Clinical Trials Centre
Li Ka Shing Faculty of Medicine
The University of Hong Kong

05 annual report

We test tomorrow's drugs,
vaccines and medical devices today

CTC

Clinical Trials Centre (CTC) of The University of Hong Kong (HKU) Li Ka Shing Faculty of Medicine is a leading academic research organization dedicated to one-stop clinical research solutions. Established in 1998, CTC is committed to enhancing global healthcare by promoting the quality and efficiency of clinical research and testing of new chemical drugs, biologics, vaccines, traditional Chinese medicines, medical devices and diagnostic tools through ethical consideration, scientific expertise, quality assurance and education. Our core competences range from academic research consultation, training and education to protocol development, feasibility assessment and site identification, regulatory affairs, finance and contract management, project management and monitoring, data management, medical statistics, and central laboratory support for industry-sponsored clinical studies.

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The University of Hong Kong

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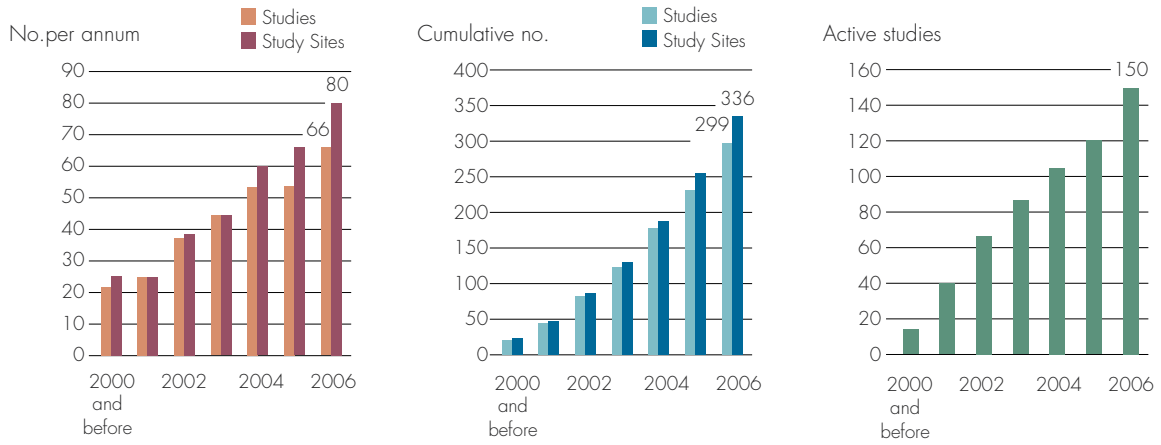
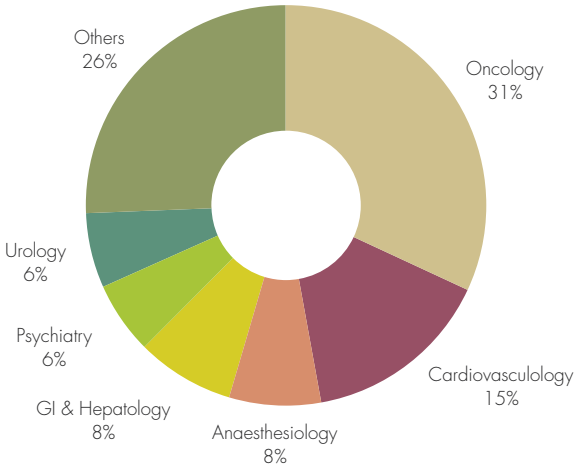
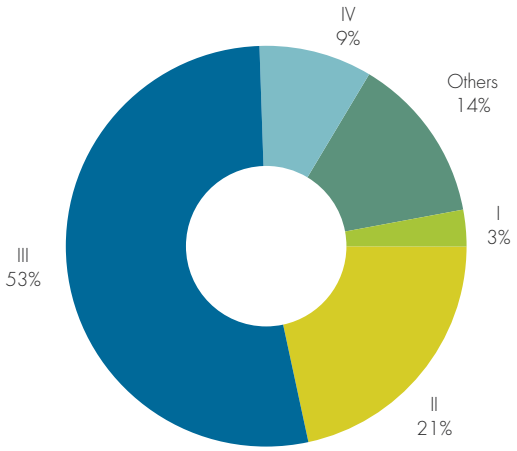


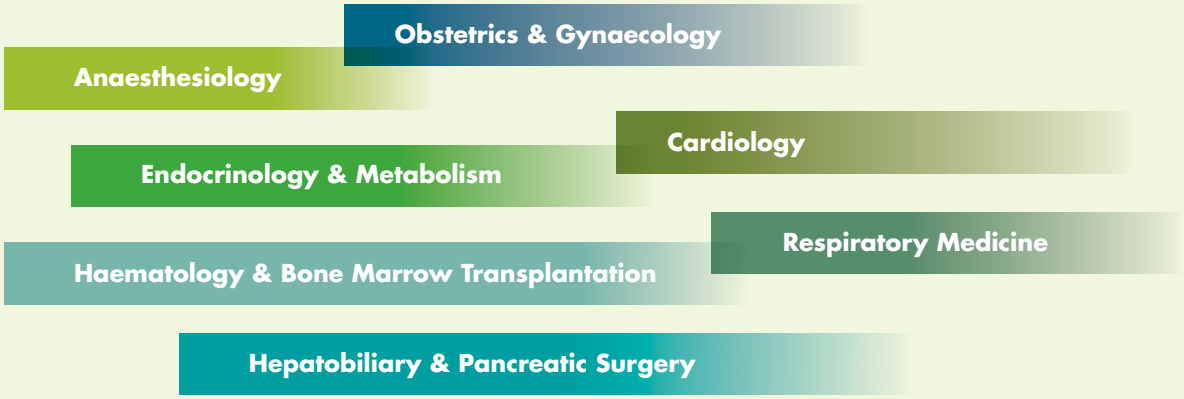
Types by research area (2006)



Types by study phase (2006)



Therapeutic areas accredited by the State Food and Drug Administration (SFDA), China



Important operating statistics

No. of **initial submissions** made to ethics committees in 2006: 76

No. of **subsequent submissions** made to ethics committees in 2006: 1,464

No. of **adverse event reports** submitted to ethics committees in 2006: 8,321

No. of **trial subjects** monitored in 2006: 220

No. of **study visits** monitored in 2006: 1,761

Message from the Director

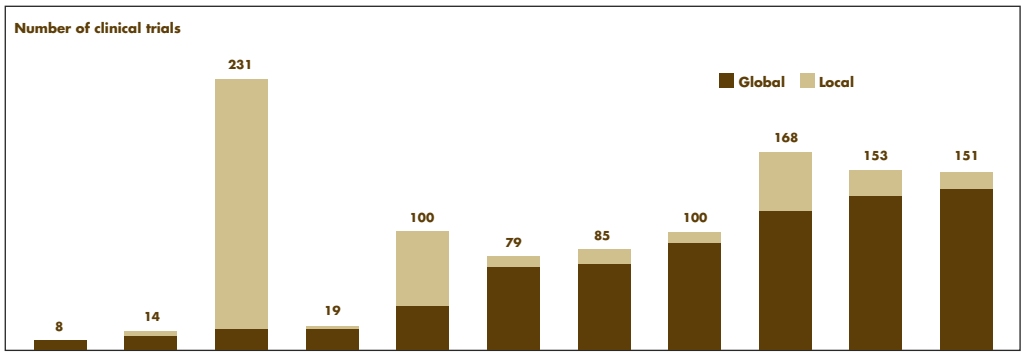
Globalization of clinical trials – the decade of the ICH GCP

Sponsored clinical trials on new medicines, vaccines and medical devices have become a global activity over the past decade following the introduction of the ICH GCP Guidelines. Good Clinical Practice (GCP) is an international ethical and scientific quality standard for designing, conducting, recording and reporting trials involving human subjects. Compliance with this standard provides public assurance that the rights, safety and well being of trial subjects are protected – consistent with the principles of the Declaration of Helsinki – and that clinical trial data are credible.

