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聖保祿醫院
St. Paul's Hospital

NewsLetter
院訊

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修女的話

天地和順家滿愛，平安健康人多福
在此我先祝賀各位身體健康、歲歲平安。

為香港而言，2019年是很艱難的一年。沒想到一場「反修例」風波會使整個社會，無論是醫院、學校和商場都瀰漫著沉重的氣氛。我們熟識的香港突然變得很陌生，大家平日可以和家人共進晚餐，現在可能因政見不同而變得不能共融；有人可能在社交平台發表個人意見卻惹來批評甚或惡意攻擊；和平表達訴求也會衍生暴力衝突。立場好像只能非黑即白，互相調和的灰色空間彷彿已經不再存在。各行各業的人都因著這兩極化的社會氣氛，少不免也變得灰心失意、無助，甚至迷失。新的一年，我們如何走出陰霾，重新起步？以下有一個故事想跟大家分享:

從前有四支蠟燭，他們慢慢地燃燒著.....在一個靈靜的晚上，人們聽著他們的對話。

第一支蠟燭說：「我是**和平**。假使我熄滅了，也不會有人注意到我。」她的火焰突然減弱，然後就熄滅了。

第二支蠟燭說：「我是**信心**。通常人們並不需要我，即使我繼續燃燒也沒有什麼意義。」說完這話，她嘆了口氣，火焰就熄滅了。

第三支蠟燭說：「我是**愛心**。可是我已經失去燃燒的力量了。沒有人在乎我，人們甚至連自己的親戚朋友都忘了關愛!」說完這話，她的火焰就熄滅了。

突然，來了一個小孩。當他看到三支蠟燭都熄滅，就開始啜泣說：「你們為什麼不繼續燃燒呢？」

這時，第四支蠟燭開口了：「不要害怕，只要我還燃燒著，我們就可以將其他的蠟燭再點燃，因為我是**希望**！」

這個孩子拿起了這支希望蠟燭，含著滿眼的淚水將其他的蠟燭又一一的點燃。

故事就說到這裡。

人生路上總是滿有疑惑和挫折，縱使有高低起跌，人也要常懷希望。希望不只是一個目標，而是一種正向的態度，提醒我們要遠離黑暗，一直要對天主有一份信靠。在水深火熱之際，我們要懂得選擇自己的形態 - 是要變得軟弱嗎？是要跟現實的情況作絕對的抗衡嗎？還是拿出自己獨特的素質去締造愛與和平的世界呢？而我深信，聖保祿醫院的醫護人員會上下一心，繼續以專業精神關愛和照顧有需要的病人。

再次祝福各位工作順利、主恩滿溢。
主佑各位！

張柱見修女

MESSAGE
FROM THE MEDICAL SUPERINTENDENT

Dr. William Ho
Medical Superintendent

May I wish everybody good health and a most prosperous Year of the Rat!

For St. Paul's Hospital, 2020 begins with commencement of our long-awaited PET-CT service, which is rapidly building up in case volume. At the same time, we are confronted with the threat of the novel coronavirus (nCoV) epidemic. At the time of writing, there are 15 confirmed cases of nCoV pneumonia in Hong Kong, with one death already. The hospital has stepped up efforts in infection control and vigilance in identifying and transferring out suspected cases. As we are not equipped with tests to rule out nCoV infection, and isolation facilities are limited, we have to implement stricter measures in excluding patients or visiting doctors with recent travel history to Mainland China or Macau. I would call on all visiting doctors and staff members to cooperate in the measures, especially self-monitoring of temperature, wearing of masks and hand hygiene. In this regard, our latest audit indicated Hand Hygiene compliance by visiting doctors had reached nearly 80%, and we certainly look for full compliance especially under the current circumstances.

Despite social unrest in the latter half of 2019, full year patient admission statistics remained stable as compared with the previous year, while number of operations as well as obstetric deliveries exceeded that of 2018. Activities in the Cardiac Catheterization Laboratory jumped up nearly 30%, while our Rehabilitation Centre and Dietetic services both recorded double digit growth. The year witnessed new services such as Structural Heart Interventions, and improved diagnostic support from Pathology Department such as new microbiology test panels for various conditions, with positive feedback from clinicians.

Our endeavor in quality improvement continues to pay off. CPR audit for 2019 revealed a very high ROSC (return of spontaneous circulation) rate of 64% among all resuscitation cases, thanks to our brilliant resuscitation team, with RMO arrival within 5 minutes achieving 100%. Following the effort in promoting haemovigilance, blood product utilization per 1,000 discharges fell significantly, with low blood wastage rate. I wish to applaud all doctors for adopting more evidence-based practice in blood transfusion. An area of weakness necessitating continued effort is that of judicial prescription of broad spectrum antibiotics, especially for surgical prophylaxis. Here I call upon everybody to adhere to IMPACT guidelines that summarize scientifically sound practices, in terms of right drug, right dose and right timing. We will double our effort in promoting good practice and provide feedback to individual clinicians.

