Our Accolades

ORGANISATIONAL EXCELLENCE

People Developer Standard Certification
since December 2002

Singapore Innovation Class
first public healthcare agency to be endorsed - July 2003

Singapore H.E.A.L.T.H. Gold Award
since 2005

Public Service Award for Organisational Excellence
since 2003

Ministry of Home Affairs Award for NS Men's Employers
since 2005

Community Chest Awards
since 2003

Singapore Family Friendly Employer Award 2004

PROFESSIONAL EXCELLENCE

Centre for Transfusion Medicine

AABB Accreditation
first national blood service in Asia to be accredited - May 2006

Certified On-the-Job Training Centre
December 2005

Regional Quality Management Project Training Centre
of the Western Pacific for Transfusion Medicine
since 2002

World Health Organisation Collaborating Centre for Transfusion Medicine
since 1992

Centre for Analytical Science

ASEAN Leading Country for Colorants and Tretinoin Analysis in Cosmetic Products
since 2004

ASEAN Reference Laboratory for Mycotoxins Analysis
since June 2004

2003 Public Service Award for Organisational Excellence
July 2003

Singapore Quality Class
since July 2002

ISO/IEC 17025 Accreditation under Singapore Accreditation Council –
Singapore Laboratory Accreditation Scheme [SAC-SINGLAS]
upgraded from ISO/IEC Guide 25 in July 2002

ISO/IEC Guide 25 Accreditation under SAC-SINGLAS
1997 to 2002

World Health Organisation Collaborating Centre for Drug Quality Assurance
since 1994

World Health Organisation Collaborating Centre for Food Contamination Monitoring
since 1993

Centre for Forensic Medicine

National Association of Medical Examiners [NAME]
first agency outside North America to be accredited - September 2005

Centre for Forensic Science

American Society of Crime Laboratory Directors / Laboratory Accreditation Board [ASCLD/LAB]
since July 1996

Excellence for Singapore Award
August 1999

THE HSA *Journey*

A journey worth taking starts with a clearly planned route and a defined destination. While the occasional diversion adds to the adventure, it is the purpose of the journey and its ultimate destination that remains the focus. And so it is with the HSA Journey. Guided by a strategic focus that looks beyond immediate horizons and with the committed involvement of a dedicated and highly professional team, HSA continues to pursue its vision to be the leading innovative authority, protecting and advancing Singapore's national health and safety.

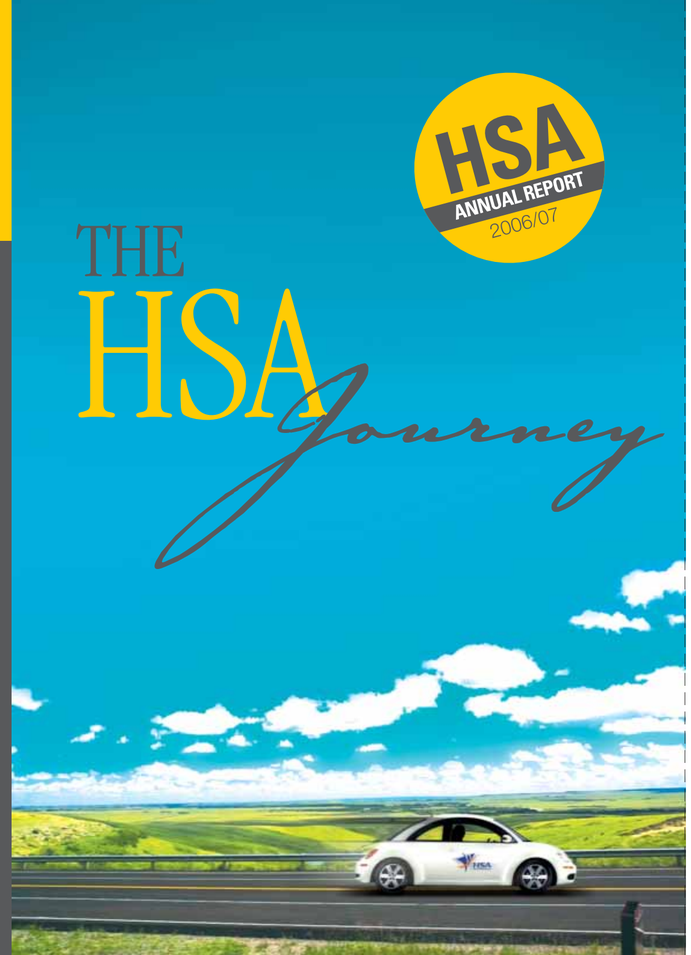
Journey with us and witness the pride we take in our work. Understand the importance of our role in wisely regulating health products in Singapore; serving the administration of justice through our forensic and analytical science expertise; securing our nation's blood supply; and safeguarding public health in our community.

HSA
Health Sciences Authority

78981057 12232007

THE HSA JOURNEY
ANNUAL REPORT 2006/07

HSA



Our Vehicle

With any journey, a reliable vehicle that will carry you steadily towards your destination is paramount. At HSA, a statutory board of the Singapore Ministry of Health, we have a new organisational framework that will enable us to advance on our vision journey.

HSA was formed on 01 April 2001 and has already made considerable progress. But to move us further on our journey and to exploit our unique talents, we have revamped ourselves into a Corporate HQ and the three professional groups that define not only the quality and extent of our current scientific expertise, but also the new frontiers we can cross as we create new synergies:

- Health Products Regulation
- Health Services
- Applied Sciences

At the core of our capabilities, we:

- wisely regulate health products by administering the national regulatory frameworks for pharmaceuticals, complementary medicines, medical devices and other health products.
- secure the nation's blood supply by managing the national blood service and providing specialist transfusion medicine services.
- serve the administration of justice through the provision of forensic medicine expertise, and investigative forensic and analytical science services.

As a protector of national public health and safety, we also take pride in embracing innovation and the relevant risk management strategies that allow us to manage risk effectively. We recognise the need to keep abreast of the vibrant growth of biomedical and forensic sciences in Singapore and around the world. We continue to apply dynamic and responsive regulation, and are engaged in a wide range of international collaborations with global partners.

This book chronicles the HSA Journey: how we strive for professional excellence in all that we do; innovate through processes and research; and work in collaboration with strategic partners and our stakeholders to build a safer today and a better tomorrow.

THE HSA JOURNEY

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11 Outram Road Singapore 169078
Tel: 1800 213 0800
Fax: 6213 0839

www.hsa.gov.sg
hsa_info@hsa.gov.sg

Printed in Singapore

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THE HSA Journey

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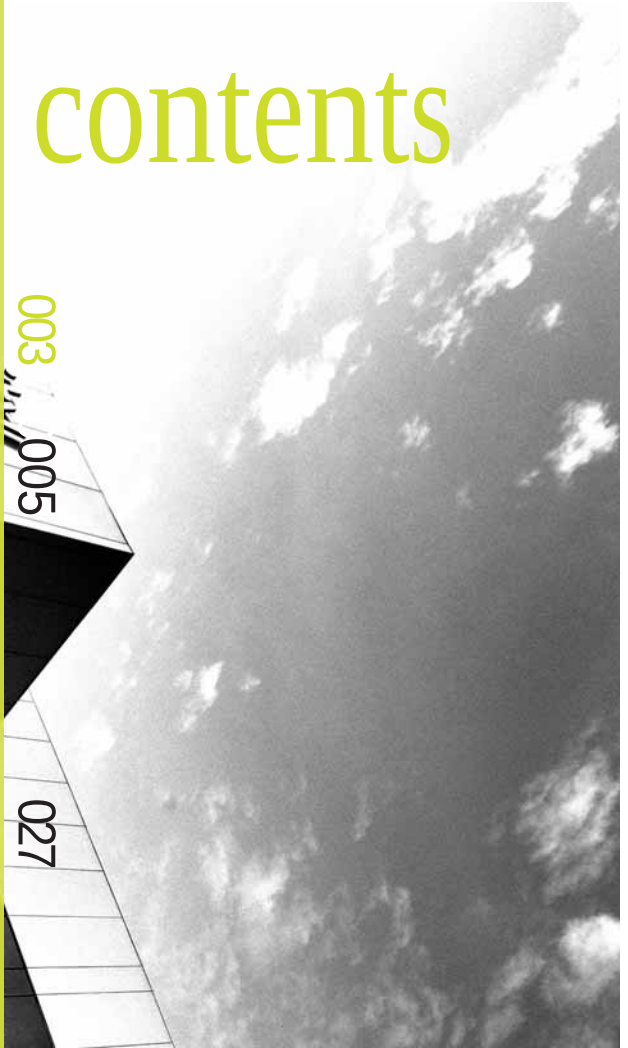


vision:

To be the
leading innovative authority
protecting and advancing
national health and safety

mission:

- To wisely regulate health products
- To serve the administration of justice
- To secure the nation's blood supply
- To safeguard public health

values:

- We are committed to professional excellence
- We create value for our clients
- We uphold our professional integrity
- We value and nurture our staff
- We encourage innovation and enterprise

A STATUTORY BOARD OF THE MINISTRY OF HEALTH
THE SINGAPORE PUBLIC SERVICE: INTEGRITY, SERVICE, EXCELLENCE

Chairman's Foreword


HSA

HSA has come through its initial birth pangs and now stands poised at a new threshold to pursue its vision to be the leading innovative authority protecting and advancing national health and safety.

To attain global excellence and inspire trust as a world-class scientific organisation and authority, HSA must establish thought leadership across its unique blend of regulatory and scientific expertise. We seek new synergies across the professional knowledge and skills embodied in our critical resource – our people. As we move forward, our focus will also be on forging strong partnerships with key counterparts abroad, leveraging on technology innovation and driving knowledge transfer.

Even as they explore innovative modes of collaborative integration, HSA's three professional groups do face some unique challenges. The Health Products Regulation Group will look to harnessing IT solutions to innovatively stretch the scope of pharmacovigilance, enhance the efficient processing of regulated products to maximise review procedures and minimise delay, and develop new regulations in product areas such as cell therapy and complementary medicine while enhancing the regulation of generic products. The Health Services Group will endeavour to ensure an ongoing, sustainable adequate and safe blood supply to meet Singapore's future needs, embrace technological advancement and innovation, and explore new aspects of cell-processing. The Applied Sciences Group will leverage on technological advancements and scope out new areas that build on its current forensic and analytical science base, such as in the area of chemical metrology.

The challenges we face on our journey forward can be successfully overcome if HSA operates as a united entity and adopts a "can do" mindset across its professional and corporate groups at all levels.

I am more than confident that HSA will not just grow into but will flourish as a regulatory and scientific organisation that embodies intelligence, efficiency, clarity and integrity. It will become an exemplary agency that will not only positively impact the health and safety of Singaporeans, but also world public health.

Professor Edison Liu
Chairman

CEO's Preface

The past year has again been an eventful one for HSA as we advanced on our vision journey. We are delighted to work with our new Board, under the Chairmanship of Professor Edison Liu. With the completion of our envisioning exercise in mid 2006, and our strategic regrouping into the Corporate HQ and three professional groups - Health Products Regulation, Health Services and Applied Sciences - HSA looks ahead with optimism to all the possibilities that await us on the road ahead.

I am continually encouraged by the commitment and quality of our people, who demonstrate tremendous dedication and potential. Across the professional groups, exciting possibilities exist to develop new synergies for growth with the diversity of scientific and professional expertise that currently exists in HSA, as well as new skill sets that will come in over time. HSA is a distinctive organisation encompassing important functions normally found in a number of different counterpart agencies overseas. We therefore have unique opportunities to develop innovative regulatory and scientific frameworks that could serve as new paradigms for the future. This fits in well both with our fundamental role as a public sector organisation protecting and advancing our nation's public health and the Singapore Public Service's increasingly global orientation.

In order for this to come about, reviewing and clarifying our Core Values is a critical enabler to make HSA a Trusted, Teamed and Transforming authority. The organisational and individual congruence we need to enable us to accomplish our Vision and Mission must stem from a clear sense of our identity and purpose.

Therefore, the strengthening and development of a strong and sound organisational culture is one clear focus for the year ahead, even as we continue to refine and implement our strategic plans. We have also identified key organisational initiatives in the areas of enhancing our pro-enterprise orientation, reviewing our costing and pricing framework, and re-engineering key processes. In recognition of the value we accord to our people, a significant HR review is also ongoing to ensure that HSA can attract the right people, retain them through performance and innovation recognition rewards, and develop them to their full potential.

The HSA Journey is one of transforming possibilities into realities. The strong support of all HSA staff, our parent Ministry of Health and the HSA Board, combined with our understanding of the critical role we play in safeguarding the health and safety of Singaporeans and the potential we have to extend our role as a global citizen, all combine to energise and motivate us for the journey ahead.

Dr John Lim
Chief Executive Officer

HSA Board

Chairman

01. Professor Edison Liu
Executive Director
Genome Institute of Singapore

Board Members

02. Professor Low Teck Seng
Principal & CEO
Republic Polytechnic

03. Dr Jennifer Lee
Director [Health Services Integration]
Ministry of Heath

04. Dr Lee Chien Earn
Senior Director [Healthcare Performance Group]
Ministry of Heath

05. Professor Walter Tan
Medical Director
Raffles Hospital

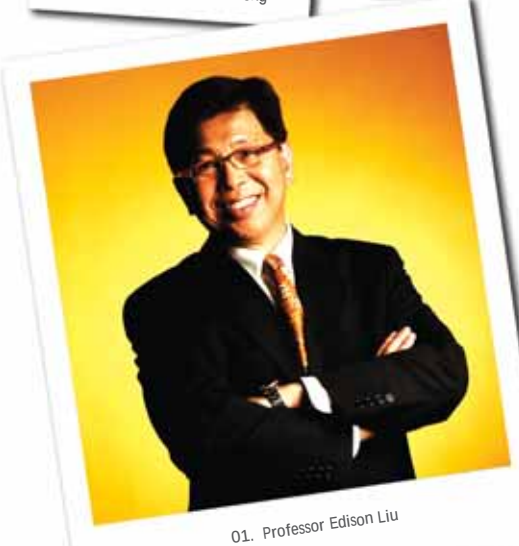
06. Dr Chong Yoke Sin
Chief Executive Officer
NCS Group

07. Professor Alastair Campbell
Director, Centre for Biomedical Ethics
Yong Loo Lin School of Medicine
National University of Singapore

08. Mr Khoo Chow Huat
Group Director [Policy]
People's Association

02. Professor Low Teck Seng

03. Dr Jennifer Lee



01. Professor Edison Liu

04. Dr Lee Chien Earn

05. Professor Walter Tan

08. Mr Khoo Chow Huat

07. Professor Alastair Campbell

06. Dr Chong Yoke Sin

HSA Board Committees

Audit Committee

• Professor Low Teck Seng	Chairman
• Professor Walter Tan	Member
• Mr Khoo Chow Huat	Member

Staff Establishment Committee

• Dr Jennifer Lee	Chairman
• Professor Low Teck Seng	Member
• Mr Khoo Chow Huat	Member
• Professor Alastair Campbell	Member

Finance Committee

• Dr Chong Yoke Sin	Chairman
• Dr Jennifer Lee	Member
• Dr Lee Chien Earn	Member

Board Changes

We would like to express our deepest appreciation to Professor Lim Mong King for his leadership as the second Chairman of HSA for the last four years and as a Board Member since HSA's inauguration. We are also very grateful to Mr Giam Chin Toon, Mr Khoo Chin Hean, Professor Edmund Lee, Mr Lim Hock San, Mr Ng Wai Choong and Ms Olivia Lum for their stewardship of HSA as Board Members and who stepped down with effect from 31 March 2007.

We congratulate Professor Edison Liu on his appointment as our new Chairman with effect from 1 April 2007, after serving as our Deputy Chairman for a year. We are happy to have Professor Low Teck Seng, Dr Jennifer Lee and Dr Lee Chien Earn continue as Board Members, and extend a warm welcome to our new Board Members: Professor Walter Tan, Medical Director of Raffles Hospital; Dr Chong Yoke Sin, Chief Executive Officer of NCS Group; Professor Alastair Campbell, Director of the Centre for Biomedical Ethics at the National University of Singapore, and Mr Khoo Chow Huat, Group Director [Policy] of People's Association. Together, they will help define HSA's strategic directions for the next phase of our journey.

HSA Leadership

as at july 2007

Front [Left to Right] :

Dr Diana Teo
- Senior Director, Health Services Group
- Director, Centre for Transfusion Medicine

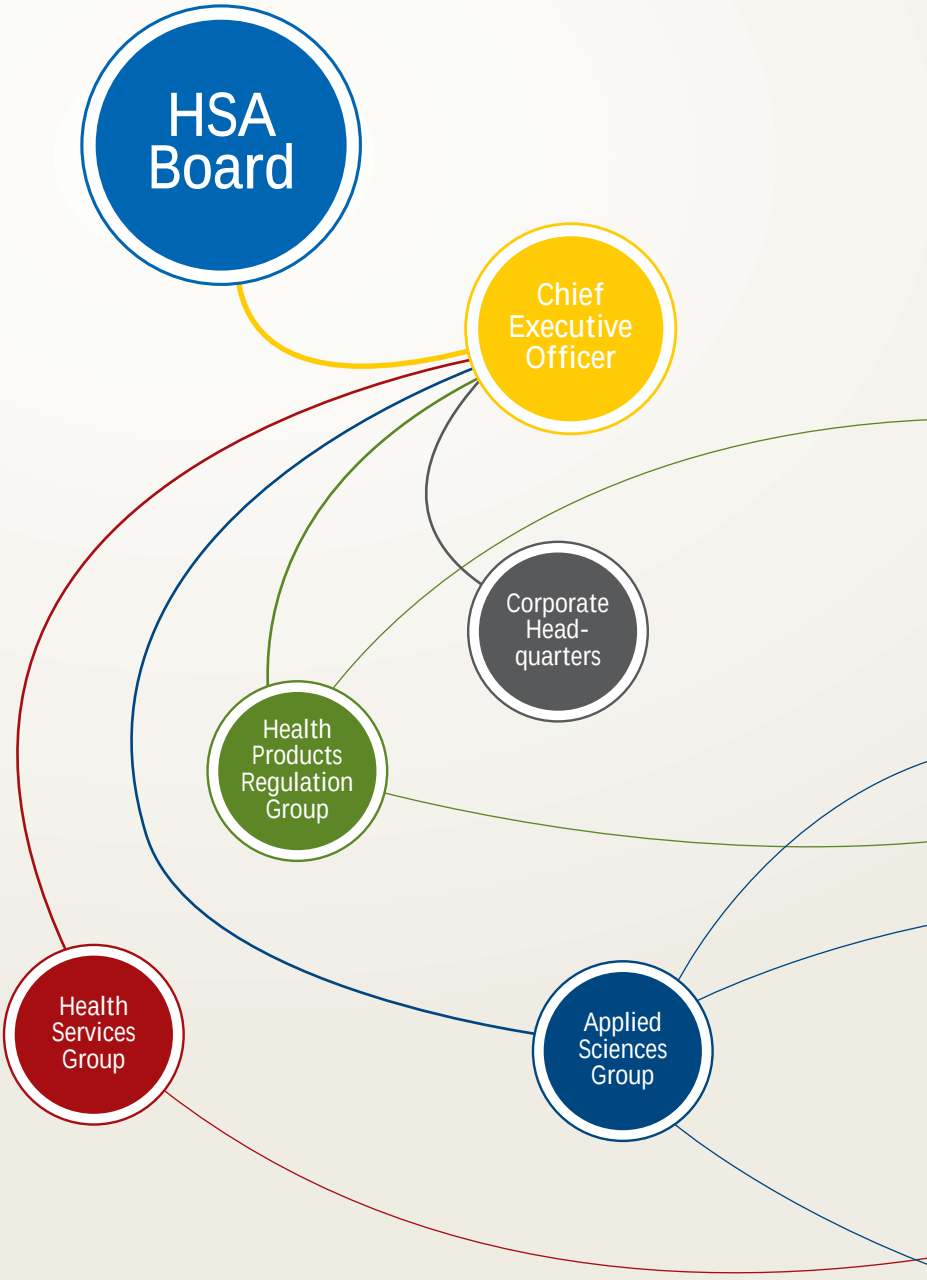
Dr Paul Chui
- Senior Director, Applied Sciences Group
- Director, Centre for Forensic Medicine

Back [Left to Right] :

Professor Bosco Chen Bloodworth
- Director [Quality]/Quality Service Manager
- Director, Centre for Analytical Science

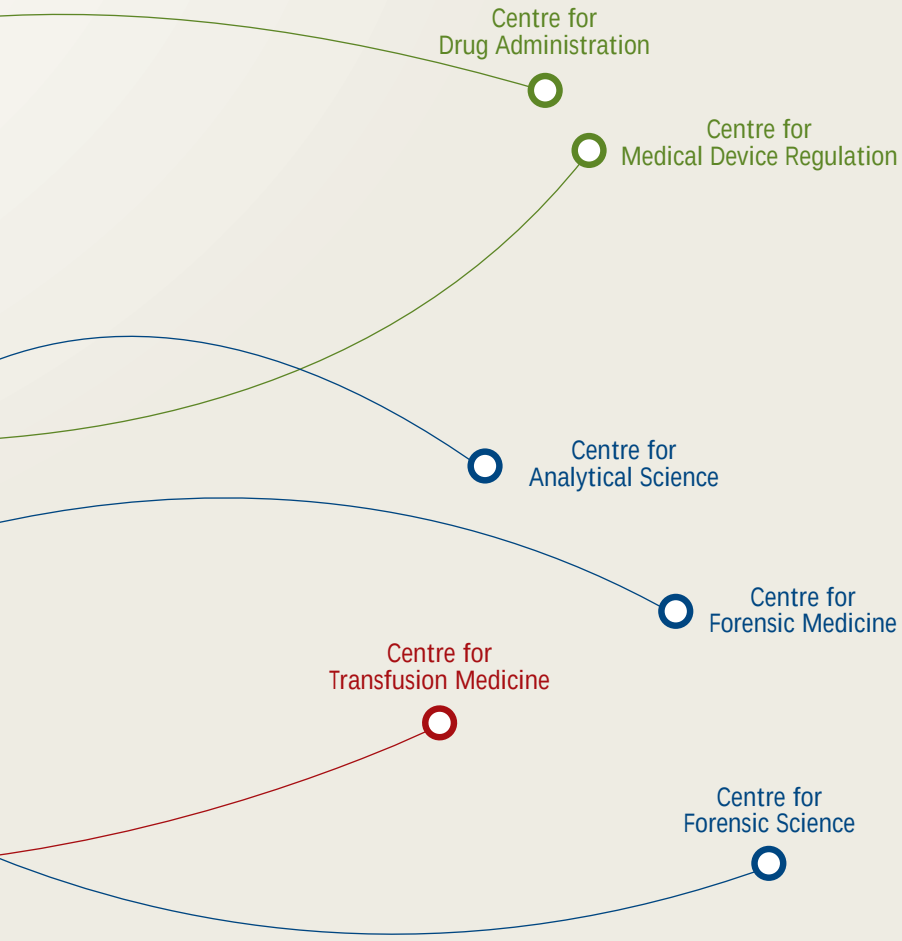
Dr John Lim
- Chief Executive Officer
- Senior Director, Health Products Regulation Group

