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聖保祿醫院
St. Paul's Hospital

# NewsLetter
院訊

## St. Paul's Hospital Day Centre *in operation now*


**Medical Article:**
Advances in Structural Heart Intervention

# MESSAGE
## FROM THE MEDICAL SUPERINTENDENT

*Dr. William Ho*
Medical Superintendent

For the first four months of 2019 compared with that of 2018, St. Paul's Hospital recorded roughly **10%** more operations, **20%** more deliveries, **20%** more inpatients, **30%** more patient days, and close to **40%** more cases in cardiac catheterization laboratory! Meanwhile, there were 22% more appreciations and 11% less negative feedback. Well done everybody!

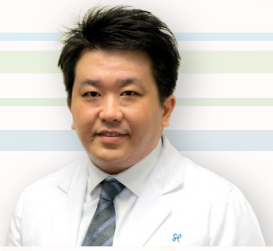
Nobody can deny that new facilities in our Main Block become the main attraction for patients and doctors alike. This is the "hardware" part. But efforts to improve hospital operations, the "software" part, is no less important, as is the attitude and teamwork spirit of staff. Somebody called this latter the "soulware". It takes all three (硬件，輭件，心件) to make a good organization. Let's take a look.

On the hardware part, construction work in St. Paul's Hospital still shows little sign of stopping since going on for more than a decade. While we lament over demolition of the historic Old Block, a new underground floor will be built at its site. Afterwards, the ground floor level will be turned into a garden with water feature. This will offer outsiders an unimpeded view of the magnificent Christ and King Chapel, 91 years old as of now, which is currently also undergoing careful renovation. In Block A, a grand Auditorium with a seating capacity of close to 200 and equipped with state-of-the-art audio-visual facilities will be completed soon, offering perfect venue for conferences and with a spacious foyer for drinks and exhibits. Other floors of Block A will gradually be turned into offices and ambulatory service centres, in addition to the new Eye Centre and Dental Centre which are already up and running. After almost a decade of dwelling in the "temporary" Block E, the top management team and other back office staff will eventually be able to move back into a "permanent" building. Incidentally, our recent hoisting of emergency generator and chiller plants to the roof of Block A, hiring the largest crane available, also set a Hong Kong record for external hoisting height of nearly 100m into thin air.

The hospital also keeps up with latest technology in terms of equipment for the following: cardiac cath. lab, intervention radiology suite, CT, MRI, in-built fluoroscopy for ERCP, MRI fusion for prostate biopsy, newest dental installations, to name a few. A new PET-CT will be installed later in the year. Ever since commencement of operation of the Main Block, we have been hosting local and overseas visitors who all show great interests in our planning perspective, people flow (intelligent lifts, escalators), material movement (the unique Boxveyor system), internal and external design, and building service technologies such as the use of magnetic levitation chillers for energy efficiency. Some of these are adopted in new public and private hospitals being built.

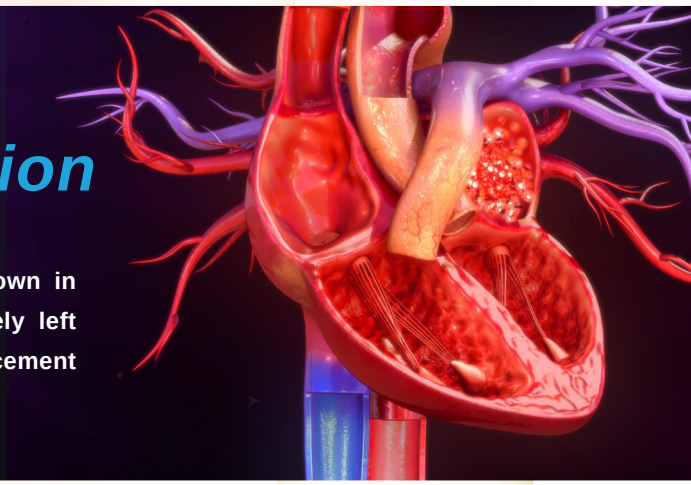
When we talk about hardware, it is not necessary as simple as "the latest and the most expensive". Appropriateness, optimization, and effectiveness in actual utilization are even more important and that really tells the difference in managerial capabilities and maturity. During the construction process, countless obstacles have been encountered, ranging from bureaucracies of regulatory authorities, performance issues of consultants, contractors and suppliers, to ever changing requirements of end users. It is no easy feat to come up with what we have now, but continuous vigilance and dedication are required to further fine tune and improve, based on feedback from doctors, staff, patients and visitors.