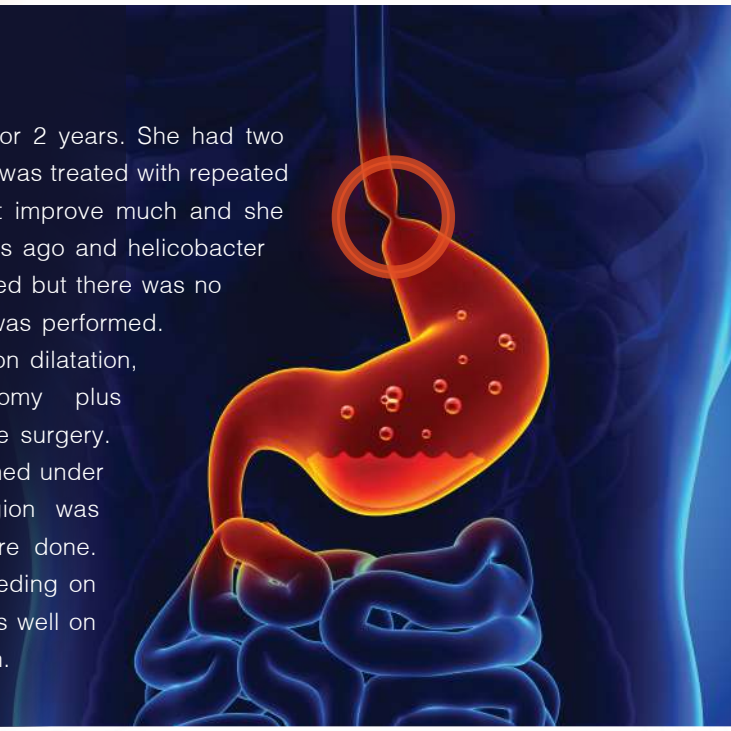
I would take this opportunity to thank all visiting doctors and staff members for your support during this difficult period. May God grant us wisdom and strength to overcome the many challenges we face, in our continuous quest for providing better medical services to those in need.

Dr. Kwong Wing Hang
Staff Consultant General Surgeon
St. Paul's Hospital

Recent update on management of Achalasia

Case presentation:

A 45-year-old lady complained of food regurgitation and belching for 2 years. She had two oesophagogastroduodenoscopy done and findings were normal. She was treated with repeated courses of proton pump inhibitors. However, her symptoms did not improve much and she noticed some weight loss recently. Her last OGD was done 2 months ago and helicobacter pylori status was negative. Bravo pH-monitoring system was performed but there was no evidence of reflux. Finally, High-definition Oesophageal Manometry was performed. Type II Achalasia was diagnosed. Endoscopic Botox injection, balloon dilatation, peroral endoscopic myotomy and laparoscopic cardiomyotomy plus fundoplication were offered as alternatives. Subsequently, she chose surgery. Elective laparoscopic cardiomyotomy plus fundoplication was performed under general anaesthesia. Laparoscope was inserted and hiatal region was dissected. Cardiomyotomy and partial anterior fundal plication were done. Post-operatively, she was put on tube feeding. She resumed oral feeding on post-operatively day 2, and was discharged home on day 4. She was well on normal diet without reflux during last follow up 6 months after operation.



Introduction:

Achalasia is a primary oesophageal motility disorder characterized by the abscense of oesophageal peristalsis and incomplete relaxation of the lower oesophageal sphincter in response to swallowing. It is a functional obstruction at the gastro-oesophageal junction. Sir Thomas Willis first described it in 1672[1]. In 1929, Hurt and Rake noticed that the disease was caused by failure of lower oesophageal sphincter to relax. They named it as Achalasia, meaning failure to relax in Latin.

Epidermiology and Etiology:

Achalasia is an uncommon disease with uncertain aetiology . It's incidence is 1.6 cases per 100,000 individuals and prevalence of 10 cases per 100,000 individuals[2]. Men and women are equal affected. Achalasia is usually diagnosed in patients between the ages of 25 and 60 years. The median age of onset of symptom is 48 years in Hong Kong[3]. Although the exact aetiology of Achalasia is uncertain, it may be associated with autoimmue disease, genetic inheritance, viral infection and some enviromental factors[4].

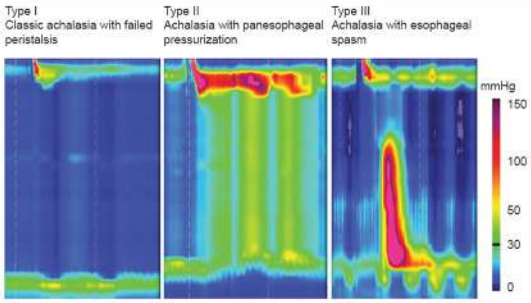
Clinical features and Investigation:

The most common presenting symptoms are dysphagia (78%), vomiting (50%), food regurgitation (31%) and weight loss (31%)[3]. The onset of symptom is insidious and some patient may have a long period of symptom before diagnosis. Differential diagnosss include other motility disorders, gastrooesophageal reflux and even oesophageal and gastric cancer. In Hong Kong, cancer of stomach and oesophagus are the 4th and 9th cancer mortality respectively[5]. Therefore, most patients presenting with difficulty in swallowing and vomiting will have OGD to rule out cancers of stomach and oesophagus. Most Achalasia patients have normal endoscopic findings especially in the early stages of disease. In the old era, Barium swallow was the first investigation for dysphagia. It will demonstrate a classical dilated and aperistalic proximal oesophagsus with distal obstruction as pigtail in X-ray for advanced disease. Nowadays, the gold standard investigation is high-resolution manometry which has highest sensitively and specificity. It is useful in confirmation of the diagnosis, classification of different typse of oesophageal motility disorder, identification of 3 clinical subtype of achalasia, as a guide of different treatment strategies and prediction of prognosis[6]. In our case, the patient had regurgitation and belching but no dysphagia. A trial of proton pump inhibitor is commonly practiced in suspected gastroeosophageal reflux disease after OGD. Sometimes, symptoms of early achalasia are very difficult to differentiate from gastroeosophageal reflux. Appropriate uses of newly introducing High Resolution Manometry and Bravo Calibration-free reflux testing system are essential in this situation.

The commonest symptoms in Hong Kong[3]

dysphagia	78%
vomiting	50%
food regurgitation	31%
weight loss	31%

High Resolution Manometry is the gold standard in diagnosing oesophageal motility disorder. It uses a high-resolution catheter to transmit intraliminal pressure data that is subsequently converted into dynamic oesophageal pressure topography plots. Compared to conventional manometry, it has 36 pressure sensors spaced 1cm apart instead of 3-5 sensors. The new technique has higher sensitivity, shorter procedure time, and is easier to perform and interpret. With this high resolution impedance technique, provocative manoeuvres, and post-prandial evaluation, we can confirm the diagnosis of different types of oesophageal mobility disorder and differentiate the subtype of Achalasia by Chicago classication[7]. With an accurate diagnosis, we can provide comprehensive counciling, prognosis and different management regime to patient.



The tracings of different subtype of Achalasia detected by high definition manometry

Bravo is newly introduced to market. It is a detachable pH monitoring system. The Bravo device is temporarily implanted in patient's oesophageal mucosa avoiding the inconvenience of wearing a nasopharyngeal electrode. In view of the absence of naso-oesophageal catheter and remote recorder, patient will be more comfortable and have a higher compliance. Besides, Bravo can measure longer duration of pH change above oesophageal gastric junction up to 96 hours. Compared to conventional 24 hours pH study, It increases the likihood of detecting reflux events with improved symptom association determination in gastro-oesophageal reflux disease[8].

Picture of Bravo detachable device

Bravo reflux recorder from Metronic

Management:

The goal of treatment is to relieve dysphagia. Firstly, lifestyle modification includes eating slowly, chewing very well, drinking plenty of water with meals, avoid eating near bedtime, sleeping with pillow and postural drainage. Secondly, endoscopic balloon dilatation is simple and repeatable. It can provide relief of symptoms, and two years symptom control is compatable to operation[9]. However, it carries a small risk of perforation of around 4% which requires immediate surgical repair. Thirdly, surgery is indicated if there is perforation or recurrent symptom after balloon dilatation. In a recent meta-analysis, Laparoscopic Heller's cardiomyotomy +/- fundopliaction is superior to balloon dilatation in long term symptom control[10]. Finally, Peroral Endoscopy Myotomy (POEM) was introduced in 2008 in Japan. It can provide similar symptom relief, lower postoperative morbidity and longer myotomy length[11]. It is particularly useful in Type 3 Achalasia. However, it has higher reflux symptom compared to surgery and result of long term symptom control is lacking.

Conclusion:

Achalasia is uncommon and it's early presentation may be misleading. It may be misdiagnosed as common gastrooesopheal reflux disease clinically. Since cancer of upper aero digestive tract is common in our population, OGD is the first step of investigation. However, oesophageal motility disorder should be considered if symptom does not improve. While contrast swallow is an option, High Resolution Manometry is the gold standard of investigation. It has the highest sensitivity and specificity in making diagnosis, classification of subtype, guiding management and predicting prognosis. Besides, Bravo is the powerful tool in confirmation of gastrooesophageal reflux disease. Endoscopic Balloon dilatation, surgery and Peroral Endoscopy Myotomy are options of treatment with compatible outcome. Choice of treatment depends on result of manometry, patient's preference and expert's advice.

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Dr. Chou Qi Hua, Sandas
Staff Consultant Radiologist
St. Paul's Hospital

THE NEW PET/CT

PET/CT is now the most promising imaging modality for cancer imaging. By combining both the functional and anatomical components, we not only can accurately predict the viability of the cancer, but also can change the treatment plan for our patients accordingly.