Dr Christina Lim
- Administrator, Health Products Regulation Group
- Senior Advisor, International Collaboration


HSA Board
Chief Executive Officer
Corporate Head-quarters
Health Products Regulation Group
Health Services Group
Applied Sciences Group

Organisation Chart

wef july 2007



Principal Officers

wef july 2007

CORPORATE HEADQUARTERS

CEO'S OFFICE

- CORPORATE PLANNING
  Deputy Director
  Ms Lim Peck Seah

- CORPORATE OPERATIONS
  Deputy Director
  Dr Lam Kian Ming

- CORPORATE DEVELOPMENT
  Deputy Director
  Ms Maureen Goh

- INTERNATIONAL COLLABORATION
  Senior Advisor
  Dr Christina Lim

QUALITY
Director/Quality Service Manager
Professor Bosco Chen Bloodworth

LEGAL
Legal Counsel
Ho Meng Hee

CORPORATE COMMUNICATIONS
Deputy Director
Mrs Vivian Heng

CORPORATE SERVICES
Deputy Director
Chua Hong Tong

FINANCE
Deputy Director
Ms Grace Chan

HUMAN RESOURCE
Deputy Director
Mrs Sarojini Padmanathan

INFORMATION MANAGEMENT
Deputy Director
Chan Chin Wai

HEALTH PRODUCTS REGULATION GROUP CDA | CMDR

Senior Director
Dr John Lim

Administrator
Dr Christina Lim

Senior Advisor
Wong Yew Sin

Strategic Planning Office
Deputy Director
Mdm Suwarin Chaturapit

Head, Policy & Planning
Ms Lee Hui Keng

Head, Legislative Policy
Kelvin Tan

CENTRE FOR DRUG ADMINISTRATION

Senior Deputy Director
Yee Shen Kuan

Product Evaluation & Registration Division
Head, Drug Registration
Dr Lu Set

Head, Clinical Trials Branch
Foo Yang Tong

Head, Regulatory & Project Management
Tan Tek Seng

Compliance & Complementary Medicines Division
Complementary Medicines Branch
Deputy Director, Complementary Medicines Branch & Head, Cosmetics Control Unit
Mrs Marie Tham

Head, Chinese Proprietary Medicines Unit
Ms Chu Swee Seng

Head, Health Supplements Unit
Chao Ye Peng

Compliance Branch
Head, Prosecution Unit
Kelvin Tan

Head, Investigation & Surveillance Unit
R. Sivalingam

Head, Tobacco Regulation Unit
Tham Lup Hong

Manufacturing & Quality Audit Division
Deputy Director &
Head, Good Manufacturing Practice Unit
Sia Chong Hock

Head, Good Distribution Practice Unit
Ms Hui Foong Mei

Head, Certification Unit
Dr Lai Weng Fai

Head, International Operations Unit
Boon Meow Hoe

Pharmacovigilance, Communications & Research Division
Deputy Director
Mdm Suwarin Chaturapit

Assistant Director
Ms Chan Cheng Leng

Head, Pharmacovigilance Unit &
Head, Information & Research Unit
Ms Chan Cheng Leng

CENTRE FOR MEDICAL DEVICE REGULATION
Manager
Alfred Kwek

Manager
Seet Wing Gang

HEALTH SERVICES GROUP
CTM

Senior Director
Dr Diana Teo

CENTRE FOR TRANSFUSION MEDICINE
Director
Dr Diana Teo

Deputy Director, Laboratories & Clinical Service
Dr Mickey Koh

Deputy Director, Blood Resources
Dr Tan Hwee Huang

Scientific Head, Blood Processing, Testing & Inventory
Ms Sally Lam

Scientific Head, Hospital Services
Dr Marieta Chan

Head, Blood Programme Support
Ms Koh Geok Tin

Quality Manager
Ms Panneer Selvi Govindaraju

Head, Blood Collection
Ms Toh Ching Lian

Laboratory Manager, Blood Processing, Testing & Inventory
Ng Kok Quan

Laboratory Manager, Hospital Services
Ms Leou Kwee Kim

APPLIED SCIENCES GROUP
CAS | CFM | CFS

Senior Director
Dr Paul Chui

CENTRE FOR ANALYTICAL SCIENCE
Director
Professor Bosco Chen Bloodworth

Head, Planning, Research & Development Unit & Quality Manager
Ms Cheah Nuan Ping

Head, Quality and Infrastructure Support Unit & Deputy Quality Manager
Ng Soon

Food Division
Deputy Director
Ms Joanne Chan

Head, Food Laboratory & Head, Water Testing Laboratory
Ms Joanne Chan

Pharmaceutical Division
Deputy Director & Head, Pharmaceutical Laboratory
Ms Low Min Yong

Head, Cosmetics Laboratory & Head, Cigarette Testing Laboratory
Ms Cheah Nuan Ping

CENTRE FOR FORENSIC MEDICINE
Director
Dr Paul Chui

Deputy Director & Head, Professional Standards
Associate Professor Gilbert Lau

Principal Forensic Consultant
Dr Wee Keng Poh

Consultant Forensic Pathologist & Head, Professional Training & Education
Dr Lai Siang Hui

Consultant Forensic Pathologist & Head, Research
Dr George Paul

Consultant Forensic Pathologist
Dr Teo Eng Swee

CENTRE FOR FORENSIC SCIENCE
Physical Evidence Division
Deputy Director & Head, Criminalistics Laboratory
Dr Michael Tay Ming Kiong

Head, DNA Profiling Laboratory & Head, DNA Database Laboratory
Mrs Tan Wai Fun

Head, Document Examination Laboratory
Ms Lee Gek Kwee

Drugs & Toxicology Division
Deputy Director & Head, Narcotics I Laboratory
Dr Lee Tong Kooi

Head, Narcotics II Laboratory
Dr Lui Chi Pang

Head, Toxicology Laboratory
Dr Yao Yi Ju

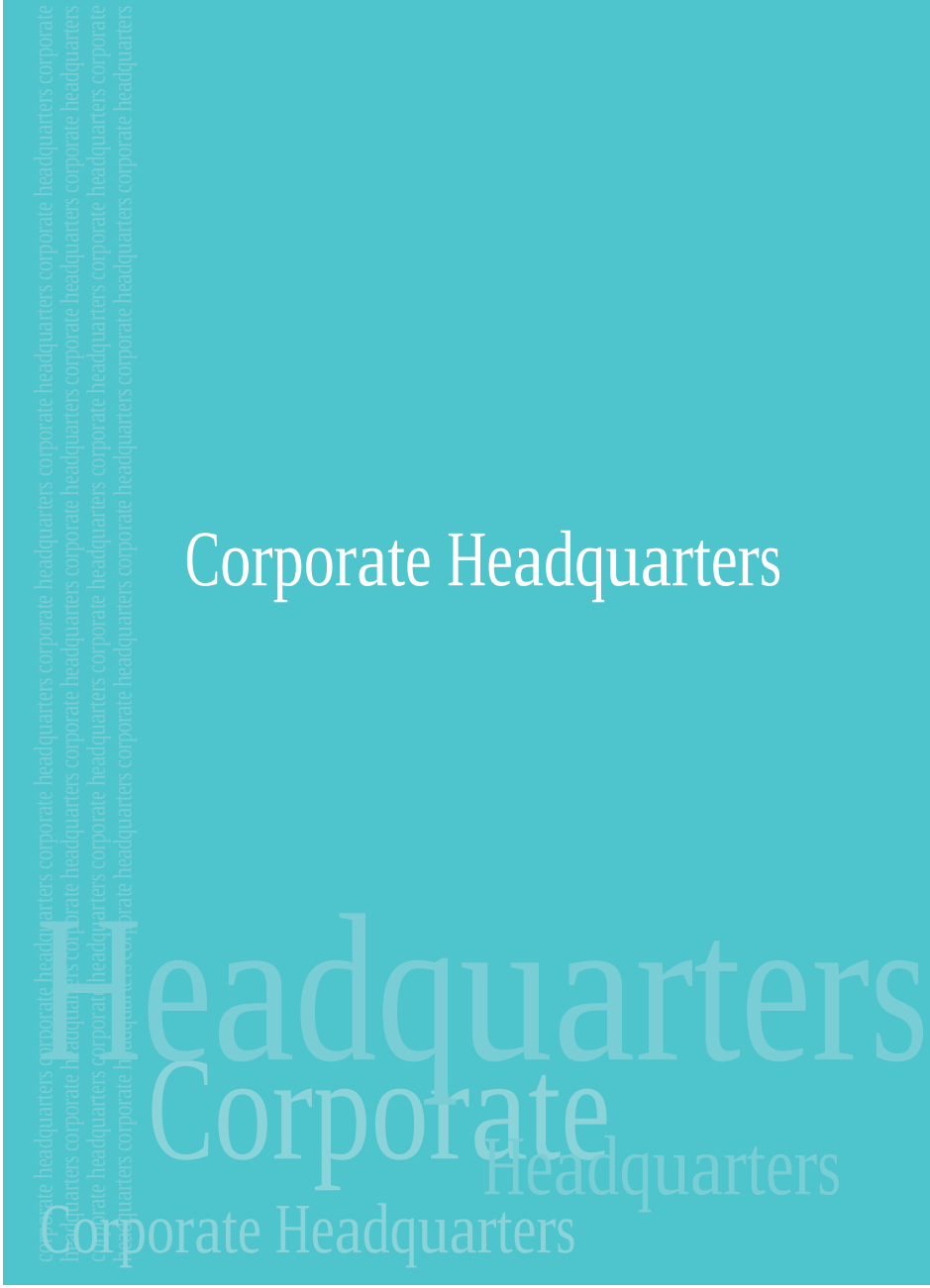
Retirements

After long and illustrious careers that spanned more than 30 years, two of our Centre Directors, Mr Wong Yew Sin and Dr Chow Shui Tse, officially retired from the Singapore Public Service in January and March 2007 respectively.

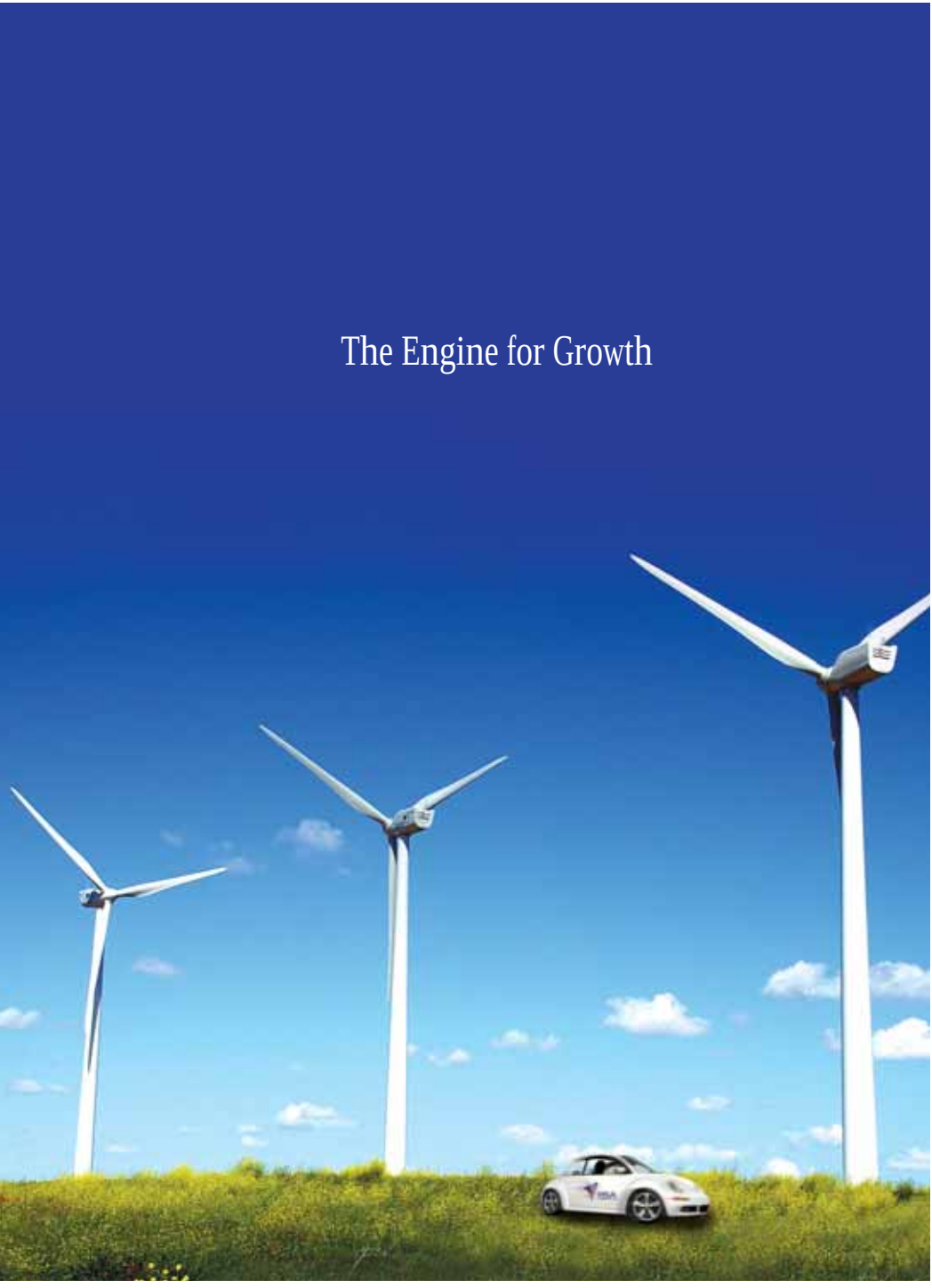
Mr Wong was the Director of the Centre for Medical Device Regulation [CMDR], Health Products Regulation Group since HSA's inception in 2001. In his scientific service career, he received several awards and was conferred the prestigious Public Service Medal [Silver] in 1995. He has represented HSA at various national scientific committees and played a key role in regional and international meetings on medical devices. He continues to serve as a Special Advisor in the Health Products Regulation Group on a part-time basis.

Dr Chow was the Director of the Centre for Forensic Science [CFS], Applied Sciences Group, also from HSA's inception. Across his forensic science career, he was instrumental in building up CFS and its predecessor departments to world-class standards. Under his leadership, CFS gained international recognition for its forensic science capabilities and quality. It is among the few forensic science centres in the region to be accredited by the *American Society of Crime Laboratory Directors/ Laboratory Accreditation Board* [*ASCLD/LAB*] since 1996.

Corporate Headquarters



The Engine for Growth



THE HSA Journey

To:

Front [Left to Right] :
Ms Maureen Goh
Mrs Sarojini Padmanathan
Chua Hong Tong
Ms Lim Peck Seah

Back [Left to Right] :
Mrs Vivian Heng
Dr Lam Kian Ming
Chan Chin Wai
Ms Grace Chan
Ho Meng Hee

Our Corporate Headquarters [HQ] - comprising the offices of Corporate Planning, Corporate Operations, Corporate Development, International Collaboration, Quality, the Legal Counsel, Corporate Communications, Corporate Services, Finance, Human Resource [HR] and Information Management supports HSA as a whole in achieving its vision, mission and goals through strategic co-ordination, reliable systems, effective policies and efficient processes.

In the past year, the Corporate HQ has seen a number of changes in its reporting structure and grouping of capabilities to strengthen its overall effectiveness. Four taskforces were formed and consultants were brought in to review and recommend enhancements to make the corporate systems relevant and prepared for new frontiers. The taskforces, headed by the Senior Directors and comprising representatives from both the Corporate HQ and professional groups, meet on a regular basis to review the four key areas of pro-enterprise, HR strategies and plans, business processes, and pricing and costing.

Though newly established, the initiatives of these taskforces have been significant. The HR Strategy and Planning Taskforce, for example, is the key driving force behind the current and fundamental HR compensation and performance review in HSA. The Pricing and Costing Taskforce has initiated a study to review the key costing assumptions and operational issues, while the Pro-enterprise Taskforce is rolling out initiatives to increase the interfacing with our stakeholders.

These new efforts, together with our continuous striving for quality and standards, aim to make the Corporate HQ a strong, trusted and thriving arm of HSA to effectively co-ordinate and partner with the three professional groups as the whole organisation progresses forward on its journey towards excellence.

Corporate Governance Statement

The Board and Management are committed to maintaining a high standard of corporate governance and endorse the recommendations of the Code of Corporate Governance. The Board believes that good governance is essential to enhancing corporate performance and accountability, ensuring transparency and protecting stakeholders' interests at all times. Our stakeholders include the Ministry of Health, Ministry of Finance, other government agencies, industry, clients, suppliers and the public at large.

This statement outlines the main corporate governance practices of the organisation that are in place.

The Board

The Board comprises the Chairman and seven members who are appointed by the Minister for Health for a 3-year term. The Board meets every two months to set strategic directions and to formulate policies, as well as to assume the role of monitoring and reviewing of policies leading to improved management and outcomes.

Board Members' Remuneration

HSA follows the Government's Directorship and Consultancy Appointments Council (DCAC) guidelines in determining the remuneration of the Board Members.

Notice and Declaration of Directorships and Interest in Shares and Debentures

Board Members are required to declare their directorships in various organisations and their interests in shares and debentures in various corporations. Board Members are deemed to be interested in any transactions which may be made by and between such corporations.

Accountability and Audit

The Senior Management Team is accountable to the Board and the Board is accountable to the Minister for Health. The Board is furnished with complete and adequate information in a timely manner to allow the Board to discharge its duties properly. Senior management staff are invited to give briefings and to answer any queries that the Board may have on the operations and planning of the organisation.

For Accountability purposes, the Board has established the following sub-committees:

(a) The Audit Committee

This Committee assists the Board in reviewing and assuring itself of the adequacy of internal accounting controls and financial reporting controls. It meets at least twice a year with the Management and auditors to determine the scope of the external and internal audit and to review the findings of the auditors.

(i) Internal Audit

HSA has engaged an external party to provide the internal audit function on an annual basis. To date, internal audit has covered areas such as the Inventory and Procurement processes, Billings and Collections, Human Resource and Payroll, Accounts Payable, and Fixed Assets.

(ii) External Audit

The external statutory audit of the financial statements has been conducted by Ernst & Young. They commenced their assignment in 2006 for the FY2006 financial statements.

(b) The Staff Establishment Committee

The Staff Establishment Committee assists the Board in reviewing the adequacy of staffing numbers and budgets to meet operational needs and of Human Resource Policies for compensation and benefits. It oversees some staff matters such as the appointment of senior management positions.

(c) The Finance Committee

This Committee assists the Board in ensuring that financial resources are managed and utilised prudently and in the most effective and efficient manner, contributing towards the organisation's overall mission.

Communication with Stakeholders

The Professional Centres conduct regular consultations with the industry and their clients, seeking to keep them informed of new directions and regulations, and to listen to their concerns. HSA publishes an annual report to meet statutory requirements and to provide information to our stakeholders.

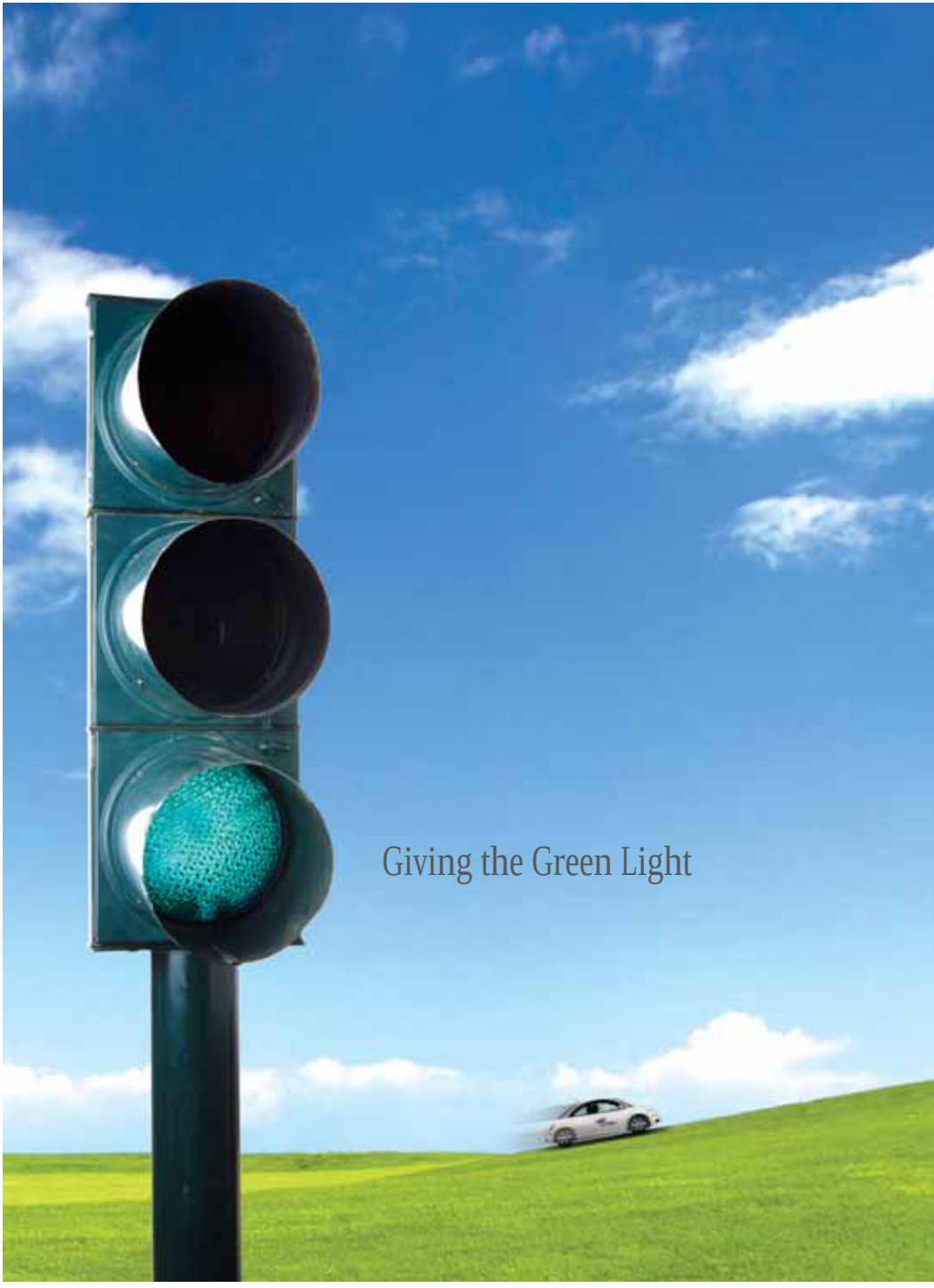
In addition, regular updates on matters of interest to our stakeholders are posted on our internet website. Our Quality Service Manager promptly handles all feedback and queries received from interested parties.

Code of Business Conduct

The Board, officers and employees are required to observe and maintain high standards of integrity, and are in compliance with the law and government regulations, and organisation policies.

Risk Management

The Management is continually reviewing and improving the business and operational activities to identify areas of significant business risks as well as appropriate measures to control and mitigate these risks. The Management also reviews all significant control policies and procedures and highlights all significant matters to the Board and the Audit Committee.


