

CELEBRATING
10th | **20th**
Hong Kong Lung Foundation | Hong Kong Thoracic Society
ANNIVERSARIES

Autumn Respiratory Seminar 2006

24 September 2006 (Sunday)

Programme Book

Organised by:



Hong Kong Thoracic Society



American College of Chest Physicians
(Hong Kong and Macau Chapter)

Sponsored by:



Hong Kong Lung Foundation

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Acknowledgement

Welcome Message

It gives me great pleasure to welcome you all to the Autumn Respiratory Seminar 2006.



Established in 1986 by a group of dedicated and visionary thoracic physicians and surgeons, Hong Kong Thoracic Society has grown tremendously in its membership, education and research activities, social influence and advisory function. This could not have been achieved without the selfless commitments of these pioneers and generations of Council members to whom we owe a debt of immense gratitude. I feel humbled following the footsteps of these great leaders and honored to be part of the team at the 20th anniversary of the Society. With the support from the Council, members and friends, I am confident the Society will continue to excel in the years to come.

An exciting programme has again been constructed for the Autumn Respiratory Seminar this year. We will take stock of the developments of chest services and review the achievements of the respiratory community in Hong Kong in the last two decades. After being absent for three years, the free paper presentation session is back to give due recognition to the best investigator among our young members. A separate symposium on tracheostomy and home noninvasive ventilation is specially catered for allied health professionals. The most popular grand round will pick the brains of the audience on both clinical case and history of respiratory medicine. Finally, our close friends from our neighborhood will share with us new developments in thoracic medicine in this part of the world.

I would like to thank members of Organising Committee for their excellent organisation, Council members for the unfailing support, our pharmaceutical partners for their sponsorship and all of you for your participation.

May I wish you a most enjoyable and rewarding seminar.

A handwritten signature in black ink, appearing to be 'T. Mok', written in a cursive style.

Dr. Thomas Mok
President
Hong Kong Thoracic Society

Welcome Message

Dear fellows and colleagues,

Welcome to the Autumn Respiratory Seminar (ARS) 2006, an Anniversaries' Seminar of the Hong Kong Thoracic Society (HKTS) and the Hong Kong Lung Foundation (HKLF).



First of all, on behalf of the Hong Kong and Macau Chapter of the American College of Chest Physicians, I would like to congratulate our sister societies and co-organisers, HKTS and HKLF, on their 20th and 10th anniversaries respectively, and wish them ever more success in the years to come.

This year, we are honoured by distinguished speakers from our neighbouring countries, Mainland China, Singapore and Taiwan. They will lecture on New Developments in Respiratory Medicine in Asia. There will also be a "landmark" symposium summarising the Development of Respiratory Medicine in Hong Kong delivered by local experts together with an interactive Grand Round, a Young Investigator Session and a Satellite Symposium on Critical Care Medicine. I sincerely hope that you will have a fruitful and enjoyable day by the end of the ARS.

Finally, I would like to express my gratitude to all members of the Organising Committee for their tremendous effort, the sponsors for their generosity and all of you here for your support in making the meeting a great success.

A handwritten signature in black ink, appearing to read 'Poon-chuen Wong'.

Dr. Poon-chuen Wong

President

American College of Chest Physicians

(Hong Kong and Macau Chapter)

Welcome Message

It gives me great pleasure to welcome you all to the Autumn Respiratory Seminar 2006 of the Hong Kong Lung Foundation, Hong Kong Thoracic Society and American College of Chest Physicians (Hong Kong & Macau Chapter). The year 2006 is a very auspicious year, marking the 10th Anniversary of the Hong Kong Lung Foundation and the 20th Anniversary of the Hong Kong Thoracic Society. We owe much to the wisdom and foresight of our senior chest physicians, who conceived the idea of a local professional society in our Specialty 20 years ago. Again it was due to their professional and business acumen that the two societies had been able to establish the Hong Kong Lung Foundation 10 years later, to promote, foster, and develop the study of diseases of the respiratory system in Hong Kong.



The Autumn Respiratory Seminar in this special anniversary year of the Hong Kong Lung Foundation and the Hong Kong Thoracic Society will include sessions on development of respiratory medicine in Hong Kong, interactive grand round and new developments in respiratory medicine in Asia. The Dr. William Chen - Young Investigator Session will allow the young respiratory fellows or trainees to present their research work. We are honoured to present a distinguished faculty of local and overseas speakers, and I am sure this Autumn Respiratory Seminar will be a valuable and memorable occasion for all.

On behalf of the three professional Societies, may I express my deepest appreciation to the Organising Committee and all our members for your commitment and continued efforts towards improving the respiratory health of the community in Hong Kong. Finally, may I also thank all the speakers for their participation and generous sharing of their experiences.

A handwritten signature in black ink, reading "Loretta Yam". The signature is fluid and cursive.

Dr. Loretta Yam
Chairman
Hong Kong Lung Foundation

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Newsletter Chief Editor	: Dr. Ko Wai-shan, Fanny

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Hong Kong Lung Foundation

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Programme

08:50 - 08:55 Opening Remarks

- Dr. Thomas Mok (President of the Hong Kong Thoracic Society)

08:55 - 09:00 Opening Remarks

- Dr. Loretta Yam (Chairman of the Hong Kong Lung Foundation)

09:00 - 10:30 Symposium 1: The Development of Respiratory Medicine in Hong Kong

(Chairpersons: Dr. Shiu-lun Chan and Professor Wah-kit Lam)

Development of Asthma in Hong Kong in the Past 2 Decades

- Dr. Christopher Lai (Hong Kong)

Tuberculosis

- Dr. Wing-wai Yew (Hong Kong)

20 Years on Lung Cancer

- Professor Wah-kit Lam (Hong Kong)

Sleep-disordered Breathing

- Professor Mary Ip (Hong Kong)

Comprehensive Care for Patients with Chronic Obstructive Pulmonary Disease and Bronchiectasis

- Dr. Kin-sang Chan (Hong Kong)

Severe Acute Respiratory Syndrome and the Hong Kong Thoracic Society

- Dr. Chung-ming Chu (Hong Kong)

10:30 - 11:00 Coffee Break

11:00 - 11:50 Dr. William Chen - Young Investigator Session

(Chairpersons: Dr. Kenneth Tsang and Dr. Loretta Yam)

11:00 - 11:50 Critical Care Medicine for Nursing and Allied Health Professionals: Practical Aspects of Respiratory Care - New Tools for an Old Trade

(Chairpersons: Dr. Chi-keung Ching and Dr. Arthur Lau)

Tracheostomy: Beyond Routine Care

- Dr. Wai-ming Chan (Hong Kong)

Advances in Home Noninvasive Ventilation

- Dr. Kah-lin Choo (Hong Kong)

11:50 - 13:00 Lunch

13:00 - 14:30 Interactive Grand Round

(Chairpersons: Professor Wah-kit Lam and Dr. Joseph Pang)

Radiologist: - Dr. Clara Ooi (Hong Kong)

Panelists: - Professor Philip Eng (Singapore)

- Professor Yoshinosuke Fukuchi (Japan)

- Professor Chong-kin Liam (Malaysia)

- Professor Yuan-ming Luo (China)

- Professor Pan-chyr Yang (Taiwan)

A. Review of Major Advances in Respiratory Medicine

B. Clinico-radiological Cases

14:30 - 15:00 Coffee Break

15:00 - 16:30 Symposium 2: New Developments in Respiratory Medicine in Asia

(Chairpersons: Professor Yoshinosuke Fukuchi and Dr. Thomas Mok)

Interventional Pulmonology

- Professor Philip Eng (Singapore)

Respiratory Muscle in Patients with COPD

- Professor Yuan-ming Luo (China)

Community-acquired Pneumonia - Asian Experience

- Professor Chong-kin Liam (Malaysia)