FDG is the main workhorse tracer for most of the situations. Glucose is used up by living cells especially cancer cells as energy. By labelling the glucose with F-18, we can precisely locate the cells with excessive energy need, such as cancer cells and infection. Carcinoma of lung and lymphoma are two well-known malignancies which PET/CT can be used as primary staging imaging tool. FDG is also found to be useful in staging or re-staging of many other malignancies such as Ca stomach, Ca colon, Ca ovary etc. Except cancer imaging, FDG can be also used in cardiac viability and dementia diagnosis.

Due to the advancement in radio-pharmacology, more and more tracers are now available, namely F-Dopa, C-Choline, C-Acetate, F-PSMA, Ga-PSMA, etc., to improve the sensitivity and specificity of our diagnosis.

F-PSMA and Ga-PSMA show promising diagnostic result in staging Ca prostate. Current PSMA PET/CT results suggest that restaging localizes the site of recurrence for many patients with PSA levels of 0.2–0.5 µg/L. That is the range of PSA levels where localized salvage therapies are most effective. Use of restaging PSMA PET/CT for patients with PSA recurrence in an early phase may reveal only up to 3–5positive sites, denoted oligometastatic cancer. Identification and treatment of oligometastatic cancer with targeted therapies such as surgery or EBRT may allow deferral of systemic therapies such as androgen deprivation therapy (ADT), thereby delaying potential morbidity associated with systemic salvage therapy.

Spatial resolution has been a long term drawback of PET. With the new technology as used in our newly installed PET/CT, there is a marked improvement in the volumetric resolution. The machine we installed is equipped with high sensitivity LSO crystal, which has excellent signal to noise ratio, not only leading to better lesion detectability, but also faster scan time. The CT component is also the state-of-art, which is a 128 slices CT, fast enough to do cardiac imaging. Lower radiation dose is another advantage of our new PET/CT.

PET/CT is an inevitable imaging tool nowadays. With our newly installed state-of-art machine and our professional team, diagnosis and staging of cancer can be much easier and more accurate than ever.

1. **4-mm crystals for high spatial resolution** 34% better volumetric spatial resolution improves small-lesion detectability

2. **Large 78 cm bore** enables easy access for large patients and facilitates positioning of accessories for RT planning

3. **Routine clinical 5-min PET** enabled by TrueV and ultraHD-PET for high patient throughput

4. **Outstanding CT image quality with minimum dose** Fast imaging with 0.28s rotation time and fully automatic dose management

5. **Improved accuracy with SMART patient handling system** Unique cantilevered design removes differential deflection for correct registration of PET and CT

6. **Comprehensive motion management solutions with OncoFreeze** Automatic acquisition and reconstruction of virtually motion-free images without extending scan time

7. **Optimized workflow and quantification accuracy with FlowMotion™** PET acquisition with continuous bed motion empowers personalization and reproducibility. Improved noise uniformity leads to accurate quantification and increased diagnostic confidence

Overview of Meningococcal Group B Vaccines

SPH Pharmacy Department

Introduction

Invasive meningococcal disease (IMD) is caused by gram-negative encapsulated bacteria called *Neisseria meningitidis* (*N. meningitidis*). The invasive disease from *N. meningitidis* is one of the leading causes of death for meningitis and sepsis at all ages. The highest incidence of cases occurs in babies, children and young adults, but no age of life is considered protected from infection and disease. Among 13 serogroups of *N. meningitidis* identified, 90% of cases are caused by serogroups A, B, C, W, X, or Y, which can cause endemic disease or seasonal outbreaks. Although the overall incidence is low compared to other vaccine-preventable diseases, among the serogroup Meningococcal-B (MenB) disease carries substantial case fatality rate at 3% to 10%. Thus, vaccination against MenB serogroup has become an important public health priority.

Epidemiology in Hong Kong

Invasive meningococcal infection is rare in Hong Kong with the average of five cases per year from 2009 to 2018 according to the statistic from the Center of Health Protection. However, a rising trend in the number of IMD was observed with 14 cases in 2019 (up to November). It is worth highlighting that 50% of the cases in 2018 were found to be serogroup B meningococcus infection.

