demonstrates visionary leadership in driving the development of Hong Kong's public hospital system in meeting immense challenges posed by ageing population.

12 other current members and colleagues of Hospital Authority received accolade in recognition of their exemplary contribution to the community.

HASLink congratulates all honour awardees, appointed Justices of the Peace and recipients of Chief Executive's Commendation for Community Service, including serving members of the HA Board, Regional Advisory Committees (RACs), Hospital Governing Committees (HGCs) as well as colleagues.

金紫荊星章

Gold Bauhinia Star

梁智仁教授
醫管局主席
Professor John Leong Chi-yan
HA Chairman

銀紫荊星章

Silver Bauhinia Star

陳家亮教授
醫管局大會成員
Professor Chan Ka-leung, Francis
HA Board Member

朱景玄先生
雅麗氏何妙齡那打素醫院管治委員會成員
Mr Chu King-yuen
HGC Member of
Alice Ho Miu Ling Nethersole Hospital

林正財醫生
靈實醫院管治委員會成員
Dr Hon Lam Ching-choi
HGC Member of
Haven of Hope Hospital

銅紫荊星章

Bronze Bauhinia Star

王賢誌先生
東華三院醫院管治委員會成員
Mr Vinci Wong
HGC Member of
Tung Wah Group of Hospitals

榮譽勳章

Medal of Honour

李詠民先生 九龍區域諮詢委員會成員
Mr Lee Wing-man
Member of Kowloon RAC

李逵發先生 博愛醫院管治委員會成員
Mr Lee Yut-fat
HGC Member of Pok Oi Hospital

蘇祐安先生 東華三院醫院管治委員會成員
Mr Su Yau-on, Albert
HGC Member of Tung Wah Group of Hospitals

太平紳士

Justice of the Peace

蘇彰德先生
大口環根德公爵夫人兒童醫院管治委員會成員
Mr So Cheung-tak, Douglas
HGC Member of The Duchess of Kent Children's Hospital at Sandy Bay

陸志聰醫生 港島東醫院聯網總監
Dr Luk Che-chung
Cluster Chief Executive of Hong Kong East Cluster

行政長官社區服務獎狀

Chief Executive's Commendation for Community Service

鄧銘泰先生 大埔醫院管治委員會成員
Mr Tang Ming-tai, Patrick
HGC Member of Tai Po Hospital

林建群醫生 基督教聯合醫院急症科高級醫生
Dr Lam Kin-kwan
Senior Medical Officer, Accident and Emergency Department of United Christian Hospital

梁仲權醫生 葛量洪醫院結核暨胸肺內科醫生
Dr Leung Chung-kuen, Kenny
Medical Officer, Tuberculosis and Chest Medicine Department of Grantham Hospital

產房中的特權

某日凌晨，我如常地陪著一位待產的準媽媽，向她簡介待產流程，然後靜心等待。過程中我們沒太多的說話，一會兒，嬰兒出生了，是個可愛的女孩，父母都十分興奮雀躍。

新手爸爸不斷說：「姑娘，你很好呀！」

我輕鬆回應說：「哈哈，我們都好，最好的今天晚上都來上班了。」

爸爸繼續道謝：「你們都很好，真的，很感謝你們，真的……」

其實我們只盡本份，但新手爸爸的每句道謝，肯定我們的工作，所有同事都非常開心。

不一會，另一邊廂的太太也快將生產了。

1分鐘自由講

Minute Talk

我問太太：「你一直都做得很好，快生產了，你不用挾親臨產嗎？」太太略帶失望說：「不用了，我丈夫很怕血，他不要進來。」我當時聽到也感到失望，但打趣的說：「沒關係，我會一直在這裏陪著你，還有我的同事，大家都會一直陪著你，不用怕。不一會，她開始用力，我準備接生，一些同事在旁為太太打氣，嬰兒很快就順利出生了。那位太太不斷說：「謝謝，要不是你們幫助，我一定生不了……嗚嗚！」