Giving the Green Light

We ensure that drugs, innovative therapeutics, medical devices, and health-related products in Singapore are wisely regulated to meet appropriate standards of safety, quality and efficacy.

Health Products Regulation Group

- CENTRE FOR DRUG ADMINISTRATION
- CENTRE FOR MEDICAL DEVICE REGULATION
- CENTRE FOR RADIATION PROTECTION*

CMDR CRP CDA

* With effect from 1 July 2007, the Centre for Radiation Protection has been transferred to the National Environment Agency and renamed as the Centre for Radiation Protection and Nuclear Science.

THE HSA Journey

To:

Front [Left to Right] :
Ms Chu Swee Seng
Yee Shen Kuan
Mrs Marie Tham

Back [Left to Right] :
Alfred Kwek
Seet Wing Gang
Chao Ye Peng
Kelvin Tan
Tham Lup Hong
R. Sivalingam

THE HSA Journey

To:

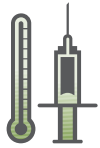
Front [Left to Right] :
Ms Lee Hui Keng
Mdm Suwarin Chaturapit
Sia Chong Hock
Ms Chan Cheng Leng

Back [Left to Right] :
Dr Lu Set
Dr Lai Weng Fai
Ms Hui Foong Mei
Boon Meow Hoe
Foo Yang Tong
Ho Yu Nam

New Drugs Registered
52

Chinese Proprietary Medicines Listed
1,340

Cosmetic Products Registered
7,983



Medical Devices Listed*
4,376

Irradiating Apparatus & Radioactive Materials Licensed
30,120

Clinical Trials Approved
217

Medical Advertisement Permits Issued
1,306

Site Audits Conducted for Good Manufacturing & Good Distribution Practices
468

Premises, Dealers, Importers & Exporters Licensed/Certified**
3,896

Tobacco Retail Outlets Licensed
916

Products Recalled
42

Adverse Drug Reaction Reports Received
11,984

* as at 31 March 2007
** includes new, renewal and amendment applications

Driving New Standards in Professional Excellence

Our Centre for Drug Administration [CDA] regulates medicinal products, complementary health products, cosmetics and tobacco products in Singapore. It administers and enforces the Medicines Act, Poisons Act, Sale of Drugs Act, Medicines [Advertisement and Sale] Act and Misuse of Drug Regulations and Smoking [Control of Advertisements and Sale of Tobacco] Act. A robust framework comprising pre- and post-marketing regulatory activities is applied. This comprises pre-market evaluation, licensing and certification activities, on-going post-marketing monitoring through inspections and surveillance, and Adverse Drug Reactions [ADRs] Reporting to track continued standards of products marketed in Singapore.

Our Centre for Medical Device Regulation [CMDR] has administered the interim Voluntary Product Registration Scheme [VPRS] for higher-risk medical devices since 2002. We are well on track to a legislated, regulated environment for medical devices in Singapore.

Our Centre for Radiation Protection [CRP], while with HSA, was the national regulatory authority for the safe use of ionising and non-ionising radiation of irradiating apparatus and radioactive materials in Singapore. It enforced the Radiation Protection Act and its subsidiary regulations through a system of licensing and inspection. Besides personalised monitoring services and radioactivity analyses, it also provided consultancy and training on radiation safety.

Innovative Regulation

On 12 February 2007, the Health Products Bill was passed by Parliament. The resulting Health Products Act was designed as an omnibus legislation that will consolidate, and eventually replace, the existing four separate Acts regulating medicines and other health-related products currently administered by HSA. The Health Products Act is notable in that it incorporates a legislative mechanism that allows the different controlling provisions in the Act to be effected on different categories of health products in a modular manner. This gives HSA more flexibility in tailoring different regulatory regimes for different categories of health products, and avoiding over- or under-regulating any particular category of product.

Medical devices is the first category of health products to be regulated under this new Health Products Act. Based on the principles endorsed by the Global Harmonisation Task Force [GHTF], which include licensing of medical device dealers as well as the products, the proposed framework underwent a two-month public consultation exercise between February and April 2007. In March 2007, as part of our continuing efforts to engage stakeholders in the formulation of the medical device regulations, we also conducted an industry briefing to representatives from over a hundred companies. The Phase I implementation of this new framework by 2007 will bring Singapore in line with international best practices on the regulation of medical devices.

Responsive Regulatory System

To ensure that rules and regulations are kept current and meet the needs of our stakeholders in the changing environment, HSA conducts ongoing reviews of its rules and regulations in consultation with its stakeholders. New initiatives arising from the regulatory reviews are developed together with our stakeholders and communicated to ensure clarity and transparency.

The drug registration system and requirements were reviewed. The major initiatives are:

- for safety labelling updates to be submitted through notification rather than the approval process, allowing predictability and better planning by the industry
- the waiver of Certificate of Pharmaceutical Product [CPP] for new product applications where other forms of approval documents can be used as appropriate substitutes
- for a major revision of the drug registration guidance document for the industry, to enhance clarity and transparency

To communicate these new drug registration initiatives, a two-day drug registration workshop for the industry was held in February 2007 and attended by over 200 industry representatives from Singapore, Malaysia, Indonesia, Australia, France and the USA.

The regulatory controls for Chinese Proprietary Medicines [CPM] were also reviewed and, in July 2006, the CPM product labelling requirements were revised to include an advisory on consumer discretion.

The licensing requirements for retail pharmacists were also reviewed and streamlined. Since 1 July 2006, pharmacists are no longer required to amend Form C poisons licences when they practise at pharmacy outlets under the same management.

To improve transparency in the product classification system for health products and food and to assist traders in carrying out preliminary self-classification of products, we have jointly developed a Food-Health Products Classification Tree with the Agri-Food and Veterinary Authority.

As part of our stepped-up efforts against retailers who illegally sell tobacco products to underage persons, the list of suspended tobacco retailers was made available on our website from April 2007.

Networked Risk Management

Networking and strategic alliances allow HSA to tap on knowledge and data beyond the agency and strengthen our regulatory decision-making and risk management processes. In FY 2006, we evaluated and approved several major new drugs, which included:

New Chemical Drugs

- Alvesco [ciclesonide] Mictonorm [Popiverine]
- Certican [everolimus]
- Protos [strontium ranelate]
- Faslodex [fulvestrant]
- Macugen [pegatanib]

New Biological Drugs

- Rabipur [rabies vaccine]
- Gardasil [HPV vaccine]
- ProQuad [MMR & varicella vaccine]
- Xolair [omalizumab]
- Neulastim [pegfilgrastim]

In January 2006, we introduced electronic reporting of ADRs, in addition to submissions through fax, mail or email. This was through the Critical Medical Information Store [CMIS]* of the Electronic Medical Record Exchange [EMRX]**.

We worked with the Ministry of Health [MOH] to implement the drug safety module of the Healthcare Professional Portal [HPP], to enhance our outreach to healthcare professionals, important partners in our risk management system. Since June 2006, healthcare professionals in Singapore receive important and urgent drug safety alerts almost immediately through SMS, e-mail and fax, and can make ADR report enquiries on-line.

* CMIS [Critical Medical Information Store] of the EMRX serves as a shared electronic repository of patients' medical alerts, ADR and drug allergy data. The CMIS online ADR reporting form is also available at the HPP to allow healthcare professionals from the private sector to submit ADR reports. The HPP is a one-stop portal for the healthcare professional community to access multiple e-services relating to professional practice and information repository using single-sign-on through a common interface.

** EMRX [Electronic Medical Record Exchange] is an electronic platform which enables hospitals and government clinics across the two public healthcare clusters, National Healthcare Group and Singapore Health Services, to share vital patient medical information such as inpatient discharge summaries, medical history and laboratory results.


HOME
HSA warns against
using toxic
remedy for

Risk communication is achieved through drug safety alerts to healthcare professionals and the public, and the *Adverse Drug Reaction News Bulletin*. In 2006, we published three issues of the Bulletin, which was disseminated to over 9,000 doctors, pharmacists and dentists in Singapore. We also worked closely with the pharmaceutical companies to issue six *Dear Healthcare Professional* letters, which updated healthcare professionals on emerging and potential drug safety problems.

In 2006, HSA participated in investigations initiated from alerts by the Singapore National Eye Centre [SNEC] on an increased incidence of Fusarium Keratitis seen in contact lens users at the centre. We worked closely with MOH, SNEC and other local institutions, as well as the US Communicable Disease Center and US Food and Drug Administration. This eventually resulted in a voluntary withdrawal of Bausch & Lomb's ReNu products in Singapore on 17 February 2006 and a global voluntary withdrawal of ReNu MoistureLoc Contact Lens Solution on 15 April 2006.

Gaining Momentum through Strategic Alliances

Our Local Role

HSA works closely with local and overseas agencies to prevent illegal and unsafe drugs from entering our market. In 2006, we conducted several joint seizures on illegal codeine cough mixtures with other enforcement agencies, including the Central Narcotics Bureau [CNB], the Immigration & Checkpoints Authority [ICA] and the Singapore Police Force [SPF]. In one such operation, eight barrels of 200 litres of codeine mixture were seized, the largest seizure of such mixtures by HSA.

In August 2006, two individuals were arrested by CNB for illegally dealing in Dormicum. One of them, a foreign doctor, was sentenced to 15 months' imprisonment. The case involved 15,000 tablets and was one of the largest seizures of smuggled Dormicum tablets to date.

Working closely with ICA, we foiled several attempts to bring consignments of counterfeit and illegal medicinal products into Singapore. In one case, about 30 different types of illegal medicinal products, amounting to 100,000 tablets and capsules with an estimated street value of over S$500,000, were intercepted and seized.

In January 2007, we provided assistance to the Malaysian Health Ministry in their investigations on a case which involved the importation of an adulterated product, 'Miagra', worth RM14 million.

During the year, we made presentations at various local radiological security and safety seminars, including the SIN/US "Radiological Dispersal Device [RDD] Threat Reduction Workshop" organised by Defence Science and Technology Agency, and Ministry of Defence's Chemical, Biological, Radiological and Explosives seminar on Safety & Security.

Forging Closer Ties within the Region

ASEAN Consultative Committee for Standards and Quality [ACCSQ] Product Working Groups [PWGs]

In support of an integrated ASEAN healthcare vision led by the Ministry of Trade and Industry, the regulatory group continued to be actively engaged in numerous activities through PWGs established under the ACCSQ:

- Pharmaceutical PWG
- Traditional Medicines & Health Supplements PWG
- ASEAN Cosmetics Committee
- Medical Device PWG

Together with its ASEAN counterparts, the PWGs worked towards harmonising regulatory measures in product and labelling standards, Good Manufacturing Practices [GMP] standards, registration dossiers, the post-marketing alert system and negotiations on a Mutual Recognition Arrangement [MRA] for GMP Inspections for Medicinal Products.

Pharmaceuticals Product Working Group [PPWG]

The PPWG held its 12th Meeting in October 2006. HSA chaired the Implementation Working Group [IWG] and the MRA GMP Inspection Taskforce, which are responsible for coordinating the implementation of the ASEAN Common Technical Dossier [ACTD] and development of an MRA for GMP Inspection respectively. At the 12th Meeting, an agreement was reached to allow the ACTD developed by the International Conference for Harmonisation [ICH] for innovative products.

Traditional Medicines and Health Supplements Product Working Group [TMHS PWG]

With the support from the local traditional medicines and health supplements associations, we successfully hosted the 5th ACCSQ TMHS PWG meeting on 27 and 28 July 2006 and a seminar which preceded the meeting. The meeting attracted 178 regulatory and industry representatives from Asia, Europe and the USA and featured eminent experts from the World Health Organisation [WHO], Europe, USA and China. The 6th TMHS PWG Meeting was held in December 2006 and continued to focus on working out the definitions of traditional medicines and health supplements, the studies and surveys on technical requirements, GMP standards, quality control testing, labelling requirements and the regulatory infrastructure and product placement system.

ASEAN Cosmetics Committee [ACC]

The 7th ACC meeting was held in December 2006. At the meeting, the ASEAN Guidelines for the Safety Assessment of Cosmetic Products were formally adopted and Singapore was appointed to lead in its development.

Medical Device Product Working Group [MDPWG]

We successfully hosted the 5th ACCSQ MDPWG meeting in January 2007, which was attended by 95 government delegates and representatives from the ASEAN Secretariat and the medical device industry. At the meeting, the member countries formally adopted the "Dear Doctor Letter" Guideline, which allows a manufacturer or competent authority to inform healthcare professionals of any product safety issues. In addition, Singapore's proposed framework on "Post-Marketing Alert System" [PMAS] that aims to facilitate inter-ASEAN adverse event and product recall reporting was also accepted.

Asian Harmonisation Working Party [AHWP]*

As the co-chair of the AHWP Technical Committee, we have been working with other member countries to fine-tune the post-market alert system and common submission dossier template. In February 2007, we also represented AHWP to participate in the GHTF Study Group 1 [SG1]** meeting in Japan.

* The Asian Harmonisation Working Party [AHWP] studies and recommends ways to harmonise medical device regulations in the region and coordinates with the Global Harmonisation Task Force [GHTF] and Asia-Pacific Economic Cooperation [APEC].

** The SG1 compares operational medical device regulatory systems around the world and is responsible for developing a standardised format for pre-market submissions and harmonised product labelling requirements.

The International Arena

Memoranda of Understanding [MOU]

In 2006, HSA signed MOU with Health Canada's Health Products and Food Branch and the United States Pharmacopoeia. The MOU with the two international organisations aim to enhance mutual communication and scientific collaboration, encourage collaborative efforts in health products regulation, analysis and research, and increase the awareness of the importance of the quality and safety of medicinal products between agencies.

Relationships with the US Food and Drug Administration [FDA] and the Australian Therapeutics Goods Administration continue to be strengthened.

International Atomic Energy Agency [IAEA]

During the year, we participated in several IAEA events, which included delivering the Singapore Statement during the IAEA General in Vienna, and two regional co-ordination meetings on Public Exposure Control and Radioactive Waste Management in Myanmar and Indonesia respectively.

In July 2006, we hosted a week-long training course organised under IAEA/Regional Co-operative Agreement on the Organisation and Implementation of a National Regulatory Programme for the Control of Radiation Sources, including the Code of Conduct on the Safety and Security of Radiation Sources. During the month, a study visit was also organised for an IAEA fellow from the Iran Nuclear Regulatory Authority to study Singapore's system of radiation control.

WHO International Electromagnetic Field Project Advisory Committee

As a member of the WHO International Electromagnetic Field Project Advisory Committee, we participated in the Geneva meeting in June 2007. The focused research knowledge shared during the meeting has enhanced the EMF control programmes locally.

In addition, to strengthen international preparedness and regional response system for Nuclear and Radiological Emergencies, we also participated in a National Competent Authority Workshop in Melbourne, Australia in November.

International Medicinal Products Anti-Counterfeiting Taskforce [IMPACT]
Initiated by the WHO, the IMPACT is a voluntary grouping of governments, organisations, institutions, agencies and associations from developing and developed countries aimed at sharing expertise, identifying problems, seeking solutions, co-ordinating activities and working towards the common goal of fighting counterfeit medical products. To accomplish this mandate, IMPACT will focus on five key areas, namely: Legislative and Regulatory Infrastructure, Enforcement, Technology, and Risk Communication. Singapore, represented by HSA, was nominated as one of the Vice-Chairs of the IMPACT taskforce and thus became a member of the IMPACT Planning Group. Five Working Groups were established to address the five key areas of concern, and have been working independently to present their proposals at the Second General Meeting in December 2007.

WHO-sponsored GMP Audit
During the year, we participated in GMP audits in China and India sponsored by the WHO as part of its pre-qualification programme to ensure medicinal products of acceptable standards of quality, safety and efficacy are available for United Nation agencies' procurement.

We continued our obligations and commitments in several regional and international agreements and forums. Some of the major involvements include:

- US-Singapore Free Trade Agreement
- MRA on GMP Inspections with Australia
- MOU with the US FDA
- Singapore-Japan Joint Statement on Medicinal Product GMP Inspection under the Japan-Singapore Economic Partnership Agreement
- Pharmaceutical Inspection Convention/ Pharmaceutical Cooperation Scheme [PIC/S]
- Permanent Forum on International Pharmaceutical Crime [PFIPC]
- WHO-supported Western Pacific Regional Forum for the Harmonisation of Herbal Medicines [FHH]
- WHO-supported International Regulatory Cooperation for Herbal Medicines [IRCH]
- ASEAN Working Group on Technical Cooperation in Pharmaceuticals [AWGTCP]
- Brunei-Malaysia-Indonesia-Singapore-Thailand [BMIST] Public Health Conference

The Next Leg of Our Journey

With the rapidly evolving landscape of biomedical and life sciences, the emergence of novel technologies and their application in health products development and Singapore's ongoing biomedical sciences initiatives, HSA is facing new challenges in regulating novel health products with our limited resources. At the same time, this opens up new opportunities for the regulatory group to tap on HSA's other professional groups' expertise and external expertise in Singapore and abroad. As HSA moves forward, it is increasingly important for us to be innovative in our regulatory approaches and capabilities development.

We will enhance our capabilities in the following four key areas:

1. Conduct risk assessments of new health products, including medical devices, novel biologics and other innovative health products. HSA is building up our capability through expansion of our in-house scientific capabilities as well as by leveraging on expertise in our partner agencies and research institutes. By improving our risk assessment capability, we aim to enhance our professional evaluation capabilities and marketing approval timelines.

2. Manage the evolving risks of products through systematic surveillance, enforcement and a risk communication programme. HSA will review and target implementation of effective risk-based programmes to monitor the safety and regulatory compliance of health products throughout product lifecycles. Our legislative framework will also be enhanced to enable HSA to more effectively enforce post-marketing studies from the pharmaceutical industry that will allow us to further characterise the safety profiles of selected drugs. We will also explore tapping the promising tools of pharmacogenetics to innovatively detect ADRs in our local population, which in the future may facilitate approvals of certain drugs tracked under this scheme.

   In the area of risk communication, we will continue to step up efforts to provide early warnings to our healthcare professionals of emerging or potential drug safety problems to enable them to make discerning choices on the safer use of drugs and health products.

3. Develop smart regulation and policies for health products that protect public safety while facilitating the growth of the biomedical industry. HSA is refining its regulatory philosophy in line with our mission to wisely regulate health products by applying a risk-based rather than a "one-size-fits-all" regulatory approach. The recently passed Health Products Act will be instrumental in helping us achieve these objectives. HSA intends to actively engage our stakeholders in the implementation of the Health Products Act, so as to better meet their needs and expectations in transparency, clarity, responsiveness and robustness in our regulation of health products.

4. Enhance our strategic alliances, connectedness and influence in the regional and international regulatory arena. This will position Singapore as a thought leader in the field and facilitate our participation in decisions shaping the future of the regulation of health products. Moving ahead, we will focus on efforts to strengthen relationships and develop closer co-operation with our key reference agencies and our regional partners in ASEAN. In the coming year, we will also actively participate and lead in regional and global initiatives, especially in ASEAN health products harmonisation, GMP inspections and anti-counterfeiting and enforcement initiatives. HSA will be organising the following major regional and global events in the coming year:

   - PIC/S Meeting in Singapore
   - PFIPC Meeting in Singapore
   - ASEAN-China IMPACT Conference in Indonesia
   - APEC Life Sciences Anti-counterfeiting Seminar in Singapore

CRP Transfer to NEA

After six years as one of HSA's professional centres since its formation in 2001, the Centre for Radiation Protection [CRP] was transferred to the National Environment Agency and became the Centre for Radiation Protection and Nuclear Science [CRPNS] on 1 July 2007.

CRP has built up a reputation over the years for having a sound capability in radiation protection in health and safety during the years under the guidance of HSA and CRP's predecessor departments.

Faced with an ever-changing landscape, there are increasing demands for expertise in the areas of nuclear science, security and emergency response. This move has brought together experts from both health and environmental radiation science as they discuss how to better meet the challenges ahead at a national, regional and global level.

We wish our colleagues a fulfilling journey ahead.

PRE-MARKET ACTIVITIES
Evaluation, Licensing & Certification

Drugs and Biologics

New Product Licences Issued		52
• Chemicals	[32]	
• Biologics	[9]	
• Generic [Chemicals]	[11]	
Variations in Product Licences		1,779
Registered Medicinal Products [as at 31 March 2007]		6,020
• Prescription-Only Medicines	[69%]	
• Pharmacy Medicines	[14%]	
• General Sale List Medicines	[17%]	
Import of Medicinal Products for Re-Export		2,224
Import of Unregistered Medicinal Products		3,818
• by doctor for named patient	[3, 801]	
• by tourists for personal use	[217]	

Chinese Proprietary Medicines [CPM]

CPM Listed [as at 31 March 2007]	10,111
CPM Rejected [as at 31 March 2007]	467

Cosmetic Products

Cosmetic Products Registered [as at 31 March 2007]	26, 074
New Importers Licensed	99
Cosmetic Products Rejected	14
Letters of Free Sales for Export	327

Health Supplements

Enquires on Classification, Import and Sales Requirements	5,076

Premises, Dealers, Importers & Exporters — 3,896

Manufacturers/Assemblers Licences Issued*	[141]
Wholesale Dealer's Licences Issued*	[517]
Import Licences Issued*	[945]
Export Licences Issued*	[233]
Pharmacy Certificates Issued*	[354]
Form A Poisons Licences Issued*	[461]
Form C Poisons Licences Issued*	[853]
Certificate of Pharmaceutical Products	[296]
Good Manufacturing Practice [GMP] Certificates Issued	[26]
Good Distribution Practice [GDP] Certificates Issued	[5]
Free Sale Certificates	[26]
Statement of Licensing Status Issued	[14]
GMP Clearance for Overseas Manufacturers	[25]

* includes new, renewal and amendment applications

Clinical Trials [January to December 2006]

Clinical Trials Approved:		217
• Phase I	[48]	
• Phase II	[35]	
• Phase III	[116]	
• Phase IV	[18]	
Clinical Trials by Therapeutic Areas:		
• Oncology	[26%]	
• Clinical Pharmacology	[21%]	
• Cardiology	[9%]	
• Gastroenterology/Hepatology	[8%]	
• Neurology	[7%]	
• Endocrinology	[4%]	
• Ophthalmology	[3%]	
• Renal Medicine	[3%]	
• Psychiatry	[3%]	
• Urology	[3%]	
• Others	[13%]	
Initial Reports of ADRs		3,364
Follow-up Reports of ADRs		4,131

NB: More than one suspected drug may be implicated in an ADR report.

