Hong Kong
Society of Paediatric Cardiology
香港兒科心臟學會

First Scientific Meeting and Inauguration of the Hong Kong Society of Paediatric Cardiology

Sponsored by
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(inside cover)

29 Oct 2009 (Thursday)

Mira Hotel (Miramar Hotel)
118 Nathan Road, Tsim Sha Tsui, Kowloon.

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- Vice- Chairman Dr NG Yin Ming
- Scientific Committee
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  - Dr LEE Shuk Han
  - Dr CHAN Kwok Chiu

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Foreword

Dr Maurice Leung, President of the Hong Kong Society of Paediatric Cardiology

For those who are familiar with the provision of medical services in Hong Kong, you would agree that paediatric cardiology is a well recognized subspecialty with high standard being practiced locally, comparable to other leading well developed countries. The formation of a Paediatric Cardiac Society for our Special Administrative Region is long overdue. Our aim is to increase the awareness of children's heart health amongst the public, and to propagate and update knowledge on children's heart diseases for both medical and other health care supporting personnel.

To those medical and paramedical staff that enthusiastically supported the formation of our society, I would like to pay tribute to their efforts. I like to describe them as a very dedicated group, all willing to contribute their "know –how" to provide service to the community—especially to the group of sick children with an underlying heart disease—many of them would require early operation for survival.

Hence, our group is formed by paediatric cardiologists and trainees, paediatric nursing staff, cardiac surgeons, cardiac anesthetists and radiologist--- all grouping together to provide an interacting platform to up-lift our awareness of recent developments and controversies in this dynamic and rapidly evolving medical field, and sharing of experience on different issues relating to the better care of children with a heart

problem.

The provision of paediatric cardiac service in Hong Kong has gone a long way for the past 20 years. Back in the early 50s and 60s, a few closed heart operation were performed locally (division of patent duct). Patients diagnosed with other types of lesions were sent overseas for surgery. Open heart operations were first initiated in Queen Mary Hospital in 1964 and later on at Queen Elizabeth Hospital—working mostly on simple lesions of atrial septal defect or valvar stenosis. Today Hong Kong can boast to handle difficult and complex operations in the early neonatal period as in arterial switch operation for babies born with transposed great vessels, closed off large septal defects in early infancy, Fontan operation bypassing the need of a right ventricle, conduit operation for complex heart without a patent pulmonary outflow tract and closing holes and dilating narrowed vessels of the heart with interventional devices in no less than 3 or 4 hospitals with excellent results.

One of the primary aims for our inauguration is to acknowledge those who have contributed to the development of paediatric cardiac service in Hong Kong. It is of interest to know, that in the early days, a few adult cardiologists have posted themselves as paediatric cardiologist, paving for the ultimate development of our present subspecialty.

We would duly recognize the followings, who directly or indirectly helped to promote the paediatric cardiac service for the special administrative region:

Adult Cardiologists

Dr Pan Yam Kee Joseph, Dr RJ Barnes Dr Cheung King Loong
Dr. Tse Tak Fu (Founder of the Hong Kong College of Cardiology and past president of the World Heart Federation),

Cardiac Anesthetists

Dr Butt Nancy, Dr Douglas Jones,
Dr. Lai Kin-Ming, Dr Arul Devasirvatham Sudhaman

Cardiac surgeons

Professor Ong GB Dr John Leung
Dr Kwong Kok Hei Professor Mok Che Keung
Dr Lee Wai Tsun Jan Dr Ho Kwok Keung,
Dr David Cheung Dr Chiu Sui Wah Clement
Dr. Ma Chan Chung

Paediatricians and Paediatric Cardiologists

Professor Robert Freedom (late Chair Professor, Hospital for Sick Children, University of Toronto)
Professor RH Anderson (Emeritus Professor, University College, London)
Professor Yeung Chap Yung (Emeritus Professor, University of Hong Kong)
Dr Alice Chow, Dr Wai Kee Ho
Dr Lau Kai Chiu, Dr Roxy Lo Dr. Leung Nin Ming
Professor Lau Yu Lung, Professor Fok Tai Fai

The dedicated group presently working in Queen Mary Hospital:

Dr. Chau Kai Tung, Dr. Yung Tak Cheung,
Professor Cheung Yiu Fai, Dr. Lun Kin Shing
Dr Cheng Nik Cheung

And the present, Council Members and Committee Members of HKPCS

Dr Ng Yin Ming, Dr Lee Shuk Han,
Dr Chan Kwok Chiu, Dr. Rita Sung (Office bearers of HKSPC);
and myself

Dr. Bobby Chan, Dr. Cheng Yan Wah Vinson,
Dr. Fong Nai Chung, Dr. Louisa Poon,
Dr. Dora Wong, Dr Arul Devasirvatham Sudahman
Dr Clement Chiu, Dr Fan Tsz Wo

Of course there would be many others whom, in view of time and space, I could not fully mention here.

Thank you all of you for your heartlessly contribution.

Dr Leung Ping Maurice
President of the Hong Kong Society of Paediatric Cardiology

Congratulatory Message from Prof Robert H. Anderson, Emeritus Professor, University College, London

I am delighted to be able to offer this congratulatory message to the Hong Kong Society of Paediatric Cardiology for this, the booklet published to mark its inauguration. It is right and proper that paediatric cardiology be accepted as a specialty in its own right, combining as it does both the diagnosis and treatment of children with cardiac disease. As your inaugural President indicated when asking me to write this foreword, there has been a long tradition of education provided by those working in the United Kingdom for those of you who practice in Hong Kong. This extends beyond the fact that many of you have traveled to the United Kingdom for parts of your own training, since there has been much travel in the opposite direction. Many such as myself have enjoyed the excellent hospitality provided by those living and working in Hong Kong through the means of symposiums and employment in your excellent Universities. I have been particularly fortunate to have received the benefit of such hospitality through the auspices of both Hong Kong University and the Chinese University. Indeed, it was my privilege to serve on 2 occasions as external examiner in Anatomy for the Chinese University. It could well be that some of you now practising in pediatric cardiology were able to display your excellent knowledge of anatomy to me during those most enjoyable visits.

I owe a similar debt of gratitude to your inaugural President, who provided equally generous hospitality during my several visits to Grantham Hospital. It is my understanding that the facilities for paediatric cardiology, and paediatric cardiac surgery, have now moved away from the old quarters at Grantham Hospital. The excellent standards set by those who worked at the initial site, nonetheless, should serve as a landmark for your future activities. I have always been most impressed by the excellence of all those who work and trained in the fields of paediatric cardiology and its related disciplines in Hong Kong, particularly those who were able to spend time with myself and my colleagues at the Royal Brompton Hospital in London. I am sure that the establishment of your new society will mean that these standards will be preserved, and hopefully surpassed. I wish you all every success in these endeavours. I consider it a significant honour to be accorded the opportunity to write these words. All of you in the new society are in my thoughts, and I wish you the very best for the future.

Robert H. Anderson
Emeritus Professor, University College, London

Congratulatory Message from Prof Andrew N. Redington, Head, Division of Cardiology, the Hospital for Sick Children, Toronto

Kids
THE HOSPITAL FOR SICK CHILDREN

Andrew N. Redington, MD, FRCP (UK) & (C)

Head
Division of Cardiology
Hospital for Sick Children

Professor of Paediatrics
University of Toronto

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September 9, 2009

Maria Lee

RE: Hong Kong Society of Paediatric Cardiology

Forward Message:

It is with extraordinary pleasure that I write this message, to mark the inauguration of the Hong Kong Society of Paediatric Cardiology. As a member of the wider community that cares for children born and acquiring heart disease, I congratulate the society on their mission to promote the awareness of children's heart health locally, nationally, and around the world. While clearly this has been the driving philosophy behind the sustained excellence produced by the Hong Kong group over the past several decades, the wider appreciation and advocacy that comes from the formation of a dedicated society will surely pay dividends both for the society itself, but most importantly for the patients that it is representing.

With opportunities come challenges however. As a friend and colleague of your new President, Dr. Morris P. Leung, I am sure that you are in good hands both in terms of capitalizing on the great opportunities and overcoming any challenges that the Hong Kong Society of Paediatric Cardiology encounters.

Congratulations to him and the Hong Kong Society of Paediatric Cardiology for this extraordinary initiative.

Yours sincerely,

A. Redington

Andrew N. Redington, MD, FRCP(UK) & (C)
Head, Division of Cardiology
The Labatt Family Heart Centre
BMO Financial Group Chair in Cardiology

ANR/sm

555 University Ave • Toronto, Ontario • Canada M5G 1X8 • www.sickkids.ca

Congratulatory Message from Dr DU Junbao, President, Chinese Paediatric Cardiology Society

中華醫學會

Dear professor Leung,

I am happy to get your email letter, knowing that Paediatric Cardiac Society of Hong Kong will be holding inagural ceremony on 29th, Oct 2009. I would like to express my sincere congratulations.

The establishment of Paediatric Cardiac Society of Hong Kong is very meaningful for the development of paediatric cardiology, especially for the development of academm ic exchange in the field, for the discoveries of new diagnostic methods and therapeuu tic modalities as well as for the mechanism investigations of the paediatric heart diss eases. In the future, we are looking forward to a more actively academic exchange in clinical studies and basic medical researches in the common field. I am sure that the effort for promoting the development of paediatric cardiology will be fruitful.

Best regards

Sincerely yours

Professor Junbao Du

President of Chinese Paediatric Cardiology Society

Congratulatory Message from Dr LUI Kin Man,
President of Macau Paediatric Society

賀香港兒科心臟學會成立

洋荊荷花香　情誼連澳港
細語問病兒　醫囑勝金科
無忘懸壺心　砥礪攀專科
成就問與學　先賢後俊會

澳門兒科專科醫學會理事長　呂健文敬賀

二零零九年十月

Congratulatory Message from
Dr. LAU Kai Chiu, former Consultant,
Paediatric Cardiology Division,
Grantham Hospital

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6-10-2009
A message from Dr KC Lau

It gives me great pleasure to write a few words to mark the inauguration of the Hong Kong Paediatric Cardiac Society.

I could clearly recollect that in the 1970s, the paediatric cardiology in Hong Kong was only a branch of paediatric medicine and was not a sub-specialty of her own right. In 1980 I was given the opportunity to start a paediatric cardiology unit at the Grantham Hospital. With the support of various paediatric units in Hong Kong and the recruitment of more paediatric cardiologists the unit developed into a tertiary referral centre for children with heart diseases. I left Hong Kong in the late 1980s and the present generation of paediatric cardiologists have no doubt advanced the sub-specialty to higher grounds. With the ever increasing sophistication of the Hong Kong society and the development of newer geographical areas and suburbs as well as a much larger population, the paediatric cardiology services have to be more sophisticated and better coordinated to cope with the increasing demand. The birth of the Paediatric Cardiac Society is just timely to set clinical standards and coordinate scientific and clinical researches, professional training and consultative advice to health professionals as well as the general public.

I believe that this occasion is no doubt an important milestone in further advancing paediatric cardiovascular medicine of Hong Kong. It is also an important milestone in promoting interactions and communications of the relevant health professionals within Hong Kong and between Hong Kong and other countries.

Congratulations on a job well done and best wishes to the Paediatric Cardiac Society of Hong Kong!

Dr K C Lau

think. kids.
Royal Alexandra Hospital for Children

Congratulatory Message from Dr Lance FONG, Victoria, Australia

It is with pleasure that I offer my congratulations to the Paediatric Cardiologists of Hong Kong on the establishment of the newly formed Hong Kong Society of Paediatric Cardiology. Over a period of 25 years I have had a thoroughly enjoyable educational and rewarding association with many of the Paediatric Cardiologists in Hong Kong, firstly at a training level and subsequently, as esteemed colleagues on the world scene. This relationship has stretched from the USA, United Kingdom to Australia.

Hong Kong offers the world an exciting blend of Eastern and Western influences that is reflected in its practice of Medicine. So many of the Hong Kong graduates can boast and proudly display their training and association with many international institutions. This highlights the quality training and practice in Hong Kong, firmly establishing its international reputation. So to my friends and colleagues, may the Hong Kong Society of Paediatric Cardiology prosper and promote the development of a fine quality service there and to the world. I look forward to a long future association with the Society and its members.

Dr Lance Fong
MB BS, DDU, FRACP, FCZANZ

Consultant Cardiologist,
Southern Health, Clayton, Victoria, Australia,
Mercy Hospitals, Heidelberg, Victoria, Australia
Former Consultant Cardiologist,
Children's Hospital of Pittsburgh, Pittsburgh, Pennsylvania, USA,
Wessex Cardiothoracic Centre, Southampton, Hampshire, United Kingdom

Congratulatory Message from Dr. LAI Kin Ming, Hong Kong Sanatorium Hospital

養和醫院
HONG KONG SANATORIUM & HOSPITAL
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Our Ref. KML/anaes/081009/PC

15 September 2009

Dr. Maurice Ping Leung
President, Hong Kong Society of Paediatric Cardiology

Dear Maurice,

I wish to congratulate you on the inauguration of the Hong Kong Society of Paediatric Cardiology.

Back in 1985, when I first had the opportunity to work together with you at the Grantham Hospital, I was already amazed by the variety of cases that came for surgery and how well they were being managed. With leaders like you in the team, it is no wonder that Paediatric Cardiology has attracted a great deal of interest and has progressed by leaps and bounds through these years.

I am certain the Society will contribute to the specialty of Paediatric Cardiology and to Hong Kong by virtue of the congregation of dedicated experts like yourself.

With warmest regards,

KmLai

Dr. Kin Ming Lai
Head, Department of Anaesthesiology
Hong Kong Sanatorium Hospital

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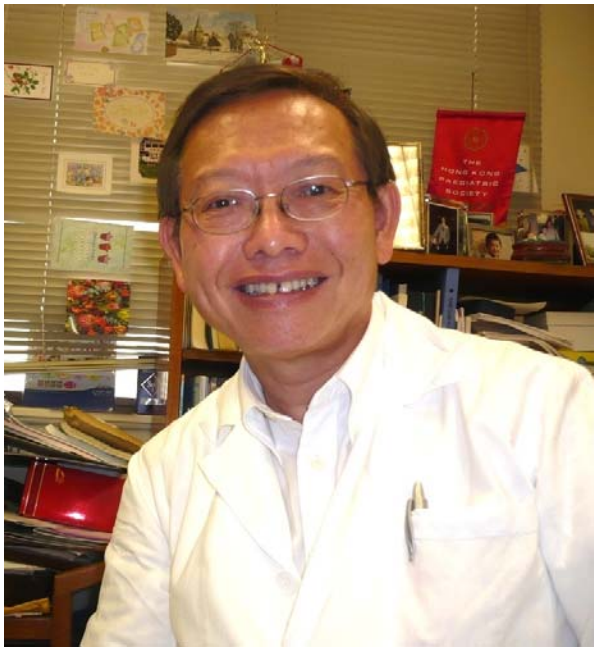
Speech by the Vice President, Dr. NG Yin Ming



Dear Honourable Guests, Fellow cardiologists and paediatricians, Ladies and Gentlemen,

We feel honoured with your presence and excited by the formation of the Hong Kong Society of Paediatric Cardiology. The formation of the Society serves 3 functions: as fraternity for all those health care professionals involved in the care of children with and without heart problems; as a venue to provide a basic, fundamental, scientific and informative support of paediatric cardiology information to those interested in and practicing paediatric cardiology, not exclusive but supplementary to the more sophisticated tertiary services of the heart centre(s); and last but not the least, as a platform to promulgate useful information on heart health and diseases to the public, young patients and parents of patients with heart diseases.