So much for the "hardware" part for now. I will talk about the other "wares" in the next issue.



*Dr. Chow Hoi Fan, Danny*
Staff Consultant Cardiologist
St. Paul's Hospital

# *Advances in Structural Heart Intervention*



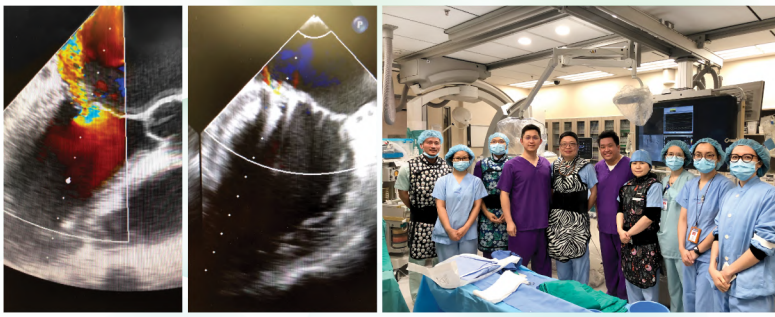
**Advances in percutaneous structural heart interventions have grown in recent years. Several advances in interventional cardiology namely left atrial appendage occlusion (LAAO), transcatheter aortic valve replacement (TAVR), and Mitraclip offer promising results for our patients.**

The mainstay of treatment for patients with atrial fibrillation (AF) who are at high risk of stroke is anticoagulation. However, patients suffer from bleeding complications and may not tolerate anticoagulation. European Society of Cardiology confirmed a class IIB recommendation for LAAO in patients with AF and contraindication(s) for long-term oral anticoagulant treatment.[1] One of the largest prospective multicenter registry EWOLUTION provided 1 year real world data in 2015 patients undergoing left atrial appendage occlusion with WATCHMAN device in 47 centers. 73% of the patients were deemed unsuitable for oral anticoagulation. Implant success was 98.5% without significant leakage of more than 5 mm in 99.7% of the patients. Ischemic stroke rate was 1.1% at 1 year with 2.6% bleeding rate.[2] This transcatheter treatment offers a safe and effective stroke prevention alternative for patients.

TAVR is an alternative to surgery in patients with severe aortic stenosis and has been shown to have similar outcomes with surgery in patients at intermediate and high risk for death with surgery. Recently published data showed promising results even in low risk surgical candidates in both self–expanding supraannular bioprosthesis and balloon expandable valves. Both devices have shown non inferiority compared with conventional surgery in low risk surgical patients with lower rates of stroke and new onset atrial fibrillation in larger randomized trials.[3-4] Long term data needs to address long term structural valve deterioration.

Mitraclip is an alternative transcatheter treatment for patients with symptomatic severe mitral regurgitation who are not suitable for open-heart operation. Latest data in the COAPT trial published in the New England Journal of Medicine randomized 614 patients with moderate to severe or secondary mitral regurgitation who remained symptomatic despite optimal medical therapy to transcatheter mitral-valve repair (device group) or medical therapy alone (control group). Patients randomized to device group had lower rate of annualized rate of all hospitalizations for heart failure (35.8% per patient-year vs. 67.9% per patient-year) and lower death from any cause (29.1% vs 46.1%) within 24 months compared to control group.[5]

Emerging devices targeting transcatheter mitral valve replacement (TMVR) and tricuspid valvular intervention will soon provide more data, benefiting patients in different areas of structural interventions.



