

## Message from the President

On behalf of the College, I hosted the International Liaison Committee of Presidents (ILCP) Meeting 2010 on 2 & 3 September in Hong Kong. This is an annual event hosted by one of the member colleges and societies in their respective nations. The member colleges and societies of ILCP include the Royal College of Pathologists (U.K.), Association of Clinical Pathologists (U.K.), the Royal College of Pathologists of Australasia, Faculty of Pathology of the Royal College of Physicians in Ireland, College of American Pathologists, and the American Society of Clinical Pathologists. The Canadian Association of Pathologists became a new member last year, but its President was unable to attend this meeting.

The purpose of the meeting is for Presidents of Colleges and Societies of Pathologists to meet face to face to discuss on various issues of our professional practice in developed countries, including problems encountered. It is hoped that work on joint statements, projects and high-level strategy can be formulated if necessary.

The venue for this year's meeting was in the Hong Kong Medical Museum. Guests were interested in the historical aspect of medical science in Hong Kong, and they were shown the exhibits including the SARS incident, the development of the early medical school and laboratory, as well as a herbal clinic.

During the meeting, I presented a brief report on the pursuit of quality in local pathology service, including current accreditation among Hospital Authority hospitals, as well as our forthcoming 5-year cycle of accrediting training centres by the College. Though our laboratory accreditation system is voluntary, it does create competition among different bodies. There is also active involvement and participation of pathologists in policy making as well as standard setting. Compared with the U.K. and Ireland, where accreditation is a legislative requirement, we have more flexibility and allow continual improvement through direct input or feedback to our accrediting body.

Cross-border pathology and Telepathology practice were previously discussed, and a joint statement is being worked out to provide guidelines for member colleges and societies which will cover sensitive issues on liability as well as indemnity.



Attendees of the ILCP 2010, in front of the Hong Kong Museum of Medical Sciences. From left to right: Dr. Debra GRAVES (Secretariat, CEO, Royal College of Pathologists of Australasia (RCPA)), Dr. Stanley ROBBOY (President-Elect, College of American Pathologists), Prof. Mark STOLER (President, American Society of Clinical Pathologists), Prof. Yee KHONG (Senior Vice President, RCPA), Dr. William FUGGLE (Chairman, Association of Clinical Pathologists, U.K.), Prof. Peter FURNESS (President, Royal College of Pathologists), Prof. J. Conor O'KEANE (Dean, Faculty of Pathology, Royal College of Physicians in Ireland), Prof. Paul MCKENZIE (President, RCPA), Prof. Simon NAYLER (President, College of Pathologists, South Africa), Dr. Michael SUEN (President, Hong Kong College of Pathologists (HKCPATH)), Dr. Stephen BAUER (President, College of American Pathologists), Prof. Annie CHEUNG (Vice President, HKCPATH), and Dr. Raymond YUNG (Vice President, HKCPATH).

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▲ **At the Welcome Dinner:**

*Front row (from left to right): Dr. Michael SUEN, Dr. Raymond YUNG, Dr. Debra GRAVES, Dr. PL HO (Councillor; HKCPATH);*

*Back row (from left to right): Dr. Michael CHAN (Registrar; HKCPATH), Dr. Victor TANG (Councillor; HKCPATH), Dr. John NICHOLLS (Regional Councillor; RCPA), Prof. Yee KHONG, Dr. WP MAK (Past President, HKCPATH), Dr. William FUGGLE, Prof. Mark STOLER.*

The agenda item on structured training in cytogenetics and molecular pathology was raised by me to seek advice from our overseas colleagues. This turned out to be a complex topic as there are further sub-divisions in accordance to clinical practice in different specialties such as medical genetics. While residents in the States may need to take certified courses on related areas, there is no specification on the duration and depth of training. Scientists play an important role in this respect as they are the forerunners in scientific development. In some places they run the laboratories.

A Welcome Dinner was organized for the guests and their spouses at the Golden Bauhinia Restaurant in the presence of councillors and past presidents of our College, local representative of overseas college, and representatives of the International Academy of Pathology (IAP).

To honour our guests, I invited them to a quick visit to the Academy the next morning. They were very impressed with the Academy Building, and the facilities inside. We also provided a half-day social programme for them – harbour cruise followed by seafood dinner in Lamma Island on 3 September, after a morning meeting and a dim sum lunch. Though our chief examiners and specialty board chairmen were tied up with their work, I was able to liaise with some of our councillors to join the seafood dinner. It is a great opportunity to meet and establish contact with the member colleges and societies. At the end of the visit, all participants are impressed with our current standard of practice in Hong Kong, and the hospitality we offered during their short stay.

Dr. Michael SUEN,  
the President  
30 September 2010



▲ **Also at the Welcome dinner:**

*Front row (from left to right): Prof. Paul McKENZIE, Mrs. Sarah FURNESS, Prof. Peter FURNESS, Dr. KC LEE (Past President, HKCPATH), Prof. HK NG (Vice President (Asia), International Academy of Pathology (IAP));*  
*Back row (from left to right): Dr. Michael CHAN, Dr. Alexander CHAN (Deputy Registrar, HKCPATH), Dr. WM POON (Councillor, HKCPATH), Dr. Gary TSE (President, Hong Kong IAP), Dr. Janice LO (Councillor, HKCPATH).*



# Featured Article -

## Tracking old friends in different parts of the world

**Quite a few of our former colleagues have emigrated abroad, taking up important positions as pathologist and merging into new culture. We are lucky to have some of them (Drs. Cora YP CHAU, George TC CHAN, CHAN Suk Hung, Thomas HK NG and Prof. Alfred KY LAM) contributing to the present featured article, telling us about their work and other facets of life in a whole new world. Meanwhile, a number of our friends have returned to their home country after spending some time in Hong Kong. Dr. Paul DICKENS, who returned to England a while ago, shared with us his experience with special reference to the challenge facing autopsy practice in the U.K. after the establishment of the new Human Tissue Authority.**

Time flies. I still remembered how anxious and stressed I and my cats felt when we were in the departure hall in the Hong Kong International Airport 7 years ago, waiting for the flight to Singapore. That was in the aftermath of SARS, when there were less than 20 passengers traveling with us on the same plane.