So, we are going to hold scientific meetings, case presentations of patients with common heart problems, discuss guidelines and protocols on patient management. We will also reach out to the public with Fun Days on heart health and may be parents or patients groups and talks, etc. We shall try to submit suggestions to the accreditation of Paediatric Cardiology as a subspecialty in the Hong Kong College of Paediatricians.

The Society shall learn and improve through practical experience and actual work, through advice of the seniors and brilliant ideas from the young generations.
Once again, I thank all of you for your support.

Formation and History of HKSPC

Dr Ng YM, Vice-President of the Hong Kong Society of Paediatric Cardiology

There were very few trained paediatric cardiologists working in the public sector in the early 1980s. In 1982, after my return from training in Royal Brompton Hospital, London, Dr. Leung Nin Ming and I helped Dr. K C Lau set up a cardiac assessment clinic in the Out-patient clinic of the Grantham Hospital on Tuesday afternoons as visiting cardiologists. Cardiac registrar and trainees from all the paediatric units brought along their cardiac cases and presented the history with chest x-ray and ECG. We made clinical diagnosis and then confirmed it by performing echocardiogram on the patients on the 4/F of the Grantham Hospital. Dr. KC Lau would join us whenever possible. The atmosphere was very harmonious and friendly. This sowed the early seeds of our Society.

Grantham Hospital and Queen Elizabeth Hospital had been leaders in the field of Paediatric Cardiology. In the early years, we gathered at Grantham Hospital for cardiac case conferences. Besides cardiologists of various paediatric units, the meetings were also attended by Dr. Joseph Pan, Dr. Cheung King Loong and Dr. Wai Kei Ho. In-depth discussions and management plans were formatted for patients. This also provided an opportunity for more social interaction among paediatric cardiologists. However, as time progressed, with an increase in clinical duties and the traffic between Kowloon and the island became more congested, we sometimes failed to go to the Grantham Hospital. Dr. K C Lau and Professor Maurice Leung then made a point to rotate the cardiac conference in QEH regularly. This was participated by the new Department of Paediatrics in Prince of Wales Hospital (PWH) later in 1980s. In the 1990s, with the establishment of the Hospital Authority, the work schedules were even tighter. Professor Rita Sung and I started our own case conferences, alternating in QEH and PWH, participated by also other departments in Kowloon and the New Territories.

Five years ago, it became increasingly clear that a paediatric cardiology society could have a role in the subspecialty development of cardiology in the Hong Kong College of Paediatricians. Despite being in private practice, Professor Maurice Leung offered his help and Dr Chan Chok Wan his encouragement. We had regular meetings every month in QEH, inviting paediatric cardiologists and trainees to present their cases and we had journal meetings which yielded very fruitful discussions. We applied for CME points. The meetings gave us insights in the establishments of new protocols and

guideline supported by paediatric cardiologists, surgeons, anaesthesiologists and radiologists. After two years' discussion and preparation, we registered in June 2009.

Complements should be given to Dr. Lee Shuk Han, Dr. Dora Wong, Dr. Chan Kwok Chiu, Dr. Fong Nai Chung and Dr. Vinson Yan Wah Cheng who had worked very hard to help make everything possible. To all of you who have helped the formation of the Society in ways more than one, a very big thank-you.

Objectives of the Hong Kong Society of Paediatric Cardiology

The objects for which the Society is established are:

i. To advance the science of cardiovascular diseases in children through educational, scientific, literary and professional activities for the public benefit.
ii. To support research in cardiovascular diseases in children for the public benefit.
iii. To promote good medical practice in cardiovascular diseases in children for improvement or enhancement of public health in Hong Kong SAR.
iv. To promote postgraduate training in cardiovascular medicine in children for the public benefit.
v. To provide education and consultation in science of cardiovascular diseases in children to the public.

Words from our logo designer

Hong Kong
Society of Paediatric Cardiology

A logo is not just a pretty image with a name attached to it. It's your brand, it tells the world who you are, and people see you through your logo. It's vital we get this right to avoid being misrepresented, or worse, forgotten.

In conceiving this new logo for the Hong Kong Society of Paediatric Cardiology (HKSPC) I have taken into consideration that they not only help children but people of all ages. The design is of a child and an adolescent in a warm embrace. It conveys happiness, hope, love and of course, life.

I'm particularly fond of logos that form an image from negative space. Here the two figures form a human heart, the very essence of what the HKSPC stands for. The logo is simple, fresh and timeless which will assist with public recognition, an essential part in brand development.

I hope you like it but most importantly I hope you continue to support the HKSPC.

Albert Jangtong, Sydney, 2009

About our Logo….

Thoughts from the committee members of the HKSPC

An image of a heart symbolizes the vision of our society and it reflects the core values that our society is committed to advance the science of cardiovascular diseases in children. This logo was designed by Albert Jangtong from Australia. It projects a modern representation of knowledge, technology, professionalism and human concerns which are in line with the mission of our society to support researches in cardiovascular diseases in children for the public benefit.

It is our hope that through this simple logo, all children with heart diseases especially those with complex cyanotic heart diseases (blue color child) will turn pink (red color adolescent) after appropriate treatment and care.

Hong Kong Society of Paediatric Cardiology

香港兒科心臟學會委員會

Founding members

Dr. Chan Cho Him Bobby 陳祖謙
Dr. Chan Kwok Chiu 陳國超
Dr. Cheng Yan Wah Vinson 鄭恩華
Dr. Chiu Shui Wah Clement 趙瑞華
Dr. Fong Nai Chung 方乃聰
Dr. Lee Shuk Han Maria 李淑嫻
Dr. Leung Ping Maurice 梁平
Dr. Ng Yin Ming 吳彥明
Dr Poon Kam Ha Louisa 潘錦霞
Dr. Arul Devasirvatham Sudhaman
Dr. Sung Yn Tz Rita 宋銀子
Dr. Wong May Ling Dora 黃美玲

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范子和醫生 Dr. FAN Tsz Wo

義務法律顧問 Hon. Legal Advisor: 蘇潔兒律師 Ms Kitty SO
義務核數師 Hon. Auditor: 陳嘉齡先生 Mr. Edmond CHAN

Members of the first Council & Committee of the Society (2009 - 2010)

Back row (From left to right)**:**

Dr POON Kam Ha Louisa, Dr. WONG May Ling Dora, Dr. FAN Tsz Wo, Dr. CHENG Yan Wah Vinson, Dr. FONG Nai Chung

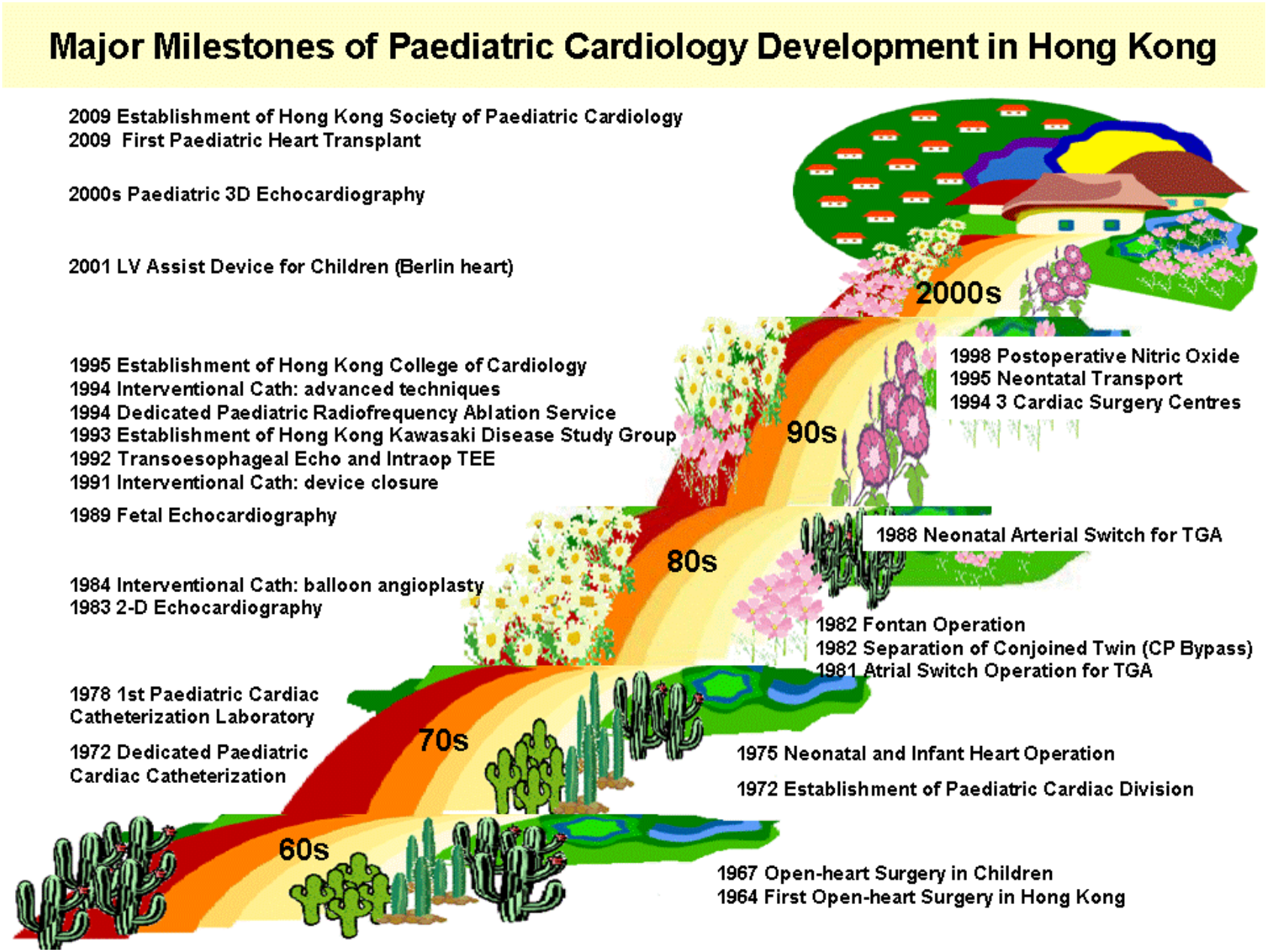
Front row (From left to right)**:**

Dr. CHAN Kwok Chiu (Hon. Treasurer), Dr. NG Yin Ming (Vice-President),
Dr. LEUNG Ping Maurice (President), Dr. SUNG Yn Tz Rita,
Dr. Arul Devasirvatham SUDHAMAN, Dr. LEE Shuk Han Maria (Hon. Secretary)

Other Council members

Dr. CHAN Cho Him Bobby, Dr. CHIU Shui Wah Clement

Development of Paediatric Cardiology in Hong Kong



Some more history…

Information provided by Dr. WAI Kee Ho

Paediatric Cardiology in Hong Kong began at the end of 1972 when Prof. Gary Kneebone, then the Head of Pediatrics Department of the Medical School of the University of Hong Kong, wanted to establish a Paediatric Cardiology Unit. Before then, only a few cases of older children with congenital heart disease could be handled by adult cardiologists with the Internal Medicine Department in Queen Mary Hospital. Dr. Wai Kee Ho was recruited by Prof. Kneebone to return to Hong Kong to establish the unit.

Dr. Wai graduated from the Medical School of the University of Hong Kong in 1963. He received his training in North America from 1965 to 1970, and was appointed clinical assistant professor in Paediatrics (Paediatric Cardiology) from 1970 to 1972 in The Children Hospital of University of British Columbia in Vancouver. He returned to Hong Kong and started the Paediatric Cardiology Unit at the end of 1972.

At first, all cardiac catheterizations were carried out in the old Lewis' Laboratory in the Internal Medicine Department at Queen Mary Hospital, and surgeries were done at the Grantham Hospital. In 1978, with the help of the Hong Kong Heart Foundation, a new cardiac catheterization laboratory was opened at the Grantham Hospital, and thus all investigations and surgeries were carried out there. Since then many young paediatricians were very much interested in this field, and subsequently the unit had produced well known and experienced paediatric cardiologists like Professor Maurice Leung and Dr. Roxy Lo.

Dr TSE Tak Fu

Founder of the Hong Kong College of Cardiology and Past President of the World Heart Federation

I was the Physician in Charge of the Lewis Cardio-respiratory Laboratory of the Queen Mary Hospital during the 70s and had the great pleasure of working together with the paediatric cardiology unit headed at that time by Dr Wei Kei-Ho. We worked very closely in managing the only cardiac catheterization laboratory together. The sessions were well shared by the adult and paediatric teams, never with any conflicts between us. In the joint weekly cardiac surgical conferences, we presented cases from both teams and we learned from one another. I must say that I gained a lot by participating in those occasions. Dr Wei was always prepared

to teach with patience.
Even after all these years, I still cherish the happy moments of working with the paediatric cardiac team many years ago.

With limited resources, our paediatric cardiology colleagues in Hong Kong have come a long way in building up successfully first class service to serve the children with heart diseases in Hong Kong. Unlike the old days, it would now be very difficult if not impossible for us adult cardiologists to join in discussion of management of complex congenital heart diseases in children. I would therefore like to congratulate Dr. Maurice Leung and his colleagues in successfully amassing the specialists in the field of paediatric cardiology and form themselves into the Hong Kong Society of Paediatric Cardiology.

Paediatric Cardiology at the Queen Elizabeth Hospital

Dr. Chan Man Cheung Caleb and Dr. Ng Yin Ming

Prior to 1971, left side lesions including patent ductus arteriosus and coarctation of the aorta in older children were diagnosable by aortic arteriogram done by radiologists at the Queen Elizabeth Hospital.

In 1971-1972 right heart catheterizations were done by Dr. Kong Siu Ming and Dr. Pao Wing Iu from the Medical B Unit, QEH for older children with heart diseases. In 1973 Dr. Ng Yik returned from the Melbourne Hospital for Sick Children after a clinical attachment at the cardiac unit there. He started to do right side cardiac catheterization for children via femoral venous cut-down. The limiting factor for the procedure then was the body weight of the individual patient. Only children with body weight of over thirty pounds could be accepted for catheterization.