One of our patients with significant mitral regurgitation (MR) at St. Paul's Hospital recently benefited from Mitraclip. (Right) Preoperative transesophageal echocardiogram (TEE) showing flail anterior mitral valve leaflet with severe mitral regurgitation. (Left) Post operative TEE after clipping showed significant reduction to trivial MR only.

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# Novel Cephalosporin Antibiotics in St. Paul's Hospital Pharmacy

SPH Pharmacy Department

## Introduction

With rapid emergence of drug resistant bacteria occurring worldwide, there is increasing amount of data suggesting excessive and inappropriate use of antimicrobial agents with the development of antimicrobial resistance. It has become one of the most important topics of public healthcare. In Hong Kong, the Hospital Authority (HA) has reported the prevalence of carbapenemase-producing *Enterobacteriaceae* (CPE) has surged more than double from 473 cases in 2017 to 972 cases in 2018. Apart from that, there is evidence that the methicillin-resistant *Staphylococcus aureus* (MRSA), extended spectrum beta-lactamase (ESBL), drug-resistant pneumococci and carbapenemase-producing Acinetobacter are more prevalent than in many other countries. In view of the development of new broad-spectrum antibiotics which is critical to combat antimicrobial resistance, three novel cephalosporin antibiotics, namely Zinforo, Zerbaxa and Zavicefta are introduced to the St. Paul's Hospital (SPH) drug formulary to provide extensive coverage against resistant pathogens.

## 1. Zinforo (Ceftaroline)

Zinforo is a novel 5th generation cephalosporin which is considered as one of the big gun antibiotics targeting a wide range of gram-positive and gram-negative bacteria. Zinforo is indicated for complicated skin and soft tissue infection (cSSTI) and community-acquired pneumonia (CAP). It is a beta-lactam which is active against MRSA and penicillin-nonsusceptible *Streptococcus pneumoniae*.

MRSA is one of the pathogens associated with cSSTI and Zinforo is indicated to treat MRSA-related infection. However, as recommended by the Infectious Diseases Society of America (IDSA), parenteral vancomycin should be used as the first line therapy for the treatment of MRSA infections. Zinforo is considered as alternative parenteral antibiotics which is active against MRSA in the cases of vancomycin-intermediate *Staphylococcus aureus* (VISA) and vancomycin-resistant *Staphylococcus aureus* (VRSA) infections, or patients who are allergic, intolerant or contraindicated to glycopeptides (e.g. vancomycin). Therefore, patients who are at risk of developing infections precipitated by MRSA, vancomycin should be considered as the first line empirical therapy.

CAP is another Food and Drug Administration (FDA) approved indication of Zinforo. Typical pathogens including *Streptococcus pneumoniae*, *Staphylococcus aureus* (methicillin-susceptible strains only) and *Haemophilus influenzae* are all covered by Zinforo. An international, randomised, controlled, double-blind, phase 3 trial compared the use of Zinforo to intravenous ceftriaxone in Asian patients with CAP. In the clinically evaluable population, 84% of the patients in the Zinforo group and 74% of the patients in the ceftriaxone group were clinically cured at the test-of-cure (TOC) visit (difference 9.9%, 95% confidence interval [CI] 2.8-17.1). The occurrences of adverse events were found similar in both groups. It was concluded that Zinforo is superior to ceftriaxone for CAP treatment in Asians.

*Pharmacist's Point of View:*

Although Zinforo is indicated for MRSA-related cSSTIs, its use for MRSA-associated CAP is not approved by FDA yet due to limited clinical experience. Moreover, while a study shows Zinforo is superior to ceftriaxone for CAP treatment in Asians, it is still considered as a relatively new antibiotic, thus its role in the treatment of CAP is yet to be determined by different international and local clinical guidelines. Furthermore, this antibiotic lacks antipseudomonal activity and therefore its use in hospital-acquired pneumonia (HAP) and *Pseudomonas*-related infections are not recommended.