International Clinical Trial Arena in Asia

In October 2006, the total number of sponsored clinical trial sites registered with www.clinicaltrials.gov was 110,128. Of these, 53.3% were in the US, followed by Europe 28.5%, East Europe 7.2%, Asia 5.6%, South America 2.1%, Oceania 1.6%, Africa 1.0%, and Middle East 0.6%. The top 10 emerging trial countries were Poland, Australia, Russia, Czech Republic, South Africa, Hungary, Brazil, Mexico, Argentina and India. The top five emerging cities were Moscow (541 sites), Buenos Aires (458), Prague (394), Warsaw (299) and St. Petersburg (297). The top five Asian cities involved in global trials were Seoul (236 sites), Taipei (202), Hong Kong (154), Bangkok (102) and Singapore (98). In Asian places requiring local registration trials, the proportion of local trials against all registered trials was 92.5% in Japan, 63.0% in mainland China, 29.8% in South Korea and 13.7% in Taiwan. For global study protocols alone, India was the Asian leader – with 136 global study protocols – followed by Taiwan (131), South Korea (118), Hong Kong (90), Thailand (73), Singapore (71), Malaysia (69), Philippines (65), mainland China (37), Indonesia (18), Japan (17), Pakistan (12) and Vietnam (7). The average number of sites per global study protocol was 9.8 for Japan, 6.2 for mainland China, 5.0 for India, 3.1 for South Korea, 3.0 for Taiwan and the lowest figure of 1.2 for Singapore.

Asian Countries - local protocols vs. total protocols



	Vietnam	Pakistan	Japan	Indonesia	China	Singapore	Thailand	Hong Kong	Korea	Taiwan	India
Local	1	2	214	1	63	8	12	10	50	22	15
Global	7	12	17	18	37	71	73	90	118	131	136

Population, quality, speed, and cost

The international pharmaceutical industry is rapidly changing its strategy for recruiting trial subjects. Most trial sites remain in established regions, but more sites are increasingly from the emerging regions. Selection of sites is usually based on a number of key criteria such as patient population, infrastructure, English skills and trained staff, quality of healthcare, ethics committee operation, regulatory framework, clinical research excellence, experience, and costs. Over the past five years, South Korea and India have picked up very fast because they are able to offer more and more of these favourable components to the industry.

Why Hong Kong?

Despite a relatively small population of seven million and a high cost of living, Hong Kong has been involved in a rapidly increasing number of sponsored clinical trials. In 2000, the Clinical Trials Centre (CTC) at The University of Hong Kong (HKU) coordinated only 14 sponsored trials, compared to 66 in 2006. CTC has so far collaborated with 65 sponsors – including 17 out of the 20 largest international pharmaceutical companies. Why has Hong Kong benefited from the impact of the ICH GCP guideline? Listed below are ten strong reasons that Hong Kong has become an increasingly attractive trial location. For faster advancement of healthcare, we test tomorrow's drugs, vaccines and medical devices today.

" For faster advancement of healthcare, we test tomorrow's drugs, vaccines and medical devices today."

Johan Karlberg
MD, PhD (Anat & Cell Biol), BSc (Stat & Edu)
Director & Professor

Ten reasons for conducting clinical trials in Hong Kong

1. **Infrastructure:** Hong Kong has excellent infrastructure in terms of transportation, work force and legal framework.
2. **English skills & trained staff:** Hong Kong has two official languages – English and Chinese. The English language is used in higher education and in many important sectors of society. Hospital records are all in English. Hong Kong has a highly trained population, with 50% of the working population employed by international companies.
3. **Healthcare:** Hong Kong has an outstanding healthcare system, as indicated by one of the lowest infant mortality rates (2-3/1000) and the longest life expectancy (80 for males, 86 for females) in the world. Hong Kong has a population of close to seven million. The 42 public hospitals provide 90% of the medical care in Hong Kong. Public hospital records are computerized and stored in a central computer.
4. **Ethics committees:** The 42 public hospitals in Hong Kong are organized into six clusters for ethics review purpose. The cluster ethics committees operate according to international standards – including the Declaration of Helsinki and the ICH GCP – and also according to their unified operational guidelines. The ethics committee affiliated with HKU, which is registered with the US Office for Human Research Protections (OHRP), handles over 300 protocols annually. Meetings are scheduled every two weeks.
5. **Regulatory framework:** The regulatory framework for testing new drugs in Hong Kong is quite simple. The entire approval process takes just two months for a normal trial. The first requirement is ethics committee approval, which is followed by a regulatory approval for trial conduct and an import license for the test drugs. These regulations apply only to drug trials and not to device or cell therapy trials.
6. **China SFDA:** Hong Kong is officially recognized by the China State Food and Drug Administration (SFDA) for conducting clinical trials for drug registration purpose in mainland China in certain therapeutic areas. For instance, HKU has been recognized in seven therapeutic areas including Anesthesiology, Cardiology, Endocrinology & Metabolism, Haematology & Bone Marrow Transplantation, Obstetrics & Gynaecology, Hepatobiliary & Pancreatic Surgery and Respiratory Medicine. Oncology and infectious diseases trials under such areas are also recognized.
7. **Leading trial city:** Hong Kong is among the leading clinical trial cities worldwide. In 2006 Hong Kong was involved in more than twice as many global clinical trials as mainland China.
8. **Clinical research excellence:** Hong Kong has two medical schools with many years of high quality clinical research output and has taken scientific leadership in Asia.
9. **Trial experience:** Hong Kong has a long and impressive track record of conducting global clinical trials. Since the introduction of the ICH GCP guideline in 1997, Hong Kong has participated in some 1,000 global clinical trials requiring ICH GCP compliance.
10. **Leading trial centre:** HKU has a leading Clinical Trials Centre in the region with 150 ongoing global clinical trials by year-end 2006 and a projected 150,000 subject visits for the first 300 trial protocols. CTC has also established a trial network – ClinCluster – which makes standardized budgets, contracts and ethics committee applications possible under the 42 public hospitals.

Board of Directors & Organizational Structure

The University of Hong Kong Li Ka Shing Faculty of Medicine

Chairman

Professor Annie Kung
Director, Osteoporosis Centre
Department of Medicine
The University of Hong Kong

Professor Bernard Cheung
Department of Medicine
The University of Hong Kong

Dr. Lawrence Lai
Cluster Chief Executive
Hospital Authority
Hong Kong West Cluster

Professor Johan Karlberg
Director
Clinical Trials Centre
The University of Hong Kong

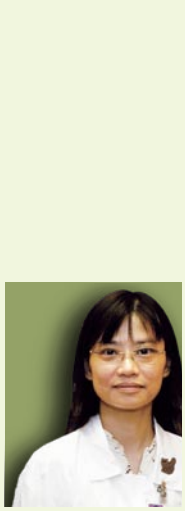
Professor Ricky Man
Associate Dean
Li Ka Shing Faculty of Medicine
The University of Hong Kong

Dr. Michael Irwin
Head
Department of Anaesthesiology
The University of Hong Kong

Professor Ronnie Poon
Assistant Dean (Research)
Li Ka Shing Faculty of Medicine
The University of Hong Kong

Professor LC Chan
Head
Department of Pathology
The University of Hong Kong

Board of Directors



Dr. Kathryn Tan
Associate Professor
Department of Medicine
The University of Hong Kong

Professor Y Tong
Director
School of Chinese Medicine
The University of Hong Kong

Clinical Trials Centre

- Research consultation
- Protocol development
- Feasibility assessment and site identification
- Project management and monitoring
- Regulatory affairs
- Budget and payment management
- Contract management
- Central laboratory
- Research pharmacy
- Data management
- Medical statistics
- Medical writing
- Education and training