Dr. Anita Tam soon returned from the Royal Brompton Hospital, London to the Paediatric B Unit as Paediatric Cardiologist and joined in doing cardiac assessment and cardiac catheterizations. Cardiac catheterizations were then done under fluoroscopy at H1, Room 6 at the Department of Radiology, QEH. In March 1976 Dr. Chan Man Cheung returned from the Thoracic Unit of the Great Ormond Street Hospital for Children[1], London and took up the role of Paediatric Cardiologist at the Paediatric A Unit while Dr. Anita Tam continued to be the Cardiologist at the B Unit.

[1] Dr. James Taylor was the consultant cardiologist at the Great Ormond Street Hospital for Children, London. One of the registrars then was Dr. Kim Fox who is now Consultant Cardiologist at the Royal Brompton Hospital, Professor of clinical cardiology at the Imperial College, London, and President of the European Society of Cardiology. The consultant surgeon was Mr. Jaroslav Stark. The senior surgical registrar was Dr. Marc de Leval.

Joint cardiac conference meetings were held weekly with the Medical B Unit. At these meetings all paediatric and adult cases studied by catheterization in the week prior were presented for discussion with a view to deciding on surgery or otherwise. Post-operative cases of interest were sometimes also presented. Dr Kong Siu Ming, consultant physician of QE, Professor Mok Chi Keung, cardiac surgeon-in-charge and Dr. Cheung King Loong, Consultant cardiologist, from the Grantham Hospital participated. All doctors under training or interested in cardiology were welcome.

Professor Mok was very good with his hands. On cardiac bypass many lesions were corrected including complex heart lesions. Mustard operation after balloon septostomy for TGA, operative procedures for TAPVD, neonatal coarctation of the aorta, palliative surgery for suitable cases of DORV were done in addition to the routine repair of septal defects and various shunts. It was during this period that a case of neonatal pulmonary atresia with intact interventricular septum was successfully repaired with one-stage operation by end to end anastomosis of the pulmonary trunk stumps (at a time when almost all cases of the same nature were treated by two-stage operations at the other centres). Credit must also be given to the post-operative intensive care team at the Grantham's headed by Dr. Cheung King Loong.

Regular Tuesday catheterization sessions were commenced in January 1980 when the new catheterization laboratory at the Grantham Hospital was opened. Dr. Wai Kee Ho from the Department of Paediatrics, Queen Mary Hospital did catheterizations on Thursdays. The bi-plane C-arm set up of the machines equipped with cinematography contributed much to the efficiency and quality of cardiac catheterizations. The joint cardiac conference was also relocated to the Grantham Hospital.

In 1979 Dr. Lau Kai Chiu finished his training with Dr. Elliot Shinebourne at the Royal Brompton Hospital, London. He returned to the QEH Paediatric A Unit under Dr. Alice Chau for a while. Then, Professor Yeung Chap Yung had the vision of establishing a paediatric cardiac unit at the Grantham Hospital in 1980, under the University of Hong Kong. Dr. Alice Chau supported the promotion of Dr. KC Lau to become the first paediatric cardiologist and senior medical officer in-charge at the Grantham Hospital. Professor Yeung also sent Dr. Roxy Lo to the Glasgow Hospital for Sick Children to be trained in cardiology and Dr. Lo returned two years later to serve with KC Lau at the Grantham Hospital.

After elective training in the Medical Unit of QEH under Dr Kong Siu Ming and Dr Woo Kam Sang, Dr Ng Yin Ming furthered his training with Dr Elliot Shinebourne in the Brompton Hospital. He then returned to the Paediatric B Unit as cardiologist. At the same time, Dr. Leung Nin Ming returned from the Thoracic Unit at GOS and served the Paediatric

A Unit. Dr. Ng and Dr. Leung helped perform catheterizations at the Grantham Hospital since. They also established a Cardiac Assessment Clinic on Tuesday afternoons when cardiac registrars from all the Paediatric Departments in Hong Kong brought along their patients for joint cardiac assessment. This had been a most useful learning experience for the cardiac registrars because case presentations covered such aspects as clinical history, physical examination, CXR and ECG viewing, finally concluding with a provisional diagnosis. Then all the patients would be echoed by Dr. Leung or Dr. Ng with the first ATL 2D Echo Machine. This served to pool people interested in cardiology together and encouraged many more to take up paediatric cardiology as their subspecialty. Dr. Leung NM was seconded to GH when Dr. Maurice Leung furthered his overseas training in 1988.

The development of paediatric cardiac surgery in QEH has been through a difficult process due to inadequate support and resources. When Dr. Kyaw moved from the Kowloon Hospital to QEH to form the Cardiothoracic Department in 1993, they started cardiac surgery in QEH. The first paediatric cardiac surgery was performed by Dr. K K Ho in collaboration with the Department of Paediatrics. It was PDA ligation in 1995. Dr. KK Ho was very interested in both paediatric heart surgery as well as the adult hearts. We then collaborated with Dr. Tom Karl of RCH Melbourne to perform paediatric VSD closure in 1996 and subsequently with Dr. Christian Brizard of RCH Melbourne on two other programmes on Tetralogy of Fallot and mitral valve repair.

We started to perform interventional cardiac procedures in 1994 in QEH. The first few interventions were balloon pulmonary angioplasty for pulmonary stenosis. We also started our own monthly cardiac conference. Subsequently in 1996, we dealt with coarctation of aorta and later PDA coil embolization under the proctorship of Dr. TH Goh from the RCH Melbourne. Besides Dr YM Ng, Dr. Lee Shuk Han and Dr. Dora Wong had made intense contribution to the programme. The technique of Amplatzer ASD closure was perfected in 1999. Since then we have always got excellent results with it.

All the while, we had a very close relationship with the Grantham Hospital as Dr. Ng Yin Ming was also Hon. Consultant there until 1997. We had catheter sessions in GH and we presented the QEH cases to GH for surgery every week. It is worth mentioning that several cardiologists were trained in QE during the fruitful period of the 90s and some of them are now serving at the Grantham Hospital.

Personal thoughts....

It's yesterday but it's also tomorrow Dr Lee Shuk Han

It is the same blue sky, perhaps less blue nowadays but Paediatric cardiology service has advanced a lot in the past 20 odd years. I can still remember, when I was a cardiac registrar of Queen Elizabeth Hospital in the late 80s, it was a big event if we need to perform urgent Echo for our patients. I had to book a time slot to use the Echo room from the Medical Department. I had to borrow the key, walked to the other ward to open the door, prepared the things and stood there waiting for the patients and Dr Ng to come. If Dr Ng wanted a picture from the echo image, he would say, 'take a picture!' Then I would need to use a heavy portable Polaroid camera, which was bigger than a loud speaker, to cover the monitor of the machine and literally 'take a picture' from the screen. You can imagine the time needed and the quality of the pictures, of course. Standing behind Dr Ng in the Echo sessions, I started to learn my echocardiography skill and became interested in the field. However, I had to be on the alert as well if sick neonates with cyanotic congenital heart diseases were being examined, as they easily became de-compensated after being transported a long way from the ward. When I saw impending cardiac arrest from the echo, I had to call the nurses and help perform resuscitation in the middle of the scan. Cardiac catheterization was equally a nightmare. We had to roll the patients right and left, up and down to take the angiograms. By the time, the babies were well positioned, they woke up from all the hassle and they started to scream and then kicked out everything. The 'game' would start all over again! Struggling through these hardships, we managed to offer care to our patients and helped them get through their illnesses. I feel well worth the effort when I see patients growing to become a healthy child and now an adult, enjoying their lives.

I really admire my predecessors who worked under even more harsh conditions in the early years. Without the help of modern equipment, our forerunners started Hong Kong's paediatric cardiac service from scratch and worked wholeheartedly for its development. Through the work of generations of dedicated cardiologists in the past 50 years, we now have a well-equipped paediatric cardiology service in Hong Kong, which is catching up with world standard. Besides Grantham Hospital and Queen Mary Hospital, other hospitals have been working hand in hand to develop a certain level of paediatric cardiology service to patients within their own limitations. We have also established close links with different world renowned cardiac centres. Exchange programs are going on all the time to keep our service improving. I am sure this good work will continue and the spirit and commitment of our pioneers in paediatric cardiology will be carried on by the younger generations. I must also thank the many seniors who have helped me through my cardiology career especially Dr YM

Ng, Dr KC Lau, Dr Roxy Lo, Professor Maurice Leung, Professor CK Mok, Dr WT Lee, Dr SW Chiu, Dr KK Ho and Dr CC Ma ……..

The road has been well paved by our seniors but we still have a lot of challenges ahead. I hope that the Hong Kong Society of Paediatric Cardiology will serve as a platform for this group of dedicated professionals to work together, with a view to bring our cardiology service to new heights.

Dreams Come True — Dr Dora Wong

I saw one of my cardiac patients a few weeks ago. She is going to be 17 soon. I can still recall her face when I first met her years ago before her operation. She was a shy and pleasant little child accompanied by her parents. She suffered from complex cyanotic heart disease. At that time, cardiology service was rather limited and scattered among hospitals. Patients had to wait for a long long time for the operation and results were somewhat unpredictable. Things were hard for her. She underwent a second operation one year after the first operation which ended up badly. After the second operation, she was fine. Today, she is an amazingly stunning young girl. I thanked god for her beautiful life.

For many many years, joint effort of all local cardiologists together to help all these patients to achieve the best paediatric cardiological care had been my dream. I had always dreamed of a group of people gathered together with a common goal of promoting the health of children with heart disease. Finally, my dreams come true. Today, the formation of the Hong Kong Society of Paediatric Cardiology is a milestone in the paediatric cardiology service. We share the same aspiration and the same ambition. I am looking forward to the betterment of the paediatric cardiological service in Hong Kong and a bright future of all the paediatric cardiac patients. I can imagine the smiling bright faces of patients in the years to come. After all life is to be treasured and is beautiful.

My Early Paediatric Cardiology Years … Dr Chan Kwok Chiu

I have forgotten when I first started my interest in cardiology, probably it was during the days when I worked as cardiac registrar in Queen Elizabeth Hospital (QEH) under Dr YM Ng. The visual impact of seeing a beating heart on the monitor screen could have touched my soul.

The resources in QEH at the late 80's could never be comparable with the present provisions. Even after the acquisition of the first echocardiography machine, I could still remember the days when I needed to push the bulky machine from B Block where the machine was kept to the nursery of another building block. If we were to take the short cut, we needed to navigate through the camp beds and to trespass two medical wards and their respective toilet areas and back doors before reaching the special care nursery.

As resources were limited at that time, we were forced to improvise and to make the best use of things we could get hold of. When I encountered a patient presented with sudden collapse with no preceding vasovagal symptoms, I needed to search for any possible equipment throughout the hospital for arranging a possible tilt test. I was excited when I caught sight of the motorized examination table capable of tilting in the X ray department. I have forgotten how I could muster enough courage to knock on the door of the secretary of Dr Roy Lau, the senior Radiology Consultant i/c who was renowned among junior doctors at that time of being generous in giving feedbacks and with the least hesitation in scrutinizing any special requests. It is sufficed to say now that I was very much relieved leaving Dr Lau's office when he finally promised to lend out one session of the suite to me. The test set up was completed by moving the man's height cardiac catheterization recorder from another room for the recording. The tilt test was not as common as nowadays and I found Dr Lau slipping in and out when the test was carried out. This was my first tilt test and probably the first one in QEH as well. This was around the time of early 90's. That particular patient subsequently underwent a full cardiac electrophysiological study (EPS) under the collaborative care of Dr CS Chiang, adult cardiologist. This was also the first paediatric patient in QEH having EPS done.

The other thing I have contemplated was to perform the transesophageal ECG and later the transesophageal pacing. These were also around early 90's. The technique has been refined and well reported in literature in those few years though it was not introduced locally. We did not have custom designed esophageal ECG leads but we managed to borrow temporary transvenous pacing wires and alligator clips to connect the wires to the ECG writer. The atrial electrogram recorded did help patient care. We were able to connect the Medtronic custom made high output pulse generator device borrowed from the adult cardiologists to overdrive termination incessant supraventricular tachycardia in some neonates before the long acting

drugs took effect. As expected, we cleaned those pacing wires afterwards for reuse in latter days. This could never be imagined nowadays.

The training in Grantham Hospital was a memorable experience. I was fortunate to have worked with Dr KC Lau, Dr Roxy Lo and Dr Maurice Leung during my stay in Grantham. I could still remember the on call nightmares of managing pulmonary hypertensive crisis of those post atrioventricular septal defect (AVSD) repair kids. I suppose these are much rarer now as fewer babies with AVSD are born and total correction are done much earlier together with a richer ammunition in handling pulmonary hypertension. The other sunny side of working in Grantham was able to work and make friends with trainees from different hospitals. It was really a treasured experience. Other things in the long list of my memory include the tranquility of the hospital compound, the home style morning snacks from the Grantham canteen, spacious quarter with balcony commanding green open view of Ocean Park.

Time flies, QEH would never be the same as it was when I left in 1998. Grantham Hospital is no longer the same place as many of us remember now. However, there is one thing which has not changed throughout - the desire of all those who have participated and contributed along the time course of the local paediatric cardiology development - to serve our kids with cardiac problems better.