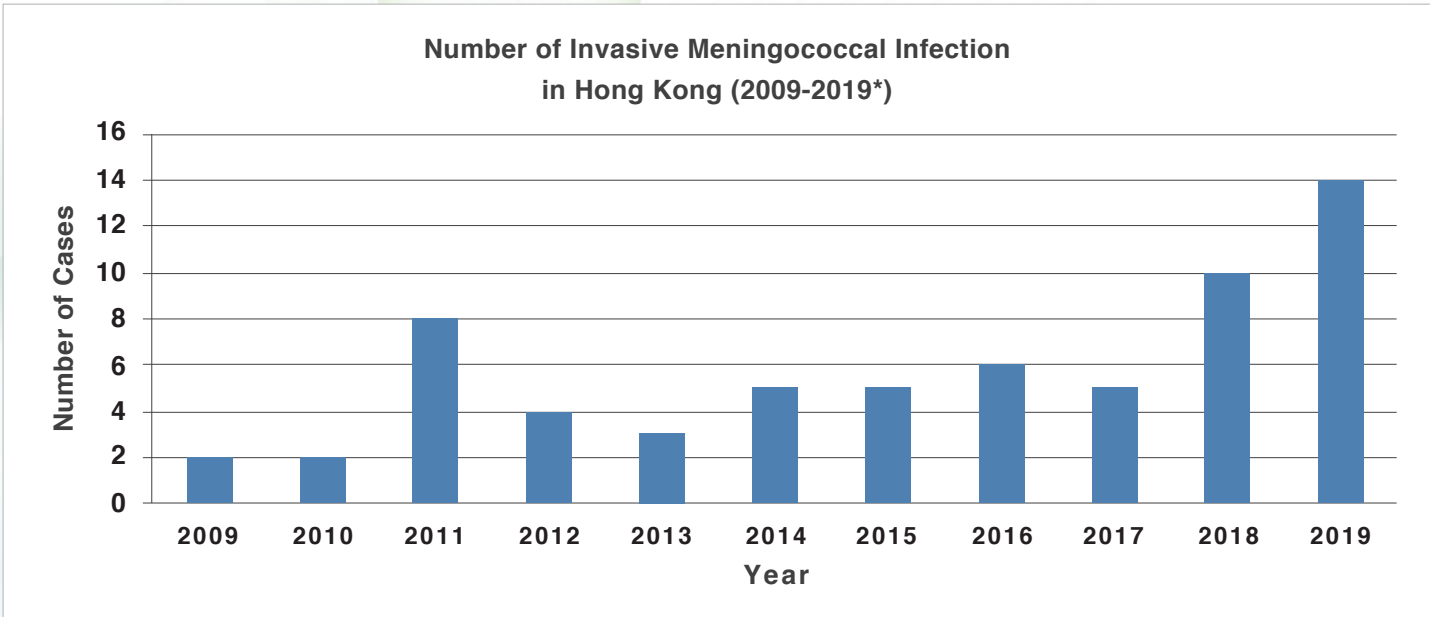

Figure 1. Number of Invasive Meningococcal Infection in Hong Kong from 2009 to 2019*
(*as of November 2019)

Epidemiology in the United States and United Kingdom

In the United States (US), there were ten university-based outbreaks of MenB disease occurred in seven states during 2013-2018, causing a total of 39 cases and 2 deaths. In the United Kingdom (UK), 54% of the IMD were found to be MenB and 80% of the cases were young adults of 15 to 24 years during 2017-2018. An increasing number of universities in both US and UK are taking a proactive approach to prevent MenB disease outbreak on campus. Meningococcal-B vaccines have become a vaccination requirement prior to admission for many universities.

Meningococcal-B Vaccines

Meningococcal-B disease can be devastating as it is capable of causing death in a few hours. Although it can strike in any age group, very young children and individuals of 16 to 23 years have the highest incidence. To prevent infection in this high risk group, immunization through MenB vaccination is recommended in those who possess meningococcal serogroup risk factors, including with complement deficiencies, asplenia, splenic dysfunction, and those who are receiving the monoclonal antibody eculizumab or ravulizumab-cwvz. Prophylaxis against meningococcal B can be performed by two vaccines, Trumenba® and Bexsero®. Trumenba® and Bexsero® were recently registered in Hong Kong in April 2018 and June 2019, respectively. The use of both vaccines is approved from 10 to 25 years old by the U.S. Food and Drug Administration (FDA). In addition, the use of Bexsero® is approved from 2 months of age and older by the European Medicines Agency (EMA).

The first meningococcal vaccine with coverage of strains A, C, W, and Y has been licensed to use since 1981. The use of anti-meningococcal C and tetravalent anti ACWY vaccines is well established through many years. However, the main obstacle for the development of MenB vaccine is that the polysaccharide in the B strains of meningococcus is similar to a polysaccharide found in humans. By using the innovative process, two MenB vaccines, MenB-fHbp (Trumenba®) and MenB-4C (Bexsero®), were developed. Trumenba® is a bivalent recombinant vaccine contains two variants of factor-H binding protein (fHbp) from *N. meningitidis* serogroup B, one from fHbp subfamily A and one from subfamily B. On the other hand, Bexsero® has a broader antigen coverage than Trumenba®, for which Bexsero® consists of four antigens including fHbp, Neisserial adhesin A (NadA), Neisserial Heparin Binding Antigen (NHBA) and Porin A (PorA) P1.4 in outer membrane vesicles of serogroup B *N. meningitidis*. These membrane surface antigens trigger the complement-mediated immunogenicity and provide protection against further meningococcal B infection. Theoretically, a broader antigen coverage coveys a better protection.