Industry-sponsored Clinical Studies

Industry-sponsored clinical studies con tracted in 2006					
Therapeutic Area	Disease Area	Study Phase*	Principal Investigator	Department	Study Site#
Anaesthesiology	Chemotherapy-Induced Nausea & Vomiting	II	Dr. Daniel TT Chua	Clinical Oncology	QMH
Anaesthesiology	Chemotherapy-Induced Nausea & Vomiting	III	Professor Richard Epstein Dr. Daniel TT Chua Dr. Y Tung Dr. Louis Chow	Medicine Clinical Oncology Clinical Oncology N/A	QMH QMH TMH UMI
Anaesthesiology	Post-Operative Nausea & Vomiting	III	Dr. Anne SK Kwan	Anaesthetics	UCH
Anaesthesiology	Post-Operative Nausea & Vomiting	III	Dr. Michael Irwin Dr. TW Lee	Anaesthesiology Anaesthesia & Intensive Care	QMH TMH
Anaesthesiology	Post-Operative Nausea & Vomiting	III	Dr. Michael Irwin	Anaesthesiology	QMH
Cardiovasculology	Acute Coronary Syndrome	IV	Professor HF Tse	Medicine	QMH
Cardiovasculology	Atrial Fibrillation	N/A	Professor HF Tse	Medicine	QMH
Cardiovasculology	Atrial Fibrillation	N/A	Professor HF Tse	Medicine	QMH
Cardiovasculology	Cardiac Failure	N/A	Dr. Stephen WL Lee	Medicine	QMH
Cardiovasculology	Cardiovascular Events	III	Professor Raymond TF Cheung Dr. Kathyrn CB Tan	Medicine Medicine	QMH QMH
Cardiovasculology	Heart Failure	III	Dr. Stephen WL Lee	Medicine	QMH
Cardiovasculology	Hypercholesterolemia & Hyperlipidemia	III	Professor HF Tse	Medicine	QMH
Cardiovasculology	Hypertension	II	Professor Bernard MY Cheung	Medicine	QMH
Cardiovasculology	Hypertension	III	Professor Bernard MY Cheung	Medicine	QMH
Cardiovasculology	Hypertension	III	Dr. Daniel Chu	Medicine	SYC
Dermatology	Facial Melasma	IV	Dr. CK Yeung	Medicine	QMH
Endocrinology	Diabetes Mellitus	III	Professor Karen SL Lam	Medicine	QMH
Endocrinology	Osteoporosis	N/A	Professor Annie WC Kung	Medicine	QMH
Endocrinology	Osteoporosis	III	Professor Annie WC Kung	Medicine	QMH
Gastroenterology & Hepatology	Hepatitis B	I	Dr. MF Yuen	Medicine	QMH
Gastroenterology & Hepatology	Hepatitis B	II	Dr. Nancy Leung Professor George KK Lau	Medicine Medicine	ANH QMH
Gastroenterology & Hepatology	Hepatitis C	IV	Dr. MF Yuen	Medicine	QMH
Gastroenterology & Hepatology	Opioid-Induced Bowel Dysfunction	II	Dr. Michael Irwin Dr. Anne SK Kwan	Medicine Anaesthetics	QMH UCH
Gastroenterology & Hepatology	Primary Biliary Cirrhosis	III	Professor George KK Lau	Medicine	QMH

Industry-sponsored clinical studies contracted in 2006

Therapeutic Area	Disease Area	Study Phase*	Principal Investigator	Department	Study Site#
Geriatrics	Alzheimer's Disease	III	Dr. LW Chu	Medicine	QMH
Haematology	Myelodysplastic Syndromes	N/A	Dr. WY Au	Medicine	QMH
Haematology	Thrombocytopenia	II	Professor Raymond HS Liang	Medicine	QMH
Infectious Disease	Intra-abdominal Infections	III	Professor KM Chu	Surgery	QMH
Infectious Disease	Skin Structure Infections	III	Dr. WM Ng	Surgery	QMH
Nephrology	Anemia in Chronic Kidney Disease	III	Professor KN Lai	Medicine	QMH
Nephrology	Anemia in Chronic Kidney Disease	III	Professor KN Lai	Medicine	QMH
Neurology	Parkinson's Disease	II	Dr. Terrance Li Dr. Mandy Au-yeung Dr. John HM Chan Dr. Colin Lui Dr. PW Ng	Medicine & Geriatrics Medicine Medicine Medicine Medicine	PMH PYH QEH TKH UCH
Neurology	Seizures	III	Professor Raymond TF Cheung	Medicine	QMH
Obstetrics & Gynaecology	Human Pappillomavirus	III	Professor Hextan YS Ngan	Obstetrics & Gynaecology	QMH
Oncology	Breast Cancer	II	Professor Richard Epstein	Medicine	QMH
Oncology	Breast Cancer	II	Professor Richard Epstein Dr. Louis Chow	Medicine N/A	QMH UMI
Oncology	Breast Cancer	III	Dr. Ashley CK Cheng Dr. Carmen WL Leung Dr. Daniel TT Chua Dr. Y Tung	Oncology Clinical Oncology Clinical Oncology Clinical Oncology	PMH QEH QMH TMH
Oncology	Breast Cancer	III	Dr. Roger KC Ngan Dr. Daniel TT Chua Dr. Louis Chow	Clinical Oncology Clinical Oncology N/A	QEH QMH UMI
Oncology	Breast Cancer	IV	Professor Richard Epstein	Medicine	QMH
Oncology	Breast Cancer	N/A	Dr. Daniel TT Chua	Clinical Oncology	QMH
Oncology	Head & Neck Cancer	III	Dr. KH Au Dr. WM Ng	Clinical Oncology Surgery	QEH QMH
Oncology	Leukemia	II	Professor YL Kwong	Medicine	QMH
Oncology	Leukemia	III	Professor YL Kwong	Medicine	QMH
Oncology	Liver Cancer	I	Professor Ronnie TP Poon	Surgery	QMH
Oncology	Liver Cancer	II	Dr. Philip WK Kwong	Clinical Oncology	QMH
Oncology	Liver Cancer	N/A	Professor Ronnie TP Poon	Surgery	QMH

Industry-sponsored Clinical Studies

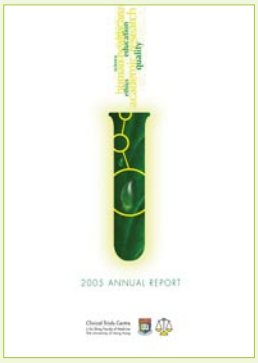
Industry-sponsored clinical studies contracted in 2006

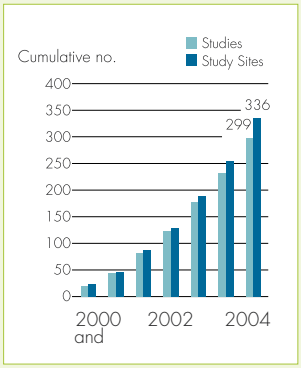
Therapeutic Area	Disease Area	Study Phase*	Principal Investigator	Department	Study Site#
Oncology	Lung Cancer	III	Dr. James CM Ho	Medicine	QMH
Oncology	Lung Cancer	III	Dr. Daniel TT Chua	Clinical Oncology	QMH
Oncology	Lung Cancer	III	Dr. James CM Ho	Medicine	QMH
Oncology	Lung Cancer	IV	Dr. James CM Ho	Medicine	QMH
Oncology	Lung Cancer	IV	Dr. Daniel TT Chua	Clinical Oncology	QMH
Oncology	Lymphoma	III	Professor Raymond HS Liang	Medicine	QMH
Oncology	Renal Cancer	II	Dr. Philip WK Kwong	Clinical Oncology	QMH
Oncology	Renal Cancer	III	Dr. Ashley CK Cheng Dr. WT Ng Professor Richard Epstein Dr. KK Yuen	Oncology Clinical Oncology Medicine Clinical Oncology	PMH PYH QMH TMH
Oncology	Renal Cancer	III	Dr. Ashley CK Cheng Dr. WT Ng Professor Richard Epstein Dr. KK Yuen	Oncology Clinical Oncology Medicine Clinical Oncology	PMH PYH QMH TMH
Orthopaedics &Traumatology	Cervical Radiculopathy	N/A	Professor KK Luk	Orthopaedics &Traumatology	QMH
Orthopaedics &Traumatology	Chronic Non-Malignant Pain	II	Dr. TP Ng	Orthopaedics &Traumatology	QMH
Orthopaedics &Traumatology	Knee Osteoarthritis	II	Dr. Peter KY Chiu	Orthopaedics &Traumatology	QMH
Psychiatry	Bipolar Disorder	III	Dr. KF Chung	Psychiatry	QMH
Psychiatry	Bipolar Disorder	III	Dr. KF Chung	Psychiatry	QMH
Psychiatry	Depressive Disorder	N/A	Professor SW Tang	Psychiatry	QMH
Psychiatry	Major Depressive Disorder	III	Professor SW Tang	Psychiatry	QMH
Urology	Nephropathy	III	Professor TM Chan	Medicine	QMH
Urology	Renal Failure	III	Dr. Temy Mok	Medicine	QMH
Urology	Renal Transplant	III	Professor TM Chan	Medicine	QMH
Urology	Renal Transplant	III	Dr. CS Li	Surgery	QEH