Programme

First Scientific Meeting and Inauguration of the Hong Kong Society of Paediatric Cardiology

New Era of Antibiotic Prophylaxis of Infective Endocarditis: Impact on Medical and Dental Practices

29 Oct 2009 (Thursday)
7:00 pm
Mira Hotel (Ballroom)

Co-chairman:	Dr. Leung Ping Maurice,	Dr. Ng Yin Ming
Speakers:	Dr. Fong Nai Chung (Paed)	Dr. Lee Shuk Han (Paed)
	Prof. Nigel King (Dental)	
Discussants:	Dr. Victor Abdullah (ENT)	Dr. Kelvin Liu (Paed Surgery)
	Dr. D.A Sudhaman (Anae)	Dr. Yung Tak Cheung (Paed)

Programme:

1. Highlights of the New Guidelines of different Countries
2. Local scene of Infective Endocarditis and Dental Health
3. View points of Different Specialists on the New Guidelines

CME/CPD Points Awarded

College	CME/CPD point	Category
Anaesthesiologists	1.75	Non-anaes
Community Medicine	2	
Dental Surgeon	2	Cat B
Family Physicians	2	Cat 5.2
Obstetricians & Gynaecologists	2	Non- O&G
Ophthalmologists	0.83	passive
Otorhinolaryngologists	1	Cat 2.2
Paediatricians	2	Cat A
Physicians	2	Cat A
Radiologists	1.5	Cat B
Surgeons	1.5	Passive
MCHK CME Programme	2	

Scientific Meeting Programme

Part I: Presentations

Antibiotic Prophylaxis for Infective Endocarditis: Past, Present and Future	**Dr. Fong Nai Chung** Associate Consultant, Department of Paediatrics & Adolescent Medicine, Princess Margaret Hospital
Infective Endocarditis in Children: the Local Scene	**Dr. Lee Shuk Han** Senior Medical Officer, Department of Paediatrics & Adolescent Medicine, Queen Elizabeth Hospital
Antibiotic prophylaxis against infective endocarditis – the dentists dilemma	**Prof. Nigel King** Professor in Paediatric Dentistry, The Prince Philip Dental Hospital, Faculty of Dentistry, University of Hong Kong

Part II: Round Table Discussion

ENT surgeon's perspective	**Dr. Victor Abdullah** Cluster Chief of Service (COS, Otorhinolaryngology) Kowloon East cluster, Hospital Authority
Paediatric surgeon's perspective	**Dr. Kelvin Liu** Consultant, Division of Paediatric Surgery Department of Surgery, United Christian Hospital
Paediatrician's perspective	**Dr. Yung Tak Cheung** Consultant, Division of Paediatric Cardiology Department of Paediatrics and Adolescent Medicine Queen Mary Hospital
Anaesthetist's perspective	**Dr. D.A Sudhaman** Consultant Anaesthetist, Private Practice
Part III: Questions & Answers	**Chairmen**
Part IV: Case scenario & Voting	**All the participants**

Inauguration program

Masters of ceremony: Dr. Bobby Chan and Dr. Lee Shuk Han

8:45 pm	Seating of guests Educational video by Abbott Nutrition
9:20 pm	Commencement of the inauguration ceremony Inaugural speech by Dr Leung, President of the Society Introduction and acknowledgement of honorable guest and their contribution
9:35 pm	Introduction and presentation of souvenir to council members and group photo
9:45 pm	Musical performance
10:30 pm	Completion of the inauguration ceremony

Content and Abstracts of Scientific Meeting

I. Guidelines of Infective Endocarditis from different countries

The full statements of the guidelines are available at:

i. **Guidelines for the Prevention of Endocarditis: report of the Working Party of the British Society for Antimicrobial Chemotherapy**
http://jac.oxfordjournals.org/cgi/reprint/57/6/1035

ii. **NICE clinical guideline 64: Prophylaxis against Infective Endocarditis: antimicrobial prophylaxis against infective Endocarditis in adults and children undergoing interventional procedures**
http://www.nice.org.uk/nicemedia/pdf/CG64NICEguidance.pdf

iii. **Prevention of Infective Endocarditis: recommendations by the American Heart Association. Circulation 2007;116:1736-1754.**
http://circ.ahajournals.org/cgi/reprint/116/15/1736

II. "New Era of Antibiotic Prophylaxis Against Infective Endocarditis: Impact on Medical and Dental Practices"

[1]Dr. Cheng YanWah Vinson [2]Dr. Rita Sung

[1] Department of Paediatrics and Adolescent Medicine, Tuen Mun Hospital. Hong Kong

[2] Department of Paediatrics, Prince of Wales hospital, Chinese University of Hong Kong

Infective endocarditis (IE) is a rare but serious disease associated with substantial mortalities and morbidities, such as stroke and heart failure, which can result in long-term disability. Patients with almost any form of structural heart disease are at risk of developing IE as a consequence of bacteraemia, and the demonstration that numerous medical interventions, principally but not exclusively dental, are associated with bacteraemia is the basis of current recommendations for its prevention - the rationale being that antibiotics will eradicate a bacteraemia and prevent IE from occurring.

History of prophylactic antibiotics for IE

The American Heart Association (AHA) has made recommendations for the prevention of IE for more than 50 years. (Table 1)

1955: The first AHA document was published in Circulation [1].

1960: Called attention to the possible emergence of penicillin-resistant oral microflora as a result of prolonged therapy for prevention of IE, and pediatric patients were included for the first time [2]. Chloramphenicol was recommended for patients allergic to penicillin.

1965: The Committee published for the first time a document devoted solely to the prophylaxis of IE and recognized the importance of enterococci after GI or GU tract procedures [3].

1972: Endorsed for the first time by the American Dental Association (ADA) and emphasized the importance of maintenance of good oral hygiene [4]. This version introduced a recommendation for ampicillin in patients undergoing a GI or GU tract procedure.

1977: Revisions categorized both patients and procedures into high- and low-risk groups [5]. This resulted in complex tables with many footnotes. The duration of postprocedure therapy was reduced from two days to two doses.

1984: Simplify prophylactic regimens by providing clear lists of procedures for which prophylaxis was and was not recommended and reduced postprocedure prophylaxis for dental, GI and GU tract procedures to only one oral or parenteral dose [6].

1990: More complete list of cardiac conditions and dental or surgical procedures for which prophylaxis was and was not recommended was provided [7]. These previous recommendations recognized the potential medicolegal risks associated with IE prophylaxis and suggested that the recommendations were intended to serve as a guideline, not as established standard of care.

1997: The 1997 document stratified cardiac conditions into high-, moderate-and low-risk (negligible risk) categories with prophylaxis not recommended for the low-risk group [8]. An even more detailed list of dental, respiratory, GI and GU tract procedures for which prophylaxis was and was not recommended was provided. The 1997 document was notable for its acknowledgment that most cases of IE are not attributable to an invasive procedure but rather are the result of randomly occurring bacteremias from routine daily activities and for acknowledging possible IE prophylaxis failures.

It is clear from the above chronology that the AHA guidelines for IE prophylaxis have been in a process of evolution for more than 50 years. The rationale for prophylaxis was based largely on expert opinion and what seemed to be a rational and prudent attempt to prevent a life-threatening infection. On the basis of the ACC and AHA Task Force on Practice Guidelines' evidence-based grading system for ranking recommendations, the recommendations in the AHA documents published during the past 50 years would be Class

IIb, LOE C. Accordingly, the basis for recommendations for IE prophylaxis was not well established, and the quality of evidence was limited to a few case-control studies or was based on expert opinion, clinical experience, and descriptive studies that utilized surrogate measures of risk.

Over the years, other international societies have published recommendations and guidelines for the prevention of Infective Endocarditis (IE). The British Society for Antimicrobial Chemotherapy and the National Institute for Health and Clinical Excellent (NICE) issued new IE prophylaxis recommendations in **2006 and 2008** respectively [9, 10] and the American Heart Association has also published a new guidelines in **2007** [11]. The two British guidelines and the 2007 AHA recommendations present a dramatic change. The previous guidelines were very specific, complex and inclusive compared to the latest guidelines. In the new guidelines, there is a shift in emphasis away from focusing on dental procedures and antibiotic prophylaxis, and greater emphasis placed on improved access to dental care and oral health in patients with underlying cardiac condition associated with the highest risk of adverse outcome from infective endocarditis (IE), as well as those conditions that predisposed to acquisition of IE. Under these revised guidelines, the numbers of cardiac conditions requiring prophylactic antibiotics are much reduced when compared to previous recommendations.

The new guideline emphasizes the freedom to use clinical judgment in individual cases, and the importance of explaining to patients the risks and possible benefits of continuing with the previous practice or adopting the new recommendations.

It is not surprising that both the doctors and patients are uneasy about theses changes considering that they have believed for many years that antibiotic prophylaxis is required for the prevention of IE. Reversal of advice that has been a fundamental tenet of medical teaching and medico-legal practice for several decades has the potential to cause confusion among health professionals and anxiety among patients.

We are pleased to have the opportunity to host this scientific meeting which focuses on the new guidelines of different countries. We thank the participation of local experts to share their experiences of Infective Endocarditis and Dental Health in Hong Kong. By gathering and discussing view points from different specialists on the new guidelines, we hope that we are able to reach a consensus on the extent to which the new guidelines are applicable to our locality.

TABLE 1

Summary of nine iterations of American Heart Association–recommended antibiotic regimens from 1955 to 1997 for dental/ respiratory tract procedures.

YEAR	PRIMARY REGIMENS FOR DENTAL PROCEDURES
1955[7]	Aqueous penicillin 600,000 units IM† and procaine penicillin in oil containing 2 percent aluminum monostearate 600,000 U IM administered 30 minutes before the operative procedure.
1957[8]	For two days before surgery, penicillin 200,000 to 250,000 U by mouth four times per day. On day of surgery, penicillin 200,000 to 250,000 U by mouth four times per day and aqueous penicillin 600,000 U with procaine penicillin 600,000 U IM 30 to 60 minutes before surgery. For two days after, 200,000 to 250,000 U by mouth four times per day.
1960[9]	Step I: prophylaxis two days before surgery with procaine penicillin 600,000 U IM on each day. Step II: day of surgery: procaine penicillin 600,000 U IM supplemented by crystalline penicillin 600,000 U IM one hour before surgical procedure. Step III: for two days after surgery: procaine penicillin 600,000 U IM each day.
1965[10]	Day of procedure: Procaine penicillin 600,000 U, supplemented by crystalline penicillin 600,000 U IM one to two hours before the procedure. For two days after procedure: procaine penicillin 600,000 U IM each day.
1972[11]	Procaine penicillin G 600,000 U mixed with crystalline penicillin G 200,000 U IM one hour before procedure and once daily for the two days after the procedure.
1977[12]	Aqueous crystalline penicillin G 1,000,000 U IM mixed with procaine penicillin G 600,000 U IM. Give 30 minutes to one hour before procedure and then give penicillin V 500 milligrams orally every two hours for eight doses.
1984[13]	Penicillin V 2 grams orally one hour before; then 1 g six hours after initial dose.
1990[14]	Amoxicillin 3 g orally one hour before procedure; then 1.5 g six hours after initial dose.
1997[1]	Amoxicillin 2 g orally one hour before procedure.

* These regimens were for adults and represented the initial regimen listed in each version of the recommendations. In some versions, more than one regimen was included.
† IM: Intramuscularly.

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10. National Institute for Health and Clinical Excellence (NICE).Prophylaxis against infective endocarditis. 2008 (NICE clinical guideline No.64) www.nice.org.uk/CG064
11. Walter W, Taubert KA, Gewitz M et al. Prevention of Infective Endocarditis: recommendations by the American Heart Association. Circulation 2007;116:1736-1754.

III. ABSTRACTS OF PRESENTATIONS

Antibiotic Prophylaxis for infective Endocarditis: Past, Present and Future

Dr. Fong Nai Chung
Department of Paediatrics and Adolescent Medicine, Princess Margaret Hospital

Ever since the 1997 American Heart Association (AHA) guidelines on prevention of infective endocarditis (IE) was published, many physicians have questioned the efficacy of prophylaxis in patients that undergo a dental, genitourinary (GU) or gastrointestinal (GI) procedures. The advent of evidence based medicine showed that most cases of IE were not related to invasive procedures but as a result of bacteremia from routine daily activities as well as the recognition of the possibility of IE prophylaxis failure. Maintenance of optimal oral health is considered more important than prophylactic antibiotics to reduce the risk of IE. In this connection, AHA revised the guidelines in 2007 which identified the following four groups of cardiac conditions with the highest risk of adverse outcome from IE and are the ones in which prophylaxis is recommended:

1. Prosthetic cardiac valve or prosthetic material used for cardiac valve repair
2. Previous Infective Endocarditis
3. Congenital Heart Disease (CHD)
   - Unrepaired cyanotic CHD, including palliative shunts and conduits
   - Completely repaired congenital heart defect with prosthetic material or device, whether placed by surgery or by catheter intervention, during the first 6 months after the procedure
   - Repaired CHD with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device (which inhibit endothelialization)
4. Cardiac Transplantation recipients who develop cardiac valvulopathy.

These four groups of patients should:

1. Receive antibiotics prophylaxis for all dental procedures that involve manipulation of gingival tissue or the periapical region of teeth or perforation of the oral mucosa.
2. Prophylaxis may be given for respiratory tract procedure that involves incision or biopsy of the respiratory mucosa.
3. Antibiotic prophylaxis to prevent IE is not recommended for GU or GI procedures.
4. First line therapy recommended includes amoxicillin or ampicillin and if allergic to penicillin, clindamycin or azithromycin is to be used. Antibiotics should be administered in a single dose before the procedure.

Cardiac patients besides the above four groups do not require antibiotics prophylaxis for invasive procedures. The guidelines by the British Society for Antimicrobial Chemotherapy (2006), the Cardiac Society of Australia and New Zealand (2008) and the European Society of Cardiology (2009) made similar recommendation. The 2008 UK Department of Health guideline developed by the National Institute for Health and Clinical Excellence (NICE) was an even more radical departure from earlier guidelines in that it recommended antibiotic prophylaxis used solely to prevent infective endocarditis not be given to patients, regardless of their risk status, undergoing dental and invasive medical procedures.

This 2007 AHA recommendation are more clear for healthcare providers regarding to which patient should undergo prophylaxis in comparison with previous ones and are expected to reduce antibiotic resistance that increased during the past years as a result of previous antibiotic prophylaxis for IE.

However, these dramatic changes may cause confusion and worries; hence the prescription of prophylaxis should be considered on individual basis as the effect of this dramatic change on the incidence of IE is awaited.

Infective Endocarditis in Children: the Local Scene

Dr Lee Shuk Han
Department of Paediatrics and Adolescent Medicine, Queen Elizabeth Hospital

Objective: Infective endocarditis is a serious and potentially fatal infection. The recent overseas guidelines have lifted the precaution of antibiotic prophylaxis against it during surgery and dentistry for most congenital heart diseases. In this review, our aim is to study the occurrence, severity and effect of infective endocarditis on the local population, in particular in the paediatric age group, hopefully to shed some light on the issue of whether to adopt the recent guidelines or not.

Method: Since infective endocarditis requires an expensive and often multidisciplinary treatment, it is reasonable to assume that most cases are treated in the public sector. Thus the data in the public hospitals should be, to a certain extent, representative of the local scene. This is a retrospective review by the Hong Kong Society of Paediatric Cardiology, on the clinical information of the public hospitals. The review period is from January 2000 to Jun 2009. The occurrence, the patient demographics, co-morbidities especially pre-existing structural heart diseases, treatment care details, procedures performed, mortality and average length of stay were studied. The results were analyzed with the help of simple Excel functions. The patients were further broken down into the paediatric and adult age groups and their characteristics were also compared, with particular focus on children.

Results: It was found that there were 1900 episode headcounts admitted to public hospitals for treatment of infective endocarditis in the last 9.5 years. Using the data from the Hong Kong Statistics and Census Department, the incidence of infective endocarditis was estimated. It was found that infective endocarditis is a rare illness in Hong Kong. The overall incidence is 2.87 cases per100,000 person-year. However, the average length of stay is long, amounting to 42.7 days. The overall mortality is 15.2%. It is even rarer in the paediatric population but pre-existing structural heart disease is common (49%) and a significant proportion of patients require cardiac surgical treatment (14%). The most common pre-existing heart diseases are VSD, mitral valve and aortic valve diseases. The financial implication will be discussed.