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Chan, Wai-ming	Queen Mary Hospital	Hong Kong	P.19
Choo, Kah-lin	North District Hospital	Hong Kong	P.20
Chu, Chung-ming	United Christian Hospital	Hong Kong	P.18
Eng, Philip	Singapore General Hospital	Singapore	P.21
Fukuchi, Yoshinosuke	Asian Pacific Society of Respiriology	Japan	
Ip, Mary	The University of Hong Kong	Hong Kong	P.13
Lai, Christopher	The Chinese University of Hong Kong	Hong Kong	P.10
Lam, Wah-kit	The University of Hong Kong	Hong Kong	P.12
Liam, Chong-kin	University of Malaya	Malaysia	P.23
Luo, Yuan-ming	Guangzhou Institute of Respiratory Disease	China	P.22
Ooi, Clara	Bio Medical Imaging Centre	Hong Kong	
Yang, Pan-chyr	National Taiwan University	Taiwan	
Yew, Wing-wai	Grantham Hospital	Hong Kong	P.11

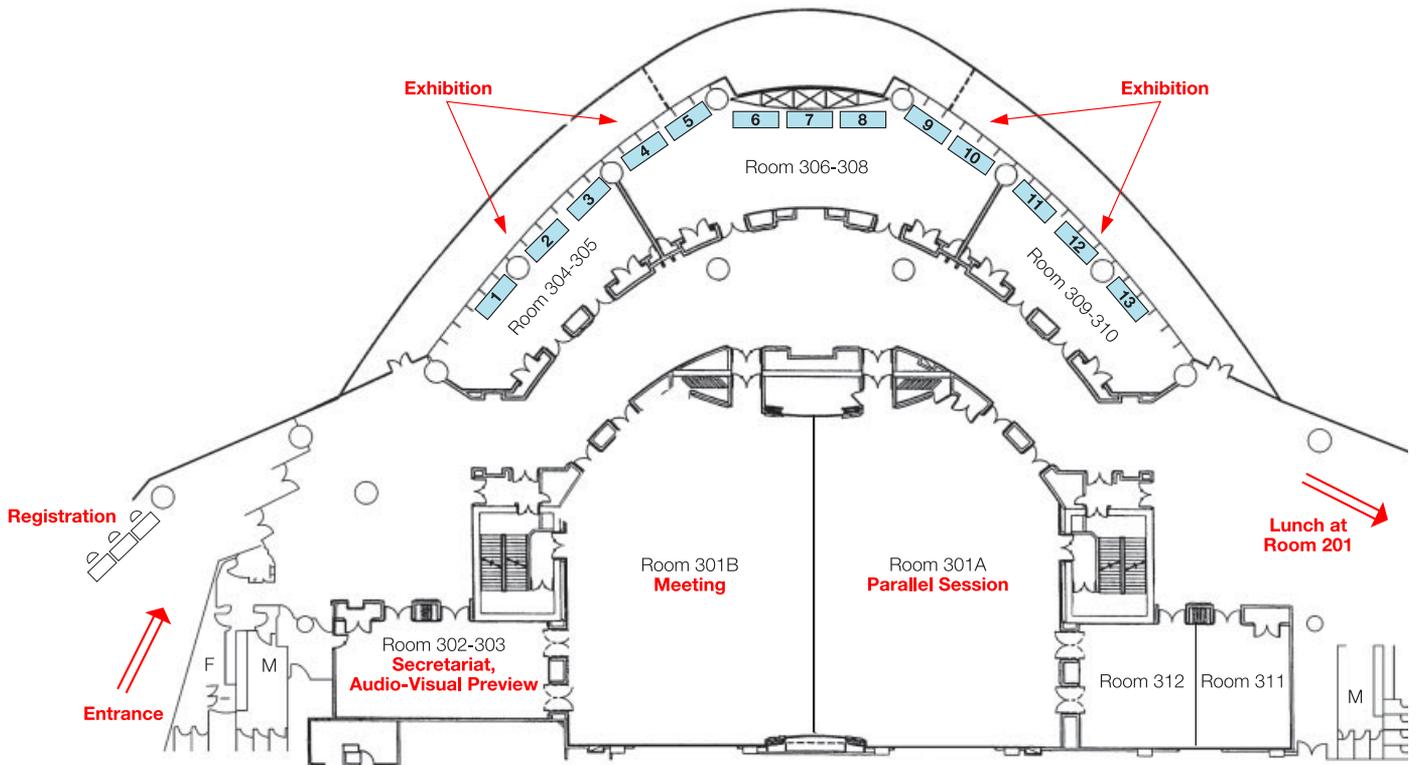
List of Judges

Name	Institution	Country
Eng, Philip	Singapore General Hospital	Singapore
Fukuchi, Yoshinosuke	Asian Pacific Society of Respiriology	Japan
Liam, Chong-kin	University of Malaya	Malaysia
Luo, Yuan-ming	Guangzhou Institute of Respiratory Disease	China
Reynolds, Paul	Royal Adelaide Hospital	Australia
Yang, Pan-chyr	National Taiwan University	Taiwan
Yu, Donald	Private Pulmonologist	Hong Kong

The Organising Committee would like to thank the speakers and judges for the contribution they have dedicated to the

Autumn Respiratory Seminar 2006

Floor Plan of Meeting Venue



List of Exhibitors

Company	Booth No.	Room No.
AstraZeneca Hong Kong Ltd.	7	Room 306-8
Boehringer Ingelheim (HK) Ltd. & Pfizer Corporation Hong Kong Ltd.	10	Room 306-8
Bristol-Myers Squibb (HK) Ltd.	12	Room 309-10
Celki International Ltd.	9	Room 306-8
GlaxoSmithKline Ltd.	6	Room 306-8
Hong Kong Medical Supplies Ltd.	2	Room 304-5
Merck Sharp & Dohme (Asia) Ltd.	3	Room 304-5
Olympus Hong Kong and China Ltd.	11	Room 309-10
Pfizer Corporation Hong Kong Ltd.	8	Room 306-8
Roche Hong Kong Ltd.	5	Room 306-8
The Homecare Medical Ltd.	4	Room 306-8
Tyco Healthcare (HKSAR) Ltd.	1	Room 304-5
Wyeth (H.K.) Ltd.	13	Room 309-10

Symposium 1: The Development of Respiratory Medicine in Hong Kong

Development of Asthma in Hong Kong in the Past 2 Decades

Christopher Lai

Department of Medicine & Therapeutics

The Chinese University of Hong Kong

Hong Kong

Derived from the Greek word meaning "panting", asthma has been known for over 2,000 years and affects individuals of every continent and all ages. Before the era of inhaled steroids (prior to early '80s), a lot of patients in Hong Kong required frequent and repeated hospitalizations for acute exacerbation of asthma. With the increasing use of inhaled steroids in the past 2 decades and latterly, the combination with long-acting β_2 agonists, we have seen a decline not only in asthma mortality, but possibly also in morbidity in recent years. However, asthma remains a major public health issue in Hong Kong. About 10% teenagers, 5% elderly subjects have diagnosed asthma and there are still 90-100 asthma deaths each year. More than 80% of patients would require urgent health care for asthma in the past year. The estimated annual per-patient societal costs (direct costs + productivity costs) for asthma amount to US\$1,200.

Researchers in Hong Kong have also made significant contributions to the global literature on areas including epidemiology, pathogenetic mechanisms, genetics and management issues.

Symposium 1: The Development of Respiratory Medicine in Hong Kong

Tuberculosis

*Wing-wai Yew
Tuberculosis & Chest Unit
Grantham Hospital
Hong Kong*

Development of clinical service and research in the field of tuberculosis has stayed vigorous in the past twenty years in Hong Kong, notwithstanding some organizational changes. The greatest modification was the incorporation of the hospital segment of the "Tuberculosis and Chest Service" into the Hospital Authority in December 1991. As a result, a previously centralized service under the Department of Health was thus dichotomized into two components, viz the hospital service with major emphasis on clinical management of tuberculosis on inpatient basis, and the health service with thorough dedication to public health control of tuberculosis as well as ambulatory treatment of the disease. This latter component persisted to be under the administration of the Department of Health, as it is today.