*Study Phase
N/A : Studies not classified as Phase I, II or III studies, such as medical device, observational, epidemiology and compassionate studies

#Study Site
ANH : Alice Ho Miu Ling Nethersole Hospital
PMH : Princess Margaret Hospital
PYH : Pamela Youde Nethersole Eastern Hospital
QEH : Queen Elizabeth Hospital
QMH : Queen Mary Hospital
SYC : Sai Ying Pun Jockey Club General Outpatient Clinic
TKH : Tseung Kwan O Hospital
TMH : Tuen Mun Hospital
UCH : United Christian Hospital
UMI : Unimed Medical Institute of Breast Diseases

Remarkable Events





February
- Organization of the Non-clinical Faculties Ethics Committee Training Workshop

June
- Publication of the 2005 CTC annual report

July
- Appointment of a new Chairman and new members to the Board of Directors

August
- Approval by the State Food and Drug Administration (SFDA) of China as a recognized institution for conducting clinical trials in seven therapeutic areas for new drug registration purpose in mainland China

September
- Establishment of the Early Clinical Development Centre (ECDC) with Wyeth

December
- Closed the year with the cumulative number of industry-sponsored clinical studies coordinated through CTC at 299 – just one foot step towards 300!

Business Development

Collaborative trial sponsors

Hong Kong's favourable clinical research environment, highly qualified clinical investigators, and the comprehensive support of CTC continued to prove increasingly attractive to trial sponsors. 12 more trial sponsors initiated clinical studies through CTC for their first time during 2006, expanding the number of CTC's collaborative trial sponsors to 65.

Collaborative trial sponsors		
Abbott Laboratories	Enteromedics	OSI Pharmaceuticals
Achillion Pharmaceuticals	Everpride Biopharmaceutical	Pfizer
Actelion Pharmaceuticals	Galderma	Pi Medical
Advanced Herbal Therapeutics	GlaxoSmithKline	PowderMed
Altana Pharma	Guidant	Roche
Arrow Therapeutics	Idenix Pharmaceuticals	Sanofi-Aventis
Astellas	Johnson & Johnson	Schering-Plough
AstraZeneca	Keryx	Scios
Bayer	Kowa	Serono
BCIRG	La Jolla	Servier
Bio-Cancer Treatment	LG Life Sciences	St. Francis
Biocompatibles	Light Sciences	St. Jude Medical / Pacesetter
Biomeasure	Luitpold	Theravance
Boehringer Ingelheim	Lundbeck	Triangle Pharmaceuticals
Boston Scientific	MedImmune	Tularik
Bristol-Myers Squibb	Medtronic	Tyco
Bukwang	Medwaves	Vigconic
Celltech	Merck KGaA	Wealthy Creative
Celsion	Merck Sharp & Dohme	Wyeth Pharmaceuticals
CK Life Sciences	Novartis	Xanthus Life Sciences
EBR System	Novo Nordisk	Zila
Eli Lilly	Organon	

Business process reengineering

A rapid increase in the number of active clinical studies placed additional pressure on CTC's Business Development Team. To facilitate an efficient and sustainable flow of new clinical studies, the team started reengineering its operations in a holistic manner through:-

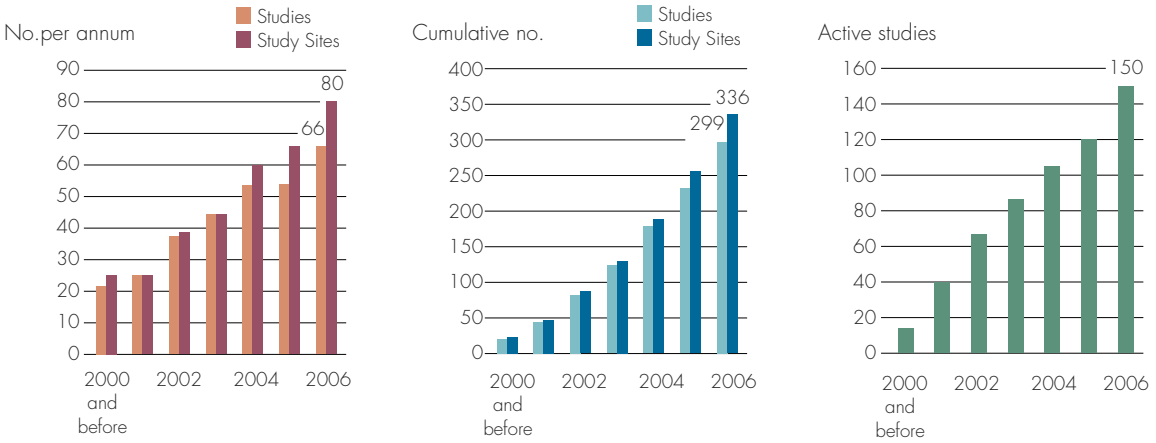
- evaluation and rethinking of the entire business process;
- identification of operational bottlenecks;
- streamlining key procedures; and
- automation of routine duties.

The exercise proved fruitful. The reengineering process is ongoing, and improvement of efficiency will continue to be an important focus.

Industry-sponsored clinical studies

Continuing the positive trend of previous years, the number of newly contracted industry-sponsored clinical studies reached 66, a 22% increase year-on-year, adding up to a cumulative total of 299 – of which 150 were still active by the end of the year.