POST-MARKET ACTIVITIES

Investigation, Surveillance and Prosecution

Complaints Received	799
Prosecution Cases Completed	131
Offenders Sentenced to Imprisonment	40

ADR Monitoring

ADR Reports from Public Hospitals, Government Clinics and National Specialty Centres	89.9%*
ADR Reports Associated with Pharmaceutical Products	96.6%

* Based on 1,523 ADR reports analysed

Top 10 Drugs Suspected of Serious ADRs

	Active ingredient	No.
1.	Atenolol	28
2.	Cotrimoxazole	28
3.	Diclofenac	28
4.	Phenytoin	25
5.	Allopurinol	21
6.	Aspirin	21
7.	Carbamazepine	21
8.	Amoxicillin	20
9.	Ceftriaxone	20
10.	Paracetamol	20

Radiation Control

Inspections on Facilities Using Ionising Radiation	573
Inspections on Facilities Using Non-ionising Radiation	63
Import and Export of Irradiating Apparatus Components	3,877
Endorsements of Nuclear Consignments on Ships	147
Thermoluminescent Dosimeters Processed [monthly]	8000
Wipe Test for Sealed Radiative Sources	212
Radioactivity Analysis on Food Samples	1,541
Investigations of Suspected Industrial Radiation Overdose	29
Tests for Applicants of Ionising Safety Licences	354
Tests for Applicants of Laser Safety Course	869

Tobacco Regulation

Tobacco Retail Outlets Licensed [as at 31 March 2007]	6,000
Illegal Sale of Tobacco to Under 18 Years	66
Youths Compounded	5,999
Youths Prosecuted in Court	292

Health Services Group

• CENTRE FOR TRANSFUSION MEDICINE

We are the national blood service, ensuring a safe and adequate blood supply and providing specialist transfusion medicine services.


Fuelling the Distance

THE HSA Journey

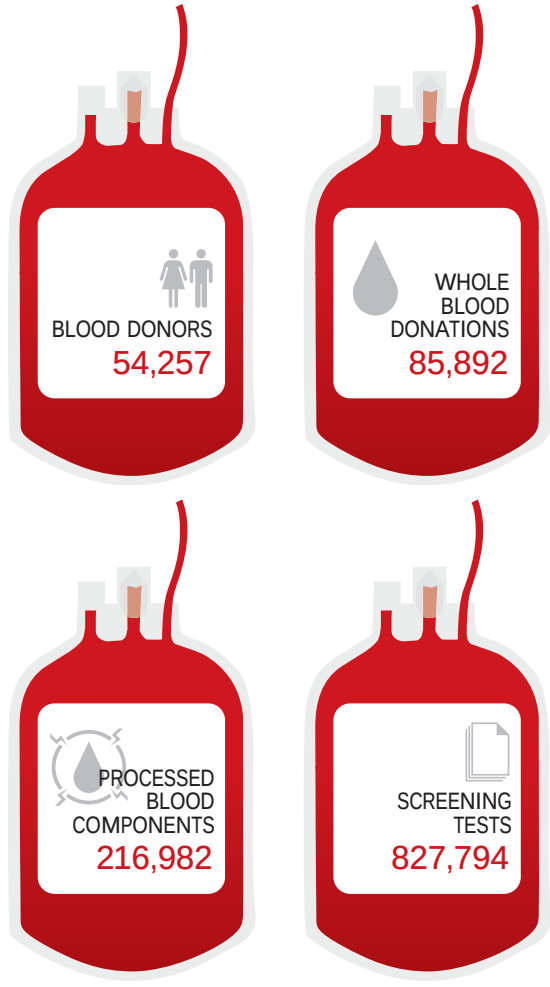
HSA Health Sciences Authority

To:

Front [Left to Right] :
Dr Marieta Chan
Dr Tan Hwee Huang
Ms Sally Lam

Back [Left to Right] :
Ms Leou Kwee Kim
Ms Selvi Govindaraju
Ng Kok Quan
Ms Toh Ching Lian
Ms Koh Geok Tin

Absent :
Dr Mickey Koh


BLOOD DONORS
54,257
WHOLE BLOOD DONATIONS
85,892
PROCESSED BLOOD COMPONENTS
216,982
SCREENING TESTS
827,794

Driving New Standards in Professional Excellence

Our emphasis in maintaining high standards of quality was rewarded in May 2006 when we became the first national blood service in Asia to be accredited by the AABB. This accreditation brings us membership of a respected organisation of international blood banks in the scientific community and affirms our high level of professionalism and commitment to quality blood banking.

In our journey towards excellence, we partnered with national blood services in eight countries in the Asia-Pacific Region to form the Asian Pacific Blood Network [APBN]. In June 2006, we hosted the official launch of the APBN, which aims to promote blood safety and efficiency of operations through global co-operation and information sharing. This followed the signing of a confidentiality agreement amongst the member countries, which was formally ratified on 28 November 2006.

We are also members of International Society of Blood Transfusion [ISBT] Working Parties for Haemovigilance, Blood Supply Management and the Hepatitis B Working Group. Along with Japan, Singapore is the only other country in Asia to join the European Haemovigilance Network, which aims to collect and exchange data on the effects of blood transfusion.



Mapping Out New Areas of Research

We actively seek to take advantage of the latest developments in blood banking science and information technology to improve the quality and efficiency of the services we offer.

Our new state-of-the-art Cell Processing Laboratory was opened in 2006. This new facility is a fully GMP-compliant [Good Manufacturing Practice] laboratory dedicated to translational cell therapy work. We are currently involved in collaborative trials with the Singapore General Hospital. Ongoing research is also being conducted in the rapidly evolving fields of immunotherapy and new cellular therapies.

Gaining Momentum through Strategic Alliances

Our Local Role

2007 marks the sixth year of a strategic partnership with the Singapore Red Cross [SRC] to manage our national blood donor programme. The blood donor recruitment effort is complemented by our ongoing public awareness campaign on the importance of regular voluntary blood donations and the need to foster blood donation as a healthy lifestyle activity.

Forging Closer Ties within the Region

In our capacities as a World Health Organisation [WHO] Collaborating Centre for Transfusion Medicine and the WHO Regional Quality Management Training Centre, we continued to help in initiatives to improve the standard and practices of transfusion medicine in the Western Pacific region. Our regional training projects include conducting training for the blood transfusion service in Myanmar, providing external proficiency testing in pre-transfusion testing in blood centres across the Western Pacific region, and working with the SRC to provide donor recruitment training programmes in Thailand and Myanmar. We have also worked with Nanyang Polytechnic to produce, on behalf of the WHO, a training CD entitled "Quality in Blood Collection".

The International Arena

We make it a priority to share and exchange knowledge within the global arena. In the year, we continued to participate actively in key international conferences as speakers and attendees in the transfusion medicine arena. These included conferences organised by the WHO, AABB, International Society of Cellular Therapy, Japanese Society of Blood Transfusion, ISBT and South Asian Association of Transfusion Medicine. We are also a member of the WHO-convened Global Collaboration in Blood Safety.

To harmonise with international practices, we converted to the ISBT 128 barcode labelling system, an international standardised barcode nomenclature for transfusion medicine.

Engaging with the Community

In June 2006, we celebrated the 60th anniversary of the National Blood Programme in Singapore with a unique World Blood Donor Day sandcastle-building activity and beach carnival. This was followed in July 2007 by a two-day scientific symposium themed "Evolving Trends in Transfusion Medicine", where regional and international experts in the field of transfusion medicine shared their expertise.

The Next Leg of Our Journey

In the coming year, we will be focusing our efforts on achieving accreditation of our Transplant Support Unit with the American Society of Histo-compatibility and Immuno-Genetics [ASHI]. Successful accreditation with ASHI will give our transplant support laboratory added international standing and recognition.

New technologies to be introduced in blood collection include Red Cell Apheresis donation. In Blood Donation Processing, the use of semi-automated blood component extractors will be introduced to streamline the workflow and further enhance the quality of blood components processed. Pathogen-inactivated frozen plasma and platelets using state-of-art pathogen inactivated technology will also be closely studied to determine their suitability for use in transfusions. Prevalence studies of the West Nile and Dengue viruses in our blood donor population will help to determine if new screening tests will need to be added for the blood supply.

We will apply the latest information technology to create more patient-centric diagnostic laboratory services including Automated Pre-Transfusion Testing system, molecular analysis for red cell antigens, flow cytometry for Human Lymphocyte Antigen cross-matching and antibody screening.

Information technology will also be used to enhance our web portal for blood donors - Donorcare@HSA. Through innovative new additions, we hope to provide added convenience and ease in the blood donation process. Collaboration with Republic Polytechnic in utilising process analysis tools in areas such as blood collection, processing and patient testing will further aid us in streamlining our processes and improving efficiency.

Blood conservation is a new area in which we will work with hospitals to enable effective management of our blood supply. Through use of procedures such as autologous blood cell salvage, we can work with clinical colleagues to maximise every drop of blood that we collect.


Navigating New Terrain
Applied Sciences Group

We represent the national forensic medical and scientific, analytical and laboratory expertise to support regulatory and other compliance agencies in the administration of justice and the safeguarding of public health.

Applied Sciences Group

- CENTRE FOR ANALYTICAL SCIENCE
- CENTRE FOR FORENSIC MEDICINE
- CENTRE FOR FORENSIC SCIENCE

THE HSA Journey

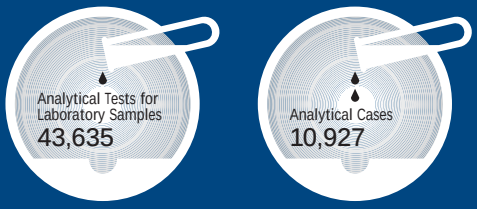
To:

Front [Left to Right] :
Ms Low Min Yong
Dr Michael Tay
A/P Gilbert Lau
Mrs Tan Wai Fun

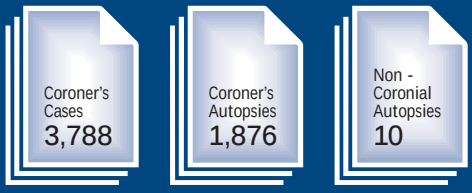
Back [Left to Right] :
Dr Yao Yi Ju
Dr George Paul
Dr Lui Chi Pang
Dr Teo Eng Swee
Ng Soon
Ms Cheah Nuan Ping

Absent :
Dr Lee Tong Kooi
Ms Lee Gek Kwee
Ms Joanne Chan

Analytical Science



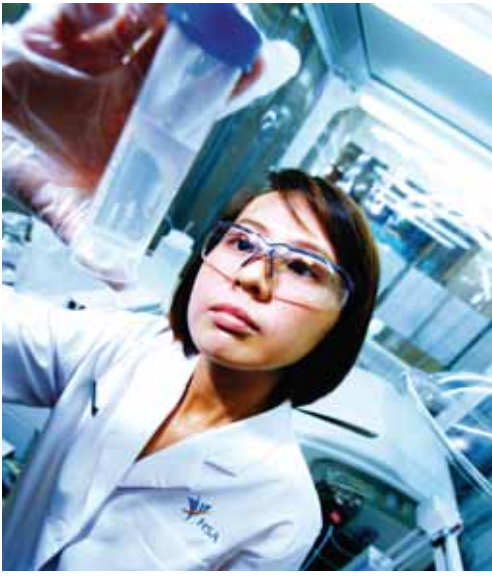
Forensic Medicine



Forensic Science

Driving New Standards in Professional Excellence

As we journey forward, we continually seek to improve upon our high standards of professional excellence, and this past year has been no exception. Across the Group, greater focus was placed on ensuring that proper resource deployment and allocation were aligned with our strategic intent to meet challenges ahead, in particular the development of professional staff and reinvestment in new information systems and appropriate, relevant technology. Our professional standards are critical for us to progress forward and we aim for the consistent attainment of high accreditation standards across all three centres.



Our Centre for Analytical Science [CAS] continues to provide services to support the Agri-Food Veterinary Authority of Singapore's [AVA] regulation of processed foods, and the regulation of pharmaceuticals, Chinese proprietary medicines, cosmetics, health supplements and cigarettes.

Since 1997, CAS has been continuously recognised by the Singapore Accreditation Council–Singapore Laboratory Accreditation Scheme [SAC-SINGLAS] under ISO/IEC Guide 25. This was further upgraded to ISO/IEC 17025 in July 2002, then to ISO/IEC17025: 2005 in June 2006. Eight of our Scientific Officers are appointed as qualified ISO/IEC technical assessors by the Singapore National Accreditation Council.

CAS continued to perform well this past year, participating in the APLAC Proficiency Testing Programmes Scheme organised by the European Directorate for the Quality of Medicines [EDQM] on Dissolution Test for Pentoxifylline Extended-release Tablets. We did very well with our water analysis results on chromium, copper, iron, lead, nickel, thallium and zinc with all the z-scores within $z \pm 2$.

CAS also participated in the 14th Asia Collaborative Study on ISO Tar and Nicotine involving 42 laboratories from 18 countries in the Asia-Pacific region and Europe. Five different brands of cigarette samples with tar levels ranging from 1mg to 15mg were tested. Our study report in March 2007 compared favourably with the other top laboratories.

Our Centre for Forensic Medicine [CFM] provides forensic medical consultancy services in support of the Coroner and the Singapore Police Force [SPF] in medico-legal death investigations within and outside of Singapore.

CFM was accredited in 2005 and continues to maintain high professional standards through a regular internal review process. In line with efforts to operate at maximum efficiency, CFM discontinued its Forensic Death Investigator [FDI] service in February 2007 due to decrease in demand.

Our Centre for Forensic Science [CFS] continues to specialise in forensic science services rendered to the SPF, Central Narcotics Bureau [CNB] and other law enforcement agencies serving the administration of justice.

Since 1996, CFS has been among the few forensic science centres in the region to achieve the American Society of Crime Laboratory Directors/Lab Accreditation Board [ASCLD/LAB] accreditation, an international accreditation scheme for excellence in forensic science service. CFS was re-accredited by the ASCLD/LAB in June 2006.

Mapping Out New Areas of Research

While primarily a service entity, we recognise that investment in innovation and R&D is critical to ensuring that we continue to succeed in delivering high quality, high value scientific expertise to our clients.

This year, we successfully applied Bloodstain Pattern Analysis [BPA] and conducted crime scene reconstructions for several high-profile murder cases. The acceptance of the evidence provided by our scientists validated the standards of expertise introduced.

Several new analytical capabilities were developed:

Chinese Proprietary Medicines

- 67 new adulterants and 13 analogues of Phosphodiesterase-5 [PDE-5] Inhibitors were identified
- New tests on analysis of Arteminsinin and Acontine were accredited

To date, we have more than 350 adulterants that have been accredited under ISO/IEC17025:2005.

Cosmetics

- Two new services to test for Chromium and Neodymium were introduced
- New test methods were developed incorporating more mass spectrometry techniques for the development of new test methods in cosmetic testing

Tobacco

- Tests were made for carbon monoxide by Non-Dispersive Infra-Red Analysis [ISO8454:1995] using the semi-automated smoking machine

Food & Water

- Potentially harmful plasticisers and additives from food contact materials were identified
- Sample extraction techniques were used to determine persistent organic pollutants [POPs] in food, such as polybrominated diphenyl ethers [PBDEs], and polychloro biphenyls [PCBs]
- Accreditation extended to include two new tests to identify Naphthalene and Uranium in water
- Multi-elemental analysis protocol for water samples were expanded to include seven more elements using Inductively Coupled Plasma-Mass Spectrometry [ICP-MS] and Ion Chromatography [IC] techniques

Gaining Momentum through Strategic Alliances

We recognise that the best way to progress is to share our knowledge with others through strategic alliances locally and internationally. Our academic collaborations include contributing actively to medical undergraduate and postgraduate education from NUS' Department of Pathology and Experimental Surgery of the Singapore General Hospital and National Cancer Centre in the areas of forensic medicine, forensic pathology and pharmacy through various research projects. We also collaborate with Nanyang Polytechnic and the Genome Institute of Singapore on the local front, and World Health Organisation [WHO] and the United Nations internationally.

Our Local Role

In partnership with the CNB, we completed two projects, including

- an evaluation study on three on-site drug-testing kits;
- a survey to determine the consumption pattern of heroin and cannabis.

The completion of the survey project on heroin and cannabis marked the conclusion to a series of surveys first undertaken in 2005 to determine the consumption pattern of drugs abused in Singapore. The drugs covered by the surveys were ketamine, Erimin 5 [nimetazepam], "Ecstasy" [N, α-dimethyl-3,4-[methylenedioxy] phenethylamine], "ice" [methamphetamine], heroin and cannabis.

Forging Closer Ties within the Region

In September 2006, we jointly organised the first regional DNA Symposium on Forensic DNA and Population Statistics Workshop with Applied Biosystems, which featured leading forensic experts from the United States, Thailand, Indonesia, Malaysia and Vietnam. We also co-hosted a symposium with Dade Behring on 'Trends and Tribulations in Drugs of Abuse Testing' in March 2007, with board members from the International Association of Forensic Toxicologists [TIAFT] invited as speakers.

For use by regional laboratories, we developed a gas chromatographic method for the quantification of safrole and isosafrole in sassafras oil. Both substances are precursor chemicals used in the illicit manufacturing of N, α-dimethyl-3,4-[methylenedioxy] phenethylamine ["Ecstasy"].

The International Arena

On the international front, we continued our collaborations with WHO in the development of draft monographs on Lamivudine Oral Solution, Lamivudine Tablets and Lamivudine and Zidovudine Tablets for the International Pharmacopeia. We also worked on the proposed additional identity tests for Lamivudine and Zidovudine Tablets and re-examined three international chemical reference substances: Diazoxide, Ethosuximide and Tolbutamide for the WHO Collaborating Centre for Chemical Reference Substances in Sweden.

We served as a WHO Temporary Advisor at a meeting on "Specifications for Medicines and Quality Control Laboratory Issues" and hosted the training of two WHO Fellows in pharmaceutical analysis. We also filled the role of technical expert in the 41st Meeting of the WHO Expert Committee on Specifications for Pharmaceutical Preparation in Geneva, Switzerland. The 4th Edition of *The International Pharmacopeia* was published in late 2006 with our collaboration.

We collaborated closely with the United Nations Office on Drugs and Crime [UNODC] on Project H44 - Scientific support to strengthen regulatory and law enforcement control of amphetamine-type stimulants and their precursors in East, South and Southeast Asia. Since the project's inception in May 2006, our newsletter *DrugNetAsia* has been published twice yearly to serve as a platform for the sharing of information among the regional forensic laboratories.

In addition, we participated as a technical member at the International Laboratory Forum on Counterfeit Medicines [ILFCM] to share information on scientific techniques that are used to detect counterfeit drugs and harmful substances in dietary supplements.

Engaging with the Community

Projects were carried out to improve the working environment for staff members, including promoting awareness of laboratory safety with a newly revised safety handbook and annual recognition awards. We also addressed the problem of proper disposal of chemicals and other wastes.

Our community activity highlights during the year included visiting and hosting several lunches and dinners for the disabled elderly and senior citizens, a beach clean up and a recycling project. We are also committed to nurturing young scientists through our student internship programmes and visits.

The Next Leg of Our Journey

We see a number of challenges on the horizon in our continuing effort to serve various regulatory agencies. We need to be nimble, responsive and focused in asserting our professional capabilities and stature in serving the community in Singapore and beyond. Numerous key initiatives will be deployed in the next three years, focussing primarily on strengthening efficiency and professional effectiveness, and pushing innovative development into new areas of expertise. Our research framework will be revamped and more funds set aside to promote R&D.

Excellence
Organisational
Excellence
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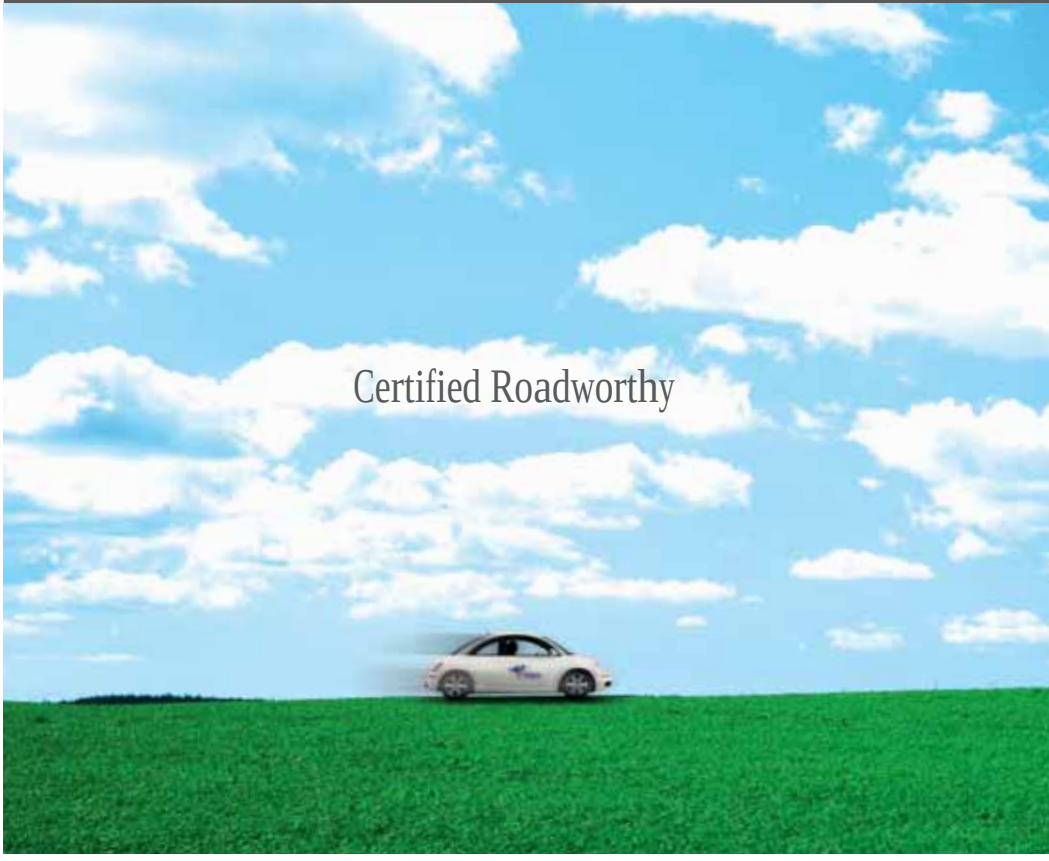


Organisational Excellence

Our ongoing pursuit of organisational excellence has led us to achieve several organisational accolades over the years. They include the Singapore Innovation Class [I-Class] in 2003, People Developer Standard [PDS] renewed in 2005, and Public Service Award for Organisational Excellence in 2006.

In 2006, focused efforts were channelled into clarifying our strategic directions in the longer term and defining the relevant organisational structures to advance HSA in our new wave of growth. Various strategic conversations and conferences were initiated across different levels of staff and departments to encourage a wider exchange of ideas and to allow greater clarity in collectively defining our next moves forward. This resulted in revised Vision and Mission statements and the development of key strategic plans to facilitate our organisational excellence journey.

A renewed HSA Organisational Excellence Framework was also rolled out to achieve greater synergy across related organisational developmental initiatives and to strengthen people integration. The three pillars of excellence identified are:

- People Excellence
- Innovation Excellence
- Quality and Service Excellence

The framework focuses on putting the appropriate structures and systems in place to reinforce organisational culture; provide an optimum environment with the right conditions; and build competencies that will enable HSA to develop into an organisation capable of thriving in a future environment of greater complexities and challenges.

People Excellence

In recognition of their achievements, 15 HSA officers were conferred the National Day Awards 2006, which included the following three special awards:

- The Commendation Medal
  Ms Lim Chin Chin [CFS, ASG]

- The Efficiency Medal
  Ms Phang Chew Yen [CTM, HSG]
  Mrs Tan-Lee Ngak Lee [CFS, ASG]

- The Public Service Medal [PBM]
  Ms Daisy Ang [Corporate Communications, Corporate HQ]

In August 2006, Ms Goh Choo Neo, Human Resource Officer from Corporate HQ was awarded the Singapore Labour Foundation Educational Tours Award for Model Workers 2006.