Encouragingly, interfacing service to patients and collaborative research on disease have continued unabated between the "tuberculosis and chest units" (respiratory medicine units) in several hospitals and the "new-centralized" tuberculosis service in the Department of Health. Over the last two decades, the supervised treatment service for tuberculosis in Hong Kong, pioneered in the late 1970s before the World Health Organization actually advocated the use of the Directly Observed Treatment, Short-course (DOTS) strategy in 1993, has contributed to maintaining a high cure rate and low drug-resistance level for tuberculosis in the community. Alongside the quality service delivery, some advances in the chemotherapy of both drug-susceptible and multidrug-resistant tuberculosis have been unveiled, with resultant impact to the scientific community; so has the understanding in many aspects of the epidemiology of the disease. Among the latter, the association of tuberculosis and smoking constitutes the area with the most profound implication.

In addition, two landmark events emerge in 2006 in tuberculosis service and research in Hong Kong. Firstly, the Public Health Reference Laboratory of the Department of Health is accredited a supranational reference laboratory in the World Health Organization / International Union Against Tuberculosis and Lung Disease SRL Network. Secondly, the Centers for Disease Control and Prevention, Tuberculosis Trials Consortium, U.S.A. has identified Hong Kong as a potential site for worldwide chemotherapy studies in tuberculosis. These two events may pave way to further escalation of service provision and research development in the field of tuberculosis to an even higher level in the time to come.

Symposium 1: The Development of Respiratory Medicine in Hong Kong

20 Years on Lung Cancer

Wah-kit Lam

University Department of Medicine

The University of Hong Kong

Queen Mary Hospital

Hong Kong

Lung cancer has been the top cancer killer in Hong Kong in both men and women since 1972. In the 1970s, smoking, kerosene cooking and lung cancer was reported, and fiberoptic bronchoscopy (FOB) and CT thorax were introduced in Hong Kong together with the first TNM staging system for lung cancer. Patients with advanced disease received random chemotherapy, mainly alkylating agents.

In the 1980s, systematic studies of lung cancer in Hong Kong were performed, including epidemiological, clinical and radiological features, smoking, passive smoking, role and yield of washings, brushings and biopsies in FOB, and the studies of combination chemotherapy in advanced disease (MACC, FAM regimens).

The 1990s witnessed great advances in molecular biology and techniques, defining the roles of *Ki-ras*, *p53* genes and *GSTs* polymorphism in our patients as different from patients in other countries. VATS major lung resections were introduced, significantly reducing post-operative hospital stay and narcotic requirement. Older platinum-based chemotherapy regimens (VP, MIP) and modern chemotherapy using platinum and paclitaxel/docetaxel/gemcitabine/vinorelbine were studied in the early and late 1990s respectively. The latter has become our standard of care for fit patients with advanced disease. Palliative therapies for endobronchial tumors available included laser therapy, brachytherapy, cryotherapy and stenting procedures.

By the turn of the century, new laboratory techniques continued to be introduced to address lung cancer pathogenesis, including study of manganese superoxide dismutase and catalase genetic polymorphisms and activity levels, genome wide screening methods such as comparative genomic hybridization and gene expression profiling with microarray studies, and studies of EGFR mutations. New diagnostic modalities were introduced, including PET-CT scan, multidetector row CT and virtual bronchoscopy.

Early detection of lung cancer and precancerous dysplasia while white light FOB is normal is now possible by autofluorescence bronchoscopy, and the newest Onco-LIFE is being installed. The new minimally invasive endobronchial ultrasound (EBUS) guided FNA system has also been introduced. Newer RT techniques (conformal 3DRT, intensity-modulated RT) have helped to increase dose to tumor yet sparing adjacent organs toxicities. The adjuvant role of yunzhi has been defined. Molecular targeted therapies (e.g. EGFR-TKI, anti-VEGF) are being assessed, and the promising role of EGFR-TKI in non-smoker Chinese female patients with adenocarcinoma is particularly exciting. A one-station but multidisciplinary management approach is becoming the norm to best serve our patients.

Sleep-disordered Breathing

Mary Ip

University Department of Medicine

The University of Hong Kong

Queen Mary Hospital

Hong Kong

Sleep-disordered breathing is a relatively “young” condition, compared to respiratory diseases like asthma, COPD, tuberculosis or lung cancer. Although the description of characters with manifestations of sleep apnea can be found in ancient history, its common occurrence in the community was not widely appreciated until the past two decades¹. In the early 1990s, we have all come across the occasional Pickwickian Syndrome, but little attention was given to sleep-disordered breathing. We had the general impression that Chinese would not be commonly afflicted with sleep apnea, as obesity, the major risk factor for OSA, was not a striking problem in our population at the time. Between 1996-2000, a community-based study on the prevalence of OSA in Chinese subjects in Hong Kong was conducted, and demonstrated unexpected prevalence rates of symptomatic OSA of 4% and 2% in middle-aged men and women respectively^{2,3}, which were no less than that in Caucasian populations. With the realization that OSA was not uncommon in Hong Kong, respiratory physicians were quick to establish services for the community. Since the mid-1990s, the provision of clinical services for sleep-disordered breathing has seen an amazing escalation, which emanated not merely from medical knowledge, but a real need from the community.

The expanding number of subjects seeking medical advice for sleep-disordered breathing has provided opportunities for research. Apart from co-morbid existence of OSA and other obesity-related diseases, there is growing evidence that OSA itself contributes to cardiovascular morbidity and mortality. Studies have identified that OSA was prevalent in patients seen for hypertension⁴, and its high association with diastolic heart failure and stroke were reported^{5,6}. In recent years, one of the hottest areas of research in sleep-disordered breathing is the role of OSA in vascular pathogenesis, and Hong Kong has contributed its share of novel findings in this area to international literature. Our studies have shown that OSA is independently associated with various vasculopathic mechanisms, including decreased nitric oxide⁷, lipid dysfunction⁸, increased insulin resistance⁹, platelet activation¹⁰, endothelial dysfunction¹¹, and most recently, increased advanced glycation end products¹². Furthermore, the high association of OSA with the metabolic syndrome, a major risk factor for cardiovascular diseases, was documented in our Chinese community¹³, and a contribution of craniofacial factors towards severity of OSA was reported¹⁴.

Excessive daytime sleepiness, a well known feature of OSA, contributed to impairment of health-related quality of life¹⁵ and an increased risk of traffic accidents. This has raised public safety concerns as a large number of drivers may be afflicted with OSA¹⁶.

The mainstay of treatment of OSA is Continuous Positive Airway Pressure applied through the nasal mask (nasal CPAP) during sleep¹⁷. Effective control of OSA has been shown to improve a number of symptoms and intermediary outcomes. Treatment benefit is consistently demonstrated for a lowering of blood pressure in subjects with OSA¹⁸. The role of other treatment modalities including weight control and oral appliances have been explored¹⁹.

Finally, the occurrence of various kinds of sleep-disordered breathing in other diseases such as chronic renal failure and acromegaly have been described^{20,21,22}.