忙碌的晚上，晨光初起，早班的同事回來了，一天的工作完結，下班了。我覺得份外開心，工作雖忙碌但滿有意義。

作為助產士有一種「特權」，就是有機會第一個見證新生命誕生。從嬰兒呱呱落地一刻，呼吸第一口氣、第一次哭、第一次掙開眼睛、第一次喝奶；新手媽媽從懷孕歷程中終於「畢業」，激動得大叫大喊；陪產的丈夫在旁感動流淚卻又怕被旁人看到……每一幕都是感動人心的畫面，我都看在眼里。

無數次，我因這些畫面感動得眼泛淚光，或許有人覺得我們每天對著孕婦就會變得冷漠，但事實絕非如此。看著她們就像看一齣感動人心的電影，每名孕婦都是女主角，背後有不同的故事，每一次我都被她們的故事感動。謝謝所有給我走進她們故事的太太，使我感受人間平凡而偉大的愛。

曹小麗
婦產科護士
屯門醫院

退休大計 活在當下

Farewell note from HA Chief Executive: Seize the moment!

「活在當下算是大計嗎？哈哈！」將於今年7月31日卸任的行政總裁**梁栢賢**醫生每次被問及退休大計時，都這樣笑著反問對方。

「我一直相信人生有四個階段，最初的20年是求學期、20至40歲為事業打拼、40至60歲事業有成、60之齡就是享受成果的時候！」所以，梁醫生8月退休後首要回歸家庭樂，與太太和女兒把臂同遊探索世界，也得抽空陪伴年事已高的長輩，要愛得及時，表達心意，讓人生無憾。

回顧職場歲月，梁醫生在醫管局走過的12年，最高興能與一群無私奉獻、竭盡所能的醫護人員跨過無數挑戰，他更以「天使下凡」來形容同事，「同事像天使般，頭上有光環，有無盡的愛心來治療病患身心。」

今年5月，梁醫生最後一次以行政總裁身分出席醫管局研討大會，在主題演講的尾聲，與約30名醫護人員合唱經典金曲《前程錦繡》。他先領唱四句，然後再與同事一起合唱，正好反映他的管理哲學，「我深明領袖不是全能，而要與同事互相尊重，一起討論謀策方能成事。領袖

的角色需為隊員打造一個出色的舞台和佈陣，讓隊員各自發揮。今時今日『擺采、搶風頭』是不得人心的！就如踢足球，上陣作戰的是球員，站在頒獎台上領獎盃的也是球員。你何曾見過領隊爭著捧盃揮舞嗎？作為領隊，凱旋之時得到隊員和球迷的感謝便心滿意足！」



Hospital Authority (HA) Chief Executive Dr **Leung Pak-yin** laughs heartily when being asked about his plans after retiring on 31 July this year. “Seize the moment! Is it a plan?” he asks.

“I believe there are four stages in life,” he explains. “The first 20 years for study; the years between 20 and 40 for career development; the years between 40 and 60 for achieving success at work; and we reap the fruits of hard work after 60.” From August onwards, Dr Leung plans to seize every moment with his family. He plans to explore the world with his wife and daughters, spending more time with his elder relatives, and taking the time to show love to the people who matter to him most.

Looking back on his 12 years with HA, Dr Leung says what he treasures most is working with a group of selfless and dedicated colleagues, and responding to challenges day and night. “They are like angels, healing patients with endless heartily love,” he says.

Dr Leung attended the HA Convention as Chief Executive for the last time in May and concluded his keynote speech with a rendition of the song ‘Bright Future’, singing the first four lines before dozens of colleagues joined in. The performance reflected his management style. “I believe a leader is not almighty, but needs mutual dialogue and respect for colleagues in order to deliver results,” he reflects. “It is the leader’s responsibility to provide teammates with a conducive environment to perform. Stealing the limelight can never win support of a team. It is like playing football. The team leader is like a coach. It is the players who compete on the field and collect the trophy. The coach’s greatest joy is to earn gratitude of the winning players and fans afterwards.”

道別不易，有緣再見，憑歌寄意，共勉之！

「小小苦楚等於激勵
等於苦海翻細浪
藉著毅力 恃我志氣
總要步步前望」

《前程錦繡》

Dear colleagues:

*"Pain drives me forward
Ride rough seas onward.
Unfailing strength keeps me going on and on."*

— Bright Future