During the year, 58 officers were promoted in recognition of their excellent performance. Long Service Awards were also presented to 92 officers.

Five staff members were posted overseas for training under the Ministry of Health's [MOH] Health Manpower Development Plan in countries that included the USA and Australia. Under the HSA's Professional Development Programme, 17 staff upgraded their academic qualifications.

Integrating Fun and Fitness at Work

As part of our commitment to encourage our staff to lead balanced and healthy lifestyles, activities such as Active Day, Fruit Day, and Games Day were held to strengthen staff bonding and promote healthy living.

Our efforts continue to be recognised and we have been commended with the Singapore H.E.A.L.T.H* Gold Award for the last two consecutive years.

We were also awarded the Ministry of Home Affairs Award for NS Men's Employers [Commendation] in September 2006 for supporting the National Service activities of our employees.

* Helping Employees Achieve Life-Time Health

Innovation Excellence through IT

During the year, we intensified Information Technology [IT] developments in the area of system applications as mapped out in HSA's four-year IT Master Plan.

Two key application projects, namely *LISA* [*Laboratory Information Scientific Administration*] and *FIONA* [*Forensic Integrated Operations Network Application*] are being developed for the Applied Sciences Group. When completed, both systems will help towards building a paperless environment and promoting greater automation through enhanced workflow.

To align with the Government directives for Web Interface Standard [WIS] and Web Content Accessibility Guidelines [WCAG], the HSA website underwent a revamp and the new website was successfully launched in August 2007.

In support of the drive towards a more synergistic public service through shared processes and systems, we also embarked on several shared IT and infrastructural initiatives projects.

We collaborated with the National Library Board [NLB] and three other public agencies – Health Promotion Board [HPB], Media Development Authority [MDA] and the Standards, Productivity and Innovation Board [SPRING] to implement a shared Corporate Resources System [CREST]. With CREST, the areas in the management of Human Resource, Finance, Procurement and Administration will be handled more efficiently.

We also leveraged on the MOH's Shared Infrastructural [MediNet] services, a centralised infrastructure for both website and Intranet management. To optimise resources and minimise overall maintenance cost, we are working closely with HPB and MOH to establish greater centralised services for network and facility management.

Quality and Service Excellence

Through the efforts of the Quality Service Committee, we have continually upgraded our service level and have created added value for customers through procedures and systems reviews.

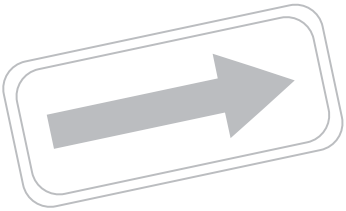
In July 2006, the Committee introduced a more user-friendly feedback form for customers to better assess the service received and provide suggestions for improvement.

We are guided by the Public Service "Minimum Service Standards". In the quarterly Mystery Customer Survey co-ordinated by the PS21 Office, we have consistently achieved a 100% satisfactory mark. An internal Frontline Customer Service Audit helps to maintain ongoing service standards.

During the year, we received 4,485 and 1,660 returns through feedback forms and email respectively.

To recognise staff members for their contribution in quality service and work improvement initiatives, the following awards were presented:

- Nine Quarterly Outstanding Service to Customer Awards [OSCA]
- One Annual OSCA Award
- One Team Outstanding Quality Improvement Award



Moving Forward

HSA will continually seek to strengthen our fundamentals – to make the organisation's Core Values resonate with all HSAians, and streamline and improve our processes further in support of HSA's overall organisational developments. To ensure better organisation-wide alignment of strategic directions and systems, we will be pursuing an integrated Organisational Excellence re-certification under the refined niche standards of I-Class and PDS. Together, we will transform aspirations into reality as we make HSA the leading innovative authority protecting and advancing national health and safety.

Crossing International Borders

International Visitors

Date	Visits By:
4 April 2006	Dr Margaret Stark, Past President, Association of Forensic Physicians, Principal Forensic Physician, Metropolitan Police; St George's Hospital Medical School, University of London
8 May 2006	Professor Randall Alberte, Director, Department of Biotechnology, Florida Gulf Coast University, USA
30 May 2006	Delegation from Rajamangala University of Technology, Thailand, led by Dr Philip John Barlow
12 - 16 June 2006	Mr Suteep Bussayamanont, Senior Pharmacist/Senior GMP Inspector; Mr Dumrong Thitikornkovit, Senior Pharmacist/Senior GMP Inspector; Mr Maitree Cheewakulprasit, Pharmacist/GMP Inspector; Mr Sermrat Chaiyakun, Pharmacist/GMP Inspector, Drug Control Division, Thai Food and Drug Administration
12 June - 9 July 2006	Mr Chang Hong-Tsang, Document Examiner, Forensic Science Division, Criminal Investigation Bureau, Taiwan, Republic of China
16 June 2006	11-member medical delegation from the Indonesian Red Cross
19 - 30 June 2006	Mr Chang Wei-Pin and Ms Liu Hui-Fen, Document Examiners, Laboratory Division, Investigation Bureau, Ministry of Justice, Taiwan, Republic of China
20 June 2006	• 4-member delegation from the Department of Scientific Services, Brunei • Professor Harry Fong, Professor Emeritus of Pharmacognosy, Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois, Chicago, USA
29 June 2006	Dra. Retno Utami, Head of Subdirectorate of Inspection and Certification of Manufacturing Control of Therapeutic Product and Household Product and Dra. Togi Hutadjulu, MHA, Quality Assurance Manager for GMP Unit, National Agency of Drug and Food Control, Indonesia

Date	Visits By:
3 July 2006	Mr Eric Davies, Forensic Firearms Investigator [Expert], Australian Federal Police and Sergeant Wayne Bennet, Ballistics Unit, Police HQ, Brisbane, Australia
5 July 2006	6-member medical delegation from the Pakistan Blood Bank
25 July 2006	Dr David Briggs, Director of the Office of Complementary Medicines, Therapeutic Goods Administration, Australia
31 July - 8 August 2006	Ms Rosni Jair, Acting Principal Pharmaceutical Chemist and Ms Zubaidah Mahmud, Scientific Officer, Drug Quality Control Section, Department of Pharmaceutical Services, Ministry of Health, Brunei
8 August 2006	10-member delegation from Brunei's Ministry of Health led by its Deputy Minister of Health Yang Berhormat Pehin Orang Kaya Pekerma Lela Diraja Dato Paduka Haji Hazair bin Haji Abdullah
23 August 2006	Sergeant Gerard Dutton, Officer-in-charge, Ballistics Section, Forensic Services, Tasmania Police, Australia
31 August - 1 September 2006	• Dr Richard Nesbit, Acting WHO-WPRO Regional Director • Dr Han Tieru, WHO Representative for Brunei Darussalam, Malaysia and Singapore
4 September 2006	• Dr Arthur J Eisenberg, Director, DNA Identity Laboratory, Health Science Centre, University of Texas, USA • Dr Bruce Budowle, Senior Scientist, Laboratory Division, Federal Bureau of Investigation, USA • Dr Budsaba Rerkamnuaychoke, Head, Human Genetics Unit, Department of Pathology, Faculty of Medicine, Ramathibodi Hospital, Thailand • Dr Nguyen Van Ha, Principal Investigator, DNA Lab, Institute of Forensic Science, Vietnam • Dr Herawati Sudoyo, Head, DNA Identification Unit, Eijkman Institute for Molecular Biology, Indonesia • Mr Lim Kong Boon, Branch Director, Department of Chemistry, Malaysia, Kuching, Sarawak

Date	Visits By:
19 September - 11 December 2006	4-member medical delegation from Regional Blood Transfusion Centres, Vietnam led by Professor Nguyen Anh Tri, Director, National Institute of Haematology and Blood Transfusion, Hanoi, Vietnam
27 September 2006	Dr Paul Coates, Director, Office of Dietary Supplements, National Institutes of Health, USA
27 - 28 September 2006	Dr Shaw Chen, Associate Director for Office for Drug Evaluation 1, Centre for Drug Evaluation and Research, Food and Drug Administration, USA
5 - 6 October 2006	Dr Mark Doverty, Assistant Secretary, Manufacturers Assessment Branch, Therapeutic Goods Administration, Australia
17 October 2006	Delegation from the Shanghai Innovation Research Centre for TCM, China
30 October - 10 November 2006	Mr Hu Jun, Chief of Division, Division of Evaluation I, Centre for Drug Evaluation, State Food and Drug Administration, China
17 November 2006	• Mr Ivan Ng Kuok Leong, Chief of Division of Pharmacovigilance & Pharmacoeconomics of the Government of Macau Special Administrative Region Health Bureau, China • 8-member delegation led by Mr Han Li Xin, Director, Economic Bureau, State Food and Drug Administration, China
20 - 21 November 2006	13-member delegation from Forensic Science Division, Criminal Investigation Bureau, Taiwan, Republic of China
28 November 2006	10-member delegation from Laboratory Division, Investigation Bureau, Ministry of Justice, Taiwan, Republic of China
29 November 2006	Dr Yin Hsin Ling, Institute of Forensic Medicine, Ministry of Justice, Department of Forensic Pathology, Taiwan, Republic of China
30 November - 1 December 2006	6-member delegation from the National Institute of Haematology and Blood Transfusion, Hanoi, Vietnam led by its Director, Professor Nguyen Anh Tri

Date	Visits By:
4 - 7 December 2006	7-member delegation from Ministry of Health, Indonesia
5 December 2006	Ms Su-Ryun Kim and Ms Sojin Sung, Pharmaceuticals Team, Korea Food and Drug Administration
13 - 14 December 2006	Mr Wang Ting-Cheng and Mr Chiang Shih Hung, Forensic Science Centre of Kaoshiung Municipal Police Headquarters, Taiwan, Republic of China
13 January 2007	Dr Elzaruta Arbain, Sub Directorate of Family Physician, Ministry of Health, Indonesia
8 February 2007	• Dr Panadda Silva, Director, Bureau of Laboratory Quality Standards, Department of Medical Sciences, Ministry of Public Health, Thailand • 4-member delegation from Ministry of Health, Brunei led by Minister of Health, Mr HE Pehin Dato Suyoi Osman
23 February - 2 March 2007	Professor Jeffrey McCullough, Director, Biomedical Engineering Institute, University of Minnesota, Minneapolis, USA
1 March 2007	Sergeant Mark Reynolds, Vice-President Region VI [Pacific Rim] Chapter, International Association of Bloodstain Pattern Analysts, Western Australia Police Service
6 March 2007	• Ms McSweeney Kim, Medical Technologist, Jakarta Embassy • Ms Nancy Manahan, Regional Director, US Embassy
9 March 2007	Mr Guy McCullough, National Quality & Systems Manager, Australian Red Cross Blood Service

Date	Visits By:
26 - 29 March 2007	• Mr Akira Miyajima, Chief Executive and Mr Shigeki Tsuda, Director, Internal Affairs & Human Resources Development Division, Pharmaceuticals and Medical Devices Agency, Japan • Mr Abida Syed M Haq, Principal Assistant Director, Centre for Organisational Development, National Pharmaceutical Control Bureau, Malaysia • Dr Husniah Rubiana, Head, Ms Kustantinah, Director, Control of Production of Therapeutic Product and Household Product and Ms Niniek Sudiyani, Director, Traditional Medicine, Food Supplement and Cosmetic Evaluation, National Agency for Drug and Food Control, Indonesia • Dr Siriwat Thiptaradol, Secretary General, Thai Food and Drug Administraion • Dr Precious Matsoso, Director, Technical Cooperation for Essential Drugs and Traditional Medicines, World Health Organisation
30 March 2007	• 8-member delegation from The International Association of Forensic Toxicologists [TIAFT], France led by its President, Dr Pascal Kintz • 24-member delegation from The National Institute of Haematology and Blood Transfusion, Hanoi, Vietnam led by its Director, Professor Nguyen Anh Tri

Discovering Uncharted Territories

Research Papers and Projects

Pharmaceuticals and Health-related Products Regulation

TITLE OF RESEARCH PAPER	AUTHOR[S]	PROFESSIONAL PUBLICATION
Drug-induced Liver Injury at an Asian Centre: A Prospective Study	Wai Chun Tao, Tan Bee Him, Chan Cheng Leng, Dede S. Sutedja, Lee Yin Mei, Christopher Khor & Lim Seng Gee	Liver International 2007; 27[4]: 465-74
Multistate Outbreak of Fusarium Keratitis Associated with Use of Contact Lens Solution	Chang DC, Grant B, Park Benjamin, et al & Chan Cheng Leng	Journal of American Association JAMA 2006; 296[8]: 953-63

TITLE OF RESEARCH PRESENTATION	AUTHOR[S]	PROFESSIONAL EVENT
Pharmacovigilance in Singapore	Chan Cheng Leng	Advanced Good Clinical Practice Course on Pharmacovigilance, Yong Loo Lin School of Medicine, National University of Singapore, 28 July 2006

Transfusion Medicine

TITLE OF RESEARCH PRESENTATION	AUTHOR[S]	PROFESSIONAL EVENT
Looking at Factors Governing Failure Rate in Phlebotomy	Loh Siew Leng, Toh Ching Lian, Norhayati Mohd Amir, Dr Mickey Koh & Dr Diana Teo	XXIV International Society of Blood Transfusion [ISBT] Regional Congress, Cape Town, 2 – 7 September 2006
A Haemovigilance Study of the Appropriateness of Fresh Frozen Plasma Transfusion in Singapore	Ramir Alcantara, Ng Heng Joo, Dr Mickey Koh & Dr Tan Hwee Huang	XXIV International Society of Blood Transfusion [ISBT] Regional Congress, Cape Town, 2 – 7 September 2006
Can the Minimum Donation Interval be Reduced Without Increasing the Threshold Haemoglobin Requirement? A Feasibility Study Using Serum Ferritin as an Indicator of Iron Stores	Dr Jharna N Shah, Dr Theyventheran T Devarajan, Toh Ching Lian & Dr Tan Hwee Huang	XXIV International Society of Blood Transfusion [ISBT] Regional Congress, Cape Town, 2 – 7 September 2006
Natural Killer Cells: Promising Candidates in Cancer Cell Therapy	Dr Garnet Suck	4th Annual Scientific Symposium on Transfusion Immunology and Related Topics: Cellular Therapy, Toronto, Canada, 16 September 2006

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
Development of a Multi-Centre Comprehensive Cellular Immunotherapy Programme	Dr Mickey Koh, Dr Marieta Chan, Dr Garnet Suck, Lim Tsyr Jong & Madelaine Niam

Transfusion Medicine [cont'd]

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR(S)
A Prevalence Study of Dengue Virus in Singapore Blood Donor Population	Dr Diana Teo, Sally Lam & Associate Professor Evelyn Koay
Study on the Efficacy of Inactivation of Dengue Virus by Photochemical Reaction Using Amotosalen [S-59] and UVA	Dr Mickey Koh, Sally Lam, Dr Ng Lee Ching, Tan Hwee Cheng & Tan Li Kiang
Development and Implementation of a Rh Anti-D Quantitation Procedure	Dr Marieta Chan, Michael Ng Weng Yik, Leou Kwee Kim, Kang Kok Sheng, Neo Theng Hee & Dr Diana Teo
Study on the Genotyping of Rhesus Genes RHD and RHCE in the Three Main Races of Singapore	Dr Marieta Chan, Michael Ng Weng Yik, Leou Kwee Kim, Kang Kok Sheng & Dr Diana Teo
Correlative Studies on Panel Reactive Antibody of Highly Sensitized Patient Performed by Complement-Dependent Cytotoxicity [CDC] and Flow Cytometry	Dr Marieta Chan, Phang Chew Yen, Lai May Ling, Tang Ei Mei & Dr Diana Teo
A Prevalence Study of West Nile Virus in Singapore Blood Donor Population	Sally Lam, Dr Lawrence Kiong, Lynn Wong & Ng Kooi Sim
Enhancing NK Cell Cytotoxicity to Improve Current Cancer Cell Therapies by Ex Vivo Stimulation with Neuropeptides	Dr Garnet Suck, Dr Mickey Koh, Dr Donald R. Branch, Dr Tan Suet Mien, Dr Linn Yeh Ching, Madelaine Niam & Lim Tsyr Jong

Forensic Medicine

TITLE OF RESEARCH PAPER	AUTHOR[S]	PROFESSIONAL PUBLICATION
Post-Anaesthetic Maternal Death in a Patient with Mediastinal Large B-Cell Lymphoma – A Case Report	Associate Professor Gilbert Lau	Med Sci Law 2007; 47: 74-8
Buprenorphine Related Deaths in Singapore	Dr Lai Siang Hui & Dr Teo Eng Swee	Annals, Academy of Medicine; 35[7]: 508-511, July 2006
Shaken Infants: Controversies and Medical Evidence Revisited	Dr Teo Eng Swee	SGH Proceedings Vol 16, No 1, pp 20–27, 2007
SARS-CoV Virus-Host Interactions and Comparative Etiologies of Acute Respiratory Distress Syndrome as Determined by Transcriptional and Cytokine Profiling of Formalin-Fixed Paraffin-Embedded Tissues	Baas T, Taubenberger JK, Chong PY, Dr Paul Chui & Katze MG	J Interferon Cytokine Res., 26[5]: 309-17, May 2006

TITLE OF RESEARCH PRESENTATION	AUTHOR[S]	PROFESSIONAL EVENT
The Role of the Forensic Pathologist in Disaster Victim Identification	Associate Professor Gilbert Lau	A Primer in Disaster Victim Identification [DVI], Singapore, 13 – 17 February 2006
The Therapeutic Imperative and Latrogenic Fatalities: A Forensic Perspective	Associate Professor Gilbert Lau	18th International Symposium on the Forensic Sciences, Fremantle, Australia, 4 April 2006
Buprenorphine Related Deaths in Singapore: A 24-Month Series	Dr James Sim, Dr Lai Siang Hui, Dr Yao Yi Ju, Dr Angeline Yap Tiong Whei & Dr Danny Lo Siaw Teck	EAFS 2006, Helsinki, Finland, 13 – 16 June 2006

Forensic Medicine [cont'd]

TITLE OF RESEARCH PAPER	AUTHOR[S]	PROFESSIONAL EVENT
Behind the Scenes: Medical Aspects of Mass Disaster Investigations	Dr Wee Keng Poh	Refresher Course for ITE - Care Officers, 3 November 2006
Ultrasound-Guided Intraparenchymal Implantation of Plasmid-Electroporated Primary Hepatocytes Function as Autologous Insulin-Secreting Bioimplants: Evidence of Metabolic Correction and Delayed Secondary Complications in a Pre-Clinical Porcine Model of Diabetes Mellitus	Nelson Chen KF, Wong Jen San, Irene Kee HC, Dr Lai Siang Hui, Dr Thng Choon Hua, Ng Wai Har, Robert Ng TH, Jaichandran Sivalingam, Jason Villano, Pierce Chow KH & Oi Lian Kon	4th International Huaxia Congress of Endocrinology, Hong Kong SAR, China, 15 - 18 December 2006
Thinking out of the Box – Building a BSL4 Post Mortem Facility	Dr Paul Chui	2nd Asia Pacific Biosafety Association Conference 2007, Shangri-La Hotel, Singapore, 7 – 8 March 2007
The Coroner's System of Medico-Legal Investigation of Obstetric Deaths in Singapore	Dr Wee Keng Poh	6th Singapore Congress in Obstetrics and Gynaecology, Conrad Centennial, Singapore, 23 March 2007

Forensic Science

TITLE OF RESEACH PAPER	AUTHOR[S]	PROFESSIONAL PUBLICATION
A Survey of Buprenorphine Related Deaths in Singapore	Dr Lai Siang Hui, Dr Yao Yi Ju & Dr Danny Lo Siaw Teck	Forensic Science International, 162[1-3], 80-86, 2006

Forensic Science [cont'd]

TITLE OF RESEARCH PAPER	AUTHOR[S]	PROFESSIONAL PUBLICATION
A Study on the Levels of Difficulty in the Simulation of Individual Characteristics in a Signature	Lee Gek Kwee, Yap Bei Sing, Yang Chiew Yung, Wong-Lee Lee Tiang, Tan Sock Kim & Tan Koon Puay	Journal of the American Society of Questioned Document Examiners, Vol. 9, No. 1, 29-36, 2006
An Isothermal Primer Extension Method for Whole Genome Amplification of Fresh and Degraded DNA: Applications in Comparative Genomic Hybridisation, Genotyping and Mutation Screening	Cheryl Lee IP, Leong Siew Hong, Adrian Png EH, Choo Keng Wah, Dr Christopher Syn Kiu-Choong, Dennis Lim TH, Law Hai Yang & Kon Oi Lian	Nature Protocols 1:2185-2194, 2006
An Isothermal Method for Whole Genome Amplification of Fresh and Degraded DNA for Comparative Genomic Hybridisation, Genotyping and Mutation Detection	Cheryl Lee IP, Leong Siew Hong, Adrian Png EH, Choo Keng Wah, Dr Christopher Syn Kiu-Choong, Dennis Lim TH, Law Hai Yang & Kon Oi Lian	DNA Research, 13:77-88, 2006
Sequence Polymorphism of the Mitochondrial DNA Hypervariable Regions I and II in 205 Singapore Malays	Wong Hang Yee, June Tang Sheau Wei, Dr Bruce Budowle, Marc W. Allard, Dr Christopher Syn Kiu-Choong, Tan-Siew Wai Fun & Dr Chow Shui Tse	Legal Medicine, 9:33–37, 2007

Forensic Science [cont'd]

TITLE OF RESEARCH PRESENTATION	AUTHOR[S]	PROFESSIONAL EVENT
Analysis of Paraquat in Postmortem Specimens of a Paraquat-Related Death by HPLC	Dr Yao Yi Ju, Tan Chyh Yeng, Leong Hsiao Tung, Koh Tian Hwee, Eugene Goh & Dr Danny Lo Siaw Teck	44th International Meeting of the International Association of Forensic Toxicologists [TIAFT], Ljubljana, Solvenia, 26 August - 1 September 2006
Simultaneous Determination of Newer Anti-Epileptic Drugs [AEDs] by Liquid Chromatography Mass Spectrometry [LC-MS]	Tan Chyh Yeng, Eugene Goh, Leong Hsiao Tung, Koh Tian Hwee, Lee Hong Kheng, Dr Danny Lo Siaw Teck & Dr Yao Yi Ju	44th International Meeting of the International Association of Forensic Toxicologists [TIAFT], Ljubljana, Solvenia, 26 August - 1 September 2006
The Singapore Police Force DNA Database	Tan-Siew Wai Fun, Crystal Lai Liang Sung, Simon Lim Eng Seng, Doreen Ng Kim Kim & Dr Chow Shui Tse	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
A Rapid and Simple Elution Method of DNA from FTA Classical Cards	Simon Lim Eng Seng, Tan-Siew Wai Fun & Dr Chow Shui Tse	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
Evaluation of the Use of AmpF/STR® Identifiler™ STR Loci for the Inference of Ethnic Origins of Forensic Unknown DNA Profiles in Singapore	Wong Hang Yee, Simon Lim Eng Seng, Tan-Siew Wai Fun & Dr Chow Shui Tse	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
Crime Scene Investigations	Dr Michael Tay Ming Kiong	4th NUS-HSA Joint Scientific Workshop, National University of Singapore, 10 May 2006
Causes of Failure of a Bungy Cord	Dr Michael Tay Ming Kiong, Lim Chin Chin, Su Wanjing, Wong Soon Meng & Chia Poh Ling	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007