With the knowledge of the common occurrence of sleep-disordered breathing, in particular OSA, the morbidity it can cause, and the benefits of treatment, clinical service for sleep-disordered breathing in Hong Kong has advanced significantly in the past decade. The respiratory specialty has emerged as the discipline which looks

after majority of these patients. Available data from the Hospital Authority showed that the numbers of sleep studies have increased from less than 100 a year in 1995 to about 1800 in the year 2005. This figure is an underestimate as it does not include private sector services, which have also rapidly expanded in recent years. This data reflect the increasing recognition of this condition by the professional community in Hong Kong, which goes beyond the respiratory specialty to general practitioners, cardiologists, endocrinologists, paediatricians, otolaryngologists, psychiatrists With active community education, the lay public is also much more aware of sleep apnea as a disease entity, and would seek medical advice for symptoms of excessive daytime sleepiness or snoring which have been previously just taken as laziness, work stress, or social nuisance. It is also anticipated that the prevalence of OSA would continue to increase with the threat of increasing obesity. Trainees in respiratory medicine now actively undergo training in sleep medicine, and local training courses for doctors and allied health personnel have been hosted by various professional societies, none the least, the Hong Kong Thoracic Society and the HK & Macau Chapter of ACCP. It is anticipated that the respiratory discipline will continue to play a major role in the advancement of clinical services and community awareness for sleep-disordered breathing in Hong Kong, as well as to new understanding of the disease through research.

References:

1. Young T, Palta M, Dempsey J, Skatrud J, Weber S, Badr S. The occurrence of sleep-disordered breathing among middle-aged adults. *The New England Journal of Medicine* 1993; 328: 1230-1235.
2. Ip MSM, Lam B, Launder I, Tsang K, Chung KF, Mok W, Lam WK. A community study of sleep disordered breathing in middle-aged Chinese men in Hong Kong. *Chest* 2001; 119: 62-69.
3. Ip MSM, Lam B, Tang LCH, Launder IJ, Ip TY, Lam WK. A community study of sleep disordered breathing in middle-aged Chinese women in Hong Kong - prevalence and gender differences. *Chest* 2004; 125: 127-134.
4. Ip MSM, Chung KF, Chan KN, Lam SP, Lee KLF. Previously unrecognised obstructive sleep apnoea in Chinese subjects with essential hypertension. *Lung* 1999; 17: 391-400.
5. Fung JW, Li TS, Choy DK, Yip GW, Ko FW, Sanderson JE, Hui DS. Severe obstructive sleep apnea is associated with left ventricular dysfunction. *Chest* 2002; 121: 422-429.
6. Hui DS, Choy DK, Wong LK, Ko FW, Li TS, Woo J, Kay R. Prevalence of sleep-disordered breathing and CPAP compliance: results in Chinese patients with first-ever stroke. *Chest* 2002; 122: 852-860.
7. Ip MS, Lam B, Chen LY, Zheng L, Tsang KW, Fung P, Lam WK. Circulating nitric oxide is suppressed in OSA and is reversed by nCPAP. *American Journal of Respiratory and Critical Care Medicine* 2000; 162: 2166-2171.
8. Tan K, Chow WS, Lam J, Lam B, Wong E, Tam S, Ip M. HDL dysfunction in OSA. *Atherosclerosis* 2006; 184:377-82.
9. Ip MSM, Lam B, Ng MMT, Lam WK, Tsang KWT, Lam KSL. Obstructive sleep apnoea is independently associated with insulin resistance. *American Journal of Respiratory and Critical Care Medicine* 2002; 165: 670-676.
10. Hui DS, Ko FW, Fok JP, Chan MC, Li TS, Tomlinson B, Cheng G. The effects of nasal CPAP on platelet activation in obstructive sleep apnea syndrome. *Chest* 2004; 125: 1768-1775.
11. Ip MSM, Tse HF, Lam B, Tsang KWT, Lam WK. Endothelial function in obstructive sleep apnea and response to treatment. *American Journal of Respiratory and Critical Care Medicine* 2004; 169: 348-353.
12. Tan KCB, Chow WS, Lam JCM, Lam B, Bucala R, Betteridge J, Ip MSM. Advanced glycation end products in non-diabetic patients with obstructive sleep apnea. *Sleep* 2006; 29(3): 329-333.
13. Lam JC, Lam B, Lam CL, Fong Daniel, Wang J, Tse HF, Lam KSL, Ip MSM. Obstructive sleep apnoea and the metabolic syndrome in community based Chinese adults in Hong Kong. *Respiratory Medicine*. 2006; 100 : 980-987.
14. Lam B, Ooi C, Peh W, Launder IJ, Tsang KW, Lam WK, Ip MS. Computed tomographic evaluation of the role of craniofacial and upper airway morphology in OSA in Chinese. *Respiratory Medicine* 2004; 98: 301-307.
15. Mok YY, Lam CLK, B, Sam K, Cheung MT, Yam L, Ip M. A Chinese version of the sleep Apnea Quality of Life Index: reliability, validity, and responsiveness. *Journal of Clinical Epidemiology* 2004; 57: 470-8.
16. Hui DS, Ko FW, Chan JK, Chan DS, Chan MC, Fok JP, To KW, Ho CW, Tong MW, Laik CK. Sleep disordered breathing and CPAP compliance in a group of commercial bus drivers in Hong Kong. *Respirology* (In press).
17. Hui DS, Chan JK, Choy DK, Ko FW, Li TS, Leung rC, Lai CK. Effects of augmented continuous positive airway pressure education and support on compliance and outcome in a Chinese population. *Chest* 2000; 117: 1410-6.
18. Hui DS, To KW, Ko FW, Fok JP, Chan MC, Ngai JC, et al. Nasal CPAP reduces systemic blood pressure in patients with obstructive sleep apnea and mild sleepiness. *Thorax* 2006 (e pub ahead of print).
19. Hou HM, Sam K, Hogg U, Rabie ABM, Bendeus M, Yam LYC, Ip MSM. Long-term dento-facial changes in Chinese OSA patients following treatment with a mandibular advancement device. *The Angle Orthodontist* 2006; 76: 432-440.
20. Hui D, Wong TY, Ko FW, Li TS, Choy DK, Wong KK et al. Prevalence of sleep disturbances in Chinese patients with end-stage renal failure on continuous ambulatory peritoneal dialysis. *American J of Kidney Disease* 2000; 36: 783-8.
21. Tang S, Lam B, Ku PP, Leung WS, Chu CM, Ho YW, Ip MS, Lai KN. Alleviation of sleep apnea in patients with chronic renal failure by nocturnal cyclic assisted peritoneal dialysis compared with conventional continuous ambulatory peritoneal dialysis. *Journal of American Society of Nephrology* 2006 (e pub ahead of print).
22. Ip M, Tan KC, Peh W, Lam KSL. Effect of sandostatin on sleep apnea in acromegaly. *Clinical Endocrinology* 2001; 55: 477-83.

Comprehensive Care for Patients with Chronic Obstructive Pulmonary Disease

Kin-sang Chan

Pulmonary & Palliative Care Unit

Haven of Hope Hospital

Hong Kong

COPD is currently the 5th leading cause of death in Hong Kong, occupying ~9% of all medical bed days of public hospitals.

Epidemiology: From a local multicenter Lung function study for subjects >40 years old, it was estimated that as many as 25% (110,000) smokers and 6.45% (167,000) non-smokers had undiagnosed airflow obstruction¹. The prevalence of most respiratory symptoms in elderly Chinese has been increasing over the past 12 years². Factors that were independently associated with shorter time of hospitalized COPD patients to readmission include: prior hospital admission, total hospital length of stay >6 days, nursing home residency and dependency³.