Contracted industry-sponsored clinical studies

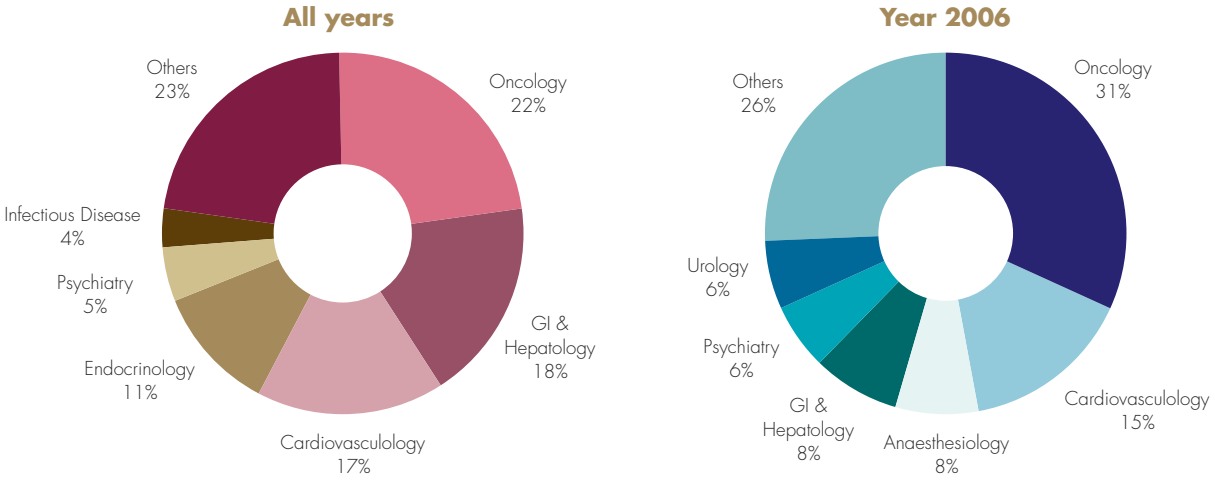


Research trends

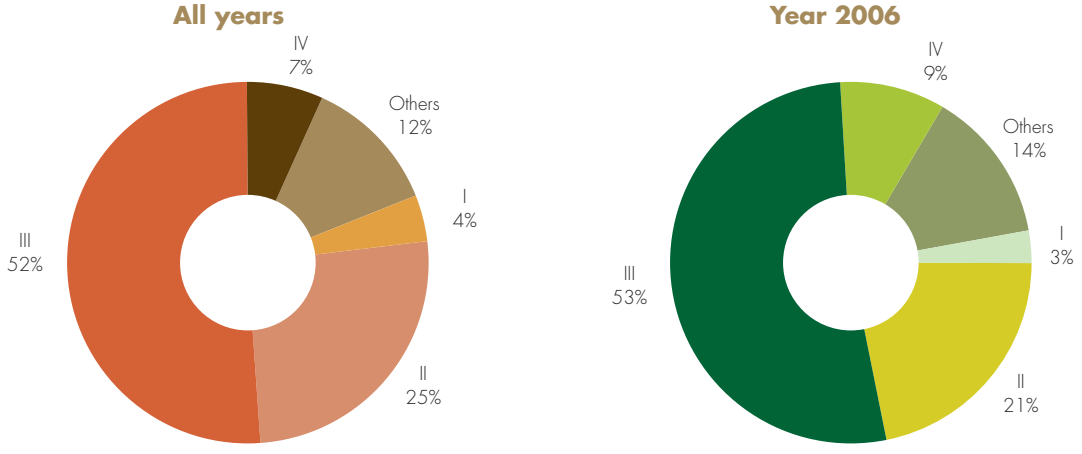
Whilst clinical studies coordinated by CTC remained highly diversified in terms of research areas, there was a clear trend by the industry to pour more resources into some specific areas. Among the 66 newly contracted clinical studies, oncology and cardiovasculology accounted for 46% of them. Distribution of clinical studies by study phase meanwhile remained steady – with phase II and III studies together representing 74% of all new studies contracted during the year.

Types of cinical studies

By research area



By study phase



Wyeth's Early Clinical Development Centre (ECDC)

In September 2006, Wyeth and HKU entered into a long-term collaboration to set up an Early Clinical Development Centre (ECDC) for early phase clinical trials of new medicines. In an interview with CTC, Dr. Timothy Nash, Wyeth's Assistant Vice-President for Clinical Research, Asia Pacific, introduced the novel concept:

What is the Wyeth ECDC model? How does it differ from the traditional clinical research model?

The ECDC model is a Wyeth solution to the challenge of completing proof-of-concept (POC) clinical studies for new molecules in a timely manner. Wyeth seeks to enroll trial subjects for Phase II POC studies within six months, instead of the current 14 months, by going to study sites with the research expertise and patient base to contribute significantly to subject enrolment.

Dr. Timothy Nash
Assistant Vice-President
Clinical Research, Asia Pacific
Wyeth

Why was Wyeth interested in setting up an ECDC at HKU?

HKU has a good track record, on its own and also in association with Wyeth, of high enrolment contributions to global clinical studies while maintaining high quality data. These are important elements in line with the objective of the ECDC model.

What kinds of diseases and medical conditions will be researched under the HKU ECDC?

Clinical studies will cover a board spectrum of diseases and medical conditions, such as women's health, oncology, rheumatology, infectious diseases, diabetes and Alzheimer's disease.

Could you describe your experience in working with HKU's clinical investigators and CTC under the ECDC collaboration?

Wyeth has had an excellent past and continuing experience working with CTC and HKU's investigators. Importantly, relationships have always been mutually respectful. Investigators have met their obligations over timing, numbers and quality, and work always gets done to the highest standard. Internal audits for two studies have been performed, demonstrating the excellent research ethos and willingness of everyone in HKU to make absolutely certain that every piece of work is done correctly from the first moment.

What will be the benefits of ECDC to the Hong Kong general public?

It has been clearly demonstrated in oncology clinical studies that patients in research studies get better care and achieve better results than patients in general care. The ECDC will give more Hong Kong residents the opportunity to enjoy the highest standard of care available in clinical studies. Also, the collaboration may provide Hong Kong residents with earlier access to novel effective medicines.

Network Operation

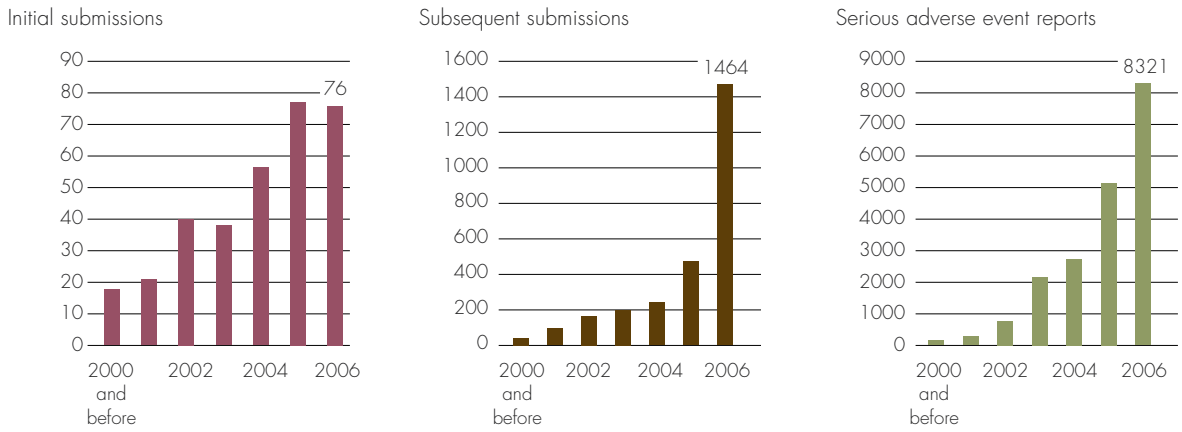
Ethical review process

Compiling submissions to ethics committees represents a major part of the Network Operation Team's duties.

The total number of ethical submissions reached a record high in 2006. While initial applications remained steady, at 76, subsequent submissions for serious adverse events and other reasons jumped 62% and 180% respectively from the previous year. The upsurge was attributable to a rapid increase in active clinical studies, the increasing proportion of oncology studies from which more adverse events are normally reported, and the involvement of multiple sites in clinical studies coordinated through ClinCluster - CTC's multi-centre clinical study site management platform.

There is no indication that clinical study activities will slow down in Hong Kong in the foreseeable future. Handling ethical submissions in an efficient and high quality manner will continue to be a challenge facing the Network Operation Team for many years to come.

Submissions to ethics committees per annum



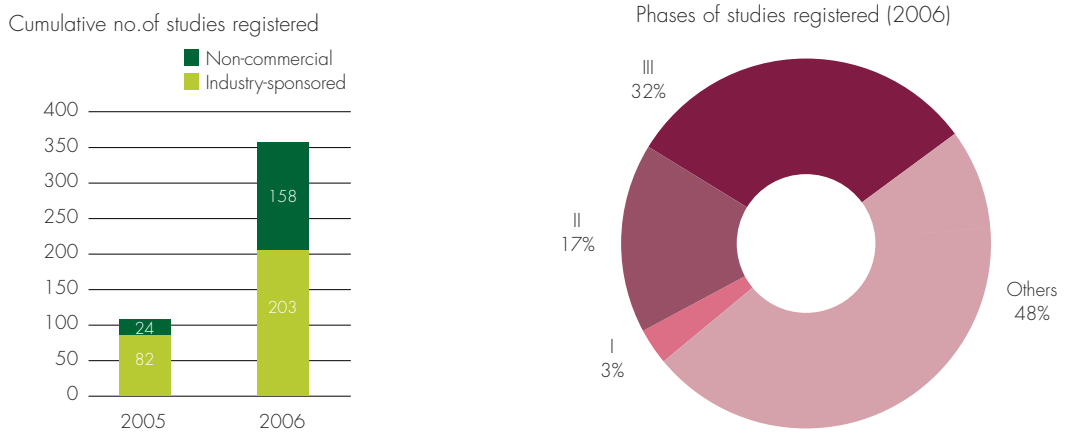
Clinical trial register

The International Committee of Medical Journal Editors (ICMJE) now only considers a clinical study fit for publication if it was publicly registered before enrollment of the first trial subject – a condition introduced in July 2005. In response, CTC established the HKU Clinical Trial Register (www.HKClinicalTrials.com), providing a public registry for its investigators to register their studies.