Needless to say, it is extremely painful to set up a new home in a foreign country. I began to realize how efficient the service is in Hong Kong.

Surprisingly, it took me less time and effort than I expected to settle down in Singapore. The living and working environment here is similar to that in Hong Kong. My colleagues are friendly and supportive, and helping hands are always available. Most of the pathologists are fellows of either RCPA or RCPATH. The reporting format is quite similar to what I was using in Hong Kong. However, patients here have to bear the costs of medical expenses. I have to think carefully before I order any immunostaining, so that I am not wasting the money of the poor patients. Besides, it took me a while to be used to communicating with my colleagues in English, which is not my mother tongue. I also had to learn to work with people with different religions (in particular, Muslim) and cultural backgrounds.



▲ My husband, me, our twins, Charlotte and Jerry, and our dog, char siu fan (now you know how much we miss "char siu fan" in HK). My cat refused to be in the same photo with my dog.

Working in Singapore is a form of career advancement for me. There is a shortage of doctors, especially pathologists, in Singapore. In order to retain as many doctors as possible in the hospitals, the remuneration of doctors has improved dramatically and the promotion interval from associate consultant to consultant, and from consultant to senior consultant, is shortened. As my interest is in gastrointestinal pathology, I am responsible for handling the attention cases and difficult cases from the gastrointestinal tract and, sometimes, liver. This enables me to work closely with the gastroenterologists, hepatologists, and colorectal and general surgeons. The experience is invaluable.

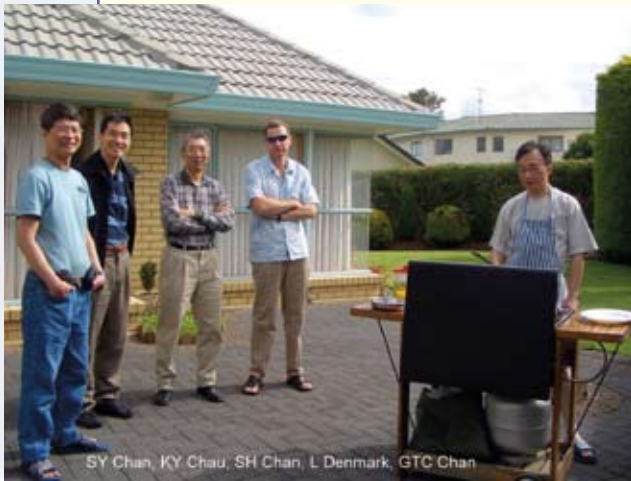
Having said all the good things about Singapore, is there anything in Hong Kong I still miss? Definitely! I always miss the winter season, shopping, food (in particular, the milk tea and French toast in Hong Kong cafés), good service, convenient transport and most importantly, all my ex-colleagues and friends in Hong Kong.

Dr. Cora YP CHAU  
Singapore

The Editor invited me to write a short passage on the practice of pathology and the lifestyle in Auckland. These are big topics and I cannot even scratch the surface in this short article. There is nothing better than coming down here and seeing for yourself – combining a college or scientific meeting with a holiday is a good idea, and we – myself and the other pathology colleagues from Hong Kong – will be delighted to meet you here.

But coming back to my task. The practice of haematology here follows the UK model with both clinical and laboratory duties. My haematology practice and facilities available are not different from other centres, Hong Kong included.

In New Zealand laboratory tests are provided through the community and hospital pathology services, and are free to those eligible for government-funded health service. The funding for diagnostic tests is devolved to the local District Health Boards (DHBs) which greater Auckland has three, and DHBs have to make ends meet. In Auckland one of the approaches the three DHBs put in place to reduce duplication of tests, and hence reduce waste, is to improve the IT connectivity. The test results of a patient are available to all appropriate healthcare givers regardless of where they are in private or hospital practice. Patients' clinical information is also available electronically. This is a positive move which also improves reporting and interpretation of results.



A few years back the Auckland DHBs took a contentious step to control the laboratory testing cost. They awarded the exclusive contract for the community laboratory service to a start-up laboratory with no staff or facilities but with a lower bid in preference to the well-established laboratory. This attracted international attention for going down a path not attempted

anywhere before. It also led to a protracted legal wrangle which was finally settled in favour of the new laboratory, which started the testing service a year ago. There was major havoc but the problems are now settling, and we are now in the process of an official review to learn from this event, which I am sure will be of interest to the international pathology circle also.

Auckland is a beautiful and friendly city, much less hectic than Hong Kong but still busy and interesting. In 2010 Auckland ranks 4th - equal with Vancouver in the Mercer's Quality of Living Survey and 10th in the Economists' Most Liveable City Survey. These speak of something, and I cannot do justice to Auckland in trying to describe it and its lifestyle in one or two sentences. I hence go back to my invitation that it is better to come down here and see for yourself.

Dr. George TC CHAN  
New Zealand



▲ Can you recognize all the faces?



New Zealand is about 10% larger in area than UK but the population is only 1/15 of UK. Most places are small provincial centres with less than 100,000 populations. Many laboratories do not have pathologist in every major mono-specialty. Mono-specialty service is provided through either visiting specialist or referral to a larger laboratory. General Pathologists are still required but they are getting less in numbers.

Community primary health services are usually provided by private GPs. Secondary hospital services are provided mainly by public institutions. There are good private hospitals available. It is common for specialists to hold part-time appointments in public hospitals and also run their own private practices. There is a reasonably good primary/secondary, public/private interaction, especially in small centres. It is common for specialists whether working full-time or part-time in public hospitals to answer calls from GPs asking for advice.