## 2. Zerbaxa (Ceftolozane and Tazobactam)

Zerbaxa is a combination product comprising of ceftolozane, a 5th generation cephalosporin, and tazobactam, a beta-lactamase inhibitor. Ceftolozane is structurally similar to the 3rd generation cephalosporin ceftazidime, but with a modified side chain conferring enhanced activity against *Pseudomonas aeruginosa (P. aeruginosa)*, including carbapenem-resistant and ceftazidime-resistant strains. In addition, it has activity against other gram-negative pathogens such as *Enterobacteriaceae*, including ESBL-producing *Klebsiella* and *Escherichia Coli (E. Coli)* and some AmpC-producing strains. Limited activity against gram-positive bacteria and anaerobes was demonstrated from in *vitro* data. Zerbaxa is indicated for complicated urinary tract infections (cUTI) including pyelonephritis, and in combination with metronidazole for the treatment of complicated intra-abdominal infections (cIAI).

For cUTI or pyelonephritis, a randomised, double-blind, double-dummy, non-inferiority phase 3 trial assigned patients with such infections to receive either Zerbaxa or intravenous levofloxacin for 7 days. Among patients with levofloxacin-resistant pathogens, Zerbaxa demonstrated significantly higher composite cure rates than levofloxacin in both the microbiological modified intention-to-treat (mMITT) (60.0% vs 39.3%, 95% [CI], 7.2-33.2) and microbiologically evaluable (ME)

(64.0% vs 43.4%, 95% [CI], 6.3-33.7) populations. Zerbaxa was statistically superior to levofloxacin in the complete resolution and symptoms improvement. On the microbiological eradication rate, Zerbaxa was statistically better than and non-inferior to levofloxacin on levofloxacin-susceptible organisms. Hence, Zerbaxa can be an alternative treatment in settings of increased fluoroquinolone resistance.

For cIAI, a multinational, double blind study comparing Zerbaxa plus metronidazole to meropenem for 4 to 14 days of therapy. Zerbaxa plus metronidazole was non-inferior to meropenem with regards to clinical cure rates at the TOC visit in the MITT population (83% vs 87.3%).

Apart from the above licensed indications, drug company is exploring new indication for Zerbaxa. A randomised, double-blind, multi-center phase 3 clinical trial was conducted on the efficacy and safety of Zerbaxa compared to meropenem in ventilated patients diagnosed with nosocomial pneumonia, including hospital-acquired and ventilator-associated bacterial pneumonia. Applications have submitted to the FDA and European Medicines Agency (EMA) seeking regulatory approval for this potential new indication.

*Pharmacist's Point of View:*

Compared with other cephalosporins, this 5th generation cephalosporin has the advantage of additional susceptibility on ESBL-producing *Enterobacteriaceae*, some AmpC-producing pathogens and enhanced activity against *P. aeruginosa*. Although Zerbaxa is a possible option for complicated infections, more evidence-based and higher cost-effective alternatives should be considered as first- line therapy. Zerbaxa should be reserved for infections with multi-drug resistance to conventional treatment. Healthcare professionals shall remain vigilant on the indication updates issued by various overseas drug regulatory authorities for consideration of Zerbaxa's role in treating multi-drug resistant organisms (MDRO).

## 3. Zavicefta (Ceftazidime and Avibactam)

Zavicefta is a combination product of ceftazidime, a 3rd generation cephalosporin, and avibactam, a novel non-beta-lactam beta-lactamase inhibitor. Zavicefta has retained the coverage of ceftazidime against gram-negative pathogens including *P. aeruginosa*. With the addition of avibactam, it has extended the coverage of ceftazidime against other ceftazidime or even carbapenem-resistant strains, including ESBL, AmpC-producing pathogens, *Klebsiella pneumoniae carbapenemases* (KPCs) as well as carbapenem-resistant *Enterobacteriaceae* (CRE). However, it is intrinsically ineffective against methicillin-susceptible or -resistant *Staphylococcus aureus*, *Enterococcus* spp., *Stenotrophomonas maltophilia*, *Acinetobacter* spp. and anaerobic pathogens. Zavicefta is indicated for cIAI, cUTI, including pyelonephritis, and HAP, including ventilator associated pneumonia (VAP).