Aetiological Factors: Local study revealed a low prevalence of deficiency Pi phenotypes/ subtypes suggesting lacking of contribution of α 1-AT deficiency to the pathogenesis of COPD in local Chinese patients⁴. Preliminary results of a multicenter study on the risk factors of COPD showed that polymorphisms of genes regulating the glutathione S-transferase (GST) enzymes, superoxide dismutase (SOD) and catalase were not the causes of host susceptibility in COPD patients in Hong Kong⁵. 8-isoprostane level, but not growth related oncogene α and monocyte chemoattractant protein-1 in exhaled breath condensate, was increased in COPD with poorer lung function⁶. The common bacterial organisms contributing to patients with COPD exacerbations included *Haemophilis influenzae* (23.1%), *Pseudomonas aeruginosa* (6.3%) and *Streptococcus pneumoniae* (4.0%)⁷. Serological studies on atypical organisms revealed that only 1.4% had evidence of *Mycoplasma pneumoniae* infection, 1.4% had evidence of *Chlamydia pneumoniae* infection and no patient had evidence of *Legionella pneumophila* infection⁸.

Assessment Tools: The St. George Respiratory questionnaire and Chronic respiratory questionnaire were translated to Chinese^{9,10}. The two-minute-walk test was first validated for patients with moderate and severe COPD¹¹. "Quality-of-life concerns" in the end-of-life questionnaire (QOL-CE) was developed locally as a specific QOL assessment instrument for advanced COPD¹².

Management: Pharmacological therapy: There is an on-going multicenter study evaluating the implementation of the GOLD guidelines (Hong Kong Thoracic Society version) for the management of chronic obstructive pulmonary disease in Hong Kong. **Non-pharmacological therapy:** Long term oxygen therapy was introduced in Hong Kong around mid 80s. A local study showed that the median survival time for a cohort of 230 COPD patients on LTOT was 41 months. Gender, age and ADL independence level had significant impact in survival based on Kaplan-Meier analysis¹³. Comprehensive pulmonary rehabilitation programmes started in early 90s. Inpatient, outpatient and home-based programmes are now delivered by 14 centers in Hong Kong. The outcomes of PRP are very much similar to those reported by workers in other parts of the world¹⁴. Non-invasive ventilation was started in mid 90s in Hong Kong. However, COPD patients with acute hypercapnic respiratory failure who survive following treatment with NIV have a high risk of readmission and life threatening events¹⁵. A local survey in 2002 on home mechanical ventilation showed that about half of the patients among 249 patients were COPD patients¹⁶. Innovative bronchoscopic

volume reduction surgery by bronchial valve was piloted locally with promising results¹⁷. Lung transplantations were only performed in three middle age emphysema patients. Facing end-of-life, different patterns of decision making on limited life-sustaining treatment were described in patients with advanced COPD¹⁸.

Model of Care Delivery: A comprehensive model of care for COPD was proposed to Hospital Authority in late 90s¹⁹. Various COPD service delivery models were implemented in different centers including respiratory home care, respiratory specialist-directed service²⁰, COPD clinic, supported home discharge²¹ and nurse-initiated telephone follow up²².

Promotion and Education: Many works had been done for promoting the care of COPD among professionals and community, including published the book "Current management of COPD" (1999), promotion of World COPD day (from 2002), established locally modified GOLD guideline (2003), established COPD website (2002), promotion of early detection among community by collaboration with NGO, and formation of Pulmonary Rehabilitation patient club.

References:

1. M Ip, et al. *Hong Kong Lung Function Study*.
2. Ko FW, Lai CK, Woo J, Ho SC, Ho CW, Goggins W, Hui DS. 12-year change in prevalence of respiratory symptoms in elderly Chinese living in Hong Kong. *Respir Med*. 2006 Sep;100(9):1598-607.
3. Lau AC, Yam LY, Poon E. Hospital re-admission in patients with acute exacerbation of chronic obstructive pulmonary disease. *Respir Med*. 2001 Nov;95(11):876-84.
4. Kwok JS, Lawton JW, Yew WW, et al. Protease inhibitor phenotypes and serum alpha-1-antitrypsin levels in patients with COPD: a study from Hong Kong. *Respirology*. 2004 Jun;9(2):265-70.
5. Moira MW Chan, et al. Risk factors of chronic obstructive pulmonary disease(COPD) in Hong Kong. (On-going HKLF funded project).
6. Ko FW, Lau CY, Leung TF, Wong GW, Lam CW, Hui DS. Exhaled breath condensate levels of 8-isoprostane, growth related oncogene alpha and monocyte chemoattractant protein-1 in patients with chronic obstructive pulmonary disease. *Respir Med*. 2006 Apr;100(4):630-8.
7. Ko FW, et al. Sputum bacteriology in patients hospitalized with acute exacerbations of chronic obstructive pulmonary disease and concomitant pneumonia in Hong Kong. *Intern Med J*. 2005 Nov;35(11):661-7.
8. Chiu MC, Yu WC. Role of Atypical Pathogens in Acute Exacerbation of Chronic Bronchitis. *ATS* 2004.
9. Chan SL, Chan-Yeung MM, Ooi GC, Lam CL, Cheung TF, Lam WK, Tsang KW. Validation of the Hong Kong Chinese version of the St. George Respiratory Questionnaire in patients with bronchiectasis. *Chest*. 2002 Dec;122(6):2030-7.
10. Lewina L.C.Chan, Katherine Tam, Elaine Chan, Bobby Ng and C.T. So. Reliability and Validity of the Chinese Version of the Chronic Respiratory Questionnaire (CCRQ) in patients with COPD. *Hong Kong Journal of Occupational Therapy* 2006; 16;9-15.
11. Leung AS, Chan KK, Sykes K, Chan KS. Reliability, validity, and responsiveness of a 2-min walk test to assess exercise capacity of COPD patients. *Chest*. 2006 Jul;130(1):119-25.
12. Pang SM, Chan KS, Chung BR, Lau KS, et al Assessing quality of life of patients with advanced chronic obstructive pulmonary disease in the end of life. *J Palliat Care*. 2005 Autumn;21(3):180-7.
13. So CT, Mok TY, Lau WL, et al. Effects of Long-term oxygen therapy on survival and evaluation of survival predictors for patients suffering from COPD. *Respirology*, Dec 2004, 9 supplement.
14. KS Chan. Outcome of Pulmonary rehabilitation. *Rehabilitation Symposium. Hospital Authority* 1995.
15. Chu CM, Chan VL, et al. Readmission rates and life threatening events in COPD survivors treated with non-invasive ventilation for acute hypercapnic respiratory failure. *Thorax*. 2004 Dec;59(12):1020-5.
16. Chu CM, Yu WC, Tam CM, Lam CW, Hui DS, Lai CK; Hong Kong Home Ventilation Registry; Hong Kong Thoracic Society. Home mechanical ventilation in Hong Kong. *Eur Respir J*. 2004 Jan;23(1):136-41.
17. Wan IY, Toma TP, Geddes DM, Snell G, Williams T, Venuta F, Yim AP. Bronchoscopic lung volume reduction for end-stage emphysema: report on the first 98 patients. *Chest*. 2006 Mar;129(3):518-26.
18. Pang SM, Tse CY, Chan KS, et al. An empirical analysis of the decision-making of limiting life-sustaining treatment for patients with advanced chronic obstructive pulmonary disease in Hong Kong. *J Crit Care*. 2004 Sep;19(3):135-44.
19. Yew WW, Chan KS. Clinical guideline for comprehensive care for COPD. *Hospital Authority*, 2001.
20. Kwok YL, Sin KM, Tam CY. The impact of a Respiratory Physicians-directed management program on the frequency of acute exacerbations of COPD. *Respirology*, Dec 2004, 9 supplement.
21. Yu LC, Yeung KC, Tse KC, Chu CM. Supported discharge in COPD. *Hospital Authority Convention* 2005.
22. Wong KW, Wong FK, Chan MF. Effects of nurse-initiated telephone follow-up on self-efficacy among patients with chronic obstructive pulmonary disease. *J Adv Nurs*. 2005 Jan;49(2):210-22.