With the advance of computer and network technology, a good example of integration of primary and secondary care is the establishment of regional laboratory result repository. It helps doctors to share laboratory results of patients when they are transferred from primary to secondary care and then back to primary care on discharge from public hospitals.

The normal working hours in NZ are 8 hours a day, 5 days a week. The health system in NZ has gone through some major de-regulation and reforms in the last few years. One thing was the contract out of public hospital laboratory services to private providers. Our pathology company was successful in securing the service contracts in four District Health Boards (DHBs). Being the single microbiologist covering these four DHBs, I easily work 50 to 60 hours a week. I also have to travel widely by domestic flight every week.

NZ is a paradise for the outdoor enthusiasts. The HKU Alumni Association in NZ (HKUAANZ) is a small but active group. One of the regular activities is a half-day walk in regional parks every month, which I enjoy much in participating. Attached is a photo of myself at the AGM of HKUAANZ held recently in Auckland.

Dr. CHAN Suk Hung  
New Zealand



2010 marks the 20th anniversary of my migration to Australia and practice of Pathology down under. Indeed, nearly two thirds of my life as an anatomical pathologist has been spent in the Great Southern Land.



▲ *Dr. Thomas NG in his office.*

Australia is a vast country, and the practice of pathology varies significantly in different centres. For example, when I first started work in Wagga Wagga, a regional centre in inland New South Wales, I was most of the time the only anatomical pathologist there. This was in sharp contrast to the busy Department in Queen Mary Hospital

where I came from. The work was diverse, interesting and at times demanding. But I soon missed the challenge of Neuropathology which was only available in the larger laboratories in the cities. That was why the family moved to Sydney after three years and why I chose to work in Tissue Pathology, Institute of Clinical Pathology & Medical Research (ICPMR) at Westmead Hospital.

The ICPMR is a large pathology hub and referral centre. The Tissue Pathology Department is fairly large by Australian standards – with over 13 pathologists and 10 registrars – and provides diagnostic services in nearly all the disciplines. It is an active department in terms

of diagnostic services, registrar training, research and teaching. The practice and the organization of pathology service are no different from those I experienced in Hong Kong.

The Westmead Hospital and the adjacent private hospital have an energetic team of neurosurgeons, neurologists and neuro-oncologists, and I am very privileged to be able to work with them, and to train some of their registrars. Over the years, I have enjoyed the diagnostic challenges, training of registrars and teaching medical students. One of the recent highlights was delivering the Master Class Lecture on Neuropathology to the Pathology trainees at the 2010 IAP annual scientific meeting in Sydney Convention Centre. I am also a NATA assessor for medical laboratories, as my contribution to the profession.

I always believe there is more to life than Pathology. I enjoy travel, reading and community service. We are passionately involved in a Chinese Christian church. Moved by the needs of cancer patients and the lack of resources for Chinese migrants, my wife and I are also actively involved in a Christian charity organization ([www.cancarecentre.org.au](http://www.cancarecentre.org.au)) to help cancer patients and their carers. Our family enjoys our lives and lifestyles in Australia. I thank God for His provisions and blessings in my vocation, my family and my life.

Dr. Thomas HK NG  
Australia

I am working at Griffith University and Gold Coast Hospital of Gold Coast, Queensland in Australia. At the University, I spend my time on management, teaching medical students, heading the research team and supervision of the research higher degree students. My research students and staff are from different parts of the world and thus we have a multicultural working team.

My clinical duties include 2 days per week diagnostic work at Gold Coast Hospital and reporting consults for endocrine and head/neck pathology. In Queensland, the hospital pathology service often covers a wide geographical region, and in addition we give reports on cases from patients in other cities. The pathology laboratory here has fewer administrative, technical or scientific staff than Hong Kong and much of the work done by them is done by pathologists or trainee pathologists. Luckily, some pathologists can work either 4 or 5 days a week and thus have more leisure time.

I have been working at the Royal College of Pathologists of Australasia (RCPA) in various committees and have prepared a range of specialist examinations. In the last couple of years, I have been giving presentations about my research work and RCPA examination matters in some meetings. It is good to meet some pathology colleagues

from Hong Kong at the conferences or when conducting the RCPA examination.

Travelling between cities for work and meetings is the norm in my work. I spend a lot of time driving between university campuses, cities or flying interstate every month. Much work other than diagnostic work is done when I am in transit or on the plane. Thus, when I take my holiday breaks, I prefer to stay at home.

Although we are living in a suburb, it only takes about 10 minutes drive to the coast and we can afford to have meals at good restaurants near the beachside. Thanks to the proximity to the natural environment, we spend more leisure time bush walking and getting close to nature. Furthermore, as we live in a house with a small garden, we enjoy growing flowers and plants. Some of our garden plants attract visitors like birds and butterflies and our cats also enjoy playing in our garden, which is fun to watch.

Prof. Alfred KY LAM  
Australia



▼ *Prof. Alfred LAM (seated) with his multinational colleagues.*

## Experiences of a U.K. Histopathologist with the Human Tissue Authority

As many of you I'm sure are aware, mortuaries in England, Wales and Northern Ireland have been regulated by the Human Tissue Authority (HTA), a quasi-autonomous non-governmental organisation or "quango", since its statutory functions began in 2006. For more information have a look at the Authority's website [www.hta.gov.uk](http://www.hta.gov.uk).