Four main clinical trials were conducted to evaluate the clinical efficacy and safety of Zavicefta, namely RECLAIM, RECAPTURE, REPRISE and REPROVE. In summary, Zavicefta has demonstrated non-inferior result on the clinical response and microbiological eradication rate compared to the carbapenems in treating cUTI or cIAI, making Zavicefta a possible alternative of carbapenems for several infections caused by gram-negative bacteria.

For carbapenem-resistant organisms, a case series study of patients with infections caused by CRE or carbapenem-resistant *P. aeruginosa* (CRPa) who were treated with Zavicefta as salvage therapy was conducted. The study showed that 73.7% of patients (95% [CI], 56.9-86.6) experienced clinical and/ or microbiological cure. In three-quarters of cases, Zavicefta (alone or combined with other antibiotics) cured infections caused by carbapenem-resistant organisms, 95% of which had failed previous therapy. Thus, Zavicefta may be a treatment option for carbapenemase-producing organisms (e.g. CRE, KPC).

In March 2019, the FDA has expanded the approval of ceftazidime/ avibactam in North America to include paediatric patients aged $\geq$ 3 months for the treatment of cIAI, in combination with metronidazole and for cUTI, including pyelonephritis. This is the first FDA approval of a paediatric indication for cUTI and cIAI in more than a decade. However, the new indication for paediatric patients is not yet approved in Hong Kong.

*Pharmacist's Point of View:*

Compared to older beta-lactamase inhibitors including clavulanate, sulbactam, and tazobactam, which are only active against some isolates of *Enterobacteriaceae* that produce ESBL, avibactam expands ceftazidime's spectrum of activity to include Ambler class A, C, and some class D, beta-lactamases in *Enterobacteriaceae* resistant to carbapenems and ceftazidime alone. Due to its uniqueness of KPC, CRE, ESBL and AmpC-producing pathogens coverage, this antibiotic with expanded spectrum should be reserved for multi-drug resistant cases as more evidence-based and higher cost-effective alternatives should be considered as first-line therapy. In addition, future approved indication for the paediatric population may be anticipated in Hong Kong.

## Antibiotic Stewardship Program (ASP)

In order to cope with the development of multi-drug resistant organisms, usage of novel antibiotics should be strictly limited so as to minimize their exposure and emergence of bacterial resistance. As part of the ASP in SPH, ongoing prospective reviews on the clinical appropriateness of Zinforo and Zerbaxa has commenced since August 2018 and January 2019 respectively, the campaign has been extended to Zavicefta in May 2019. The prospective reviews of clinical appropriateness of the aforementioned novel antibiotics aim to provide interventions at the point of prescribing and make recommendations on the safe and rational use of antibiotics, hence to enhance the appropriateness of antibiotic prescribed. Findings from the reviews are shared regularly in Drug and Therapeutics Committee (DTC), Infection Control Committee (ICC), and Staff Doctors' meetings.