Bronchiectasis

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Bronchiectasis is a largely idiopathic disease, defined as pathological and permanent dilatation of the bronchial tree, which has been neglected by researchers for decades. It is particularly common among the Chinese and other Orientals. Patients suffer from regular sputum production, recurrent exacerbations, and gradual destruction of the airways and lung parenchyma. The pathogenesis of bronchiectasis is poorly understood, largely due to the lack of Western interests in this "orphan" disease. Recent studies have, however, identified three inter-related pathogenic elements, namely: airway infection, inflammation and enzymatic activities. Patients with reduced FEV₁ (<60% pred) and sputum production >30ml/day are likely to harbour *Pseudomonas aeruginosa*, which should be treated with quinolones or anti-pseudomonal b-lactams. Their counterparts should receive antibiotic specific for *Haemophilus influenzae* and *Streptococcus pneumoniae*. While antibiotic therapy is beneficial for the management of bacterial respiratory tract infections, it does not address other problems. Intense neutrophil infiltration into the tracheobronchial tree, mediated by pro-inflammatory mediators such as tumour necrosis factor-, occurs in bronchiectasis. These neutrophils release further toxic and pro-inflammatory products, such as elastase and matrix metalloproteinases, which perpetuate airway destruction. Anti-inflammatory treatment, such as inhaled corticosteroid (ICS) therapy, reduces sputum pro-inflammatory mediator levels in vivo, which could be beneficial. ICS therapy is associated with improvement in 24h sputum volume, but not exacerbation frequency, FEV₁, FVC or sputum purulence score in bronchiectasis, when given over one year. Patients with *Ps. aeruginosa* infection appear to have more improvement in 24h sputum volume and exacerbation frequency, when given ICS therapy. For mechanisms other than anti-inflammatory and anti-bacterial actions, some severely affected patients with active disease may also benefit from treatment with low dose macrolide (e.g. erythromycin 500mg BID) treatment. Intensive research has not been commenced on bronchiectasis, despite the attention given to asthma and currently COPD. Without better understating of the pathogenesis of bronchiectasis, disease-modifying treatment for bronchiectasis will not emerge to alleviate these unfortunate patients.

Symposium 1: The Development of Respiratory Medicine in Hong Kong

Severe Acute Respiratory Syndrome (SARS) and the Hong Kong Thoracic Society (HKTS)

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The global SARS epidemic in 2002 - 2003 has taken the world by surprise. It began in Foshan municipality, Guangdong Province, China in November 2002. Since then SARS has spread to other areas of Guangdong. The first known case of SARS in Hong Kong was a doctor who came from Southern China. He travelled to Hong Kong on February 21, 2003 and infected his brother-in-law and hotel guests at the hotel he was staying (Hotel M). Some of the hotel guests subsequently travelled to Vietnam, Singapore and Toronto, where they caused further spread of the disease. A visitor of Hotel M was later admitted to the Prince of Wales Hospital (PWH) with "atypical pneumonia" and caused a massive nosocomial outbreak of SARS involving 138 patients and hospital staff. The disease was transmitted to a patient with end stage renal failure who was receiving haemodialysis PWH. He then visited his brother who lived in the Amoy Gardens. His brother became the index patient of yet another massive outbreak of SARS involving 321 cases in the Amoy Gardens in Hong Kong. Throughout the world, SARS has infected more than 8,000 people and claimed 774 lives from 1 November 2002 to 31 July 2003. On July 5, 2003, WHO declared that all known chains of person-to-person transmission of the SARS-coronavirus have been broken.

At the time of the epidemic, there was a tsunamic influx of SARS patients into all the acute respiratory units in Hong Kong. At the forefront were respiratory physicians who led the fight against the deadly disease. Despite grave personal danger and overwhelming workload, respiratory physicians from various hospitals have contributed to more than 120 scientific publications in a short period of time. We have comprehensively reported the clinical and epidemiological features of the initial cases, diagnosis, clinical course, radiological features, prognosis, experimental therapies, ventilatory strategies, sequelae, infection control, practice guidelines, psychological consequences, etc. Though SARS might have spread by a cascading series of tragic accidents, the voluminous publications by respiratory physicians in Hong Kong was by no means accidental; for "chance favours only the prepared minds" (*Louis Pasteur, Lecture 1854*). The Hong Kong Thoracic Society (HKTS) has incessantly cultivated leadership and promoted research amongst respiratory physicians in Hong Kong. SARS was perhaps the challenge that has tested our solidarity and revealed the real character of all of us as leaders in respiratory medicine in Hong Kong. We all surmounted and surpassed the crisis and indeed 3 members of the HKTS received honours from the Hong Kong Government.

All these achievements, however, pale into insignificance when compared to the singular contribution by Dr. Joanna Yuen-Man Tse (1968 - 2003). Dr. Tse was a beloved member of HKTS. She was a devout Christian and she volunteered to serve in the SARS ward. She contracted SARS while she resuscitated a SARS patient on April 3, 2003 and came down with the disease herself. Dr. Tse later died of SARS at 4 am on May 13, 2003 at the age of 35. The whole community mourned her death and she was hailed "The Daughter of Hong Kong". Her story strikes a chord in every heart, leaving a graceful note that reverberates through eternity. Although Joanna has left us, she has blessed countless people with her life and legacy. She will remain an inspiration and icon to many generations to come. "Except a corn of wheat fall into the ground and die, it abideth alone; but if it die, it bringeth forth much fruit." (*John 12:24*).

Tracheostomy: Beyond Routine Care

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Tracheostomy is an old tool for airway access and airway control. Its use in the Intensive Care Unit (ICU) is still variable, and there are many unanswered issues around its use. Whether its use in the ICU is associated with better overall outcome or a lower incidence of ventilator associated pneumonia is still controversial. However, there are various adaptations of this technique, which make this tool more versatile for ventilated patients in the ICU. These include:

1. Improvement in techniques of percutaneous tracheostomy (PCT)

Traditionally tracheostomy is a surgical procedure. However, with the introduction of the Ciaglia technique, PCT has become a standard tracheostomy procedure in many ICU's. Some local data would suggest that this could be safely and efficiently performed in the ICU.

2. Adaptive devices to tracheostomy

One major drawback of tracheostomy would be the lack of verbal communication by the patients, and there are methods to improve and facilitate the verbal communication of tracheostomized patients.

3. Modified tracheostomy tubes

These are tracheostomy tubes with various modifications, that can satisfy the need of various patient populations, and some experience of use will be discussed.

There are still problems associated with tracheostomy, such as bleeding around the site and loss of airway control due to blocked tubes. A more integrated approach, such as the care by a team of experienced nurses, might help to prevent these complications.

It would seem that with the overall improvement of the design of tracheostomy tubes, the airway care of ventilated patients would be improved. A suitable tracheostomy tube can nearly always be found for any specific patient.

Critical Care Medicine for Nursing and Allied Health Professionals: Practical Aspects of Respiratory Care - New Tools for an Old Trade

Advances in Home Noninvasive Ventilation

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The use of home mechanical ventilation has exponentially increased over the past decade in Hong Kong due to the wide availability of non-invasive ventilators and its increasing application to patients suffering from chronic respiratory failure due to chronic obstructive pulmonary disease, other causes of nocturnal hypoventilation in addition to neuromuscular and restrictive thoracic disorders. In fact, pressure support ventilation applied with a bilevel pressure generator via a non-invasive interface has become the ventilatory mode of choice in the home setting.

Considerable progress has been made in the design, function and performance of bilevel devices and masks. The key to the success of longterm non-invasive ventilation depends on how a device can be adjusted to meet the ventilatory needs of a patient. Patient-ventilator dyssynchrony affects patient comfort and is one of the major causes of intolerance to mechanical ventilation. Currently available devices all require very little triggering effort, thus contributing to the reduction of dyspnoea associated with ventilator triggering. Most devices also have adjustable inspiratory and expiratory triggers as it is now recognized that a fixed cycling criterion is inappropriate in the presence of abnormal respiratory mechanics. In order to adapt to the dynamically changing ventilatory demands of respiratory patients, the latest ventilatory mode now aims to deliver a preset tidal volume facilitated by the application of variable pressures. Different algorithms that exist in a variety of devices attempt to estimate the patients' tidal volume and calculate the inspiratory positive airway pressure (IPAP) required to reach the target tidal volume from breath to breath.