Forensic Science [cont'd]

TITLE OF RESEARCH PRESENTATION	AUTHOR[S]	PROFESSIONAL EVENT
A Mango Bait, a Missing Girl and a Murder	Lim Chin Chin, Chow Yuen San, Chia Poh Ling, Lim Thiam Bon, Kuah Kim Lian, Kee Koh Kheng & Dr Michael Tay Ming Kiong	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
Forensic Analysis of Flesh and Flavor Compounds in Stone Fruits	Lim Chin Chin, Chia Poh Ling, Irene Tan, Su Wanjing & Dr Michael Tay Ming Kiong	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
Suspicious Fall of a Young Child from a Height	Dr Michael Tay Ming Kiong & Lim Chin Chin	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
Identifying Energetic and Hazardous Substances – the Singapore Experience	Dr Michael Tay Ming Kiong & Lim Chin Chin	First International CBRE Ops Conference, Singapore, 28 November – 1 December 2006

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
A Survey of the Abuse of Heroin in Singapore	Wendy Lim Jong Lee, Dr Angeline Yap Tiong Whei, Merula Mangudi, Tan Ying Ying, Wong Yen Ling, Song Shin Miin & Dr Lee Tong Kooi
A Survey of the Abuse of Cannabis in Singapore	Wendy Lim Jong Lee, Dr Angeline Yap Tiong Whei, Merula Mangudi, Tan Ying Ying, Wong Yen Ling, Song Shin Miin & Dr Lee Tong Kooi
Evaluation of Drug Testing Kits	Dr Angeline Yap Tiong Whei, Merula Mangudi, Rosalind Chia Sioh Chuang, Pang Shih Yun & Dr Lee Tong Kooi

Forensic Science [cont'd]

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
Simulation of Chinese Signatures Written in Regular Form	Lee Gek Kwee, Yap Bei Sing, Yang Chiew Yung, Wong-Lee Lee Tiang & Tan Sock Kim
Development of a SNP Detection Method in Forensic DNA Typing	Wong Hang Yee, Simon Lim Eng Seng & Tan-Siew Wai Fun
Synthesis and Characterisation of Urea Nitrate Explosive	Lim Chin Chin, Chia Poh Ling, Lim Thiam Bon, Vicky Chow Yuen San, Kuah Kim Lian, Kee Koh Kheng & Dr Michael Tay Ming Kiong
The Importance of Good GSR Contamination Prevention Practices in a Forensic Laboratory	Lee Lin Kiak, Vicky Chow Yuen San, Lim Chin Chin & Dr Michael Tay Ming Kiong
Application of Negative Chemical Ionisation to the Detection of High Explosives	Chia Poh Ling, Lim Chin Chin & Dr Michael Tay Ming Kiong
Raman and GC/MS Analysis of Lachrymatory Substances	Lim Chin Chin, Vicky Chow Yuen San, Chia Poh Ling, Su Wanjing, Irene Tan & Dr Michael Tay Ming Kiong

Analytical Science

TITLE OF RESEARCH PAPER/JOURNALS	AUTHOR[S]	PROFESSIONAL PUBLICATION
Electrospray Tandem Mass Spectrometric Investigations of Tadalafil and its Analogue	Zou Peng, Low Min Yong & Koh Hwee Ling	Rapid Communication in Mass Spectrometry, [20] 3488, 2006
Structural Identification of a New Acetildenafil Analogue Detected in a Premixed Bulk Powder	Zou Peng, Low Min Yong & Koh Hwee Ling	Food Additives and Contaminants, [23] 870, 2006
Determination of Sibutramine, its two Metabolites and one Analogue in a Herbal Product for Weight Loss by Liquid Chromatography Triple Quadrupole Mass Spectrometry and Time-Of-Flight Mass Spectrometry	Zou Peng, Sharon Oh Sze Yin, Joyce Kiang, Low Min Yong & Bosco Chen Bloodworth	Rapid Communication in Mass Spectrometry, [21] 614-618, 2007
Single Laboratory Validation of a Method for the Determination of Bisphenol A, Bisphenol A Diglycidyl Ether and its Derivatives in Canned Foods by Reversed-Phase Liquid Chromatography	Debbie Sun Cuilian, Leong Lai Peng, Philip John Barlow, Joanne Chan Sheot Harn & Bosco Chen Bloodworth	J. Chrom. A, 1129, 145-148, 2006
Determination of Isopropyl-9H-Thioxanthen-9-One in Packaged Beverages by SPE Clean-Up and Liquid Chromatography with Tandem Mass Spectrometry Detection	Debbie Sun Cuilian, Joanne Chan Sheot Harn, Dan Lu, Wendy Lee Hui Min & Bosco Chen Bloodworth	J. Chrom. A, 1143, 162-167, 2007
Environmental Toxicology and Health in Singapore	Bosco Chen Bloodworth, Rajasekhar Balasubramaniam, Lee Hian Kee, Jeffrey Obbard & Sam Kacew	Journal of Toxicology and Environmental Health, Part A, 69:1893, 2006

Analytical Science [cont'd]

TITLE OF RESEARCH PRESENATION	AUTHOR[S]	PROFESSIONAL EVENT
The Analysis of Multiple Mycotoxins in Food Matrices by HPLC/MS/MS	Lin Min Lee, Joanne Chan Sheot Harn & Bosco Chen Bloodworth	International Congress on Analytical Sciences [ICAS], Moscow, Russia, 25 – 30 June 2006
HPLC Analysis of Bisphenol A Diglycidyl Ether, Bisphenol F Diglycidyl Ether and Their Reaction Products in Canned Coatings and Food	Debbie Sun Cuilian	International Symposium on Chromatography, Copenhagen, Denmark, 21 – 25 August 2006
Determination of 2-Isopropyl Thioxanthone [ITX] in Food by SPE Cleanup and Liquid Chromatography with Tandem Mass Spectrometry Detection	Joanne Chan Sheot Harn	120th AOAC International Annual Meeting & Exposition, Minneapolis, USA, 17 – 21 September 2006
Detection of Irradiated Foods by Photostimulated Luminescence [PSL] and Thermoluminescence [TL] Techniques	Angela Li	HSA Professional Staff Seminar, 22 February 2007

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
Analysis of Metals, Inorganic and Organic Constituents in Water Samples	Dr Patrick Chow, See Phek Hah, Tan Buay Ting, Tan-Chew Kim Kee & Yuen Kim Loong
Development of Turbo Ionspray HPLC Tandem Mass Spectrometry Procedures to Determine Bisphenol A and Related Substances in Canned Foods	Joanne Chan Sheot Harn, Dr Loke Swee Leng, Lee Lin Min, Yap Wee Kim & Debbie Sun Cuilian
Pressurized Solvent Extraction of Food	Debbie Sun Cuilian, Joanne Chan Sheot Harn & Wendy Lee Hui Min

Analytical Science [cont'd]

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
Analysis of Brominated Flame Retardants in Food	Joanne Chan Sheot Harn, Wendy Lee Hui Min, Lee Lin Min, Lim Thye Hin, Debbie Sun Cuilian & Angela Li
Dissolution of Fungicides in Chopsticks	Angela Li, Poon-Yeo Siew Lan & Lai Kit Kee
Mycotoxins in Chinese Herbs	Debbie Sun Cuilian, Joanne Chan Sheot Harn, Lim Ze Wei, Serene Toh Hwee Khim, Lai Kit Yee & Wendy Lee Hui Min
Determination of Pyrrolizidine Alkaloids in Chinese Herbs and Chinese Proprietary Medicine	Joyce Kiang, Low Min Yong, Sharon Oh Sze Yin, Tiong Chai Ling & Tan-Yio Oon Boon
Determination of Organovhlorine and Organophorus Pesticide Residues In Chinese Proprietary Medicine	Low Min Yong, Sharon Oh Sze Yin, Joyce Kiang, Tan-Yio Oon Boon & Len Shea Mei
Determination of Cadium in Herbal Products by Microwave Digestion with Inductively Coupled Plasma – Mass Spectroscopy	Sharon Oh Sze Yin, Heeiah Gek Keow, Ng Wai Har, Len Shea Mei & Tan-Yio Oon Boon
Pressurized Solvent Extraction Combined with LC-MS/MS for Determination of Naturally-Occurring Toxic Alkaloids in Herbal Medicines	Low Min Yong, Sharon Oh Sze Yin, Joyce Kiang, Tan-Yio Oon Boon, Lim Meiyu & Tiong Chai Ling
Analysis of Organic Arsenic in Health Supplements by HPLC-ICP/MS	Low Min Yong, Sharon Oh Sze Yin, Joyce Kiang & Tan-Yio Oon Boon

Analytical Science [cont'd]

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
Screening of Western Drugs Adulterants in Capsule Shells	Low Min Yong, Sharon Oh Sze Yin, Joyce Kiang & Chay Lai Fong
Study on Pesticide Residues in Chinese Proprietary Medicines	Low Min Yong, Sharon Oh Sze Yin, Joyce Kiang & Lim Meiyu
Quantification of Prohibited and Restricted Hair Dyes in Cosmetic Products Using Chromatographic Techniques Coupled with Diode Array Detection	Cheah Nuan Ping, Low Min Yong & Faridatul Akmam Morsed
Tar and Nicotine Survey of Cigars on Sale in Singapore	Cheah Nuan Ping, Faridatul Akmam Morsed & Gomathi Bala
Simultaneous Quantitation of Lead, Copper, Arsenic, Cadmium and Thallium Using Microwave Digestion Coupled with Flow Injection Analysis System – Inductively Coupled Plasma Mass Spectrometry in Cosmetic Product	Cheah Nuan Ping, Wong-Neo Geok Eng, Faridatul Akmam Morsed & Gomathi Bala


The fundamental strategic and structural changes that HSA has undergone have strengthened us for our ongoing vision journey to become the leading innovative authority in the protection and advancement of national health and safety. We advance with renewed vigour on the strategic route we have mapped out, confident in our purpose and direction.

HSA Annual Report 2006/07 Editorial Team

Advisors : Dr John Lim • Dr Diana Teo

Managing Editor : Vivian Heng

Editors : Anita Sim • Lily Lim

Members : Christina Chay • Elaine Tan • Annie Tan • Ng Kooi Sim • Cheah Nuan Ping
Dr Lai Siang Hui • Yang Chiew Yung • Joyce Nang • Stephanie Wai
Ng Soon • Chan Chin Wai • Teo Lean Whee

Editorial Co-ordinator : Vivien Tan

THE HSA JOURNEY

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THE HSA Journey

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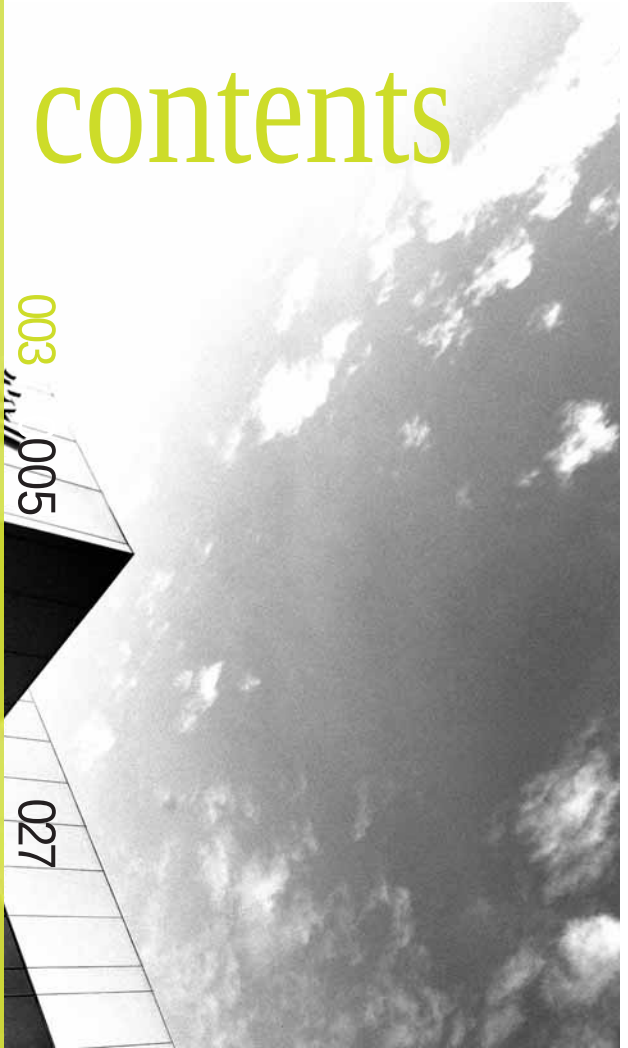


vision:

To be the
leading innovative authority
protecting and advancing
national health and safety

mission:

- To wisely regulate health products
- To serve the administration of justice
- To secure the nation's blood supply
- To safeguard public health

values:

- We are committed to professional excellence
- We create value for our clients
- We uphold our professional integrity
- We value and nurture our staff
- We encourage innovation and enterprise

A STATUTORY BOARD OF THE MINISTRY OF HEALTH
THE SINGAPORE PUBLIC SERVICE: INTEGRITY, SERVICE, EXCELLENCE

Chairman's Foreword


HSA

HSA has come through its initial birth pangs and now stands poised at a new threshold to pursue its vision to be the leading innovative authority protecting and advancing national health and safety.

To attain global excellence and inspire trust as a world-class scientific organisation and authority, HSA must establish thought leadership across its unique blend of regulatory and scientific expertise. We seek new synergies across the professional knowledge and skills embodied in our critical resource – our people. As we move forward, our focus will also be on forging strong partnerships with key counterparts abroad, leveraging on technology innovation and driving knowledge transfer.

Even as they explore innovative modes of collaborative integration, HSA's three professional groups do face some unique challenges. The Health Products Regulation Group will look to harnessing IT solutions to innovatively stretch the scope of pharmacovigilance, enhance the efficient processing of regulated products to maximise review procedures and minimise delay, and develop new regulations in product areas such as cell therapy and complementary medicine while enhancing the regulation of generic products. The Health Services Group will endeavour to ensure an ongoing, sustainable adequate and safe blood supply to meet Singapore's future needs, embrace technological advancement and innovation, and explore new aspects of cell-processing. The Applied Sciences Group will leverage on technological advancements and scope out new areas that build on its current forensic and analytical science base, such as in the area of chemical metrology.

The challenges we face on our journey forward can be successfully overcome if HSA operates as a united entity and adopts a "can do" mindset across its professional and corporate groups at all levels.

I am more than confident that HSA will not just grow into but will flourish as a regulatory and scientific organisation that embodies intelligence, efficiency, clarity and integrity. It will become an exemplary agency that will not only positively impact the health and safety of Singaporeans, but also world public health.

Professor Edison Liu
Chairman

CEO's Preface

The past year has again been an eventful one for HSA as we advanced on our vision journey. We are delighted to work with our new Board, under the Chairmanship of Professor Edison Liu. With the completion of our envisioning exercise in mid 2006, and our strategic regrouping into the Corporate HQ and three professional groups - Health Products Regulation, Health Services and Applied Sciences - HSA looks ahead with optimism to all the possibilities that await us on the road ahead.

I am continually encouraged by the commitment and quality of our people, who demonstrate tremendous dedication and potential. Across the professional groups, exciting possibilities exist to develop new synergies for growth with the diversity of scientific and professional expertise that currently exists in HSA, as well as new skill sets that will come in over time. HSA is a distinctive organisation encompassing important functions normally found in a number of different counterpart agencies overseas. We therefore have unique opportunities to develop innovative regulatory and scientific frameworks that could serve as new paradigms for the future. This fits in well both with our fundamental role as a public sector organisation protecting and advancing our nation's public health and the Singapore Public Service's increasingly global orientation.

In order for this to come about, reviewing and clarifying our Core Values is a critical enabler to make HSA a Trusted, Teamed and Transforming authority. The organisational and individual congruence we need to enable us to accomplish our Vision and Mission must stem from a clear sense of our identity and purpose.

Therefore, the strengthening and development of a strong and sound organisational culture is one clear focus for the year ahead, even as we continue to refine and implement our strategic plans. We have also identified key organisational initiatives in the areas of enhancing our pro-enterprise orientation, reviewing our costing and pricing framework, and re-engineering key processes. In recognition of the value we accord to our people, a significant HR review is also ongoing to ensure that HSA can attract the right people, retain them through performance and innovation recognition rewards, and develop them to their full potential.

The HSA Journey is one of transforming possibilities into realities. The strong support of all HSA staff, our parent Ministry of Health and the HSA Board, combined with our understanding of the critical role we play in safeguarding the health and safety of Singaporeans and the potential we have to extend our role as a global citizen, all combine to energise and motivate us for the journey ahead.

Dr John Lim
Chief Executive Officer

HSA Board

Chairman

01. Professor Edison Liu
Executive Director
Genome Institute of Singapore

Board Members

02. Professor Low Teck Seng
Principal & CEO
Republic Polytechnic

03. Dr Jennifer Lee
Director [Health Services Integration]
Ministry of Heath

04. Dr Lee Chien Earn
Senior Director [Healthcare Performance Group]
Ministry of Heath

05. Professor Walter Tan
Medical Director
Raffles Hospital

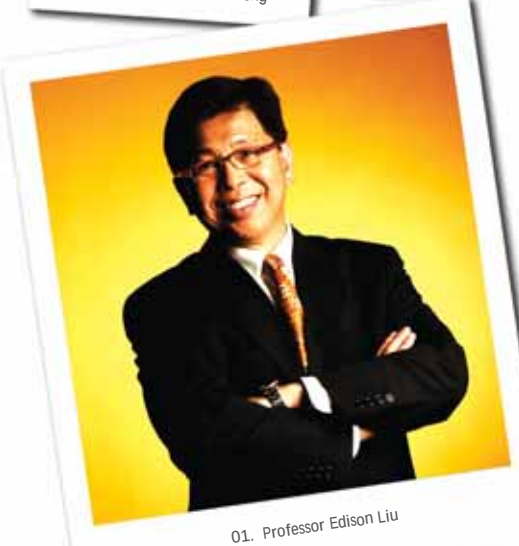
06. Dr Chong Yoke Sin
Chief Executive Officer
NCS Group

07. Professor Alastair Campbell
Director, Centre for Biomedical Ethics
Yong Loo Lin School of Medicine
National University of Singapore

08. Mr Khoo Chow Huat
Group Director [Policy]
People's Association

02. Professor Low Teck Seng

03. Dr Jennifer Lee



01. Professor Edison Liu

04. Dr Lee Chien Earn

05. Professor Walter Tan

08. Mr Khoo Chow Huat

07. Professor Alastair Campbell

06. Dr Chong Yoke Sin

HSA Board Committees

Audit Committee

• Professor Low Teck Seng	Chairman
• Professor Walter Tan	Member
• Mr Khoo Chow Huat	Member

Staff Establishment Committee

• Dr Jennifer Lee	Chairman
• Professor Low Teck Seng	Member
• Mr Khoo Chow Huat	Member
• Professor Alastair Campbell	Member

Finance Committee

• Dr Chong Yoke Sin	Chairman
• Dr Jennifer Lee	Member
• Dr Lee Chien Earn	Member

Board Changes

We would like to express our deepest appreciation to Professor Lim Mong King for his leadership as the second Chairman of HSA for the last four years and as a Board Member since HSA's inauguration. We are also very grateful to Mr Giam Chin Toon, Mr Khoo Chin Hean, Professor Edmund Lee, Mr Lim Hock San, Mr Ng Wai Choong and Ms Olivia Lum for their stewardship of HSA as Board Members and who stepped down with effect from 31 March 2007.

We congratulate Professor Edison Liu on his appointment as our new Chairman with effect from 1 April 2007, after serving as our Deputy Chairman for a year. We are happy to have Professor Low Teck Seng, Dr Jennifer Lee and Dr Lee Chien Earn continue as Board Members, and extend a warm welcome to our new Board Members: Professor Walter Tan, Medical Director of Raffles Hospital; Dr Chong Yoke Sin, Chief Executive Officer of NCS Group; Professor Alastair Campbell, Director of the Centre for Biomedical Ethics at the National University of Singapore, and Mr Khoo Chow Huat, Group Director [Policy] of People's Association. Together, they will help define HSA's strategic directions for the next phase of our journey.