The HTA is charged with implementing the Human Tissue Act 2004 (HTAct). All mortuaries now have to be licensed by the HTA before they can discharge their various functions and there is a basic annual license fee of £8,000, which includes a site inspection by the HTA, which takes place about once every 3 years. The person responsible to the HTA in the mortuary is known as the Designated Individual (DI), usually a consultant histopathologist, and that happens to be me at a district general hospital in greater Manchester. We do about 550 autopsies p.a., nearly all routine coroner's cases on non-suspicious deaths. Our last hospital consent autopsy was in late 2008. This is a similar pattern to most hospitals in this category. After obtaining our licence over 3 years ago, which followed the submitting to the HTA of a lengthy compliance report, we carried out our autopsies in more or less the same way as we had previously. The main difference was in cases where tissues were taken for histology (we stopped retaining whole organs long ago). We could not just routinely retain the tissue blocks and slides indefinitely, as we had in the past, but had to receive and comply with instructions from the relatives of the deceased (via the coroner) as to the disposal of the tissues in accordance with the HTAct. The choices were retention of tissues for teaching/research purposes, sensitive disposal of the blocks/slides, or return of same to the relatives. Most relatives seem to have opted for the retention option. Life went on quietly for over 2 years but in late 2009 we received notice from the HTA of a site inspection and this duly took place in April this year. However, by this time I was more than a little apprehensive about the possible outcome of this inspection. The reason for this was that in mid-2009 a mortuary elsewhere had been involved in an incident where a whole brain had been sent from the mortuary to another hospital for neuropathological examination. The relatives had requested that the body remain in the mortuary until the brain was returned, when it was to be reunited with the body prior to burial. When the brain was returned, however, the body was released without the brain. The mortuary staff later realised the mistake and the DI informed the HTA. This generated a site visit where other breaches of the HTA's Codes and Standards were found. The DI was removed from his post and the mortuary closed. The HTA went one step further though and called in the police. The mortuary and the offices of several pathologists were sealed off as potential 'scenes of crime'. The matter was then referred to the Crown Prosecution Service (CPS), but it wasn't until 5 months later that it was decided there should be no criminal prosecution. This incident is documented on the RCPATH website at [www.rcpath.org/index.asp?PageID=1644](http://www.rcpath.org/index.asp?PageID=1644), although you will have to log in.

Fortunately our inspection was much more benign and we ended up having to modify a few Standard Operating Procedures and also implement a training programme for consent taking for hospital autopsies. We still have our licence!

How has the HTA affected our autopsy practice? For one thing, we take histology on fewer cases than we used to. We reckon that the fewer blocks and slides we have, the less room there is for error in their disposal. We have stopped sending any brains to the local neuropathology centre and now send the whole body for complete autopsy by the neuropathologist instead. I'm sure you can work out the reason for that change in policy! We audit our autopsy tissue blocks and slides every 3 months to make sure we have complied with the wishes of the relatives and also to make sure we have received their instructions, via the coroner, for disposal.

In conclusion, I don't think there is any doubt that the HTA has improved overall standards in mortuaries. Unfortunately the rather heavy-handed way in which they dealt with the incident described above, particularly the involvement of the police, hasn't exactly improved relations between histopathologists and the HTA. After all, DI is a voluntary post and it's hard to see how it has been made more attractive after what has happened. The other problem is that even before this incident coroner's work was already becoming less and less appealing, and this hasn't helped. Many histopathologists have stopped doing coroner's autopsies and some recently-appointed young consultants aren't even starting the work. Two of my three colleagues stopped over a year ago. It is time-consuming, particularly when inquests are involved, not part of the NHS consultant contract, and therefore not an obligatory duty. The remuneration is meagre and many pathologists only continue to do the work because they feel that it has to be done, and if they did not do it, they feel an even greater load would fall on their colleagues.

I'm sorry to end on a rather negative note, but I've had to call it as I see it. Hopefully things will improve in the future. There are certainly changes afoot though, because those of you who follow U.K. news or politics may have heard that our new coalition government is planning to abolish more than 50 quangos, including the HTA, during the course of this parliament as part of their deficit reduction plans.

Dr. Paul DICKENS  
United Kingdom



# TOPICAL UPDATE

**Editorial note:** The article in this issue of Topical Update is contributed by the specialty of Forensic Pathology. Investigation of sudden death with “negative autopsy” is always a challenge to forensic pathologists. Dr. WM POON brings up for discussion the potential and practical implications of molecular autopsy of unexplained sudden death. We welcome any feedback or suggestions. Please direct them to Dr. Bobby Shum (e-mail: bsfshum@graduate.hku.hk) of Education Committee, the Hong Kong College of Pathologists. Opinions expressed are those of the author or named individuals, and are not necessarily those of the Hong Kong College of Pathologists.

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## Molecular Autopsy of Unexplained Sudden Death



**POON, WM**  
Senior Medical & Health Officer,  
Forensic Pathology Service,  
Department of Health

### Introduction

Investigation of sudden death is the commonest challenge encountered by Forensic Pathologists. Most cases of sudden death are due to cardiovascular abnormalities evident at macroscopic and/or microscopic examination, such as coronary heart disease, myocarditis, cardiomyopathies, aortic dissection, etc. Unfortunately, a significant number of sudden deaths, estimated to be 1-5%<sup>(1)</sup>, remain unexplained despite a thorough autopsy including toxicology, histology and other laboratory tests. This article attempts to look into some recent advances in the understanding of these “negative autopsies”. Issues related to “negative autopsies” in infancy, which in itself merits another separate article, will not be covered in this article.

*A significant number of sudden deaths remain unexplained despite a thorough autopsy, most are believed to be caused by cardiac arrhythmias in “morphologically normal hearts”.*

Most of these cases of “negative autopsies” are believed to be caused by cardiac arrhythmias in “morphologically normal hearts”<sup>(2)</sup>. Many of these “morphologically normal hearts”, however, are genetically abnormal with gene defects in ion channels (i.e.

channelopathies) in the myocytes leading to rhythm disturbances, ECG abnormalities and increased risk of sudden death. There is a growing list of inherited and congenital arrhythmia disorders caused by mutations in genes encoding defective ionic channel proteins governing the cell membrane transit of sodium, potassium and calcium ions including long QT syndrome (LQTS), short QT syndrome (SQTS), Brugada syndrome and catecholaminergic polymorphic ventricular tachycardia (CPVT).