As prescribers of home mechanical ventilation, we need to be aware of technological advances in order to assist our patients make the right choice in the search of an optimal machine. Other challenges include ensuring good patient compliance to the prescribed ventilatory modes and proper maintenance of their devices. Efforts in such areas are of utmost importance as poor compliance or equipment malfunction can potentially lead to serious clinical consequences in patients with chronic respiratory failure.

Symposium 2: New Developments in Respiratory Medicine in Asia

Interventional Pulmonology

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The world is changing and changing fast. Pulmonary Medicine has broadened beyond traditional Tuberculosis, Asthma and COPD. Today, we are expected to deal with ICU patients, sleep disorders, SARS and possibly pandemic flu. Interventional Pulmonology has become official with the recent publication of international guidelines. Bronchoscopy has blossomed beyond traditional flexible diagnostic bronchoscopy. This paradigm shift is made possible with newer technology and tools, yet basics like history taking, physical examination and an accurate interpretation of the chest radiograph must be standard practice.

Respiratory Muscle in Patients with COPD

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Understanding respiratory muscle function may be useful in the management of patients with chronic obstructive pulmonary disease (COPD). In this talk, methodologies for assessment of respiratory muscle function are introduced and respiratory muscle strength in patients with COPD is reviewed. Respiratory muscle strength in terms of volitional measurements (maximal inspiratory pressure, sniff pressure) and non-volitional measurements (twitch oesophageal pressure and twitch trans-diaphragmatic pressure) is reduced when compare to normal subjects. Although exercise, inspiratory resistive load and maximal voluntary ventilation (MVV) can cause diaphragm fatigue in normal subjects, there are limited data to support the hypothesis that diaphragm fatigue is associated with stable COPD because of central inhibition of respiratory central output. The effect of theophylline, β_2 -adrenergic agents, lung volume reduction surgery and inspiratory muscle training on inspiratory muscle contractility is reviewed. While β_2 -adrenergic agents and lung volume reduction surgery have been demonstrated to improve diaphragm contractility, the effect of theophylline and inspiratory muscle training on respiratory muscle strength remains controversial. Because dyspnoea relates to neural respiratory drive, recording diaphragm EMG is a very important technique in assessment of breathlessness in patients with COPD. Changes in neural drive in terms of diaphragm EMG during exercise and CO₂ challenge are also reviewed.

Community-acquired Pneumonia - Asian Experience

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Community acquired pneumonia (CAP) is a common illness and it is associated with significant morbidity and mortality. The treatment of CAP is largely empirical and challenging because the precise aetiology is usually unknown at the time of initiating antibiotic therapy. Even when carefully sought for in large prospective studies, the causative organism remains unknown in about half of all adult patients with CAP. *Streptococcus pneumoniae*, *Haemophilus influenzae* and *Mycoplasma pneumoniae* are the most commonly identified pathogens in studies conducted in the West. The microbial aetiology varies according to the age group and the presence of comorbid illness. Knowledge of the local epidemiology is particularly helpful when instituting empirical antibiotic therapy for CAP. Published studies showed the causative organisms of CAP in Japan, Korea and Thailand are similar to those reported in North America and Europe. The microbiology of CAP in adult patients requiring hospitalisation in studies performed in certain parts of Asia is different from that reported in the West. Gram-negative bacilli other than *H. influenzae* such as *Klebsiella pneumoniae* and *Burkholderia pseudomallei* are more frequently isolated. A recent study in Asia showed that CAP due to *Legionella pneumophila* and *Chlamydophila pneumoniae* are not infrequent. A number of studies in Southeast Asia where the prevalence of tuberculosis is high have shown that infection due to *Mycobacterium tuberculosis* may commonly present as an apparent CAP. These differences in the microbiology of CAP as compared to what is reported in the West must be taken into consideration when selecting the appropriate antibiotics for initial empirical therapy of CAP in this region. The variation in the treatment recommendations of CAP guidelines from different countries reflects geographical variations in microbial aetiology, antibiotic resistance patterns and healthcare practices.

A One-Year Retrospective Cohort Study on the Aetiology and Outcome of Patients Hospitalized for Haemoptysis

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Background: Haemoptysis is an alarming symptom. Appropriate investigations and management can lead to early diagnosis and treatment of potentially serious diseases¹.

Objective: To evaluate the aetiological distribution of haemoptysis and their outcomes in an Asian population.

Design: A retrospective analysis of 91 patients who were admitted for haemoptysis through the Accident & Emergency Department to the Medical Department of North District Hospital between August 2004 and July 2005 was conducted. Their characteristics, investigation results, and clinical progress at one year after discharge were reviewed.

Results: Among the 91 patients, 63 were males and 28 were females. Two patients were Indians living in Hong Kong. The mean age was 65.6 (SD 16.8). Majority (56.1%) of them were either current or ex-smokers. Fifty-seven (62.6%) of them had pre-existing pulmonary diseases. Haemoptysis was severe (>100ml fresh blood per day) in 15% of patients, moderate (<100ml fresh blood per day) in 50% and mild (mouthfuls of blood or blood stained sputum) in 35%. Four patients required intubation due to respiratory failure. The cause and site of bleeding were unknown in five cases after extensive investigations including bronchoscopy, computed tomography and bronchial arteriogram were performed. Bronchiectasis was the leading cause of haemoptysis (29.2%) in our cohort, followed by lung cancer (20.2%), old or active tuberculosis (15.7%) and pneumonia (14.6%). This finding is consistent with previous reports²⁻⁴. Among patients with an identifiable bleeding source, blood often came from the right lung (60%), in particular, the right upper lobe (32%). Bronchial artery embolization or surgical intervention was offered to 9% of patients. Two patients died during the index admission for haemoptysis. Sixty-four evaluated subjects survived up to one year after discharge, while 67% had no readmission for haemoptysis in the subsequent year.

Conclusion: Bronchiectasis and lung cancer were the leading causes of haemoptysis in this study. Bleeding often came from the right lung. Investigations are warranted even for mild cases because they can often be diagnostic, and the underlying aetiology could be serious. In general, the prognosis is good, with a low recurrence and mortality rate.

References:

1. Cahill BC, Ingbar DH, et al. Massive haemoptysis. Assessment and Management. *Clin Chest Med.* 1994 Mar; 15(1): 147-67. Review.
2. Abal AT et al. Haemoptysis: aetiology, evaluation and outcome - a prospective study in third-world country. *Respir Med.* 2001 Jul; 95(7): 548-52.
3. Hirshberg B et al. Haemoptysis: etiology, evaluation, and outcome in a tertiary referral hos. *Chest.* 1997 Aug; 112(2): 440-4.
4. Fidan A, Ozdogan S, et al. Haemoptysis: a retrospective analysis of 108 cases. *Respir Med.* 2002 Sep; 96(9): 677-80.

The Temporal Relationship between Air Pollutants and Hospital Admissions for Chronic Obstructive Pulmonary Disease in Hong Kong

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Introduction: To assess any relationship between the levels of ambient air pollutants and the hospitalization rate due to chronic obstructive pulmonary disease (COPD) in Hong Kong.

Methods: This is a retrospective ecological study. Data of daily emergency hospital admissions to 15 major hospitals in Hong Kong for COPD and indices of air pollutants (sulphur dioxide [SO₂], nitrogen dioxides [NO₂], ozone [O₃], particulates with an aerodynamic diameter of less than 10µm [PM₁₀] and 2.5µm [PM_{2.5}]) and meteorological variables from Jan 2000 to December 2004 were obtained from several government departments. Analysis was performed by the generalized additive models with Poisson distribution. The effects of time trend, season, and other cyclical factors, temperature, and humidity were adjusted. Autocorrelation and overdispersion were corrected.