Conclusion

Infective Endocarditis is a serious illness and is potentially fatal. Though the occurrence is rare especially in children, the health and financial impact on society is heavy. The common underlying heart diseases in paediatric patients with infective endocarditis are VSD, aortic and mitral valve diseases. It may be beneficial to continue targeted prophylaxis for this group of patients.

Antibiotic prophylaxis against infective endocarditis – the dentists' dilemma

Prof Nigel M King, Professor in Paediatric Dentistry,
The Prince Philip Dental Hospital, Faculty of Dentistry, University of HK

Dental students are taught that patients who have structural congenital conditions, previous infective endocarditis, acquired valvular disease and replaced valves should receive prophylactic antibiotic cover prior to certain invasive dental procedures so as to prevent infective endocarditis. Furthermore, that they are responsible medic-legally to provide this therapy if the treatment may induce bleeding within the oral cavity.

As the onset of infective endocarditis is not immediate dentists who have given prophylactic antibiotics to a patient assume that their management strategy has been successful if the patient does not contract infective endocarditis. But how many dentists have not been certain about the dose or type of antibiotic to administer? How many have forgotten to given any antibiotic? These practitioners worry for days post-operatively in case the patient subsequently contract infective endocarditis. Thinking dentists have probably asked themselves "if I forgot to give a prophylactic antibiotic and the patient did not get infective endocarditis then was it necessary to give the antibiotic for therapeutic reasons, or just for medico-legal reasons? "Am I wasting valuable antibiotics? Furthermore, should the paediatric dentist worry about inducing an allergic reaction with the antibiotic? What antibiotic should be given to the child who is known to be, or thought to be allergic to penicillin?

Until recently paediatric dentists have been faced with the dilemma of which antibiotic to prescribe and in what dose or doses. So most paediatric dentists will consult the paediatrician, or cardiologist, who is responsible for monitoring the child's cardiac condition, which means that a lot of time and man hours are used on something that may, or may not be simply a waste of time. Now the paediatric dentist is facing the dilemma of to which patients should be given antibiotics? And most importantly, if they prescribe according to one of the new guidelines, what are the medico-legal consequences if a patient contracts infective endocarditis, and who will support them?

It is difficult for a paediatric dentist to feel comfortable telling a parent, or patient that it is no longer necessary to give antibiotic prophylaxis in spite of the fact that they have been administered many times previously prior to dental treatment!

Many paediatric dentists will have questioned the need for antibiotic therapy because they know that during natural tooth exfoliation there is bleeding, also there is often some bleeding, or at least trauma to the gingival tissues during tooth brushing which will force the oral flora into the wound – yet why is it that all children with a cardiac condition do not contract infective endocarditis?

IV. Summary of Prevention of Bacterial Endocarditis Guidelines Previous Recommendations by the American Heart Association, 1997 (e)

http://www.americanheart.org/Scientific/statements/1997/079701.html

Table 1: Cardiac Conditions Associated With Endocarditis

Endocarditis prophylaxis recommended

1. High-risk category

- Prosthetic cardiac valves, including bioprosthetic and homograft valves
- Previous bacterial endocarditis
- Complex cyanotic congenital heart disease (e.g., single ventricle states, transposition of the great arteries, tetralogy of Fallot)
- Surgically constructed systemic pulmonary shunts or conduits

2. Moderate-risk category

- Most other congenital cardiac malformations (other than above and below)
- Acquired valvar dysfunction (e.g., rheumatic heart disease)
- Hypertrophic cardiomyopathy
- Mitral valve prolapse with valvar regurgitation and/or thickened leaflets

Endocarditis prophylaxis not recommended: Negligible-risk category (no greater risk)

- Isolated secundum atrial septal defect
- Surgical repair of atrial septal defect, ventricular septal defect, or patent ductus arteriosus (without residua beyond 6 mo)
- Previous coronary artery bypass graft surgery
- Mitral valve prolapse without valvar regurgitation
- Physiologic, functional, or innocent heart murmurs
- Previous Kawasaki disease without valvar dysfunction
- Previous rheumatic fever without valvar dysfunction
- Cardiac pacemakers (intravascular and epicardial) and implanted defibrillators

Table 2: Dental Procedures and Endocarditis Prophylaxis

Endocarditis prophylaxis recommended*

1. Dental extractions
2. Periodontal procedures including surgery, scaling and root planning, probing, and recall maintenance
3. Dental implant placement and reimplantation of avulsed teeth
4. Endodontic (root canal) instrumentation or surgery only beyond the apex
5. Subgingival placement of antibiotic fibers or strips
6. Initial placement of orthodontic bands but not brackets
7. Intraligamentary local anesthetic injections
8. Prophylactic cleaning of teeth or implants where bleeding is anticipated

Endocarditis prophylaxis not recommended
1. Restorative dentistry† (operative and prosthodontic) with or without retraction cord‡
2. Local anesthetic injections (nonintraligamentary)
3. Intracanal endodontic treatment; post placement and buildup
4. Placement of rubber dams
5. Postoperative suture removal
6. Placement of removable prosthodontic or orthodontic appliances
7. Taking of oral impressions
8. Fluoride treatments
9. Taking of oral radiographs
10. Orthodontic appliance adjustment
11. Shedding of primary teeth

*Prophylaxis is recommended for patients with high- and moderate-risk cardiac conditions.

†This includes restoration of decayed teeth (filling cavities) and replacement of missing teeth.

‡Clinical judgment may indicate antibiotic use in selected circumstances that may create significant bleeding.

Table 3: Other Procedures and Endocarditis Prophylaxis

Endocarditis prophylaxis recommended
Respiratory tract
1. Tonsillectomy and/or adenoidectomy
2. Surgical operations that involve respiratory mucosa
3. Bronchoscopy with a rigid bronchoscope
Gastrointestinal tract*
1. Sclerotherapy for esophageal varices
2. Esophageal stricture dilation
3. Endoscopic retrograde cholangiography with biliary obstruction
4. Biliary tract surgery
5. Surgical operations that involve intestinal mucosa
Genitourinary tract
1. Cystoscopy
2. Urethral dilation
Endocarditis prophylaxis not recommended
Respiratory tract
1. Endotracheal intubation
2. Bronchoscopy with a flexible bronchoscope, with or without biopsy†
3. Tympanostomy tube insertion

Gastrointestinal tract

1. Transesophageal echocardiography†
2. Endoscopy with or without gastrointestinal biopsy†

Genitourinary tract

Urethral catheterization

Other

1. Cardiac catheterization, including balloon angioplasty
2. Implanted cardiac pacemakers, implanted defibrillators, and coronary stents
3. Incision or biopsy of surgically scrubbed skin
4. Circumcision

*Prophylaxis is recommended for high-risk patients; it is optional for medium-risk patients.

†Prophylaxis is optional for high-risk patients.

NEW AHA Guidelines on Prevention of Infective Endocarditis, 2007

Table 1: Primary Reasons for Revision of the Infective Endocarditis (IE) Prophylaxis Guideline:

1. Infective Endocarditis (IE) is much more likely to result from frequent exposure to random bacteremias associated with daily activities than from bacteremia caused by a dental, gastrointestinal (GI) tract, or genital urinary (GU) tract procedure.
2. Prophylaxis may prevent an exceedingly small number of cases of IE, if any, in individuals who undergo a dental, GI tract or GU tract procedure.
3. The risk of antibiotic-associated adverse events exceeds the benefit, if any, from prophylactic antibiotic therapy.
4. Maintenance of optimal oral health and hygiene may reduce the incidence of bacteremia from daily activities and is more important than prophylactic antibiotics for a dental procedure to reduce the risk of IE.

Table 2: Cardiac Condition Associated with the Highest Risk of Adverse Outcome From Endocarditis for Which Prophylaxis With Dental Procedures is recommended.

1. Prosthetic cardiac valve or prosthetic material used for cardiac valve repair
2. Previous Infective Endocarditis
3. Congenital Heart Disease (CHD) *
   - Unrepaired cyanotic CHD, including palliative Shunts and conduits
   - Completely repaired congenital heart defect with prosthetic material or device, whether placed by surgery or by catheter intervention, during the first 6 months after the procedure
   - Repaired CHD with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device (which inhibit endothelialization)
4. Cardiac Transplantation recipients who develop cardiac valvulopathy

* Except for the conditions listed above, antibiotic prophylaxis is no longer recommended for any other form of CHD. # Prophylaxis is recommended because endothelialization of prosthetic material occurs within 6 months after the procedure.

Regimes Recommended

General Principles

- An antibiotic for prophylaxis should be administered in a single dose before the procedure.
- If the dosage of antibiotic is inadvertently not administered before the procedure, the dosage may be administered up to 2 hours after the procedure. However, administration of the dosage after the procedure should be considered only when the patient did not receive the pre-procedure dose.

Regimes for Dental Procedures

Table 3: Dental Procedures for Which IE Prophylaxis is recommended for patients in Table 2

All dental procedures that involve manipulation of gingival tissue or the periapical region of teeth or perforation of the oral mucosa*

* The following procedures and events do not need prophylaxis: routine anesthetic injections through noninfected tissue, taking dental radiographs, placement of removable prosthodontic or orthodontic appliances, adjustment of orthodontic appliances, placement or orthodontic brackets, shedding of deciduous teeth, and bleeding from trauma to the lips or oral mucosa.

Table 4: Regimes for dental Procedure

		Regime: Single Dose 30-60 min Before Procedure	
Situation	**Agent**	**Adults**	**Children**
Oral	Amoxicillin	2 grams	50 mg/kg
Unable to take oral medications	Ampicillin	2 grams IM or IV	50 mg/kg IM or IV
	or		
	Ceftriaxone*	1 gram IM or IV	50 mg/kg IM or IV
Allergic to Penicillins or ampicillin – oral	Cephalexin*	2 grams	50 mg/kg
	or		
	Clindamycin	600 mg	20 mg/kg
	or		
	Axithromycin/ Clarithromycin	500 mg	15 mg/kg
Allergic to penicillins or ampicillin and unable to take oral medication	Ceftriaxone*	1 gram IM or IV	50 mg/kg IM or IV
	or		
	Clindamycin	600 mg IM or IV	20 mg/kg IM or IV

IM indicates intramuscular; IV, intravenous

*Cephalosporins should not be used in an individual with a history of anaphylaxis, angioedema or urticaria with penicillins or ampicillin.

Table 5: Regimes for other procedures

Antibiotic prophylaxis is recommended for procedures on *respiratory tract* or *infected skin, skin structures*, or *musculoskeletal tissue*[*] only for patients with underlying cardiac conditions associated with the highest risk of adverse outcome from IE (Table 2).

Antibiotic prophylaxis ***solely*** to prevent IE is not recommended for *gastrointestinal (GI) tract* or *genitourinary (GU) tract*[#].

The writing group reaffirms the procedures noted in 1997 prophylaxis guidelines for which endocarditis prophylaxis is not recommended and extends this to other common procedures, including ear and body piercing, tattooing, and vaginal delivery and hysterectomy.

---

* If the infection is known or suspected to be caused by staphylococcus aureus, the regimen should contain an agent active against S aureus and β-hemolytic streptococci, such as an anti-staphylococcal penicillin or cephalosporin (Table 4 for dosage), or vancomycin (20 mg/kg IV) in patients unable to tolerate a β-lactam. Vancomycin should be administered if the infection is known or suspected to be caused by a methicillin-resistant strain of S aureus.

For patients with the conditions listed in Table 2 who have an **established** GI or GU tract infection or for those who receive antibiotic therapy to prevent wound infection or sepsis associated with a GI or GU tract procedure, it may be reasonable that the antibiotic regimen include an agent active against enterococci, such as penicillin, ampicillin, piperacillin, or vancomycin.

Table 6: Specific Situations and circumstances

Patients already receiving antibiotics

If a patient is already receiving long-term antibiotic that is also recommended for IE prophylaxis for a dental procedure, it is prudent to select an antibiotic from a different class rather than to increase the dosage of the current antibiotic.

Patients who receive anticoagulants

Intramuscular injections for IE prophylaxis should be avoided in patients who are receiving anticoagulant therapy. In these circumstances, orally administered regimens should be given whenever possible. Intravenously administered antibiotics should be used for patients who are unable to tolerate or absorb oral medications.

Patients who undergo cardiac surgery

A careful preoperative dental evaluation is recommended so that required dental treatment may be completed whenever possible before cardiac valve surgery or replacement or repair of CHD.

NEW NICE clinical guideline 64 – Prophylaxis against infective endocarditis

1.1 List of all recommendations

Adults and children with structural cardiac defects at risk of developing infective endocarditis

1.1.1 Healthcare professionals should regard people with the following cardiac conditions as being at risk of developing infective endocarditis:

- acquired valvular heart disease with stenosis or regurgitation
- valve replacement
- structural congenital heart disease, including surgically corrected or palliated structural conditions, but excluding isolated atrial septal defect, fully repaired ventricular septal defect or fully repaired patent ductus arteriosus, and closure devices that are judged to be endothelialised
- previous infective endocarditis
- hypertrophic cardiomyopathy.

Patient advice

1.1.2 Healthcare professionals should offer people at risk of infective endocarditis clear and consistent information about prevention, including:

- the benefits and risks of antibiotic prophylaxis, and an explanation of why antibiotic prophylaxis is no longer routinely recommended
- the importance of maintaining good oral health
- symptoms that may indicate infective endocarditis and when to seek expert advice
- the risks of undergoing invasive procedures, including non-medical procedures such as body piercing or tattooing.

Prophylaxis against infective endocarditis

1.1.3 Antibiotic prophylaxis against infective endocarditis is not recommended:

- for people undergoing dental procedures
- for people undergoing non-dental procedures at the following sites1:
  - −upper and lower gastrointestinal tract
  - −genitourinary tract; this includes urological, gynaecological and obstetric procedures, and childbirth
  - −upper and lower respiratory tract; this includes ear, nose and throat procedures and bronchoscopy.

1.1.4 Chlorhexidine mouthwash should not be offered as prophylaxis against infective endocarditis to people at risk of infective endocarditis undergoing dental procedures.

Infection

1.1.5 Any episodes of infection in people at risk of infective endocarditis should be investigated and treated promptly to reduce the risk of endocarditis developing.

1.1.6 If a person at risk of infective endocarditis is receiving antimicrobial therapy because they are undergoing a gastrointestinal or genitourinary procedure at a site where there is a suspected infection, the person should receive an antibiotic that covers organisms that cause infective endocarditis.