*Cardiac arrhythmias in “morphologically normal hearts”, with increased risk of sudden death, can occur in congenital arrhythmia disorders caused by mutations in genes encoding defective ionic channel proteins governing the cell membrane transit of sodium, potassium and calcium ions.*

### Long QT syndrome (LQTS)

Long QT syndrome (LQTS) is characterized by delayed repolarization of myocardium, prolonged QT interval in ECG, and recurrent syncope from a specific form of polymorphic ventricular arrhythmia called ‘Torsades des Pointes’. It is a genetically heterogeneous disease affecting 1



in 5000 persons and is an important cause of unexplained sudden cardiac death in young people. It can be inherited as an autosomal dominant or recessive trait although it can also be caused by de novo mutations.

More than 500 mutations distributed in 10 genes have been described in this condition. Approximately 75% of LQTS is caused by mutations in 5 cardiac channels encoding genes: *KCNQ1* (*LQT1*), *KCNH2* (*LQT2*), *SCN5A* (*LQT3*), *KCNE1* (*LQT5*) and *KCNE2* (*LQT6*), encoding for critical ion-channel subunits that are responsible for the orchestration of the cardiac potential<sup>(3)</sup>. *KCNQ1* and *KCNE1* interact to form the cardiac IKs (inward slow potassium) current; while *KCNE2* integrates with *KCNH2* to form IKr (inward rapid potassium) current and *SCN5A* encodes the sodium channel. Loss in function of delayed rectifier potassium channels which allows the efflux of K<sup>+</sup> from the cell, or gain in function of the sodium or calcium channels resulting in excessive ions entering the cell, results in delayed repolarization and causes electrical heterogeneity leading to early after depolarization. Early after depolarization can facilitate the occurrence of 'Torsades des Pointes', which can progress to ventricular fibrillation and cardiac arrest.

Molecular genetic studies have yielded important genotype-phenotype correlations. In patients with *LQT3* mutations, cardiac events occur predominantly during sleep or rest, whereas auditory triggers and events occurring during the period after childbirth tend to be associated with *LQT2* mutation. *LQT1* mutation, on the other hand, is shown to be heavily associated with swimming and exertion-induced cardiac events<sup>(4)</sup>. The role of LQTS in apparent drowning cases was explored in a study of molecular screening for long QT mutations in 165 consecutive bodies recovered from water (i.e. putative drowning cases); a mutation in *KCNH2* was found in a death originally classified as suicidal drowning<sup>(5)</sup>. In another study, 2 out of 10 cases of juvenile sudden and unexplained death were silent carriers of a mutation in *KCNQ1* gene<sup>(6)</sup>.

## Brugada syndrome

Brugada syndrome was first described in 1992<sup>(7)</sup>. The syndrome is identified by a distinct electrocardiographic pattern of right bundle branch block and persistent ST segment elevation in precordial leads (V1 through V3), a high incidence of ventricular fibrillation and sudden cardiac death. It is claimed to be responsible for up to 12% of all sudden deaths and approximately 20% of deaths with structurally normal hearts. Population studies searching for the distinct electrocardiographic pattern of Brugada syndrome in healthy adults showed a prevalence of 0.05% to 0.4%<sup>(3)</sup>. Recent evidence suggested that sudden unexplained

nocturnal death syndrome (SUNDS), a disorder found in Southeast Asia, in fact represents Brugada syndrome<sup>(8)</sup>.

The syndrome exhibits an autosomal dominant inheritance with variable and probably age-dependent expression. Currently over 100 mutations in the *SCN5A* gene, primarily missense mutations, have been linked to Brugada syndrome<sup>(9)</sup>; all of these mutations create a decreased sodium current either by influencing the trafficking or gating function of the sodium channel. In addition, mutations of genes that modulate sodium channel function such as the glycerol-3-phosphate dehydrogenase I-like (*GPD1-L*) gene are also associated with Brugada syndrome.

Abnormalities of the sodium current are not the only genetic defects in Brugada syndrome. Mutations in the gene encoding the L-type calcium channel (*CACNA1C*) or its  $\beta 2b$  subunit (*CACNB2b*) were found in Brugada patients with unusually short QT intervals, indicating that reduced calcium current can also contribute to the development of Brugada syndrome.

Brugada syndrome is a disease that manifests in adulthood with incomplete penetrance, and a high proportion of carriers remain asymptomatic. The value of genetic analysis for reproductive screening and reproductive counselling is less obvious than other conditions associated with sudden death in childhood and adolescence. Genetic analysis is useful, however, in non-penetrant mutation carriers and in family members of genotyped probands to detect early manifestation of the disease.

## Catecholaminergic polymorphic ventricular tachycardia (CPVT)

CPVT is an inherited arrhythmia syndrome characterized by polymorphic ventricular tachycardia triggered by vigorous physical exertion or acute emotion usually in childhood and adolescence with normal resting ECG and the absence of structural heart disease. The most characteristic arrhythmia of CPVT is bidirectional ventricular tachycardia presenting with an alternating QRS axis. Clinically it may present as syncope or sudden death. About 30% of cases have a family history of sudden cardiac death<sup>(3)</sup>.

Two genetic variants of CPVT have been identified, one is caused by mutations in the *RyR2* gene transmitted in autosomal dominant form, while the other is caused by autosomal recessive mutations in the cardiac-specific isoform of the calsequestrin gene (*CASQ2*). Mutations in the *RyR2* gene, which encodes the calcium release channel

in the sarcoplasmic reticulum that is essential for regulation of excitation-contraction coupling and intracellular calcium level, can be identified in approximately 70% of patients. More than 60 *RyR2* mutations have been identified so far. Mutations in the *RyR2* gene have also been found in victims of sudden infant death syndrome (SIDS), suggesting that it may also cause lethal arrhythmias in infants.