The HKU Clinical Trial Register has steadily gained in popularity since its establishment. By year-end 2006, some 360 studies were posted on www.HKClinicalTrials.com for public access. These include industry-sponsored studies and investigator-initiated studies at HKU, as well as some clinical studies conducted by investigators in other institutions.

Discussions with the ICMJE and the WHO for formal recognition of the HKU Clinical Trial Register, in line with a few other overseas public registries, were initiated in late-2006.

Clinical studies registered at the HKU clinical trial register

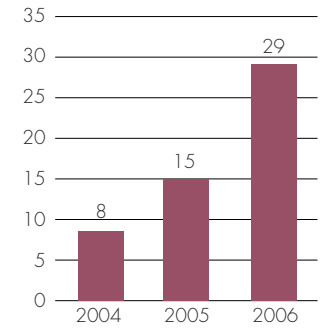


ClinCluster

Leveraged on experience gained in previous years, ClinCluster was increasingly successful in 2006.

One-stop feasibility assessment, centralized ethics submission and the "one budget, one contract" concept create a unique package providing added value to trial sponsors and clinical investigators. Since the launch of ClinCluster in 2004, over 60 feasibility assessments have been performed, with 29 studies initiated.

Cumulative number of ClinCluster studies



Clinical studies coordinated through ClinCluster in 2006

Therapeutic Area	Disease Area	Study Phase*	Study Site#
Anaesthesiology	Chemotherapy-Induced Nausea & Vomiting	III	QMH / TMH / UMI
Anaesthesiology	Post-Operative Nausea & Vomiting	III	UCH
Anaesthesiology	Post-Operative Nausea & Vomiting	III	QMH / TMH
Cardiovasculology	Hypertension	III	SYC
Gastroenterology & Hepatology	Hepatitis B	II	ANH / QMH
Gastroenterology & Hepatology	Opioid-Induced Bowel Dysfunction	II	QMH / UCH
Neurology	Parkinson's Disease	II	PMH / PYH / QEH /TKH / UCH
Oncology	Breast Cancer	II	QMH / UMI
Oncology	Breast Cancer	III	PMH / QEH / QMH / TMH
Oncology	Breast Cancer	III	QEH / QMH / UMI
Oncology	Head & Neck Cancer	III	QEH / QMH
Oncology	Renal Cancer	III	PMH / PYH / QMH / TMH
Oncology	Renal Cancer	III	PMH / PYH / QMH / TMH
Urology	Renal Transplant	III	QEH

*Study Phase
N/A : Studies not classified as Phase I, II or III studies, such as medical device, observational, epidemiology and compassionate studies

#Study Site
ANH : Alice Ho Miu Ling Nethersole Hospital
PMH : Princess Margaret Hospital
PYH : Pamela Youde Nethersole Eastern Hospital
QEH : Queen Elizabeth Hospital
QMH : Queen Mary Hospital
SYC : Sai Ying Pun Jockey Club General Outpatient Clinic
TKH : Tseung Kwan O Hospital
TMH : Tuen Mun Hospital
UCH : United Christian Hospital
UMI : Unimed Medical Institute of Breast Diseases

GSK's ClinCluster Experience

GSK is among the earliest collaborators with CTC and has sponsored the highest number of clinical studies at HKU since CTC's establishment in 1998. Rebecca Luk, GSK's Clinical Research Manager in Hong Kong, discussed GSK's collaborative relationship with CTC and her experience with ClinCluster.

How long has GSK collaborated with CTC and worked through ClinCluster?

GSK Hong Kong has been working very closely with CTC since it was established, and started leveraging on ClinCluster's extensive site coverage and comprehensive services since its launch in 2004.

Rebecca Luk
Clinical Research Manager
GlaxoSmithKline Ltd.

What are the added values of ClinCluster to GSK's clinical studies?

Over the past two years, nearly 80% of our trial sites have been coordinated through ClinCluster. Two of the services that helped us most are ClinCluster's free feasibility assessments and its "one budget, one contract" arrangement. Through the feasibility service, we can gain access to suitable institutions, investigators and trial sites. The "one budget, one contract" concept has simplified the process and avoided the hassle of negotiating contracts with individual trial sites.

In addition to ClinCluster, how does CTC facilitate GSK's clinical research activities in Hong Kong?

CTC has become our partner in promoting Hong Kong as an Asia-Pacific clinical research hub. Over the past two years, CTC has helped us coordinate several visits to Hong Kong by our colleagues from GSK's UK and US head offices. CTC helped arrange meetings with key opinion leaders here, and improve our head office's understanding about Hong Kong's clinical research capabilities, which has resulted in more clinical studies being allocated to Hong Kong.

What else can be done to further promote clinical research in Hong Kong?

To further unleash the potential of Hong Kong, we are looking forward to the deeper involvement of CTC in the areas of trial subject education and recruitment. Informing the general public about what clinical research is, and why clinical research is related to everybody in society, is important to the long-term success of clinical research in Hong Kong.

Project Operation

Comprehensive services

CTC's Project Operation Team provides and coordinates a broad range of professional study-supporting services including project management, protocol development, regulatory affairs, study monitoring, study drug management, data management and medical statistics – for various clinical studies at differing stages. These services are readily accessible to trial sponsors and clinical investigators, facilitating the meeting of critical research and development deadlines.

Strong demand for CTC's study-supporting services continued in 2006. In addition to major international pharmaceutical companies, rapidly increasing demand was from start-up pharmaceutical, biotech and device companies. During the year, the Project Operation Team provided and coordinated various professional services in support of 13 studies at 21 study sites.

Professional clinical study supporting services performed or planned during 2006

Therapeutic Area	Study Phase	Services					
		Overall Project Management	Protocol Development	Regulatory Submission	Study Monitoring	Study Drug Management	Data Management & Medical Statistics
Gastroenterology & Hepatology	II	■	■		■	■	■
Gastroenterology & Hepatology	III	■		■	■	■	■
Gastroenterology & Hepatology	IV				■		
Gastroenterology & Hepatology	Device	■			■		
Neurology	II	■	■		■	■	■
Oncology	I				■		
Oncology	I			■	■	■	
Oncology	II				■		
Orthopaedics	I	■	■		■	■	■
Orthopaedics	I	■	■	■	■	■	■
Orthopaedics	II	■			■		
Orthopaedics	Device	■			■		
Respiratory Medicine	IV		■				

Support for investigator-initiated clinical studies

In line with CTC's mission to enhance the quality and efficiency of clinical research, the Project Operation Team also provided professional support for a number of investigator-initiated clinical studies during the year, through the professional study-supporting platform established by CTC. At CTC, all types of clinical studies – whether industry-sponsored or investigator-initiated – are treated and coordinated according to the same international standards.

Professional team

In response to rising demand, the Project Operation Team continued to grow. By the end of 2006, the team had five professional members, including a Project Operation Manager, a Scientific Associate and three Clinical Research Associates.

New appointments included a Scientific Associate, a MD and PhD, who is an expert in protocol and clinical study document development. Her significant contribution facilitated development of five protocols and many other study documents, such as case report forms and informed consent forms, during the course of the year.

Continued support from existing collaborators underlined recognition of the team's professionalism, and was strong encouragement to all team members.

Future goal

The re-organization and expansion of the Project Operation Team between 2005 and 2006 established a solid foundation for study-supporting services, promising to serve as a springboard for future growth of both the team and CTC.

No. of **trial subjects** monitored in 2006: 220

No. of **study visits** monitored in 2006: 1,761

Hepatologists and Clinical Research at HKU

Hepatology is among the most active areas of industry-sponsored clinical studies at HKU. In recent interviews with CTC, two renowned clinical investigators in hepatology – Professor C.L. Lai and Professor George Lau – shared their views and experiences:

Professor Lai, when did you start conducting clinical research? What is the main inspiration for your active involvement in clinical research?