V Case Scenario for discussion

Case One:

A five year-old boy with complex congenital heart disease (CHD) and a palliative shunt undergoing tonsillectomy –according to guideline, antibiotics may be considered.—ENT advice

Case Two:

A child with supracristal ventricular septal defect (VSD)/ Aortic Regurgitation (AR) /aortic valve prolapse undergoing Transesophageal Echocardiogram (TEE). Should we give prophylactic antibiotics for Infective Endocarditis (IE)?

Case Three:

A young girl with previous bacterial infective endocarditis undergoing colonoscopy +/- biopsy for suspected inflammatory bowel disease. Should we give prophylactic antibiotics for IE?

Case Four:

A boy with ventricular septal defect (VSD) undergoing circumcision, should we give prophylactic antibiotics?

Case Five:

Patient with rheumatic heart disease/ Aortic Regurgitation (AR) but never has endocarditis, should monthly IMI penicillin prophylaxis be taken off? Should prophylaxis be given for dental procedures that involve manipulation of gingival tissue or the periapical region of teeth or perforation of the oral mucosa – Australian consider Aborigines with rheumatic heart disease without endocarditis as at risk group.

Case Six:

For a child with ventricular septal defect and multiple dental caries undergo extractions, should we give prophylactic antibiotics?

NOTES

Past and Present

- The story of paediatric cardiology began in the 60s and 70s when a group of young and dedicated doctors went on a never-ending journey through the desert
- With their commitment and enthusiasm, they were successful in clearing up the sand and rocks and built a great road with roses .....
- The spirit will go on and here are new groups in each generation, following their path

Separation of Conjoint Twin by Cardiopulmonary Bypass, Grantham Hospital, 1982



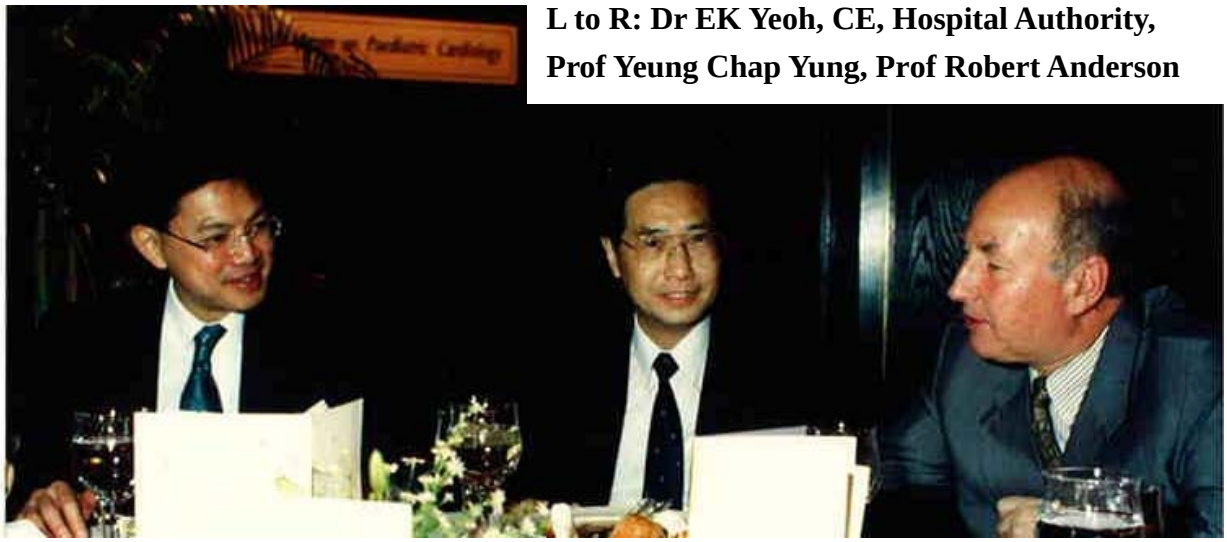


Balloon Valvuloplasty Program conducted by late Professor Robert Freedom, GH,

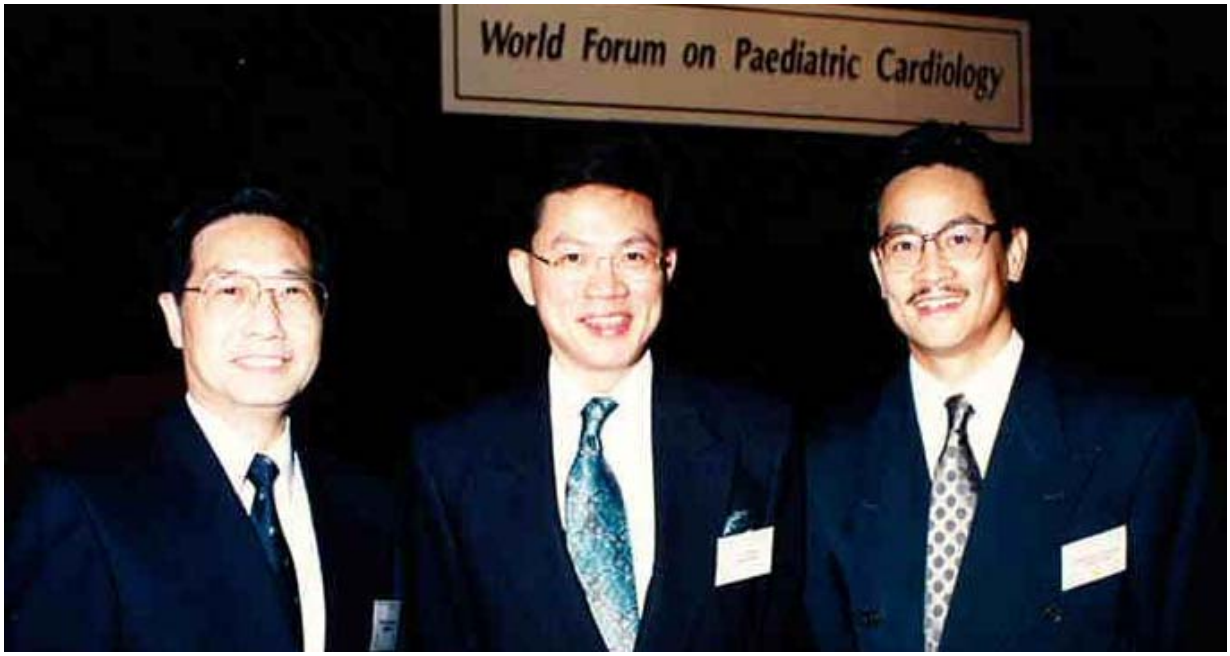

L to R: Dr. Lau Kai Chiu, Dr Ng Yin Ming, Dr. Roxy Lo, Dr Lai Kin Ming, Dr Wai Kee Ho

The World Forum on Paediatric Cardiology organized by Grantham Hospital, University of Hong Kong, Grand Hyatt Hotel, 1992

Centre:
Vice Chancellor of the University of Hong Kong



L to R: Dr EK Yeoh, CE, Hospital Authority, Prof Yeung Chap Yung, Prof Robert Anderson



3rd from right: Dr Gordon Danielson, (Surgeon of Mayo Clinic, USA)

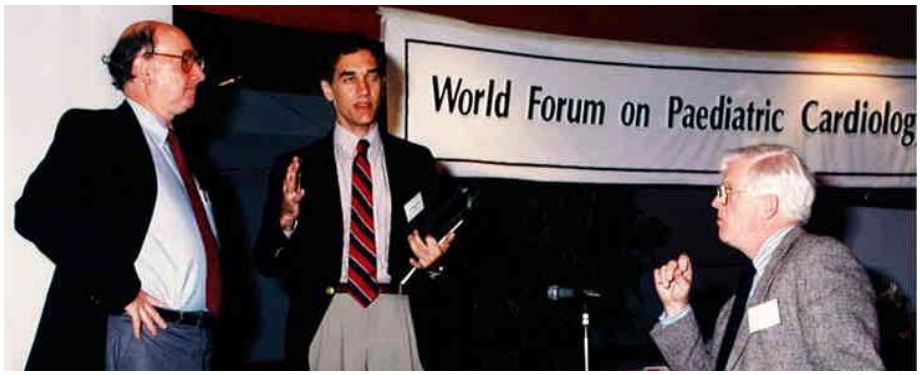
L to R: Prof Mok Che Keung, Prof Robert Anderson

2nd left: Dr Michael Tynan

Right:
Dr. Chiu Shui Wah Clement

Above Right: Dr. Victor Tsang (Surgeon of GOS, UK)

International attendance



L to R:
Prof RH Anderson,
Dr Richard Jonas,
cardiac surgeon
(Boston),
Dr Siewers, cardiac
surgeon (Pittsburgh)

R to L:
Dr Kurosawa,
cardiac surgeons
(Japan),
Dr Roger Mee,
cardiac surgeon

L to R:
Dr. AW Aitkin,
Dr R J Morais,
Dr. Sudhaman,
Arul
Devasirvatham
(Anaesthetic
Team)

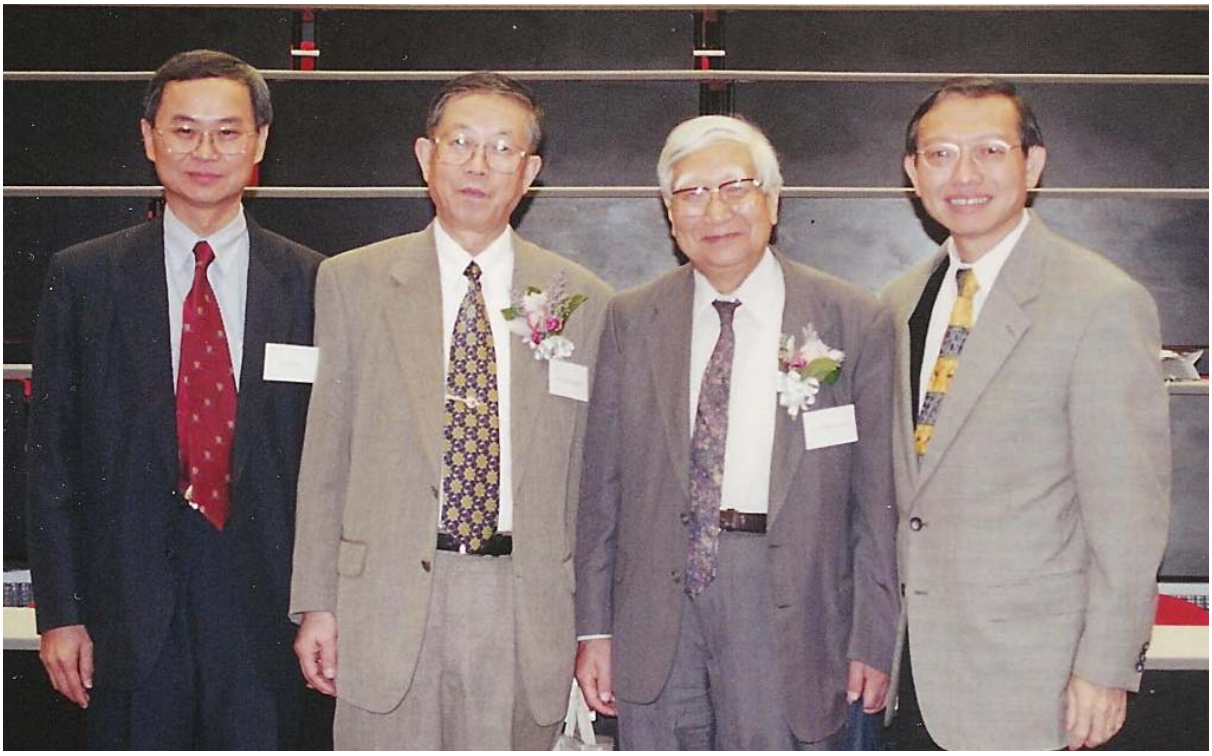
Grantham Hospital, 1997

Demonstration of Ridel's coil for duct occlusion: 2nd left: Prof. Ridel

Retirement of Dr Lee Wai Tsun, Jan, former Consultant Cardiac Surgeon, GH

Dr Tomisaku Kawasaki's Visit to Hong Kong, organized by Prince of Wales Hospital, 90s

Right: Prof Rita Sung



Above: Mrs and Dr Tomisaku Kawasaki

QEH Catheter Interventional Program conducted by Dr TH Goh from RCH, 1995

QEH ASD Device Closure Program conducted by Dr J Wilkinson from RCH, 1999

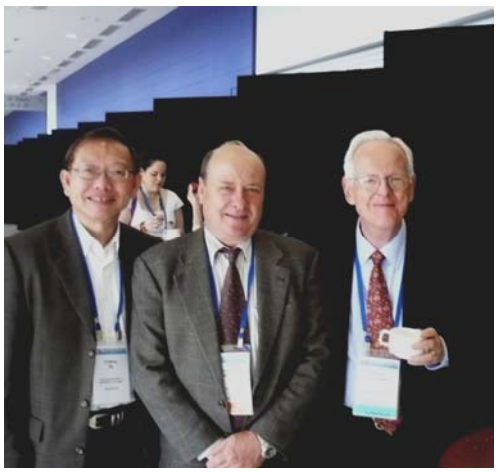
QEH Cardiac Surgical Program conducted by Dr Tom Karl, Dr Christian Brizard, Dr Jim Wilkinson, Dr Dan Penny and the Melbourne Team, 1996, 2000, 2002

Dr Lau Kai Chiu, Visiting Professor of QEH, 2009

Overseas International Exchanges: 2nd World Congress of Paed Card & Surg, Hawaii, 97

Left: Prof Richard Van Praagh, Right: Dr Stella Van Praagh, Boston Children's Hospital, 1997

Right to Left: Prof R Van Praagh, Dr Roger Mee, PCCS 2009, Cairns



Centre: Professor Alain Carpentier, Heart Valve Surgery Conference, Vietnam, 2003

International Kawasaki Disease Symposium, San Diego, 2003

Front row, 2nd right: Dr Mazeni Alwi, IJN Live, Malaysia, 2004

1st Asia-Pacific Conference of Paediatric Cardiology and Cardiac Surgery, Thailand, 06

2nd Asia-Pacific Conference of Paediatric Cardiology and Cardiac Surgery, Korea, 08

HK College of Cardiology, 1995

Committee Meeting: HKSPC, 2009

Appendix 1:

Some More Important Milestones of Paediatric Cardiology Development in Hong Kong

YEAR	EVENT	HOSPITAL INVOLVED	PERSONEL INVOLVED
50s and 60s	In-service Training in Cardiology (Mainly adult cardiology)	QMH*, KH*, QEH*	Dr Joseph Pan and Dr Robert Barnes
1955	First Closed Mitral Valvotomy (adult)	KH	
1956	First Cardiac Catheterization (adult)	QMH	Dr Joseph Pan and Dr Robert Barnes
1964-	First Open-Heart Surgery for Congenital Heart Disease	QMH	Professor Tan Sri Guan Bee Ong
1965	Permanent Cardiac Pacemaker with Epicardial Leads (adult)	QMH	
1967	Atrial Septal Defect Closure under Hypothermia	KH	Dr. Grigg Lindsay/ Dr. Lo Wan-Shun/ Dr. Barnes RJ
1967	The Hong Kong Cardiological Society		Dr K.F. Woo (Foundation president)
1968	Open heart surgery unit with cardiopulmonary bypass facility ASD Closure	GH*	Dr. Kwong Kwok Hay/ Dr. Butt Nancy
1969	First Transvenous Permanent Cardiac Pacing (adult)	QEH	
1971	Cardiac Catheterization for children by adult cardiologists and radiologists	QEH	Dr Kong Siu Ming, Dr Pao Wing Iu and Radiologists,
1972	Establishment of Paediatric Cardiac Division in HK	QMH	Prof. Gary Kneebone, Dr Wai Kee Ho
1972	Dedicated Paediatric Cardiac Catheterization	QMH	Dr Wai Kee Ho
1970s	Joint Cardiac Conference with Adult Cardiologists	QMH	Dr Wai Kee Ho, Dr Tse Tak Fu
1973	Cardiac Catheterization by Paediatric Cardiologists, shared lab	QEH	Dr Ng Yik, Dr Anita Tam
1975	Neonatal and Infant Heart Operation	GH	Prof. Mok Che Keung
1976	Neonatal Cardiac Catheterization, shared lab	QEH	Dr Anita Tam, Dr Chan Man Cheung, Dr Ko Sai Cheung
1976	Joint Cardiac Meeting between GH and QEH	QEH	Dr Kong Siu Ming, Dr Anita Tam, Dr Chan Man Cheung, Prof Mok Che Keung, Dr Cheung King Loong
1978	First Paediatric Cardiac Cath Lab	GH	Dr Wai Kee Ho
1980	Paediatric Cardiac Unit in GH	GH	Prof Yeung Chap Yung, Dr Lau Kai Chiu

1980	Joint Cardiac Meeting between GH and QEH relocated to GH	GH	Dr Lau Kai Chiu, Dr. Chan Man Cheung and Dr. Anita Tam
1981	Atrial Switch Operation for Transposition of great arteries	GH	Prof. Mok Che Keung/ Dr. Lee Wai Tsun
1982	Separation of Conjoined twins	GH	Prof. Mok Che Keung and Prof. Harry Saing
1982	Fontan Operation	GH	Prof. Mok Che Keung/ Dr. Lee Wai Tsun
1982	Joint Cardiac Assessment Clinic	GH	Dr Lau Kai Chiu, Dr Ng Yin Ming, Dr Leung Nin Ming, Dr. Roxy Lo
1983	2-D Echocardiography	GH	Dr. Lau Kai Chiu, Dr Ng Yin Ming, Dr Leung Nin Ming, Dr. Lo Roxy
1984	2-D Echocardiography	QEH	Dr. Ng Yin Ming, Dr. Leung Nin Ming
1984	Balloon Angioplasty	GH	Professor Robert Freedom/ Dr. Lau Kai Chiu
1985	Establish Paediatric Cardiac Service	PWH*	Dr Rita Sung
1986	Cardiac catheterization	PWH	Dr Rita Sung
1988	Neonatal Arterial Switch	GH	Prof. Mok Che Keung
1989	Open and close heart surgery	PWH	Dr Jonathan Ho
1989	Percutaneous pulmonary valvuloplasty	PWH	Dr Rita Sung; Dr So Lok Yee
1989	Fetal echocardiography	PWH	Dr So Lok Yee
1990	Arterial Switch Operation Programme	GH	Dr. Chiu Shui Wah
1990	Fetal Echocardiography	TYH* & GH	Dr. Arabinda Ghosh/ Dr. Woo Sai Kit/ Dr. Roxy Lo
1991	Fetal Echocardiography	QEH	Dr Lee Shuk Han Maria
1991	PDA Occlusion by Rashkind Device	GH	Dr. Kazu Koike/ Prof. Leung Ping Maurice
1992	PDA Occlusion By Rashkind	GH	Professor Michael Tynan/ Prof. Leung Ping Maurice
1992	TEE in Children	GH	Prof. Leung Ping Maurice
1993	Intraoperative TEE in Children	GH	Prof. Leung Ping Maurice
1993	Joint Fetal Echocardiography and Counselling service	QEH	Dr Lee Shuk Han Maria, Obstetricians, QEH
1993	Transesophageal overdrive pacing of neonatal SVT	QEH	Dr Chan Kwok Chiu
1993	Paediatric Arrhythmia Service	QEH	Dr Chan Kwok Chiu
1993	Cardiothoracic Department of KH moved to QEH	QEH	Dr. Ho Kwok Keung, Dr. Kyaw Kyaw
1993	Establishment of Hong Kong Kawasaki Disease Study Group	Inter-hospital	Dr Ng Yin Ming (Convenor), Dr Rita Sung (Hon. Secretary)
1994	Paed Radiofrequency Ablation Service	GH	Dr. Yung Tak Cheung

1994	Percutaneous pulmonary valve balloon angioplasty	QEH	Dr. Ng Yin Ming, Dr. Lee Shuk Han, Dr. Chan Kwok Chiu, Dr Dora Wong
1994	Closed heart operation – PDA ligation, BT shunt, coarctation repair	QEH	Dr. Ho Kwok Keung, Dr Ng Yin Ming
1994	Stenting of Vessels	GH	Dr. C Bull/ Prof. Leung Ping Maurice/ Dr. Chau Kai Tung
1994	ASD Occlusion by Sideris Device	GH	Dr. Eleftherios B Sideris/ Prof. Leung Ping Maurice
1995	Establishment of HK College of Cardiology		Paediatric chapter: Prof. Leung Ping Maurice
1995	PDA Coil Occlusion	GH	Professor Ridel/ Prof. Leung Ping Maurice
1995	PDA Coil Occlusion	QEH	Dr. TH Goh, Dr. Ng Yin Ming, Dr. Lee Shuk Han Maria, Dr. Chan Kwok Chiu, Dr. Dora Wong, Dr. Lun Kin Shing
1995	Transesophagel Echo	QEH	Dr Ng Yin Ming, Dr. Dora Wong, Dr. Lee Shuk Han Maria, Dr. Chan Kwok Chiu
1995	Neontatal Transport	QEH	Dr Lee Wai Hong, Dr Law Chi Wai
1996	Neontatal Transport	QMH/ GH	Dr. Tsoi Nei Shun/ Prof. Leung Ping Maurice/ Dr. Cheung Yiu Fai
1996	Open heart operation and Intraoperative TEE	QEH	Dr. Tom Karl, Dr. Ho Kwok Keung, Dr Ng Yin Ming, Dr Lee Shuk Han Maria, Dr Dora Wong, Dr Chan Kwok Chiu
1996	Laser Assisted Valvuloplasty – pulmonary atresia	GH	Prof. Leung Ping Maurice/ Dr. Chau Kai Tung
1998	Nitric Oxide in Paediatric Cardiac Surgery	GH	Dr. Tsoi Nei Shun/ Dr. Arul Devasirvatham Sudhaman
1998	Tilt table Test Service for children	PMH*	Dr Fong Nai Chung
1999	Interventional cath: more sophisticated technique e.g. coronary AV Fistula coil occlusion	QEH	Dr. Alwi Mazeni / Dr. Ng Yin Ming/ Dr. Lee Shuk Han Maria/ Dr. Dora Wong/ Dr. Lun Kin Shing
1999	ASD Occlusion by Amplatzer Device	GH	Dr. Hijazi Ziyad/ Prof. Leung Ping Maurice/ Dr. Chau Kai Tung Adolphus
1999	ASD occlusion by Amplatzer Device	QEH	Prof. James Wilkinson, Dr. Ng Yin Ming, Dr. Lee Shuk Han Maria, Dr. Dora Wong, Dr. Lun Kin Shing
1999	Vascular Endothelial Function Research	GH / QMH	Dr. Cheung Yiu Fai
99/ 00	Valve Conduit (Homograft) Operation	GH	Dr. Chiu Shui Wah/ Dr. Victor Tsang
2000	MRI (Cardiac)	PWH	Dr Wong Ka Tak, Dr Winnie Chu

2001	LVAD Insertion (Berlin Heart)	GH	Dr. Yuguo Weng (Berlin), Dr. Chiu Shui Wah, Dr. Subid Ranjan Das, Dr. Chau Kai Tung Adolphus
2001	Mechanical Circulatory Support (LVAD)	GH	Dr. Chau Kai Tung Adolphus
2001	Tilt table Test Service for children	QEH	Dr Lee Shuk Han Maria, Dr Boron Cheng
2001	Joint adult congenital heart disease clinic	QEH	Dr Ng Yin Ming, Dr. Ho Kwok Keung, Dr Boron Cheng
2002	Paediatric Heart Valve Surgery	QEH	Dr. Christian Brizard, Dr. Ho Kwok Keung, Dr Ng Yin Ming, Dr Lee Shuk Han, Dr Dora Wong, Dr Poon Kam Ha
2002	Treatment of pulmonary hypertension by Sildenafil	PWH	Dr Yam Man Ching
2003	Multi detectors CT: coronary angio in KD	PWH	Dr Wong Ka Tak, Dr Winnie Chu
2005	Interventional VSD device occlusion	Adventist Hospital	Dr. Leung Ping Maurice
2005	Interventional VSD device occlusion	GH	Dr. Chau Kai Tung,
2005	Dedicated Paediatric Cardiology Service: Echo, Treadmill, Holter study	TMH*	Dr Vinson Cheng
2005	Marfan Syndrome Clinic	TMH	Dr Vinson Cheng
2006	Cryoablation	GH	Dr. Yung Tak Cheung
2007	1st oscillometric BP chart for HK children	PWH	Dr Rita Sung
2008	Paediatric 3D Echocardiography	QEH	Dr Ng Yin Ming, Dr Lee Shuk Han Maria, Dr Dora Wong, Dr Louisa Poon
2008	Relocation of Paediatric Cardiac Unit to QMH	QMH	Prof Lau Yu Lung, Dr Chau Kai Tung
2009	First Paediatric heart transplant	QMH	Dr. Cheng Lik Cheung and Dr. Chau Kai Tung,
2009	Establishment of Hong Kong Society of Paediatric Cardiology	Inter-hospital	Prof Leung Ping Maurice, Dr Ng Yin Ming and others

*** Abbreviations:**

GH = Grantham Hospital KH = Kowloon Hospital TYH = Tsan Yuk Hospital

PMH = Princess Margaret Hospital PWH = Prince of Wales Hospital TMH = Tuen Mun Hospital

QEH = Queen Elizabeth Hospital QMH = Queen Mary Hospital

Sources:

Patrick WI Pau. Development of Cardiovascular Medicine in Hong Kong, J HK Coll Cardiol, Vol 1, Jan 1993

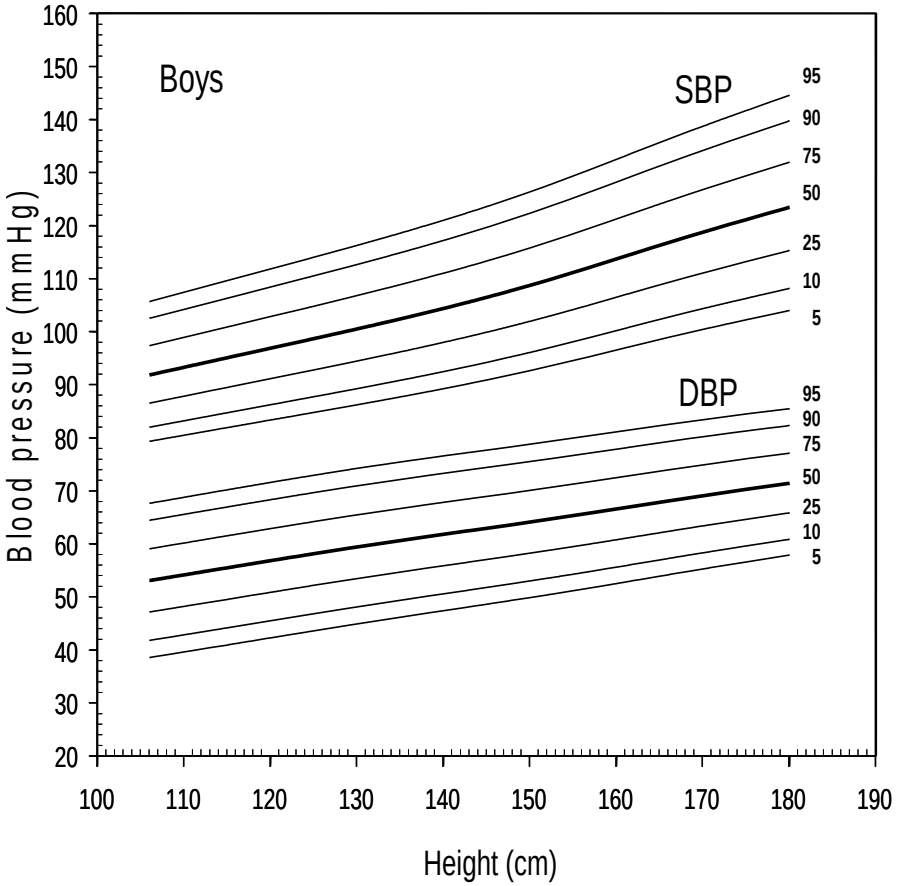
Committee Members of HK Society of Paediatric Cardiology; Paediatric Cardiac Division, QMH