Due to the low incidence of IMD and the unpredictability of the emergence of an outbreak, the clinical endpoints of the study designs are almost impossible to conduct. Therefore, the efficacy of both vaccines is mainly demonstrated by induction of human serum bactericidal antibody (hSBA) responses by test strains. For Trumenba®, four meningococcal serogroup B strains of the fHbp subfamily were used to measure the serum bactericidal antibodies. The composite response rate against the four test strains are over 80% after three doses in studies targeting 10-18 years old and 18-25 years old individuals. For Bexsero®, serum bactericidal antibodies were measured with hSBA assays using four strains selected to measure response to fHbp, NadA, NHBA and PorA. In general, the composite response rate against the four test strains are over 80% as well in the age group of 2 to 5 months, 6 to 23 months, 2 years to 10 years, and 11 years to adults when individuals received full course of vaccination. The composite response rate for both vaccines are sufficient to achieve a satisfactory immune response. Nonetheless, since each product used a different assay to measure the correlate of protection, direct comparison of efficacy is not feasible.

The clinical trials revealed no serious and devastating safety endpoints for both vaccines. The most common adverse reactions observed were pain at the injection site, fever, myalgia, erythema, fatigue and headache. In infants, there is a higher chance of developing fever when Bexsero® is co-administered with other routine infant vaccines, such as pneumococcal vaccine and hepatitis B vaccine.

Comparison of Trumenba® and Bexsero®

Vaccine	Trumenba®	Bexsero®
Registered in Hong Kong	April 2018	June 2019
Target pathogen	Group B *Neisseria meningitidis*	
Manufacturer	Pfizer	GSK
Type of vaccine	Recombinant lipoprotein antigen	Recombinant protein antigen
Active ingredients (per 0.5mL dose)	fHbp subfamilies A 60mcg fHbp subfamilies B 60mcg	fHbp fusion protein 50mcg NadA protein 50mcg NHBA fusion protein 50mcg PorA P1.4 protein 25mcg
Route of administration	Intramuscular injection	
Indicated age group	FDA: 10 - 25 years old EMA: 10 - 25 years old	FDA: 10 - 25 years old EMA: 2 months and older
Dosing schedule	**Individuals aged ≥ 10 years of age** *2-dose schedule for healthy adolescents who are not at increased risk for serogroup B meningococcal disease* 1st dose: Day 0 2nd dose: 6 months after the 1st dose *3-dose schedule for adolescents who are at increased risk for meningococcal disease (including during outbreaks of serogroup B meningococcal disease)* 1st dose: Day 0 2nd dose: ≥ 1 month after the 1st dose 3rd dose: ≥ 4 months after the 2nd dose	**FDA recommendations for individuals aged 10 - 25 years of age (2-dose):** 1st dose: Day 0 2nd dose: ≥ 1 month after 1st dose **EMA recommendations for individuals (2 months or older)#:** **Infants (2 - 5 months) (3-dose)** 1st dose: Day 0 2nd dose: ≥ 1 month after the 1st dose 3rd dose: ≥ 1 month after the 2nd dose **Infants to children (3 - 23 months) (2-dose)** 1st dose: Day 0 2nd dose: ≥ 2 months after the 1st dose **Children aged 2 years to adults* (2-dose)** 1st dose: Day 0 2nd dose: ≥ 1 month after the 1st dose (*No data for adults above 50 years) #Booster dose may be needed at all ages. Interval between the primary series and booster dose, refer to specific age group
Contraindication	Hypersensitivity to any ingredients in the formulation or components of the container	Hypersensitivity to any ingredients in the formulation, components of the container or kanamycin
Precautions	Patient with complement deficiency or receiving eculizumab treatment	
	N/A	Hypersensitivity to rubber latex
Common adverse effects	Pain at the injection site, fever, fatigue, headache, and muscle pain	

Practical Tips for the Usage of MenB Vaccines

1. **Q: Are the two MenB vaccines interchangeable?**

   A: No. Trumenba® and Bexsero® have different antigen components, thus both vaccines cannot be used interchangeably. It is recommended to complete the series by using the same product.

2. **Q: How long is the protection after receiving the vaccines?**

   A: For Trumenba®, available data indicated that >50% of vaccinated subjects continued to demonstrate antibodies titers greater than lower limit against three of the four tested strains at 48 months after primary vaccination. For Bexsero®, data showed that >44% subjects had antibodies titers higher than lower limit against three of four tested strains at 7.5 years after primary vaccination. However, long term data on antibodies persistence are still pending.

3. **Q: Can the MenB vaccines be given with MenACWY vaccine and other vaccines at the same visit?**

   A: Yes. MenB and MenACWY vaccines can be administered at the same visit or at any interval before or after each other. There is no need for spacing between these two vaccines. Also, Advisory Committee on Immunization Practices (ACIP) from Centers for Disease Control and Prevention (CDC) recommends it may be administered concomitantly with other vaccines indicated for this age, but at a different anatomic site, if feasible.

4. **Q: Should low risk persons aged 16–23 be advised to receive the MenB vaccines?**

   A: ACIP encourages personalized clinical decision-making between clinician and patient for the use of MenB vaccines in healthy persons without risk factors. It is suggested that 2-dose schedule of Trumenba® was warranted for those low risk persons. Similarly, 2-dose schedule of Bexsero® is recommended in both healthy individuals and high risk patients according to ACIP.