HSA Leadership

as at july 2007

Front [Left to Right] :

Dr Diana Teo
- Senior Director, Health Services Group
- Director, Centre for Transfusion Medicine

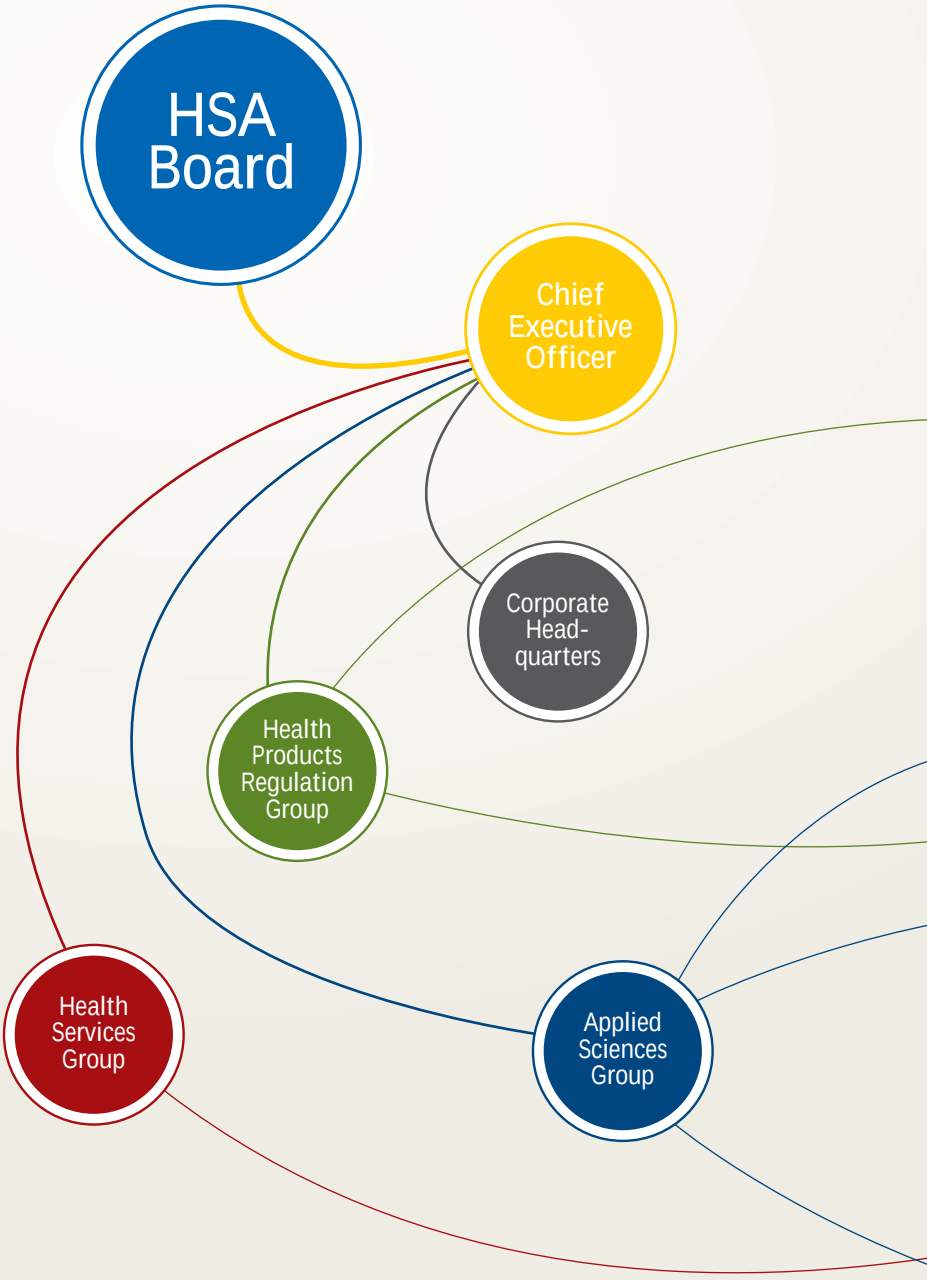
Dr Paul Chui
- Senior Director, Applied Sciences Group
- Director, Centre for Forensic Medicine

Back [Left to Right] :

Professor Bosco Chen Bloodworth
- Director [Quality]/Quality Service Manager
- Director, Centre for Analytical Science

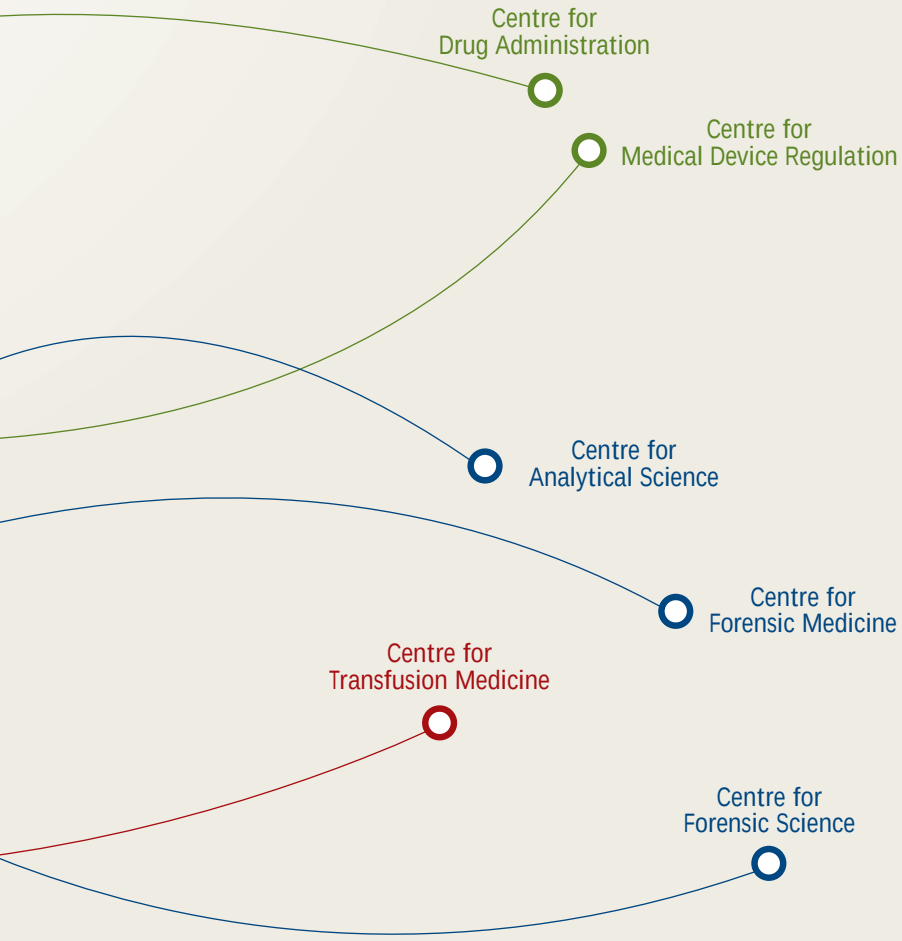
Dr John Lim
- Chief Executive Officer
- Senior Director, Health Products Regulation Group

Dr Christina Lim
- Administrator, Health Products Regulation Group
- Senior Advisor, International Collaboration


HSA Board
Chief Executive Officer
Corporate Head-quarters
Health Products Regulation Group
Health Services Group
Applied Sciences Group

Organisation Chart

wef july 2007



Principal Officers

wef july 2007

CORPORATE HEADQUARTERS

CEO'S OFFICE

- CORPORATE PLANNING
  Deputy Director
  Ms Lim Peck Seah

- CORPORATE OPERATIONS
  Deputy Director
  Dr Lam Kian Ming

- CORPORATE DEVELOPMENT
  Deputy Director
  Ms Maureen Goh

- INTERNATIONAL COLLABORATION
  Senior Advisor
  Dr Christina Lim

QUALITY
Director/Quality Service Manager
Professor Bosco Chen Bloodworth

LEGAL
Legal Counsel
Ho Meng Hee

CORPORATE COMMUNICATIONS
Deputy Director
Mrs Vivian Heng

CORPORATE SERVICES
Deputy Director
Chua Hong Tong

FINANCE
Deputy Director
Ms Grace Chan

HUMAN RESOURCE
Deputy Director
Mrs Sarojini Padmanathan

INFORMATION MANAGEMENT
Deputy Director
Chan Chin Wai

HEALTH PRODUCTS REGULATION GROUP CDA | CMDR

Senior Director
Dr John Lim

Administrator
Dr Christina Lim

Senior Advisor
Wong Yew Sin

Strategic Planning Office
Deputy Director
Mdm Suwarin Chaturapit

Head, Policy & Planning
Ms Lee Hui Keng

Head, Legislative Policy
Kelvin Tan

CENTRE FOR DRUG ADMINISTRATION

Senior Deputy Director
Yee Shen Kuan

Product Evaluation & Registration Division
Head, Drug Registration
Dr Lu Set

Head, Clinical Trials Branch
Foo Yang Tong

Head, Regulatory & Project Management
Tan Tek Seng

Compliance & Complementary Medicines Division
Complementary Medicines Branch
Deputy Director, Complementary Medicines Branch & Head, Cosmetics Control Unit
Mrs Marie Tham

Head, Chinese Proprietary Medicines Unit
Ms Chu Swee Seng

Head, Health Supplements Unit
Chao Ye Peng

Compliance Branch
Head, Prosecution Unit
Kelvin Tan

Head, Investigation & Surveillance Unit
R. Sivalingam

Head, Tobacco Regulation Unit
Tham Lup Hong

Manufacturing & Quality Audit Division
Deputy Director &
Head, Good Manufacturing Practice Unit
Sia Chong Hock

Head, Good Distribution Practice Unit
Ms Hui Foong Mei

Head, Certification Unit
Dr Lai Weng Fai

Head, International Operations Unit
Boon Meow Hoe

Pharmacovigilance, Communications & Research Division
Deputy Director
Mdm Suwarin Chaturapit

Assistant Director
Ms Chan Cheng Leng

Head, Pharmacovigilance Unit &
Head, Information & Research Unit
Ms Chan Cheng Leng

CENTRE FOR MEDICAL DEVICE REGULATION
Manager
Alfred Kwek

Manager
Seet Wing Gang

HEALTH SERVICES GROUP
CTM

Senior Director
Dr Diana Teo

CENTRE FOR TRANSFUSION MEDICINE
Director
Dr Diana Teo

Deputy Director, Laboratories & Clinical Service
Dr Mickey Koh

Deputy Director, Blood Resources
Dr Tan Hwee Huang

Scientific Head, Blood Processing, Testing & Inventory
Ms Sally Lam

Scientific Head, Hospital Services
Dr Marieta Chan

Head, Blood Programme Support
Ms Koh Geok Tin

Quality Manager
Ms Panneer Selvi Govindaraju

Head, Blood Collection
Ms Toh Ching Lian

Laboratory Manager, Blood Processing, Testing & Inventory
Ng Kok Quan

Laboratory Manager, Hospital Services
Ms Leou Kwee Kim

APPLIED SCIENCES GROUP
CAS | CFM | CFS

Senior Director
Dr Paul Chui

CENTRE FOR ANALYTICAL SCIENCE
Director
Professor Bosco Chen Bloodworth

Head, Planning, Research & Development Unit & Quality Manager
Ms Cheah Nuan Ping

Head, Quality and Infrastructure Support Unit & Deputy Quality Manager
Ng Soon

Food Division
Deputy Director
Ms Joanne Chan

Head, Food Laboratory & Head, Water Testing Laboratory
Ms Joanne Chan

Pharmaceutical Division
Deputy Director & Head, Pharmaceutical Laboratory
Ms Low Min Yong

Head, Cosmetics Laboratory & Head, Cigarette Testing Laboratory
Ms Cheah Nuan Ping

CENTRE FOR FORENSIC MEDICINE
Director
Dr Paul Chui

Deputy Director & Head, Professional Standards
Associate Professor Gilbert Lau

Principal Forensic Consultant
Dr Wee Keng Poh

Consultant Forensic Pathologist & Head, Professional Training & Education
Dr Lai Siang Hui

Consultant Forensic Pathologist & Head, Research
Dr George Paul

Consultant Forensic Pathologist
Dr Teo Eng Swee

CENTRE FOR FORENSIC SCIENCE
Physical Evidence Division
Deputy Director & Head, Criminalistics Laboratory
Dr Michael Tay Ming Kiong

Head, DNA Profiling Laboratory & Head, DNA Database Laboratory
Mrs Tan Wai Fun

Head, Document Examination Laboratory
Ms Lee Gek Kwee

Drugs & Toxicology Division
Deputy Director & Head, Narcotics I Laboratory
Dr Lee Tong Kooi

Head, Narcotics II Laboratory
Dr Lui Chi Pang

Head, Toxicology Laboratory
Dr Yao Yi Ju

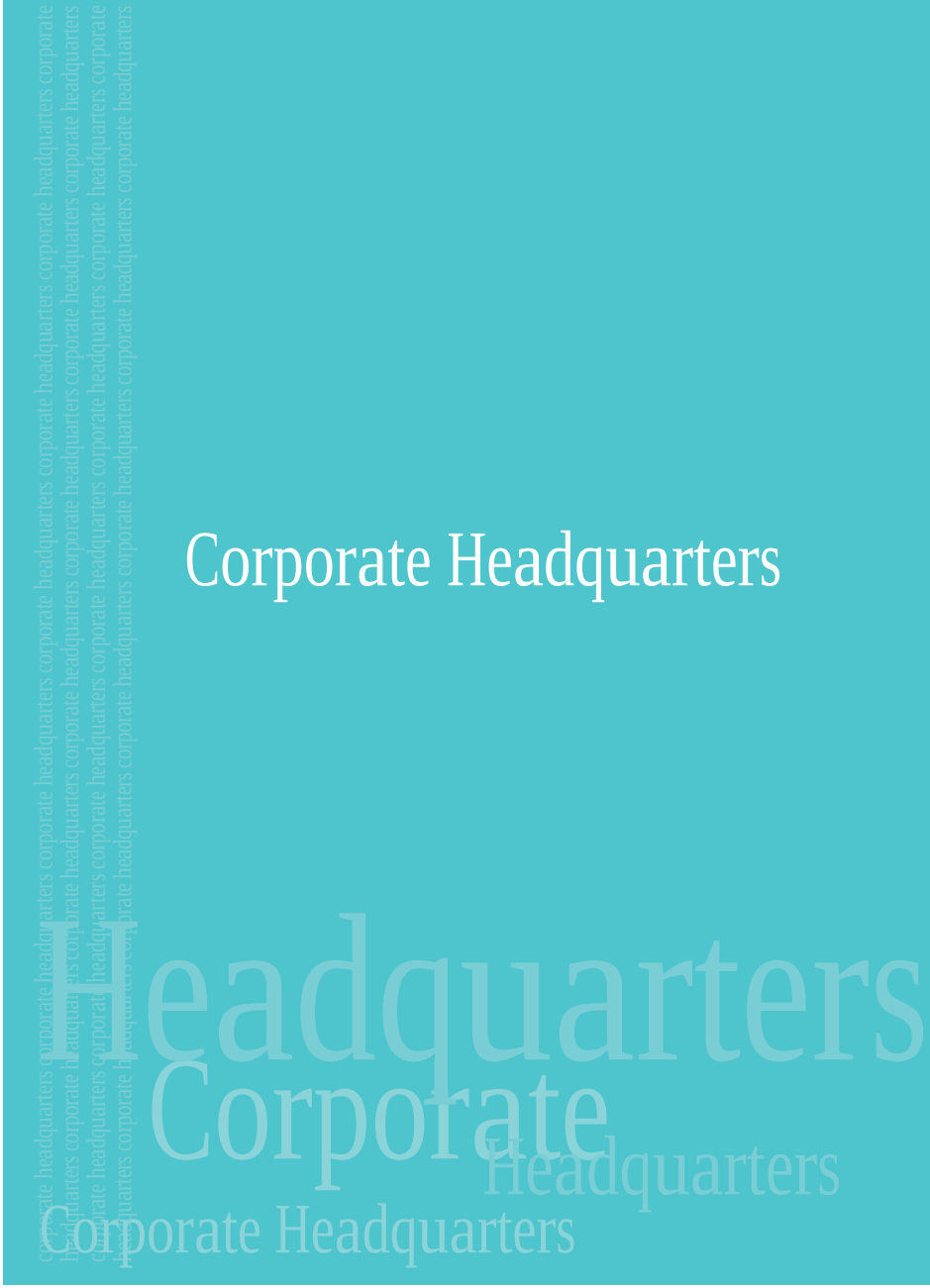
Retirements

After long and illustrious careers that spanned more than 30 years, two of our Centre Directors, Mr Wong Yew Sin and Dr Chow Shui Tse, officially retired from the Singapore Public Service in January and March 2007 respectively.

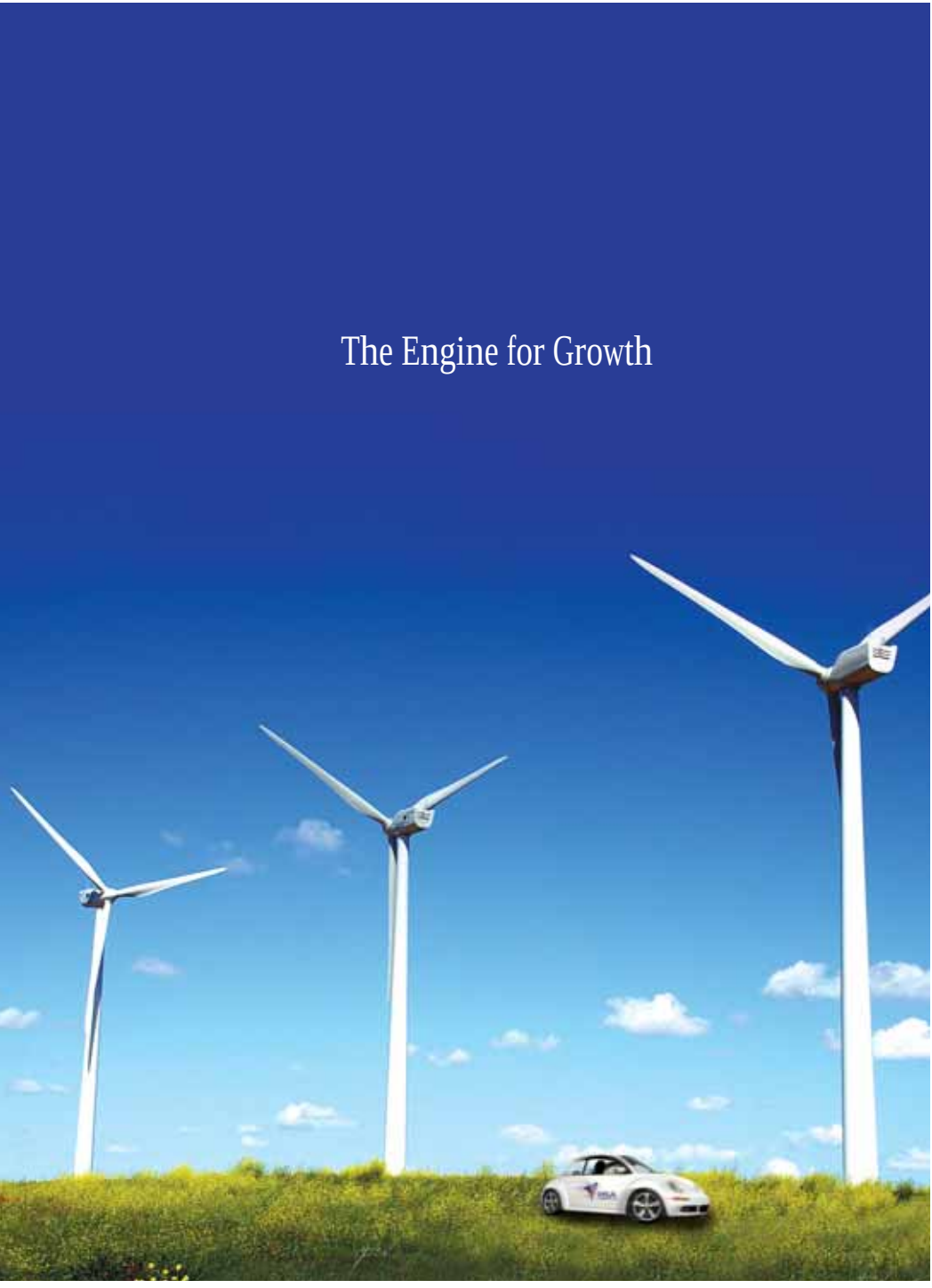
Mr Wong was the Director of the Centre for Medical Device Regulation [CMDR], Health Products Regulation Group since HSA's inception in 2001. In his scientific service career, he received several awards and was conferred the prestigious Public Service Medal [Silver] in 1995. He has represented HSA at various national scientific committees and played a key role in regional and international meetings on medical devices. He continues to serve as a Special Advisor in the Health Products Regulation Group on a part-time basis.

Dr Chow was the Director of the Centre for Forensic Science [CFS], Applied Sciences Group, also from HSA's inception. Across his forensic science career, he was instrumental in building up CFS and its predecessor departments to world-class standards. Under his leadership, CFS gained international recognition for its forensic science capabilities and quality. It is among the few forensic science centres in the region to be accredited by the *American Society of Crime Laboratory Directors/ Laboratory Accreditation Board* [*ASCLD/LAB*] since 1996.

Corporate Headquarters



The Engine for Growth



THE HSA Journey

To:

Front [Left to Right] :
Ms Maureen Goh
Mrs Sarojini Padmanathan
Chua Hong Tong
Ms Lim Peck Seah

Back [Left to Right] :
Mrs Vivian Heng
Dr Lam Kian Ming
Chan Chin Wai
Ms Grace Chan
Ho Meng Hee

Our Corporate Headquarters [HQ] - comprising the offices of Corporate Planning, Corporate Operations, Corporate Development, International Collaboration, Quality, the Legal Counsel, Corporate Communications, Corporate Services, Finance, Human Resource [HR] and Information Management supports HSA as a whole in achieving its vision, mission and goals through strategic co-ordination, reliable systems, effective policies and efficient processes.

In the past year, the Corporate HQ has seen a number of changes in its reporting structure and grouping of capabilities to strengthen its overall effectiveness. Four taskforces were formed and consultants were brought in to review and recommend enhancements to make the corporate systems relevant and prepared for new frontiers. The taskforces, headed by the Senior Directors and comprising representatives from both the Corporate HQ and professional groups, meet on a regular basis to review the four key areas of pro-enterprise, HR strategies and plans, business processes, and pricing and costing.

Though newly established, the initiatives of these taskforces have been significant. The HR Strategy and Planning Taskforce, for example, is the key driving force behind the current and fundamental HR compensation and performance review in HSA. The Pricing and Costing Taskforce has initiated a study to review the key costing assumptions and operational issues, while the Pro-enterprise Taskforce is rolling out initiatives to increase the interfacing with our stakeholders.

These new efforts, together with our continuous striving for quality and standards, aim to make the Corporate HQ a strong, trusted and thriving arm of HSA to effectively co-ordinate and partner with the three professional groups as the whole organisation progresses forward on its journey towards excellence.

Corporate Governance Statement

The Board and Management are committed to maintaining a high standard of corporate governance and endorse the recommendations of the Code of Corporate Governance. The Board believes that good governance is essential to enhancing corporate performance and accountability, ensuring transparency and protecting stakeholders' interests at all times. Our stakeholders include the Ministry of Health, Ministry of Finance, other government agencies, industry, clients, suppliers and the public at large.

This statement outlines the main corporate governance practices of the organisation that are in place.

The Board

The Board comprises the Chairman and seven members who are appointed by the Minister for Health for a 3-year term. The Board meets every two months to set strategic directions and to formulate policies, as well as to assume the role of monitoring and reviewing of policies leading to improved management and outcomes.

Board Members' Remuneration

HSA follows the Government's Directorship and Consultancy Appointments Council (DCAC) guidelines in determining the remuneration of the Board Members.

Notice and Declaration of Directorships and Interest in Shares and Debentures

Board Members are required to declare their directorships in various organisations and their interests in shares and debentures in various corporations. Board Members are deemed to be interested in any transactions which may be made by and between such corporations.

Accountability and Audit

The Senior Management Team is accountable to the Board and the Board is accountable to the Minister for Health. The Board is furnished with complete and adequate information in a timely manner to allow the Board to discharge its duties properly. Senior management staff are invited to give briefings and to answer any queries that the Board may have on the operations and planning of the organisation.

For Accountability purposes, the Board has established the following sub-committees:

(a) The Audit Committee

This Committee assists the Board in reviewing and assuring itself of the adequacy of internal accounting controls and financial reporting controls. It meets at least twice a year with the Management and auditors to determine the scope of the external and internal audit and to review the findings of the auditors.

(i) Internal Audit

HSA has engaged an external party to provide the internal audit function on an annual basis. To date, internal audit has covered areas such as the Inventory and Procurement processes, Billings and Collections, Human Resource and Payroll, Accounts Payable, and Fixed Assets.

(ii) External Audit

The external statutory audit of the financial statements has been conducted by Ernst & Young. They commenced their assignment in 2006 for the FY2006 financial statements.

(b) The Staff Establishment Committee

The Staff Establishment Committee assists the Board in reviewing the adequacy of staffing numbers and budgets to meet operational needs and of Human Resource Policies for compensation and benefits. It oversees some staff matters such as the appointment of senior management positions.

(c) The Finance Committee

This Committee assists the Board in ensuring that financial resources are managed and utilised prudently and in the most effective and efficient manner, contributing towards the organisation's overall mission.

Communication with Stakeholders

The Professional Centres conduct regular consultations with the industry and their clients, seeking to keep them informed of new directions and regulations, and to listen to their concerns. HSA publishes an annual report to meet statutory requirements and to provide information to our stakeholders.