## Novel Cephalosporin Antibiotics in SPH – At a Glance

| | Zinforo | Zerbaxa | Zavicefta |
|---|---|---|---|
| ***Registered in Hong Kong*** | August 2013 | May 2017 | January 2019 |
| ***Active Ingredients*** | Ceftaroline 600 mg | Ceftolozane/ Tazobactam 1 g/ 500 mg | Ceftazidime/ Avibactam 2 g/ 500 mg |
| ***Usual Dose and Frequency*** | 600 mg IV Q12h | 1.5 g IV Q8h | 2.5 g IV Q8h |
| ***Licensed Indication*** | · cSSTI<br>· CAP | · cIAI#<br>· cUTI including pyelonephritis | · cIAI#<br>· cUTI including acute pyelonephritis<br>· HAP including VAP## |
| ***Susceptible Pathogen*** | · **Gram-positive** coverage (including MSSA, MRSA, *Streptococcus*)<br>· Narrow **gram-negative** coverage<br>· **NO ESBL coverage** | · Broad **gram-negative** coverage (including *P. aeruginosa*, ESBL/ AmpC producing *Enterobacteriaceae*)<br>· Narrow **gram-positive** coverage | · Broad **gram-negative** coverage (including *P. aeruginosa*, ESBL/ KPC/ CRE/ AmpC producing *Enterobacteriaceae*)<br>· Narrow **gram-positive** coverage |
| ***Licensed Population*** | 2 months or above | 18 years or above | 18 years or above |
| ***Renal Impairment*** | Dose adjustment required in patients with CrCl of 50mL/ minute or below | Dose adjustment required in patients with CrCl of 50mL/ minute or below | Dose adjustment required in patients with CrCl of 50mL/ minute or below |
| ***Hepatic Impairment*** | No dosage adjustment | No dosage adjustment | No dosage adjustment |

#Use in combination with metronidazole if anaerobic pathogens are suspected
##Use in combination with antibacterial agent active against gram-positive pathogens if they are suspected

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## Following the DTC meeting in May 2019, the following drugs have been approved and added to the formulary at SPH:

| Drugs | Indication(s) | Usual dosage | Remarks |
|---|---|---|---|
| ***Trumenba (meningococcal group B) vaccine 0.5mL pre-filled syringe*** | Active immunisation of children ≥10 years to prevent meningococcal disease caused by Neisseria *meningitidis* serogroup B (MenB) | IM injection only<br>· 2 doses: administered at 6 months interval. Recommended by The Advisory Committee on Immunization Practices (ACIP) for healthy adolescents and young adults of 16 to 23 years<br>· 3 doses: 2 doses administered at least 1 month apart, followed by a third dose at least 4 months after the second dose. Recommended by ACIP for persons ≥10 years, who are in a MenB outbreak situation or at increased risk for meningococcal disease | / |
| ***OxyContin (oxycodone) 5mg prolonged release tablet*** | Management of moderate to severe pain when a continuous, around-the-clock analgesic is needed for an extended period of time | · 10mg every 12 hours<br>· Maximum licensed dose: 160mg every 12 hours<br>· Dose increment according to pain control not more than every 1-2 days | / |
| ***Skudexa (tramadol 75mg/ dexketoprofen 25mg) tablet*** | Short term treatment of moderate to severe acute pain | 1 tablet ≥30 minutes before food every 8 hours as required; up to 3 tablets per day for up to 5 days | / |
| ***Zavicefta (ceftazidime 2g/ avibactam 0.5g) 2.5g infusion*** | · Complicated intra-abdominal infection<br>· Complicated urinary tract infection<br>· Hospital-acquired and ventilator-associated pneumonia | 2.5g every 8 hours, infused over 2 hours | SPH is currently conducting prospective review of Zavicefta, as part of the ASP |
| ***Xofluza (baloxavir) 20mg & 40mg tablet*** | Treatment of acute uncomplicated influenza in patients ≥ 12 years who have been symptomatic for no more than 48 hours | One-dose regimen :<br>· Patients 40 to <80kg body weight: 40mg<br>· Patients ≥80kg body weight: 80mg | / |

# Connective Tissue Diseases

SPH Pathology Department

Connective Tissue Diseases (CTDs) are a group of autoimmune disorders. They are a heterogeneous group of diseases characterized by abnormal structure or function of one or more of the elements of connective tissues, i.e. collagen, elastin or the mucopolysaccharides. Differential diagnosis of CTDs is mainly based on clinical findings but is hampered by the similarity of their symptoms. Therefore, auto-antibodies are useful markers to support the diagnosis or exclusion of CTDs. The most common CTDs are systemic lupus erythematosus (SLE), Sjögren's syndrome, scleroderma, CREST syndrome, dermatomyositis, polymyositis and mixed connective tissue disease[1].