5. **Q: Can pregnant or breastfeeding women receive MenB vaccines?**

   A: Few data are available on the effect of MenB vaccines on pregnancy/breastfeeding. ACIP recommends vaccination should be deferred in women known to be pregnant or lactating unless the woman is at increased risk of serogroup B meningococcal disease, and, after consultation with her healthcare provider, the benefits of vaccination are considered to outweigh the potential risks.

Pharmacist's Point of View

Although the incidence of meningococcal disease is relatively low in Hong Kong, the increasing trend of meningococcal-B cases is worth to note. The US and UK are popular countries for Hong Kong students to study aboard. A rising number of universities in both US and UK are taking a proactive approach to prevent MenB disease outbreak on campus. Vaccination is the most effective strategy to prevent IMD. Both Trumenba® and Bexsero® demonstrated a safe adverse effect profile. The superiority of one over another cannot be determined since there is no direct head-to-head comparison between the efficacy of Trumenba® and Bexsero®. ACIP does not neither state a product preference. However, Bexsero® is licensed for the age group of 2 months and older in EMA, which may offer an option to individuals under the age of 10. Trumenba® and Bexsero® have different antigen coverage thus both vaccines cannot be used interchangeably. Currently, Trumenba® is available in St. Paul's Hospital and Bexsero® is available on request.

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QuantiFERON TB Gold Plus test

Microbiology Laboratory, Pathology Department

According to Department of Health statistics, a total of 4293 tuberculosis (TB) cases were reported in Hong Kong in 2019. Identifying active TB cases is important for treatment and containment. Diagnosis of latent tuberculosis infection (LTBI) is also an important public health matter. The WHO recently (2018, 2019) made the alarming report that one quarter to one third of the world's population may be infected with Mycobacterium tuberculosis. It is estimated that people infected with LTBI have a 5–15% lifetime risk of developing active TB disease. Also, healthcare workers are at increased risk of acquiring LTBI and active TB disease.

Latent tuberculosis infection (LTBI) may be screened by the tuberculin skin test (TST) or a blood test. In 2001, the FDA approved the QuantiFERON TB (QFT) blood test for detection of LTBI and active TB. The QFT is an interferon gamma release assay (IGRA) that quantifies a person's immune reactivity to Mycobacterium tuberculosis. It measures a component of cell-mediated immune reactivity to tuberculosis based on the quantification of interferon-gamma released from sensitized lymphocytes. In 2019, a 4th generation of QFT test, QuantiFERON TB Gold Plus®, became available with improved sensitivity.

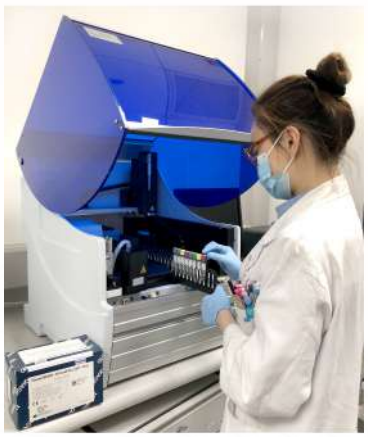
Advantages QFT TB Gold Plus® test over TST:

1. It is not affected by previous BCG vaccination.
2. It offers high sensitivity and specificity.
3. It is a simple blood test that involves only a single visit and the result is available within 24 hours.
4. The result is objective and, unlike TST test, does not rely on patient compliance and not subject to reader bias of skin induration.

The QuantiFERON TB Gold Plus® test result is reported as positive, negative or indeterminate. It does not distinguish between active and latent infection and does not predict risk of progression to active TB. A negative QuantiFERON TB Gold Plus® result in a person with obvious symptoms of active TB should by no means be considered definitive. Clinicians may use QuantiFERON TB Gold Plus® to assist in the diagnosis of active TB. Culture of M. tuberculosis remains the gold standard for confirming a diagnosis of active TB.

The Clinical Pathology Laboratory of St Paul's Hospital has offered in-house QuantiFERON-TB Gold Plus® test since March 2019. Blood collection service for this test is available 24 hours daily. Because the blood collection requires complex technical measures, in-house blood collection and laboratory service by an experienced technologist can ensure reliable results. From March to December 2019, a total of 103 tests were ordered, and the age range was 8 to 94 yrs. The positive rate was 13% and the indeterminate rate was 10%. An indeterminate result may be due to low mitogen level detected mostly in elderly patients with low immune response. Among the positive cases, there was 90% concordance with TB PCR and/or culture.

In summary, QuantiFERON-TB Gold plus® is a new-generation blood test which has been widely used for the detection of latent tuberculosis infection and is a useful supplementary tool for the diagnosis of active TB. The results should be interpreted in conjunction with various clinical parameters, including risk assessment, radiography and other medical and diagnostic evaluations.