Results: Significant associations were found between hospital admissions for COPD with all 5 air pollutants. Relative risks for admission for every 10µg/m³ increase in SO₂, NO₂, O₃, PM₁₀ and PM_{2.5} were 1.007, 1.026, 1.034, 1.024 and 1.031 respectively, at a lag day ranged from lag 0 to cumulative lag 0-5. In a multi-pollutant model, O₃, SO₂ and PM_{2.5} were significantly associated with increased admissions for COPD. SO₂, NO₂, and O₃ had a stronger effect on COPD admissions in the cold season (December to March) than during the warm season.

Conclusion: Adverse effects of current ambient concentrations of air pollutants on hospitalization rates for COPD are evident. Measures to improve air quality are urgently needed to decrease morbidity related to COPD.

Role of Angiogenic Factors in Abnormal Vascularization of Bronchiectasis

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Background: Haemoptysis and abnormal bronchial vascularization are frequently observed in patients with bronchiectasis. Although angiogenesis is implicated in various inflammatory lung conditions (e.g. COPD), it is uncertain why some bronchiectatic patients have extreme degree of neo-vascularization and severe haemoptysis. Vascular endothelial growth factor (VEGF), tumor necrosis factor-alpha; (TNF- α), basic fibroblast growth factor (bFGF), transforming growth factor-beta; (TGF- β), and interleukin-8 (IL-8) are important angiogenic factors. We hypothesize that these angiogenic factors are up-regulated in bronchiectasis, more than in other inflammatory lung conditions. We measured the serum levels of angiogenic factors in bronchiectatic patients, who were confirmed to have abnormal vascularization by angiogram. They were compared to a group of patients with chronic obstructive pulmonary disease (COPD).

Method: Stable bronchiectatic patients with abnormal vascularization confirmed by bronchial arteriogram were recruited from 1999 to 2005. The control group consisted of stable phase COPD patients. Patients with active tuberculosis, mycetoma and lung abscess were excluded from the study. Serum VEGF, TNF- α , bFGF, TGF- β , and IL-8 levels were measured using enzyme-linked immunosorbent assay (ELISA).

Results: Thirty-six subjects with bronchiectasis (mean age 67.5 ± 11.2) and 49 subjects with COPD (mean age 70.9 ± 6.4) were studied. The serum bFGF level was significantly higher in bronchiectasis patients compared with COPD patients [median (IRQ) = 13.1 (8.04-19.1) pg/mL vs. 7.24 (0.27-9.64) pg/mL; $p=0.001$]. There were no statistically significant differences in the serum levels of IL-8, VEGF, TNF- α , and TGF- β between the bronchiectasis and COPD groups.

Conclusion: Bronchiectatic patients with angiographic evidence of abnormal vascularization had significantly higher level of serum bFGF compared to stable COPD patients. We speculate that elevated serum level bFGF is a key factor in angiogenesis in bronchiectasis. Additional studies are needed to elucidate the mechanism and clinical implication of this elevation.

Gene Expression Studies Revealed Differences in Nicotinic Acetylcholine Receptor (nAChR) α Subunit Gene Expression Levels between Smokers and Non-smokers

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Background: Tobacco smoking is one prominent cause of lung cancer. Nicotine is well known to cause addiction to tobacco smoking, subjecting smokers to continued and chronic exposure to various other toxic substances and carcinogens in tobacco smoke. There is recent evidence that nicotine and its derivatives, by binding to the nicotinic acetylcholine receptor (nAChR), could mediate the effects of cellular proliferation and apoptosis via the *Akt* pathway. Delineation of the nAChR subtypes present in lung cancer may allow for opportunities for intervention or therapeutic targeting in lung cancer patients and for chemoprevention in chronic smokers.

Aims of Study: (1) To analyze the expression of nAChR subunit genes in lung tumors and normal lung tissues; (2) To compare the differences in the levels of expression of these nAChR subunit genes between smokers and non-smokers in lung cancer.

Materials and Methods: Total RNA was extracted from resected lung cancer and normal lung tissues. Extracted total RNA was reversely transcribed into cDNA for subsequent analysis with real-time polymerase chain reaction with specifically designed primers to detect any difference in the level of nAChR subunit gene expression between smokers and non-smokers.

Results: Sixty-six resected lung tumors and 7 normal lung tissues were collected and analysed. The expression levels of nAChR $\alpha 4$ ($p < 0.001$) and $\beta 4$ ($p = 0.029$) subunit genes were relatively higher in lung tumors when compared with normal lung tissues. Smokers showed a higher level of expression of nAChR $\alpha 6$ ($p < 0.001$) and $\beta 3$ ($p < 0.001$) subunit genes when compared to non-smokers and the differences were consistent and statistically significant when adjusted for the effect of gender.

Discussion: nAChR $\alpha 4\beta 2$ subtype is one of the most commonly found functional nAChR subtypes in the central nervous system and is thought to mediate nicotine addiction in the brain. We have shown that the nAChR $\alpha 4$ and $\beta 4$ subunit genes were expressed in lung tumors when compared with normal lung tissues. The presence of nAChR $\alpha 4$ and $\beta 4$ in lung tumors may imply their roles in lung carcinogenesis. nAChR $\alpha 6\beta 3$ is another functional nAChR subtypes found to be present in the brain and in the central nervous system. The difference in the level of expression in nAChR $\alpha 6$ and $\beta 3$ subunit genes between smokers and non-smokers may indicate the mediation of tobacco smoking effects by nAChR $\alpha 6\beta 3$ subtypes in lung cancer. The detail mechanism of involvement of different nAChR subtypes deserves further investigation in lung cancer patients and chronic smokers to give insight towards lung carcinogenesis and potential opportunities for chemoprevention in chronic smokers.

Clinical Course and Outcome of Patients with Severe Community Acquired *Acinetobacter* Pneumonia Admitted to the Intensive Care Unit

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Objectives: This study aimed to investigate the epidemiological, microbiological and clinical aspects of patients with severe community acquired *Acinetobacter* pneumonia (CAAP) admitted to the intensive care unit (ICU), compared to patients with severe community acquired pneumonia (CAP) without evidence of *Acinetobacter* infection.

Design: A retrospective study by reviewing hospital records and CXR of CAP patients admitted to the ICU with isolation of *Acinetobacter* in specimens taken on admission.

Participants: Patients admitted to the ICU of a regional hospital with a diagnosis of CAP over 36 consecutive months were screened. Those with a positive culture of *Acinetobacter* were recruited to the CAAP group, while those with negative culture or cultures yielding other organisms were labeled the non-CAAP group as control.

Results: CAAP patient had higher APACHE II score ($p=0.038$), longer INR on presentation ($p=0.020$), more lobar consolidation on initial CXR ($p=0.019$), and significantly more bacteremia ($p<0.001$). Mortality rate was 90% for the CAAP patients and 43.3% for the non-CAAP patients ($P<0.001$). Factors associated with reduced survival were *Acinetobacter* infection ($p<0.001$), presence of bacteremia ($p=0.001$) and DIC ($p=0.003$). Mechanical ventilation was marginally associated with reduced survival ($p=0.049$). *Acinetobacter* infection was the only independent predictor of survival by Cox regression analysis ($p=0.003$). CAAP seemed commoner in summer months.

Conclusions: *Acinetobacter* infection was not uncommon in ICU patients with severe CAP, resulting in high mortality. Early administration of extended spectrum antibiotics beyond standard antibiotics guideline for CAP and aggressive supportive therapy may improve outcome. Further studies would be needed to tailor appropriate therapeutic strategies.

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