**Table 1. Autoantibodies and Associated Autoimmune Diseases**

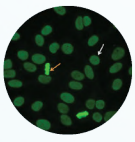
| | Marker autoantibody | Associated disease (s) | Autoantibody Prevalence |
|---|---|---|---|
| 1 | dsDNA | Systemic Lupus Erythematosus (SLE) | 95% |
| 2 | Sm | Systemic Lupus Erythematosus (SLE) | 20-30% |
| 3 | U1RNP | Mixed connective tissue disease (MCTD) | 100% |
| | | Systemic Lupus Erythematosus (SLE) | 30-40% |
| 4 | SS-A/Ro | Sjögren's syndrome | 60-90% |
| | | Systemic Lupus Erythematosus (SLE) | 40-50% |
| | | Neonatal Lupus syndrome | >90% |
| 5 | SS-B/La | Sjögren's syndrome | 50-95% |
| | | Systemic Lupus Erythematosus (SLE) | 6-15% |
| | | Neonatal Lupus syndrome | / |
| 6 | Scl-70 | Scleroderma | 30-60% |
| 7 | CENP | Limited systemic sclerosis (CREST) | 70-80% |
| | | Primary biliary cirrhosis (PBC) | 10-20% |
| 8 | Jo-1 | Poly/Dermatomyositis | 25-35% |

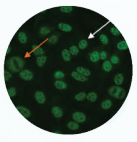
## Laboratory Testing

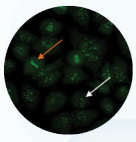
1. Anti-nuclear antibodies (ANA) by indirect immunofluorescence test (IFA)

Anti-nuclear antibodies (ANA) by indirect immunofluorescence test using Hep-2 cells is an excellent screening method and widely used as a serological marker of autoimmune diseases. However, it is labor intensive and the microscopic interpretation of result is subjective with high false-positive rate. Wide ranges of sensitivity (72.5%-100%) and specificity (69.2%-96%) were reported in different studies[1,2,3,5,6]. Result is expressed in titer and a high titer above 1 in 160 suggests the presence of autoimmune diseases without information on the disease-specific autoantibodies.

The fluorescence pattern can give clues to the type of CTDs. The major nuclear patterns are homogenous, speckled, centromere and nucleolar, and their associated autoimmune diseases are as follow[3].


Homogenous


Speckled


Centromere

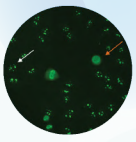

Nucleolar

**Table 2. Common ANA patterns and associated autoimmune disease**

| ANA pattern | Associated autoimmune disease |
|---|---|
| Homogeneous | • Systemic lupus erythematosus (SLE)<br>• Mixed Connective Tissue Disease (MCTD) |
| Speckled | • Systemic lupus erythematosus (SLE)<br>• Mixed Connective Tissue Disease (MCTD)<br>• Sjögren's syndrome<br>• Polymyositis/ Dermatomyositis |
| Nucleolar | • Scleroderma<br>• Polymyositis |
| Centromere | • Limited systemic sclerosis (CREST)<br>• Primary biliary cirrhosis (PBC) |

2. EliA™ Anti-CTD Antibody Screen by ELISA method

EliA™ Anti-CTD Antibody Screen is an automated ELISA method to rapidly screen in one test the presence or absence of clinically relevant autoantibodies although it does not offer information about individual autoantibodies. A positive Anti-CTD Antibody Screen can then be followed with testing for individual autoantibodies such as dsDNA and anti-extractable nuclear antigen antibodies (anti-ENA) in aiding the differential diagnosis of CTDs. This automated ELISA method shortens the turnaround time and improves test performance.

A study has claimed the agreement between EliA™ Anti-CTD screen and ANA by IFA was 84.2%[4]. Thus it has been adopted in many laboratories as the first test to screen for connective tissue diseases. Nevertheless, uncommon autoantibodies such as histones and nucleosomes in SLE patient are not detected by the ELISA method and ANA by IFA should also be tested as well if clinically indicated.