Technical staff operating QuantiFERON - TB Gold Plus®

QFT-Plus blood collection tubes

- **Grey** Nil tube (Negative control)
- **Green** TB1 Tube
  (To detect the CD4+ T cell responses to TB antigens)
- **Yellow** TB2 tube
  (To detect the CD4+ CD8+ T cell responses to TB antigens)
- **Purple** Mitogen tube (Positive control)

St. Paul's Hospital (Pathology Department)
Antibiotics Resistance Patterns of commonly isolated bacterial pathogen at St. Paul's Hospital in 2019[a] (% nonsusceptible[b])

Organisms	No. of isolates	Ampicillin	Amoxycilin/ Clavulanate	Cloxacilin	Piperacillin/ Tazobactam	Cefuroxime	Ceftazidime	Ceftriaxone	Cefepime	Gentamicin	Ciprofloxacin	Levofloxacin	Ertapenem	Imipenem	Erythromycin	Azithromycin	Clindamycin	Co-trimoxazole	Nitrofurantoin	Linezoid	Vancomycin
Enterococcus spp.	283	8								30[C]	29									2.5	0.7
Escherichia coli	1118	68	40			29		21	21	24		45	0.9	0.3				39	3		
Haemophilus influenzae	200	61	32			45		15	43			6				15		52			
Klebsiella pneumoniae	374	100	21			24		12	12	8		22	0.8	0.5				25	80		
Proteus mirabilis	129	48	34			15		9	9	29		33	2	28				48	98		
Pseudomonas aeruginosa	278				23		24		25	12	30	39		33							
Staphylococcus aureus	820			22											30		27	1.3		0	0
Stenotrophomonas maltophilia	97											35						1			
Salmonella spp.	140	68						6			60							13			

a Interpreted according to CLSI 2019 (Clinical & Laboratory Standards Institute)

b Nonsusceptible include both intermediate and resistant

c High level aminoglycosides was used

indicated 10% or more increase in resistant rate compared to 2018 figures

indicated 10% or more reduction in resistant rate compared to 2018 figures

The antibiogram information is also accessible in https://impact.chp.gov.hk/antibiograms.php

聖保祿醫院 2019 長期服務獎頒發儀式 及 聖誕聯歡會

為表揚和感謝員工多年來的貢獻及努力，聖保祿醫院於12月19日假本院演講廳舉行2019年長期服務獎頒發儀式。今年共九位同事獲得三十年長期服務獎及三位同事獲得二十年長期服務獎，而獲得十年長期服務獎的同事有三十五位之多。當天院方致送紀念水晶及獎狀給長期服務獎者表達謝意。

長期服務獎頒發儀式率先由「聖保祿合唱團」為大家獻唱悠揚聖誕樂章，出席的修女及各部門同事約二百人聚首一堂體驗演講廳的音響。

今年感染控制部設計比賽的主題為「病人參與　保持手衛生」。各參與部門均發揮其獨有創意，由手術室獲得冠軍。

在儀式的尾聲抽出了今年幸運抽獎的幸運兒，場面高興熱鬧。

為迎接普天同慶的聖誕節，聖保祿醫院於12月20日假本院餐廳舉行聖誕聯歡會讓員工暫時放下繁忙的工作，一同享受一頓豐富的自助餐歡度聖誕。當天院方亦送出了幸運抽獎的獎品給予得獎者，眾同事均盡興而歸。

緊急應變級別
EMERGENCY RESPONSE LEVEL

主樓大堂特設分流站作人流控制及體溫監測
Main Lobby triage station for access control and TEMPERATURE MONITORING

Mailing Option & Personal Contact Details Update

Mailing Option Update

Should you wish to receive upcoming St. Paul's Hospital Doctors' Newsletters by post, please inform us by ticking the box below. If a reply is not received, an electronic copy of upcoming St. Paul's Hospital Doctors' Newsletters will be emailed to the email address recorded by the Hospital. Please refer to the below for personal contact update, if needed.

☐ **I would like to receive upcoming St. Paul's Hospital Doctors' Newsletters by post**

Personal Contact Details Update

To ensure you receive important updates from St. Paul's Hospital, please complete and return the following form to us (Email: vmo@stpaul.org.hk; Fax: 2837 5241) if you have updated or changed any of your previous information. Information collected will be used for Hospital communications only. Please note that it takes about ten working days to update your contact information in our system.

Personal Particulars

Name of Physician: (IN FULL NAME)

English: _____ Chinese: _____ Physician Code: _____

Correspondence (Please write down changed items only)

Address: _____

Phone: _____ Pager: _____ Mobile: _____

Fax: _____ Email: _____ Effective Date: _____

Others: _____

Signature: _____

Please return the completed form by

1) Fax: 2837 5241 2) Email: vmo@stpaul.org.hk

3) Post: 2 Eastern Hospital Road, Causeway Bay, Hong Kong (Attn: Hospital Management Department)

Thank you!

聖保祿醫院
St. Paul's Hospital

醫院網站
Hospital website