Autosomal recessive transmitted mutations in the *CASQ2* gene, which codes for calsequestrin, a calcium binding protein in the terminal cisternae of sarcoplasmic reticulum that is bound to the ryanodine receptor and participates in the control of excitation-contraction coupling, have been found in only 7% of CPVT cases. Other CPVT genes are likely to exist as many cases showed no mutation in either *RyR2* or *CASQ2* genes.

Genetic analysis is very helpful in the diagnosis of the disease as affected individuals show an unremarkable ECG and no structural heart abnormalities, and CPVT is a malignant disease if left untreated. Genetic evaluation for family members of CPVT cases is highly indicated.

### Short QT syndrome

The short QT syndrome is a recently recognized entity characterized by the ECG findings of persistently short QT interval (QTc < 300ms) with tall, symmetric and peaked T waves. Its clinical picture consists of sudden death, syncope, palpitations and malignant arrhythmia. Most cases have a positive family history of sudden death. The syndrome has been linked to gain-of-function mutations in some of the genes implicated in LQTS including *KCNH2*, *KCNQ1* and *KCNJ2*, causing an increase in intensities of rectifier potassium currents in the repolarization phase of the cardiac cycle. Recently, a new clinical entity combining Brugada and short QT phenotypes caused by loss-of-function mutations in the  $\alpha 1$ - and  $\beta$ -subunits of the L-type cardiac calcium channels has been described.

*Mutation in cardiac channel genes had been identified in congenital arrhythmia disorders such as Long QT syndrome (LQTS), Short QT syndrome (SQTS), Brugada syndrome and Catecholaminergic polymorphic ventricular tachycardia (CPVT), each of which has its own distinct clinical and electrocardiographic features.*

### Practical Implications

The identification of mutations capable of causing sudden cardiac death with "structurally normal heart", and the availability of molecular testing for these conditions open up new avenues for the correct diagnosis and classification of sudden death cases that would otherwise be labelled as "unknown" or "undetermined". A recent series of molecular autopsy on sudden unexplained death identified mutations in LQTS and CPVT associated genes in over one third of cases <sup>(10)</sup>. Enabled by molecular testing, the pathologist is able to assist the responsible legal authority to arrive at the correct conclusions regarding the cause and manner of death, in cases with natural as well as unnatural causes of death e.g. drowning precipitated by an arrhythmia caused by an inherited channelopathy. On top of his duty to the legal authority, the pathologist also has an obligation to explain the autopsy results and cause of death to family members, who are confused and unable to make sense of the sudden demise of a loved one. With the advent of preventive measures such as implantable defibrillators, genetic screening of surviving family members to identify at risk individuals and to institute preventive measures need to be considered. Consultation with and referral to appropriate clinical specialists should be arranged.

A host of questions need to be answered before molecular testing can be applied to the investigation of unexplained sudden death and the genetic counselling of surviving family members. The rapid advance of molecular genetics would inevitably lead to an ever-expanding list of candidate genes and mutations for sudden cardiac death. The pathologist, without the benefit of antemortem clinical information or ECG, would find it difficult to decide which tests to order. The cost of an exhaustive screening for all potentially relevant mutations would be prohibitive, and funding for these tests, outside of a research setting, is hard to come by. Moreover, the interpretation of the results is not a simple task, and one of the major questions that remains for the pathologist is: What does it mean to find nonsynonymous polymorphisms instead of mutations when autopsy is negative for anatomic and histopathological findings <sup>(11)</sup>? How much weight to be attributed to these polymorphisms in deciding on the cause of death? In addition, non-coding regions of candidate genes are conceivably responsible for many of the arrhythmia syndromes mentioned above. Should we extend screening to non-coding regions of candidate genes for all the arrhythmia syndromes when coding region screening of these genes have not yielded any results? And what are the implications for family members? Given the incomplete

penetrance of some candidate genes and the uncertain significance of genetic polymorphisms, the identification of genetic abnormalities/variants does not necessarily equate to a predisposition to sudden cardiac death. What to tell family members? When is genetic screening on family members warranted? The questions go on and on.

*Molecular tests for congenital arrhythmia disorders can help the pathologist to arrive at the correct diagnosis and classification of sudden death cases. It also offers the possibility of genetic screening for surviving family members. However, issues regarding cost, selection of suitable candidate genes/mutations and interpretation of results need to be resolved before their widespread application.*

## Conclusion

Recent advances in DNA technology enable the identification of mutations in cardiac ion channel genes capable of causing sudden cardiac death with structurally normal hearts, thus allowing deaths previously labelled as "unknown"/"undetermined" to be correctly classified as to their cause and manner of death. They also open the door to genetic screening of surviving family members with a view to identifying at risk individuals and the institution of preventive measures. However, there are still problems concerning cost, the choice of appropriate candidate genes/mutations to screen for and the interpretation of test results that need to be addressed, before molecular tests can be applied widely in the investigation of sudden death and the genetic counselling of family members.

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# Out of the Whitecoat:

## A Humbling & Joyful Experience beyond the Laboratory

**Dr. LEUNG Chung Ying,**  
**Department of Pathology,**  
**United Christian Hospital.**

*Never before did I imagine that I would get involved in medical work in inland provinces of China until 1994. This started off with a small group of Christian medical professionals from various parts of the world. On the invitation of Sichuan Public Health Bureau, medical work (including dentistry) was first offered in Sichuan province in 1994. It was later expanded into Yunnan province in 1996 and Chongqing municipality in 2000. Through discussions with local health authorities and institutions, relevant medical models for each site were identified, such as a rural community health model in mountainous areas in Sichuan and an urban model in Kunming, Yunnan.*



▲ A rather different working environment with no sophisticated laboratory equipment.