**Table 3. Comparison of ANA by IFA and EliA™ Anti-CTD screen**

| | ANA, IFA (Cutoff 1:160) | EliA™ Anti-CTD screen |
|---|---|---|
| Sensitivity | 72.5% | 70.0% |
| Specificity | 69.2% | 90.1% |
| Positive predictive value | 50.9% | 75.7% |
| Negative predictive value | 85.1% | 87.2% |

**Note: The Clinical Pathology Laboratory of St. Paul's Hospital offers ANA and Anti-CTD Antibody screen for evaluation of Connective Tissue Diseases. A positive Anti-CTD Antibody Screen will automatically be followed by Anti-ENA and dsDNA tests at no additional charge.**

References:

1. Phadia, EliA™ Package insert (2016), *ThermoFisher scientific.*
2. Fabiano De Almeida B. (2014) Detection of anti-nuclear antibodies by indirect immunofluorescence on Hep-2 cells: setting the appropriate screening dilution for the diagnosis of autoimmune rheumatic diseases. Rev Bras Reumatol, 2013:54(1):13-20
3. Michael O' Sullivan. (Oct, 2013) Antinuclear antibody test. Australian Family Physician Vol 42, No.10.
4. G. Steiner (2017). An ANA screening assay (ELiA CTD screen) containing multiple antigens increases the sensitivity and specificity of ANA testing by indirect immunofluorescence. Annrheumdis-2017-eular.6053.
5. M. Elkhalifa (2017) Evaluation of a fluoroenzyme immunoassay (ELIA-CTD) in the screening of patients suspected for autoimmune connective tissue diseases. *Annrheumdis-2017-eular.2679.*
6. IIFT: HEp-20-10 (2017). Instructions for the indirect immunofluorescence test. *Euroimmun.*

# CME ANNOUNCEMENT

| Topic | Chairman | Speaker(s) |
|---|---|---|
| **How can our partner sleep better?** | | |
| **Date: 18 July 2019 (Thursday)** | **Dr. Fang Tak Sang, Daniel**<br>Dental Centre, St. Paul's Hospital | **Dr. Loh, Walter**<br>Dental Centre, St. Paul's Hospital<br>**Dr. Luk, Kenneth**<br>Dental Centre, St. Paul's Hospital |
| **The Surgical Management of Lung Cancer: from the most minimally invasive to the most maximally aggressive** | | |
| **Date: 22 August 2019 (Thursday)** | **Dr. Yuen Siu Tsan**<br>Deputy Medical Superintendent, St. Paul's Hospital | **Dr. Suen Hon Chi**<br>Specialist in Cardiothoracic Surgery |

Time: 7:00pm - 9:00pm (light refreshment provided) Venue: Meeting Room, 2/F, Block B, St. Paul's Hospital

Registration (E-mail): sph.sdd@mail.stpaul.org.hk

# HOSPITAL ACTIVITIES

# 2019年國際護士節

我們感謝每位前線護理人員一直堅守崗位，無微不至的照顧每位病人。祝願所有護理人員「國際護士節」快樂！身體健康！


為表揚一眾為社會及醫院服務的護士，國際間將每年五月十二日訂為「國際護士節」。

今年國際護士節的主題是「護士齊動員，同心為民康」，張柱見修女、何兆煒醫生及羅沛欽先生到各層病房為護士們送上小禮品，感謝他們一年來的辛勞，不辭勞苦為病人提供護理服務。


本院於5月11日晚上在九龍灣國際展貿中心，參與由香港護理專科學院舉辦的國際護士節晚宴，共同慶祝護士對本地及國際社會健康的積極貢獻。

# 病理化驗部受訪

四月十四日早上，第九屆深港澳檢驗醫學研討會負責人李偉振會長連同本港同業及來自中國和澳門的業界代表到本院病理部參觀。

大家對本院舒適的環境及先進的儀器留下深刻的印象。