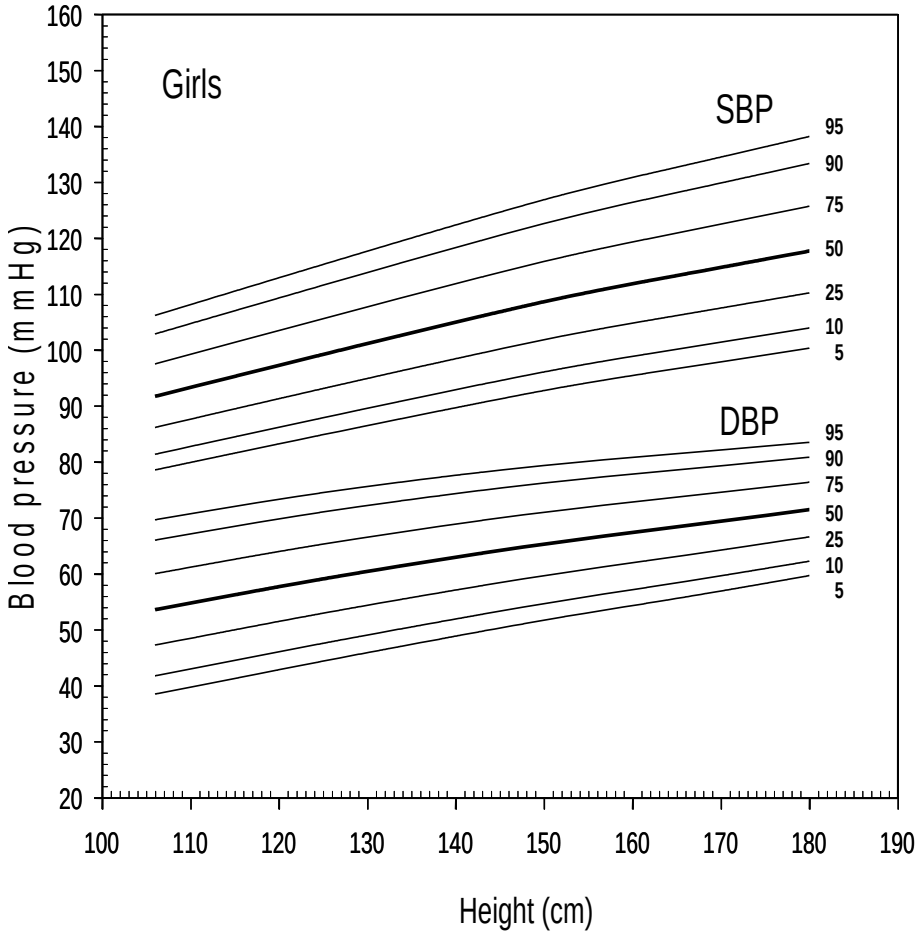
Remarks: The list is for reference only and not exhaustive due to the short time frame of its preparation

Editors of table: Dr Maurice P Leung, Dr YM Ng, Dr Maria SH Lee (to the best of their knowledge)

Appendix 2: Blood Pressure reference charts

(Reproduced with permission from Dr Rita Sung and Hong Kong Paediatric Foundation)





Age (yrs)		Male SBP (mmHg)							Male DBP (mmHg)						
6	Height (cm)	109	111	114	117	120	123	125	109	111	114	117	120	123	125
BP centile	5th	74	75	76	78	80	81	82	38	39	39	40	41	42	43
	50th	91	92	94	95	97	99	100	52	53	54	55	55	56	57
	90th	105	106	107	109	111	112	113	63	64	65	66	67	67	68
	95th	108	109	111	113	114	116	117	67	67	68	69	70	71	71
	99th	116	116	118	120	121	123	124	73	73	74	75	76	76	77
7	cm	114	116	119	122	126	129	131	114	116	119	122	126	129	131
BP centile	5th	77	78	79	81	83	84	85	41	41	42	43	44	45	45
	50th	94	95	97	98	100	102	103	55	56	56	57	58	59	60
	90th	108	109	110	112	114	115	116	66	67	68	68	69	70	71
	95th	111	112	114	116	117	119	120	69	70	71	72	72	73	74
	99th	118	119	121	123	124	126	127	75	76	77	77	78	79	80
8	cm	118	120	124	128	132	135	137	118	120	124	128	132	135	137
BP centile	5th	79	80	82	83	85	87	88	43	43	44	45	46	47	47
	50th	96	97	99	101	102	104	105	57	58	58	59	60	61	61
	90th	110	111	112	114	116	117	118	68	69	69	70	71	72	73
	95th	114	115	116	118	120	121	122	71	72	73	74	74	75	76
	99th	121	122	123	125	127	128	129	77	78	79	79	80	81	82
9	cm	123	125	129	133	137	141	143	123	125	129	133	137	141	143
BP centile	5th	81	82	83	85	87	89	89	44	45	46	46	47	48	49
	50th	98	99	101	102	104	106	107	58	59	60	61	62	62	63
	90th	112	113	114	116	118	119	120	70	70	71	72	73	73	74
	95th	115	116	118	120	121	123	124	73	73	74	75	76	77	77
	99th	123	124	125	127	129	130	131	79	79	80	81	82	83	83
10	cm	128	131	134	139	143	147	149	128	131	134	139	143	147	149
BP centile	5th	83	84	85	87	89	90	91	45	46	47	48	48	49	50
	50th	100	101	103	104	106	108	108	60	60	61	62	63	64	64
	90th	113	114	116	118	119	121	122	71	71	72	73	74	75	75
	95th	117	118	120	121	123	125	126	74	74	75	76	77	78	78
	99th	124	125	127	129	130	132	133	80	80	81	82	83	84	84
11	cm	134	136	140	145	149	154	156	134	136	140	145	149	154	156
BP centile	5th	85	86	87	89	91	92	93	46	47	48	49	49	50	51
	50th	102	103	105	106	108	110	111	61	61	62	63	64	65	65
	90th	116	116	118	120	121	123	124	72	72	73	74	75	76	76
	95th	119	120	122	124	125	127	128	75	75	76	77	78	79	79
	99th	126	127	129	131	132	134	135	81	81	82	83	84	85	85
12	cm	140	142	147	151	156	160	163	140	142	147	151	156	160	163
BP centile	5th	87	88	90	91	93	95	96	47	48	49	50	51	51	52
	50th	104	105	107	109	110	112	113	62	62	63	64	65	66	66
	90th	118	119	120	122	124	125	126	73	73	74	75	76	77	77
	95th	122	123	124	126	128	129	130	76	76	77	78	79	80	80
	99th	129	130	131	133	135	136	137	82	82	83	84	85	86	86
13	cm	146	149	153	158	163	167	169	146	149	153	158	163	167	169
BP centile	5th	90	91	92	94	96	97	98	49	49	50	51	52	52	53
	50th	107	108	110	111	113	115	115	63	63	64	65	66	67	67
	90th	120	121	123	125	126	128	129	74	74	75	76	77	78	78
	95th	124	125	127	128	130	132	133	77	78	78	79	80	81	81
	99th	131	132	134	136	137	139	140	83	83	84	85	86	87	87
14	cm	152	154	159	163	168	172	175	152	154	159	163	168	172	175
BP centile	5th	93	94	95	97	99	100	101	50	50	51	52	53	54	54
	50th	110	111	112	114	116	117	118	64	65	65	66	67	68	69
	90th	123	124	126	128	129	131	132	75	76	77	77	78	79	80
	95th	127	128	130	131	133	135	136	78	79	80	81	81	82	83
	99th	134	135	137	138	140	142	143	84	85	86	86	87	88	89
15	cm	156	159	163	167	172	176	178	156	159	163	167	172	176	178
BP centile	5th	96	97	98	100	102	103	104	51	52	53	53	54	55	56
	50th	113	114	115	117	119	120	121	66	66	67	68	69	69	70
	90th	126	127	129	130	132	134	135	77	77	78	79	80	81	81
	95th	130	131	132	134	136	138	138	80	80	81	82	83	84	84
	99th	137	138	140	141	143	145	146	86	86	87	88	89	90	90
16	cm	159	162	166	170	174	178	180	159	162	166	170	174	178	180
BP centile	5th	98	99	101	102	104	106	107	53	53	54	55	56	57	57
	50th	115	116	118	120	121	123	124	67	67	68	69	70	71	71
	90th	129	130	131	133	135	136	137	78	79	79	80	81	82	82
	95th	133	134	135	137	139	140	141	81	82	83	83	84	85	86
	99th	140	141	142	144	146	147	148	87	88	88	89	90	91	92
17	cm	162	164	167	172	176	179	181	162	164	167	172	176	179	181
BP centile	5th	100	101	103	104	106	108	109	54	55	55	56	57	58	58
	50th	117	118	120	122	123	125	126	68	69	70	71	71	72	73
	90th	131	132	133	135	137	138	139	79	80	81	82	83	83	84
	95th	135	135	137	139	140	142	143	83	83	84	85	86	86	87
	99th	142	143	144	146	148	149	150	88	89	90	91	92	92	93
18	cm	163	165	168	172	176	179	181	163	165	168	172	176	179	181
BP centile	5th	101	102	103	105	107	108	109	55	56	56	57	58	59	60
	50th	118	119	121	122	124	126	127	69	70	71	72	73	73	74
	90th	132	132	134	136	137	139	140	81	81	82	83	84	84	85
	95th	135	136	138	140	141	143	144	84	84	85	86	87	88	88
	99th	142	143	145	147	148	150	151	90	90	91	92	93	93	94

Age (yrs)		Female SBP (mmHg)							Female DBP (mmHg)						
6	Height (cm)	107	108	111	115	119	122	124	107	108	111	115	119	122	124
BP centile	5th	75	76	77	78	79	80	81	41	41	42	42	43	44	44
	50th	92	93	94	95	96	97	98	55	55	55	56	57	57	58
	90th	105	106	107	108	109	110	111	66	66	66	67	67	68	69
	95th	109	109	111	112	113	114	115	69	69	69	70	71	71	72
	99th	116	116	118	119	120	121	122	75	75	75	76	76	77	78
7	cm	112	114	117	121	125	128	130	112	114	117	121	125	128	130
BP centile	5th	78	79	80	81	82	83	84	43	43	43	44	45	45	46
	50th	95	96	97	98	99	100	101	57	57	57	58	59	59	60
	90th	108	109	110	111	112	113	114	68	68	68	69	69	70	71
	95th	112	112	114	115	116	117	118	71	71	71	72	72	73	74
	99th	119	119	120	122	123	124	125	76	77	77	77	78	79	79
8	cm	118	120	123	127	131	134	136	118	120	123	127	131	134	136
BP centile	5th	81	81	82	84	85	86	87	45	45	45	46	46	47	48
	50th	98	98	99	101	102	103	103	58	59	59	60	60	61	61
	90th	111	111	112	114	115	116	117	69	69	70	70	71	72	72
	95th	114	115	116	117	119	120	120	72	73	73	73	74	75	75
	99th	121	122	123	124	126	127	127	78	78	79	79	80	81	81
9	cm	123	126	129	133	137	141	143	123	126	129	133	137	141	143
BP centile	5th	83	84	85	86	87	88	89	46	46	47	47	48	49	49
	50th	100	101	102	103	104	105	106	60	60	61	61	62	62	63
	90th	113	114	115	116	117	118	119	71	71	71	72	73	73	74
	95th	117	117	119	120	121	122	123	74	74	74	75	76	76	77
	99th	124	124	126	127	128	129	130	80	80	80	81	81	82	83
10	cm	129	132	135	139	143	147	149	129	132	135	139	143	147	149
BP centile	5th	85	86	87	88	89	90	91	47	48	48	49	49	50	50
	50th	102	103	104	105	106	107	108	61	62	62	62	63	64	64
	90th	115	116	117	118	119	121	121	72	72	73	73	74	75	75
	95th	119	120	121	122	123	124	125	75	75	76	76	77	78	78
	99th	126	127	128	129	130	131	132	81	81	82	82	83	83	84
11	cm	135	137	141	145	149	153	155	135	137	141	145	149	153	155
BP centile	5th	87	88	89	90	91	92	93	49	49	49	50	50	51	52
	50th	104	105	106	107	108	109	110	63	63	63	64	64	65	66
	90th	117	118	119	120	121	122	123	73	74	74	74	75	76	76
	95th	121	121	123	124	125	126	127	76	77	77	78	78	79	79
	99th	128	128	130	131	132	133	134	82	82	83	83	84	85	85
12	cm	140	143	146	151	155	158	161	140	143	146	151	155	158	161
BP centile	5th	89	89	90	92	93	94	95	50	50	50	51	52	52	53
	50th	106	106	107	109	110	111	111	64	64	64	65	65	66	67
	90th	119	119	120	122	123	124	125	75	75	75	76	76	77	77
	95th	122	123	124	125	127	128	128	78	78	78	79	79	80	81
	99th	129	130	131	132	134	135	135	83	83	84	84	85	86	86
13	cm	144	147	150	154	158	162	164	144	147	150	154	158	162	164
BP centile	5th	90	91	92	93	94	95	96	51	51	51	52	52	53	54
	50th	107	108	109	110	111	112	113	65	65	65	66	66	67	68
	90th	120	121	122	123	124	125	126	75	76	76	77	77	78	78
	95th	124	124	126	127	128	129	130	78	79	79	80	80	81	81
	99th	131	131	133	134	135	136	137	84	84	85	85	86	87	87
14	cm	147	149	153	157	161	164	166	147	149	153	157	161	164	166
BP centile	5th	91	92	93	94	95	96	97	52	52	52	53	53	54	54
	50th	108	109	110	111	112	113	114	65	66	66	66	67	68	68
	90th	121	122	123	124	125	126	127	76	76	77	77	78	79	79
	95th	125	126	127	128	129	130	131	79	79	80	80	81	82	82
	99th	132	133	134	135	136	137	138	85	85	86	86	87	87	88
15	cm	149	151	154	158	162	165	167	149	151	154	158	162	165	167
BP centile	5th	92	93	94	95	96	97	98	52	52	53	53	54	55	55
	50th	109	109	111	112	113	114	115	66	66	67	67	68	68	69
	90th	122	123	124	125	126	127	128	77	77	77	78	79	79	80
	95th	126	126	127	129	130	131	132	80	80	80	81	82	82	83
	99th	133	133	134	136	137	138	139	86	86	86	87	87	88	89
16	cm	150	152	155	159	162	166	168	150	152	155	159	162	166	168
BP centile	5th	93	93	94	95	97	98	98	53	53	53	54	54	55	56
	50th	109	110	111	112	114	115	115	66	67	67	68	68	69	69
	90th	123	123	124	125	127	128	128	77	77	78	78	79	80	80
	95th	126	127	128	129	130	131	132	80	81	81	81	82	83	83
	99th	133	134	135	136	137	138	139	86	86	87	87	88	89	89
17	cm	150	152	155	159	162	166	168	150	152	155	159	162	166	168
BP centile	5th	93	93	95	96	97	98	99	53	53	53	54	55	55	56
	50th	110	110	111	113	114	115	116	67	67	67	68	69	69	70
	90th	123	123	125	126	127	128	129	78	78	78	79	79	80	81
	95th	127	127	128	129	131	132	132	81	81	81	82	82	83	84
	99th	134	134	135	136	138	139	139	86	87	87	87	88	89	89
18	cm	150	152	155	159	162	166	168	150	152	155	159	162	166	168
BP centile	5th	93	93	95	96	97	98	99	53	53	54	54	55	56	56
	50th	110	110	111	113	114	115	116	67	67	67	68	69	69	70
	90th	123	123	125	126	127	128	129	78	78	78	79	80	80	81
	95th	127	127	128	129	131	132	132	81	81	81	82	83	83	84
	99th	134	134	135	136	138	139	139	87	87	87	88	88	89	90

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