*The objective of our medical programme is to place long-term medical workers and bring in short-term medical teams to work together with local health authorities and medical institutions to exchange medical experience, arrange training and equip local hospitals with needed equipment.*

*Being a pathologist heavily dependent on sophisticated and expensive equipment, I personally underwent a process of de-specialisation in order to serve effectively in rural areas. Sometimes application of simple medical knowledge, such as advising farmers to grow carrots in addition to potatoes, could save a community from night blindness.*

*Initially, I was not too accustomed to seeing obsolete equipment still in active use in some hospitals. On realising how the medical colleagues strived their best to provide a reasonable service despite limited resources, I must acknowledge that this was a humbling experience, and I really appreciate their effort.*

*I must admit that medical service could only partially address local needs. This led to the eventual opening up of service opportunities in sheep farming, a biogas programme, a clean water supply project, earthquake relief work etc. What an eye-opening experience for a pathologist constrained by years of laboratory work!*

*With repeated visits and service trips to the same locality, the trust, friendship and the joy that one may gain are beyond all measure.*

*For those who are interested and would like to live to make a difference, you may visit [www.msips.org](http://www.msips.org).*

▼ On a trip to discuss village doctor training at Wenchuan County Hospital, before the earthquake. Dr. C.Y. LEUNG at the far left, wearing the scarves presented to guests of honour according to local customs (the red one represents the Qiang minority (羌族) and the white one the Zang minority (藏族))



# FELLOWS' LAURELS

Honours and awards have been bestowed on distinguished individuals by the Government of the Hong Kong Special Administrative Region each year on 1 July since 1997. Over the years, a number of our College's Fellows have received the honours and awards. This year, **Dr. LIM Wei Ling, Wilina**, received the Silver Bauhinia Star. Dr. LIM has already received the Bronze Bauhinia Star in 2004. Congratulations to Dr. LIM on the outstanding achievement!



We would also like to take this opportunity to give recognition to other Fellows who have received various honours and awards from the Government throughout the years. In 2004, **Prof. YUEN Kwok Yung** was awarded the Silver Bauhinia Star, **Dr. SETO Wing Hong** and **Dr. TSANG Ngai Chong** the Bronze Bauhinia Star, and **Dr. YUNG Wai Hung, Raymond** the Medal of Honour. In 2008, **Prof. Joseph Sriyal Malik PEIRIS** received the Silver Bauhinia Star, while in 2009, **Dr. HO Pak Leung** and **Dr. LAM Wai Man, Joey** received the Chief Executive's Commendation for Community Service and the Chief Executive's Commendation for Government/ Public Service respectively.

Congratulations!

## Timetable of the 19<sup>th</sup> Annual General Meeting 6<sup>th</sup> November 2010 (Saturday)

### Venue:

**HKAM Jockey Club Building,  
99 Wong Chuk Hang Road, Aberdeen, Hong Kong**

<b>3:00 p.m. – 5:00 p.m.</b>	<b>The 6<sup>th</sup> Trainee Presentation Session</b>
<b>5:00 p.m. – 5:30 p.m.</b>	<b>Annual General Meeting</b>
<b>5:30 p.m. – 6:00 p.m.</b>	<b>Reception</b>
<b>6:00 p.m. – 7:00 p.m.</b>	<b>Admission of New Fellows and Members Presentation of Fellowship and Membership Certificates</b>
<b>7:00 p.m. – 8:00 p.m.</b>	<b>The 19<sup>th</sup> T. B. TEOH Foundation Lecture: “Road to a Toxicology Reference Laboratory in Hong Kong” by Dr. Albert Yan Wo CHAN Consultant Chemical Pathologist Department of Pathology Princess Margaret Hospital Hong Kong</b>
<b>8:00 p.m. – 10:00 p.m.</b>	<b>Chinese Banquet Dinner</b>



# CONGRATULATIONS!!

We are pleased to announce that the following candidates have passed the membership examination or fellowship assessment. Please join us to congratulate them on their achievement.

## Anatomical Pathology:

Dr. HUI Yin (Fellowship assessment)  
 Dr. LAU Wing Hung (Fellowship assessment)  
 Dr. LI Hiu Lui (Fellowship assessment)  
 Dr. LO Cheuk Lam Regina (Fellowship assessment)  
 Dr. LO Wing Ip Anthony (Fellowship assessment)  
 Dr. TSANG Koon Ho (Fellowship assessment)  
 Dr. TSUI Man Hing (Fellowship assessment)  
 Dr. NG Mang Ting (Membership examination)  
 Dr. WONG Wing Cheuk (Membership examination)

## Chemical Pathology:

Dr. CHEN Pak Lam Sammy (Membership examination)  
 Dr. KWOK Sung Shing Jeffrey (Membership examination)  
 Dr. SIU Wai Kwan (Membership examination)

## Clinical Microbiology and Infection:

Dr. LUK Shik (Fellowship assessment)  
 Dr. TO Kai Wang Kelvin (Fellowship assessment)  
 Dr. WU Ka Lun Alan (Fellowship assessment)

## Haematology:

Dr. LEUNG Ngar Sze (Fellowship assessment)  
 Dr. SO Ka Li (Membership examination)



▲ Dr. Ray McMAHON, the External Examiner, participated in the Anatomical Pathology examination held in September 2010. The examiners for the oral examination are (front row from the left) Dr. LAM Wing Yin, Dr. Ray McMAHON, Prof. Irene NG (Chief Examiner) and Dr. LEE Kam Cheong; (back row from the left) Dr. LEUNG Chung Ying, Dr. John KC CHAN, Dr. CHAN Keeng Wai and Prof. TO Ka Fai.

► During Examiner's dinner for Clinical Microbiology and Infection: (front row from the left) Prof. Joan Lorraine FAOAGALI (External Examiner), Prof. HO Pak Leung and Dr. Kitty FUNG; (back row from the left) Dr. Raymond LAI, Prof. Patrick WOO, Dr. QUE Tak Lun (Chief Examiner) and Dr. Cindy TSE.