I have been interested in research ever since I joined HKU in 1977. My inspiration is trying to improve our understanding of medicine and leaving my mark in the medical field, which is important to me.

Professor C.L. Lai
Department of Medicine
The University of Hong Kong

Clinical research has been changing very fast, in terms of scientific aspects, regulatory requirements, ethical considerations and logistical arrangements. In your experience, what are the biggest differences between conducting clinical research today and a decade ago?

There have been a lot of changes in the ways clinical research is conducted. Nowadays, for instance, clinical research involves more careful monitoring and better record keeping.

When did you first take part in industry-sponsored clinical trials? Among those you have participated in so far, how many have been approved for registration by drug regulatory authorities? Could you name a few examples?

I first got involved in industry-sponsored trials in 1985, with interferons for child HBV carriers. Among all those new HBV treatments I tested as chief investigator, almost all – including lamivudine, entecavir, telbivudine – were finally approved for treatment use.

Which of your publications in scientific journals arising from clinical research is among your proudest?

The lamivudine trial in NEJM 1998; 339: 61-68. It was the first important paper on a completely new form of treatment for hepatitis B. Its citation index is higher than 900.

What advice can you give new clinical investigators wanting to get involved in clinical research?

I would encourage doctors to do trials, but choose the drug carefully. Don't waste time, effort and patients on drugs that are probably of little use.

What advice in relation to clinical research would you give patients or volunteers?

Firstly, clinical research is of great significance to the public. Patients or volunteers should be encouraged to participate – and not consider themselves as "guinea pigs". Before they are asked to join clinical trials, sufficient animal studies should have already been performed to establish potential side effects.

Professor Lau, what were the triggers for your active involvement in clinical research?

My first clinical trial was investigator-initiated and the study result was subsequently published in the Journal of Hepatology. I am interested in clinical trials because they allow us to test new methods to improve the management of our patients in a more cost-effective manner.

Professor George Lau
Department of Medicine
The University of Hong Kong

What are the major rewards in conducting industry-sponsored clinical trials?

My first industry-sponsored study was related to the use of Thymosin-α1 in chronic hepatitis B patients, in 1995-96. The major reward was that I gained experience in conducting international clinical trials. This included issues such as how to organize clinical trials, recruit patients, report patient data and information, and deal with possible adverse events.

Could you share your experience in one important clinical research programme which led to significant outcomes?

I participated in the clinical research programme for pegylated interferon - α2a treatment for chronic HBV infection, as the global lead investigator. In collaboration with the sponsor, we completed two large clinical trials in chronic hepatitis Be antigen negative and positive patients. The results led to the registration of pegylated interferon α-2a for treatment of chronic HBV infection worldwide in 2005.

Could you name a few of your important publications in scientific journals arising from clinical research?

I can name a few, such as NEJM 2005;352:2682-95, NEJM 2004;351:1206-1217, Gastroenterology 2003; 125:1742-49, and Gastroenterology 2003; 125:1742-49. The first two arose from sponsored phase III studies. The other two were from investigator-initiated studies, with major impacts in understanding how to deal with HBV reactivation and in designing new combination therapy for chronic HBV infection.

What advice can you give new clinical investigators wanting to get involved in clinical research?

Work with HKU's Clinical Trials Centre. The team is very professional and always offers help and advice in a balanced manner. Also, leave the door wide open to constructive criticisms and keep on learning.

In your opinion, is clinical research of any significance to the general public?

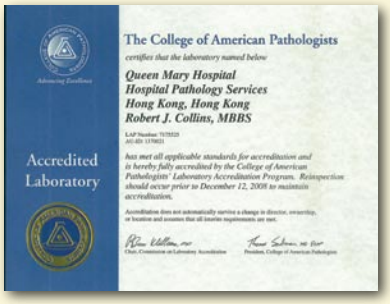
Certainly! It is a great asset to the public. Every society has its own unique clinical problems. Healthcare can only be genuinely orientated to a particular society in the most cost-effective manner through its own clinical research.

Central Laboratory

ALab – a professional central laboratory for Asia and beyond

ALab is CTC's clinical study central laboratory service platform. Staffed by 250 laboratory professionals, it is one of the largest state-of-the-art facilities of its kind in Asia. Our mission is providing comprehensive project management, outstanding analytical and specimen management, full logistics support, advanced data management and multi-level quality assurance.

Our affiliated multi-disciplinary clinical laboratories are fully accredited by the College of American Pathologists (CAP). Since 2004, HKU has also been approved by China's Ministry of Science and Technology as the first State Key Laboratory of Emerging Infectious Disease outside the mainland.



Strategically positioned at the hub of Asia, ALab is an ideally placed central laboratory for supporting regional clinical studies throughout the region. Together with partner laboratories in North America, Europe and mainland China, ALab can also meet the needs of global clinical studies.

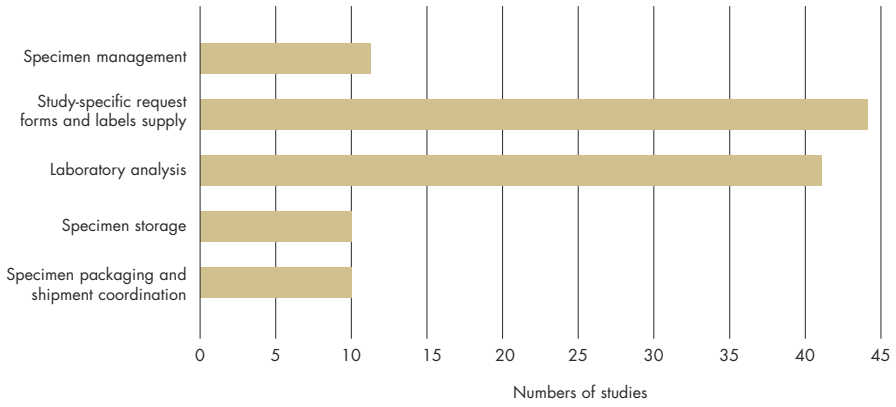
ALab is an A-class central laboratory platform, for Asia and beyond.

Centralized local laboratory support

Rising demand for local laboratory support was in line with the increasing number of active clinical studies coordinated through CTC. During the year, various local laboratory support was provided to 44 clinical studies conducted at HKU.

With the industry's increasing emphasis on quality, requirements for local laboratory support have become more stringent. CTC is well equipped with all the necessary specimen handling and storage facilities. Staffing is by well-trained, experienced laboratory personnel. IATA certified personnel are also available for handling outbound specimen shipments.

Local laboratory services provided for clinical studies contracted through CTC (2006)

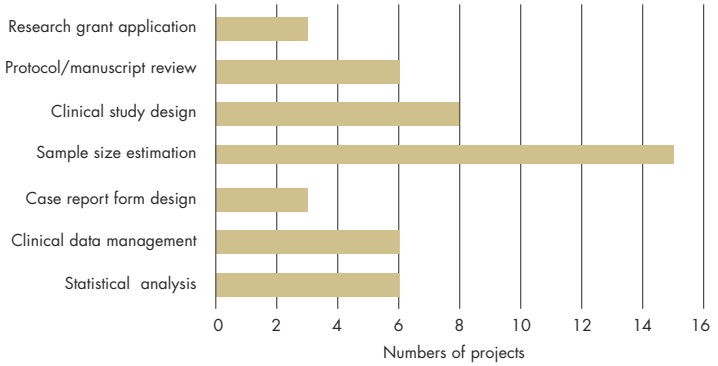


Data Management & Medical Statistics

Support for investigator-initiated academic clinical research

The HKU Medical Faculty is committed to encourage academic clinical research. To further extend its support to clinical investigators, HKU recently appointed a new Associate Professor in medical statistics, Dr. Tzy-Jyun Yao, to CTC. In addition to conducting research in statistical methodology, teaching, and supervising postgraduate students, her major responsibilities include providing clinical investigators expert advice on research grant applications, protocol development, statistical analysis and medical writing for publications about their academic clinical research projects.

Data management and medical statistics supports and services provided (2006)



Remark: The total number of projects served during the period was 47. Some projects required more than one type of service.