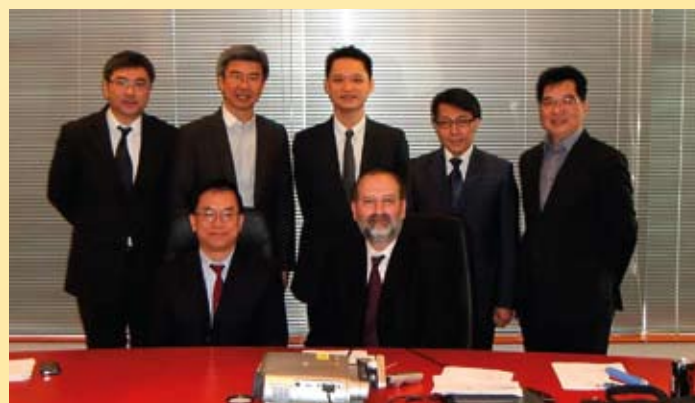


▲ Happy dinner of the haematology examiners at Cuisine Cuisine on 7 October 2010: (front row from the left) Prof. CHAN Li Chong, Dr. Edmond MA (Chief Examiner), Dr. Wendy ERBER (External Examiner), Dr. Eudora CHOW and Prof. Margaret NG; (back row from the left): Dr. WONG Kit Fai, Dr. Clarence LAM, Dr. Gary HOFFMAN (husband of Dr. Wendy ERBER and a histopathologist) and Dr. Raymond CHU.

► Examiners for Chemical Pathology: (front row from the left) Dr. Albert CHAN (Chief Examiner) and Dr. Ken SIKARIS (External Examiner); (back row from the left) Prof. LAM Ching Wan, Dr. Anthony SHEK, Dr. Michael CHAN, Dr. Sidney TAM and Dr. Tony MAK.

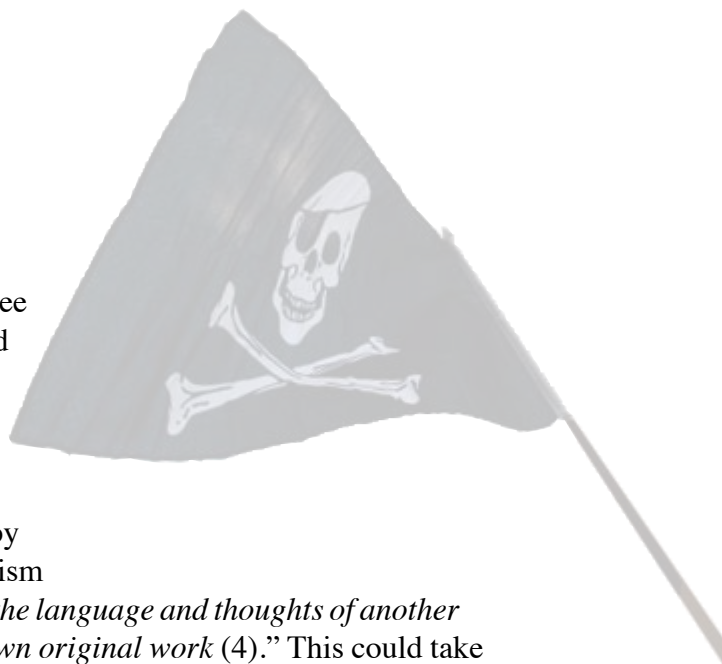


◀ Dr. QUE Tak Lun (Chief Examiner for Clinical Microbiology and Infection) (left) and Prof. Joan Lorraine FAOAGALI (External Examiner) (right) enjoying a sunny afternoon at Victoria Peak after the viva examination.





# **Avoid plagiarism**



The Training and Examinations Committee (TEC) would like to remind trainees to avoid plagiarism. Such professional misbehaviour, if it involves work submitted for fulfillment of the training requirement, will be dealt with seriously by the College. This advice is reiterated in response to increasing concerns that cheating by plagiarism is becoming popular (1-3). Plagiarism has been defined as “*the use or close imitation of the language and thoughts of another author and the representation of them as one’s own original work* (4).” This could take various forms – ranging from putting one’s name on other people’s work, writing by “copy-and-paste” to shopping thesis online. While the obvious cases are straightforward, certain grey area exists. As a result, software checkers (e.g. Turnitin, VeriGuide) have been developed to assist a more objective assessment of writing submitted for examination or other academic purposes. Trainees are encouraged to familiarize themselves with the concept of “plagiarism” and to contact their educational supervisors when there are doubts.

Useful links with additional information about plagiarism

<b>HKU</b>	<a href="http://www.hku.hk/plagiarism/">http://www.hku.hk/plagiarism/</a>
<b>CUHK</b>	<a href="http://www.cuhk.edu.hk/policy/academichonesty/index.htm">http://www.cuhk.edu.hk/policy/academichonesty/index.htm</a>
<b>Turnitin</b>	<a href="http://lib.hku.hk/turnitin/turnitin_plagiarism.html">http://lib.hku.hk/turnitin/turnitin_plagiarism.html</a>
<b>VeriGuide</b>	<a href="https://veriguide1.cse.cuhk.edu.hk/cuhk/">https://veriguide1.cse.cuhk.edu.hk/cuhk/</a>
<b>Free software</b>	<a href="http://www.duplichecker.com/">http://www.duplichecker.com/</a>

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*Training and Examinations Committee*

## NEW PROCEDURES ON REPLACEMENT OF COLLEGE CERTIFICATE

*From time to time, the College received requests from members for the issuing of replacement Fellowship/Membership certificates due to damage or loss. Such requests prompted the College to devise standard procedures on replacement of College certificate. The procedures on replacement of College certificate are summarized as follows:*

- (1) A member requesting replacement certificate shall submit a written request to the Registrar of the College.*
- (2) The College shall impose a replacement fee of HKD2,000 for replacement Fellowship certificate and HKD1,000 for replacement Membership certificate.*
- (3) The replacement certificate shall be marked "duplicate", signed by the current President and Registrar and dated on day of the signature.*

*The College also decided that a member who requests for a copy of College admission letter shall submit a written request to the Registrar and the issuing of the copy shall be free of charge.*