Services for industry-sponsored clinical studies

CTC's Data Management & Medical Statistics Team continued to provide professional services supporting industry-sponsored clinical studies such as clinical study design, sample size estimation, case report forms design, clinical data management and statistical analysis throughout 2006. Demand for such services is anticipated to remain strong in the coming years.

A New Associate Professor in Medical Statistics

Dr. Tzy-Jyun Yao
Associate Professor in Medical Statistics
Clinical Trials Centre

Dr. Tzy-Jyun Yao received her PhD in Statistics from the University of Wisconsin at Madison in the USA. Before joining CTC she worked in the Department of Epidemiology and Biostatistics, Sloan-Kettering Cancer Center (MSKCC) in New York, USA, and the Division of Biostatistics and Bioinformatics, National Health Research Institutes (NHRI) of Taiwan. At MSKCC, she worked extensively with the Service of Breast Cancer, Service of Melanoma, Service of Leukemia, Service of Gastrointestinal and Service of Developmental Chemotherapy of the Department of Medicine. At NHRI, she also worked with the Taiwan Cooperative Oncology Group, and was involved in data management. In addition to collaborating with medical investigators, her research interests involve the design of clinical trials. Medical statistics is a key element to the success of clinical research and CTC is delighted to welcome a dedicated new member to the Data Management & Medical Statistics Team.

Quality Assurance & Education

AccreditGCP and GCP accreditation test

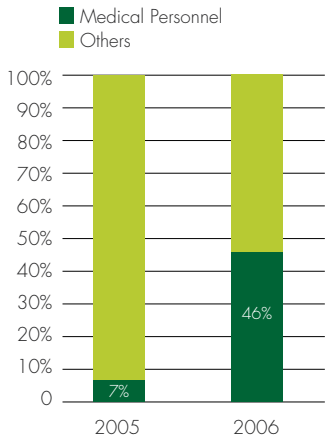
CTC launched AccreditGCP, a web-based GCP training programme, in mid-2005. It carries both Continuing Medical Education (CME) and Continuing Nursing Education (CNE) accreditation, and is continually available to users as a free reference.

In 2006, the total number of GCP Accreditation Tests (GCPATs) undertaken by candidates who either utilised AccreditGCP for their training or undertook a formal GCP course offered by CTC resulted in the award of 97 GCP accreditation certificates.

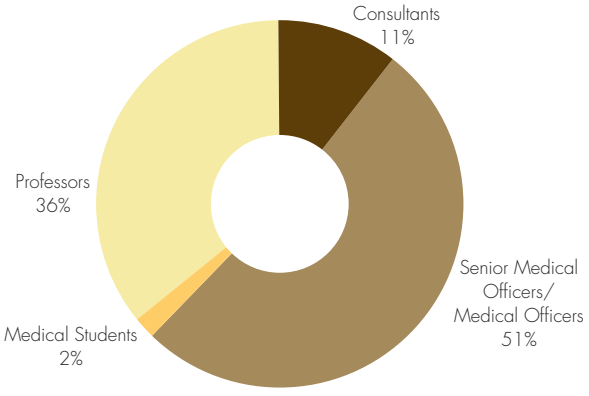
Of particular note is the substantial increase in the number of medical professionals taking GCPATs. A total of 42 GCPATs were conducted in 2005, three (7%) by medical professionals. In 2006, however, a total of 97 GCPATs were undertaken, of which 45 (46%) were by medical professionals. Of those 45 medical professionals undertaking a GCPAT in 2006, 23 (51%) were Senior Medical Officers/Medical Officers; 16 (36%) were Professors; five (11%) were Consultants; and one (2%) was a medical student.

Participants in GCP Accreditation Tests

Percentage of medical professionals



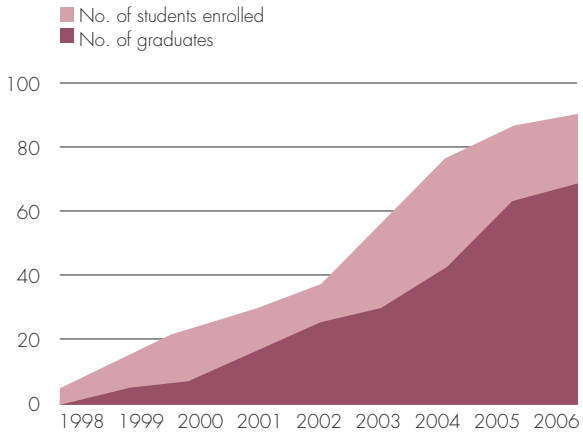
Positions of medical personnel (2006)



Postgraduate programmes

Postgraduate courses in clinical trials research methodology, in particular the Master of Public Health (MPH), continue to be popular with those working in the pharmaceutical industry, as well as others interested in clinical research. This is reflected by the steady flow of candidates opting for CTC's postgraduate degree programmes.

Cumulative number of students enrolled in and graduated from CTC's postgraduate programmes between 1998 and 2006



Standard operating procedures development

Since its establishment, CTC has developed over 260 standard operating procedures (SOPs) for almost every aspect of its work. To provide clearer guidance to existing CTC staff, and also facilitate training of new staff, CTC developed a core set of guiding SOPs (Core SOPs) in 2006. It is anticipated that these Core SOPs will facilitate adherence to GCP and other applicable regulations, and further enhance the quality and standardisation of CTC's operations.

List of Core Standard Operating Procedures

- Guidelines and Regulations
- Organisation and Structure of CTC
- Clinical Trials in Hong Kong: A Brief Overview
- Reporting of Fraud and Misconduct
- Support Services
- Archiving
- Cleaning
- Project Finance and Contract Management
- Finance Management Principles
- Site Management
- ClinCluster
- Research Registry
- Overview of Research Pharmacy Services
- Project Operations
- Monitoring
- Medical Statistics
- Data Management
- Overview of CTC Computer Network
- Laboratory Services
- Health and Safety
- Internal Reviews
- Good Clinical Practice (GCP) Training for CTC Personnel

Sharing by MPH Graduates

By the end of 2006, 69 students had graduated from CTC's postgraduate programmes. Two of the graduates – Macrina Wong and Jessie Yip – shared their study experiences in an interview with CTC.

Macrina, why did you choose to study a Master degree?

Since I took a different role at work, assuming more responsibilities as a clinical research manager, I decided to further my studies to equip myself with more advanced knowledge necessary for my career development. A Master degree not only provided me with new knowledge but also helped train the way I think and expanded my range of capabilities. I believe this is what everybody needs for further development of career.

Macrina Wong
Clinical Research Manager
Medtronic International Ltd.

Responsibilities:
Set up Medtronic's clinical study infrastructure in Asia Pacific and supervise the company's clinical studies conducted within the region.

What did you like most about the course?

The course provided me with a good choice of modules relating to clinical trials, as well as other elective modules that also helped enrich my knowledge. For most of the modules, the method of teaching varied from formal lectures, tutorials and group sessions to discussions and presentations by other students. These are very interesting ways of learning, especially for a part-time student.

What in your opinion was the most useful part of the course?

I found the most useful part of the course was the dissertation. During the period of writing up my dissertation, I had to apply all the knowledge and skills that I learnt from the course. In addition, the supervisor's opinions and guidance were also very important. I learnt a great deal from him.

Jessie Yip
Clinical Project Associate
Eli Lilly Asian Operations

Responsibilities:
Implement corporate and regional clinical activities and deliver quality data within limited timelines.

Jessie, why did you choose clinical trials research methodology?

I think this degree course is very useful for my job. The content of the modules covers all the main aspects of clinical research, such as Good Clinical Practice, protocol development and research methods in healthcare.

Now you have the qualification, do you find it useful in your current work and will it be of any use to you in the future?

The course is useful for my daily work in my current job as I can practically apply what I learnt. The qualification will also be useful for my future career development because it is well recognised by the industry.

Who should take the course?

Anyone working in clinical research or the pharmaceutical industry, such as Clinical Research Associates, Study Coordinators, Research Nurses and Clinical Project Managers.

Clinical Trials Centre

Li Ka Shing Faculty of Medicine
The University of Hong Kong