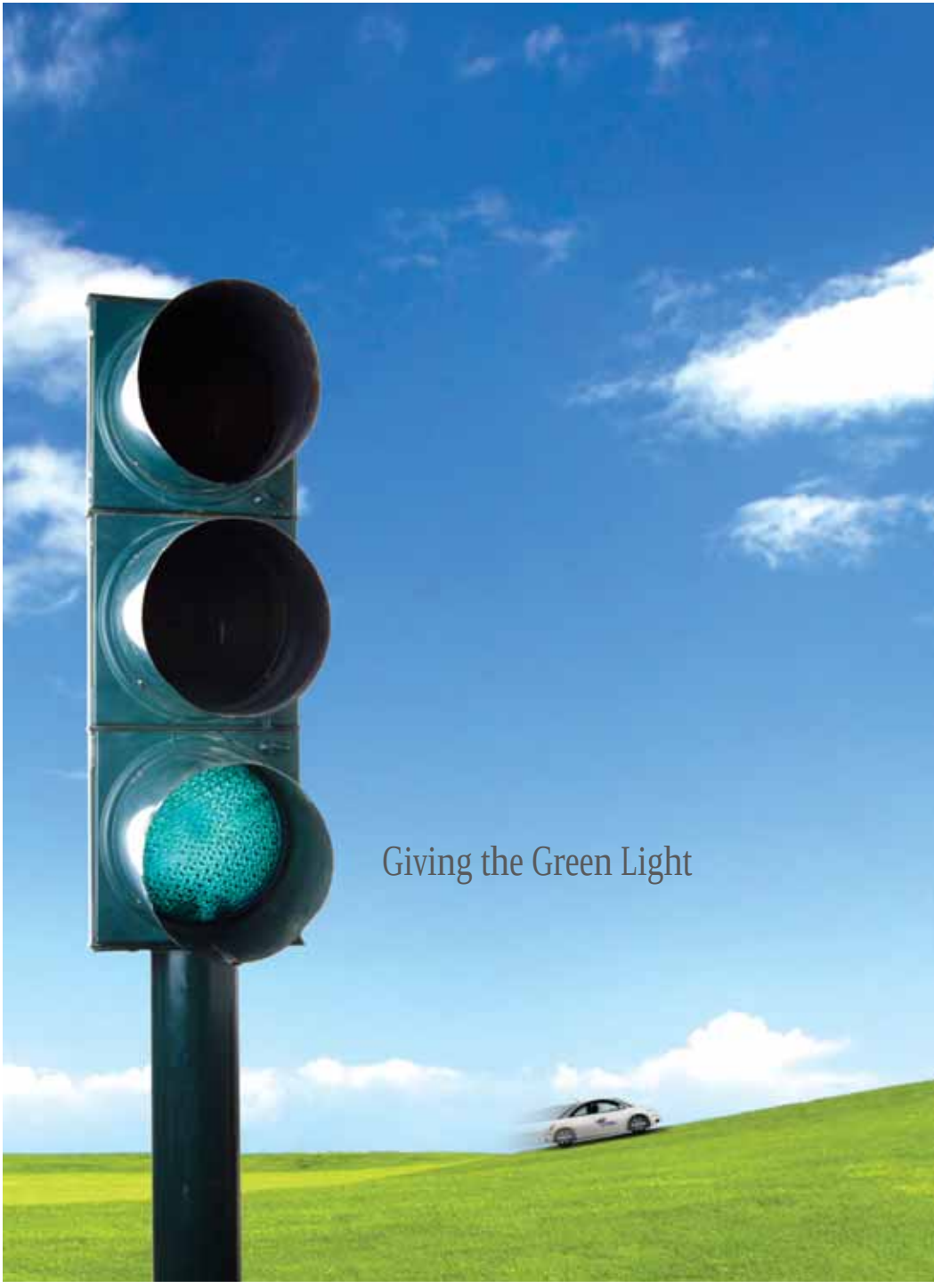
In addition, regular updates on matters of interest to our stakeholders are posted on our internet website. Our Quality Service Manager promptly handles all feedback and queries received from interested parties.

Code of Business Conduct

The Board, officers and employees are required to observe and maintain high standards of integrity, and are in compliance with the law and government regulations, and organisation policies.

Risk Management

The Management is continually reviewing and improving the business and operational activities to identify areas of significant business risks as well as appropriate measures to control and mitigate these risks. The Management also reviews all significant control policies and procedures and highlights all significant matters to the Board and the Audit Committee.


Giving the Green Light

We ensure that drugs, innovative therapeutics, medical devices, and health-related products in Singapore are wisely regulated to meet appropriate standards of safety, quality and efficacy.

Health Products Regulation Group

- CENTRE FOR DRUG ADMINISTRATION
- CENTRE FOR MEDICAL DEVICE REGULATION
- CENTRE FOR RADIATION PROTECTION*

CMDR CRP CDA

* With effect from 1 July 2007, the Centre for Radiation Protection has been transferred to the National Environment Agency and renamed as the Centre for Radiation Protection and Nuclear Science.

THE HSA Journey

To:

Front [Left to Right] :
Ms Chu Swee Seng
Yee Shen Kuan
Mrs Marie Tham

Back [Left to Right] :
Alfred Kwek
Seet Wing Gang
Chao Ye Peng
Kelvin Tan
Tham Lup Hong
R. Sivalingam

THE HSA Journey

To:

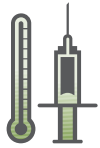
Front [Left to Right] :
Ms Lee Hui Keng
Mdm Suwarin Chaturapit
Sia Chong Hock
Ms Chan Cheng Leng

Back [Left to Right] :
Dr Lu Set
Dr Lai Weng Fai
Ms Hui Foong Mei
Boon Meow Hoe
Foo Yang Tong
Ho Yu Nam

New Drugs Registered
52

Chinese Proprietary Medicines Listed
1,340

Cosmetic Products Registered
7,983



Medical Devices Listed*
4,376

Irradiating Apparatus & Radioactive Materials Licensed
30,120

Clinical Trials Approved
217

Medical Advertisement Permits Issued
1,306

Site Audits Conducted for Good Manufacturing & Good Distribution Practices
468

Premises, Dealers, Importers & Exporters Licensed/Certified**
3,896

Tobacco Retail Outlets Licensed
916

Products Recalled
42

Adverse Drug Reaction Reports Received
11,984

* as at 31 March 2007
** includes new, renewal and amendment applications

Driving New Standards in Professional Excellence

Our Centre for Drug Administration [CDA] regulates medicinal products, complementary health products, cosmetics and tobacco products in Singapore. It administers and enforces the Medicines Act, Poisons Act, Sale of Drugs Act, Medicines [Advertisement and Sale] Act and Misuse of Drug Regulations and Smoking [Control of Advertisements and Sale of Tobacco] Act. A robust framework comprising pre- and post-marketing regulatory activities is applied. This comprises pre-market evaluation, licensing and certification activities, on-going post-marketing monitoring through inspections and surveillance, and Adverse Drug Reactions [ADRs] Reporting to track continued standards of products marketed in Singapore.

Our Centre for Medical Device Regulation [CMDR] has administered the interim Voluntary Product Registration Scheme [VPRS] for higher-risk medical devices since 2002. We are well on track to a legislated, regulated environment for medical devices in Singapore.

Our Centre for Radiation Protection [CRP], while with HSA, was the national regulatory authority for the safe use of ionising and non-ionising radiation of irradiating apparatus and radioactive materials in Singapore. It enforced the Radiation Protection Act and its subsidiary regulations through a system of licensing and inspection. Besides personalised monitoring services and radioactivity analyses, it also provided consultancy and training on radiation safety.

Innovative Regulation

On 12 February 2007, the Health Products Bill was passed by Parliament. The resulting Health Products Act was designed as an omnibus legislation that will consolidate, and eventually replace, the existing four separate Acts regulating medicines and other health-related products currently administered by HSA. The Health Products Act is notable in that it incorporates a legislative mechanism that allows the different controlling provisions in the Act to be effected on different categories of health products in a modular manner. This gives HSA more flexibility in tailoring different regulatory regimes for different categories of health products, and avoiding over- or under-regulating any particular category of product.

Medical devices is the first category of health products to be regulated under this new Health Products Act. Based on the principles endorsed by the Global Harmonisation Task Force [GHTF], which include licensing of medical device dealers as well as the products, the proposed framework underwent a two-month public consultation exercise between February and April 2007. In March 2007, as part of our continuing efforts to engage stakeholders in the formulation of the medical device regulations, we also conducted an industry briefing to representatives from over a hundred companies. The Phase I implementation of this new framework by 2007 will bring Singapore in line with international best practices on the regulation of medical devices.

Responsive Regulatory System

To ensure that rules and regulations are kept current and meet the needs of our stakeholders in the changing environment, HSA conducts ongoing reviews of its rules and regulations in consultation with its stakeholders. New initiatives arising from the regulatory reviews are developed together with our stakeholders and communicated to ensure clarity and transparency.

The drug registration system and requirements were reviewed. The major initiatives are:

- for safety labelling updates to be submitted through notification rather than the approval process, allowing predictability and better planning by the industry
- the waiver of Certificate of Pharmaceutical Product [CPP] for new product applications where other forms of approval documents can be used as appropriate substitutes
- for a major revision of the drug registration guidance document for the industry, to enhance clarity and transparency

To communicate these new drug registration initiatives, a two-day drug registration workshop for the industry was held in February 2007 and attended by over 200 industry representatives from Singapore, Malaysia, Indonesia, Australia, France and the USA.

The regulatory controls for Chinese Proprietary Medicines [CPM] were also reviewed and, in July 2006, the CPM product labelling requirements were revised to include an advisory on consumer discretion.

The licensing requirements for retail pharmacists were also reviewed and streamlined. Since 1 July 2006, pharmacists are no longer required to amend Form C poisons licences when they practise at pharmacy outlets under the same management.

To improve transparency in the product classification system for health products and food and to assist traders in carrying out preliminary self-classification of products, we have jointly developed a Food-Health Products Classification Tree with the Agri-Food and Veterinary Authority.

As part of our stepped-up efforts against retailers who illegally sell tobacco products to underage persons, the list of suspended tobacco retailers was made available on our website from April 2007.

Networked Risk Management

Networking and strategic alliances allow HSA to tap on knowledge and data beyond the agency and strengthen our regulatory decision-making and risk management processes. In FY 2006, we evaluated and approved several major new drugs, which included:

New Chemical Drugs

- Alvesco [ciclesonide] Mictonorm [Popiverine]
- Certican [everolimus]
- Protos [strontium ranelate]
- Faslodex [fulvestrant]
- Macugen [pegatanib]

New Biological Drugs

- Rabipur [rabies vaccine]
- Gardasil [HPV vaccine]
- ProQuad [MMR & varicella vaccine]
- Xolair [omalizumab]
- Neulastim [pegfilgrastim]

In January 2006, we introduced electronic reporting of ADRs, in addition to submissions through fax, mail or email. This was through the Critical Medical Information Store [CMIS]* of the Electronic Medical Record Exchange [EMRX]**.

We worked with the Ministry of Health [MOH] to implement the drug safety module of the Healthcare Professional Portal [HPP], to enhance our outreach to healthcare professionals, important partners in our risk management system. Since June 2006, healthcare professionals in Singapore receive important and urgent drug safety alerts almost immediately through SMS, e-mail and fax, and can make ADR report enquiries on-line.

* CMIS [Critical Medical Information Store] of the EMRX serves as a shared electronic repository of patients' medical alerts, ADR and drug allergy data. The CMIS online ADR reporting form is also available at the HPP to allow healthcare professionals from the private sector to submit ADR reports. The HPP is a one-stop portal for the healthcare professional community to access multiple e-services relating to professional practice and information repository using single-sign-on through a common interface.

** EMRX [Electronic Medical Record Exchange] is an electronic platform which enables hospitals and government clinics across the two public healthcare clusters, National Healthcare Group and Singapore Health Services, to share vital patient medical information such as inpatient discharge summaries, medical history and laboratory results.


HOME
HSA warns against
using toxic
remedy for

Risk communication is achieved through drug safety alerts to healthcare professionals and the public, and the *Adverse Drug Reaction News Bulletin*. In 2006, we published three issues of the Bulletin, which was disseminated to over 9,000 doctors, pharmacists and dentists in Singapore. We also worked closely with the pharmaceutical companies to issue six *Dear Healthcare Professional* letters, which updated healthcare professionals on emerging and potential drug safety problems.

In 2006, HSA participated in investigations initiated from alerts by the Singapore National Eye Centre [SNEC] on an increased incidence of Fusarium Keratitis seen in contact lens users at the centre. We worked closely with MOH, SNEC and other local institutions, as well as the US Communicable Disease Center and US Food and Drug Administration. This eventually resulted in a voluntary withdrawal of Bausch & Lomb's ReNu products in Singapore on 17 February 2006 and a global voluntary withdrawal of ReNu MoistureLoc Contact Lens Solution on 15 April 2006.

Gaining Momentum through Strategic Alliances

Our Local Role

HSA works closely with local and overseas agencies to prevent illegal and unsafe drugs from entering our market. In 2006, we conducted several joint seizures on illegal codeine cough mixtures with other enforcement agencies, including the Central Narcotics Bureau [CNB], the Immigration & Checkpoints Authority [ICA] and the Singapore Police Force [SPF]. In one such operation, eight barrels of 200 litres of codeine mixture were seized, the largest seizure of such mixtures by HSA.

In August 2006, two individuals were arrested by CNB for illegally dealing in Dormicum. One of them, a foreign doctor, was sentenced to 15 months' imprisonment. The case involved 15,000 tablets and was one of the largest seizures of smuggled Dormicum tablets to date.

Working closely with ICA, we foiled several attempts to bring consignments of counterfeit and illegal medicinal products into Singapore. In one case, about 30 different types of illegal medicinal products, amounting to 100,000 tablets and capsules with an estimated street value of over S$500,000, were intercepted and seized.

In January 2007, we provided assistance to the Malaysian Health Ministry in their investigations on a case which involved the importation of an adulterated product, 'Miagra', worth RM14 million.

During the year, we made presentations at various local radiological security and safety seminars, including the SIN/US "Radiological Dispersal Device [RDD] Threat Reduction Workshop" organised by Defence Science and Technology Agency, and Ministry of Defence's Chemical, Biological, Radiological and Explosives seminar on Safety & Security.

Forging Closer Ties within the Region

ASEAN Consultative Committee for Standards and Quality [ACCSQ] Product Working Groups [PWGs]

In support of an integrated ASEAN healthcare vision led by the Ministry of Trade and Industry, the regulatory group continued to be actively engaged in numerous activities through PWGs established under the ACCSQ:

- Pharmaceutical PWG
- Traditional Medicines & Health Supplements PWG
- ASEAN Cosmetics Committee
- Medical Device PWG

Together with its ASEAN counterparts, the PWGs worked towards harmonising regulatory measures in product and labelling standards, Good Manufacturing Practices [GMP] standards, registration dossiers, the post-marketing alert system and negotiations on a Mutual Recognition Arrangement [MRA] for GMP Inspections for Medicinal Products.

Pharmaceuticals Product Working Group [PPWG]

The PPWG held its 12th Meeting in October 2006. HSA chaired the Implementation Working Group [IWG] and the MRA GMP Inspection Taskforce, which are responsible for coordinating the implementation of the ASEAN Common Technical Dossier [ACTD] and development of an MRA for GMP Inspection respectively. At the 12th Meeting, an agreement was reached to allow the ACTD developed by the International Conference for Harmonisation [ICH] for innovative products.

Traditional Medicines and Health Supplements Product Working Group [TMHS PWG]

With the support from the local traditional medicines and health supplements associations, we successfully hosted the 5th ACCSQ TMHS PWG meeting on 27 and 28 July 2006 and a seminar which preceded the meeting. The meeting attracted 178 regulatory and industry representatives from Asia, Europe and the USA and featured eminent experts from the World Health Organisation [WHO], Europe, USA and China. The 6th TMHS PWG Meeting was held in December 2006 and continued to focus on working out the definitions of traditional medicines and health supplements, the studies and surveys on technical requirements, GMP standards, quality control testing, labelling requirements and the regulatory infrastructure and product placement system.

ASEAN Cosmetics Committee [ACC]

The 7th ACC meeting was held in December 2006. At the meeting, the ASEAN Guidelines for the Safety Assessment of Cosmetic Products were formally adopted and Singapore was appointed to lead in its development.

Medical Device Product Working Group [MDPWG]

We successfully hosted the 5th ACCSQ MDPWG meeting in January 2007, which was attended by 95 government delegates and representatives from the ASEAN Secretariat and the medical device industry. At the meeting, the member countries formally adopted the "Dear Doctor Letter" Guideline, which allows a manufacturer or competent authority to inform healthcare professionals of any product safety issues. In addition, Singapore's proposed framework on "Post-Marketing Alert System" [PMAS] that aims to facilitate inter-ASEAN adverse event and product recall reporting was also accepted.

Asian Harmonisation Working Party [AHWP]*

As the co-chair of the AHWP Technical Committee, we have been working with other member countries to fine-tune the post-market alert system and common submission dossier template. In February 2007, we also represented AHWP to participate in the GHTF Study Group 1 [SG1]** meeting in Japan.

* The Asian Harmonisation Working Party [AHWP] studies and recommends ways to harmonise medical device regulations in the region and coordinates with the Global Harmonisation Task Force [GHTF] and Asia-Pacific Economic Cooperation [APEC].

** The SG1 compares operational medical device regulatory systems around the world and is responsible for developing a standardised format for pre-market submissions and harmonised product labelling requirements.

The International Arena

Memoranda of Understanding [MOU]

In 2006, HSA signed MOU with Health Canada's Health Products and Food Branch and the United States Pharmacopoeia. The MOU with the two international organisations aim to enhance mutual communication and scientific collaboration, encourage collaborative efforts in health products regulation, analysis and research, and increase the awareness of the importance of the quality and safety of medicinal products between agencies.

Relationships with the US Food and Drug Administration [FDA] and the Australian Therapeutics Goods Administration continue to be strengthened.

International Atomic Energy Agency [IAEA]

During the year, we participated in several IAEA events, which included delivering the Singapore Statement during the IAEA General in Vienna, and two regional co-ordination meetings on Public Exposure Control and Radioactive Waste Management in Myanmar and Indonesia respectively.

In July 2006, we hosted a week-long training course organised under IAEA/Regional Co-operative Agreement on the Organisation and Implementation of a National Regulatory Programme for the Control of Radiation Sources, including the Code of Conduct on the Safety and Security of Radiation Sources. During the month, a study visit was also organised for an IAEA fellow from the Iran Nuclear Regulatory Authority to study Singapore's system of radiation control.

WHO International Electromagnetic Field Project Advisory Committee

As a member of the WHO International Electromagnetic Field Project Advisory Committee, we participated in the Geneva meeting in June 2007. The focused research knowledge shared during the meeting has enhanced the EMF control programmes locally.

In addition, to strengthen international preparedness and regional response system for Nuclear and Radiological Emergencies, we also participated in a National Competent Authority Workshop in Melbourne, Australia in November.

International Medicinal Products Anti-Counterfeiting Taskforce [IMPACT]
Initiated by the WHO, the IMPACT is a voluntary grouping of governments, organisations, institutions, agencies and associations from developing and developed countries aimed at sharing expertise, identifying problems, seeking solutions, co-ordinating activities and working towards the common goal of fighting counterfeit medical products. To accomplish this mandate, IMPACT will focus on five key areas, namely: Legislative and Regulatory Infrastructure, Enforcement, Technology, and Risk Communication. Singapore, represented by HSA, was nominated as one of the Vice-Chairs of the IMPACT taskforce and thus became a member of the IMPACT Planning Group. Five Working Groups were established to address the five key areas of concern, and have been working independently to present their proposals at the Second General Meeting in December 2007.

WHO-sponsored GMP Audit
During the year, we participated in GMP audits in China and India sponsored by the WHO as part of its pre-qualification programme to ensure medicinal products of acceptable standards of quality, safety and efficacy are available for United Nation agencies' procurement.

We continued our obligations and commitments in several regional and international agreements and forums. Some of the major involvements include:

- US-Singapore Free Trade Agreement
- MRA on GMP Inspections with Australia
- MOU with the US FDA
- Singapore-Japan Joint Statement on Medicinal Product GMP Inspection under the Japan-Singapore Economic Partnership Agreement
- Pharmaceutical Inspection Convention/ Pharmaceutical Cooperation Scheme [PIC/S]
- Permanent Forum on International Pharmaceutical Crime [PFIPC]
- WHO-supported Western Pacific Regional Forum for the Harmonisation of Herbal Medicines [FHH]
- WHO-supported International Regulatory Cooperation for Herbal Medicines [IRCH]
- ASEAN Working Group on Technical Cooperation in Pharmaceuticals [AWGTCP]
- Brunei-Malaysia-Indonesia-Singapore-Thailand [BMIST] Public Health Conference

The Next Leg of Our Journey

With the rapidly evolving landscape of biomedical and life sciences, the emergence of novel technologies and their application in health products development and Singapore's ongoing biomedical sciences initiatives, HSA is facing new challenges in regulating novel health products with our limited resources. At the same time, this opens up new opportunities for the regulatory group to tap on HSA's other professional groups' expertise and external expertise in Singapore and abroad. As HSA moves forward, it is increasingly important for us to be innovative in our regulatory approaches and capabilities development.

We will enhance our capabilities in the following four key areas:

1. Conduct risk assessments of new health products, including medical devices, novel biologics and other innovative health products. HSA is building up our capability through expansion of our in-house scientific capabilities as well as by leveraging on expertise in our partner agencies and research institutes. By improving our risk assessment capability, we aim to enhance our professional evaluation capabilities and marketing approval timelines.

2. Manage the evolving risks of products through systematic surveillance, enforcement and a risk communication programme. HSA will review and target implementation of effective risk-based programmes to monitor the safety and regulatory compliance of health products throughout product lifecycles. Our legislative framework will also be enhanced to enable HSA to more effectively enforce post-marketing studies from the pharmaceutical industry that will allow us to further characterise the safety profiles of selected drugs. We will also explore tapping the promising tools of pharmacogenetics to innovatively detect ADRs in our local population, which in the future may facilitate approvals of certain drugs tracked under this scheme.

   In the area of risk communication, we will continue to step up efforts to provide early warnings to our healthcare professionals of emerging or potential drug safety problems to enable them to make discerning choices on the safer use of drugs and health products.

3. Develop smart regulation and policies for health products that protect public safety while facilitating the growth of the biomedical industry. HSA is refining its regulatory philosophy in line with our mission to wisely regulate health products by applying a risk-based rather than a "one-size-fits-all" regulatory approach. The recently passed Health Products Act will be instrumental in helping us achieve these objectives. HSA intends to actively engage our stakeholders in the implementation of the Health Products Act, so as to better meet their needs and expectations in transparency, clarity, responsiveness and robustness in our regulation of health products.

4. Enhance our strategic alliances, connectedness and influence in the regional and international regulatory arena. This will position Singapore as a thought leader in the field and facilitate our participation in decisions shaping the future of the regulation of health products. Moving ahead, we will focus on efforts to strengthen relationships and develop closer co-operation with our key reference agencies and our regional partners in ASEAN. In the coming year, we will also actively participate and lead in regional and global initiatives, especially in ASEAN health products harmonisation, GMP inspections and anti-counterfeiting and enforcement initiatives. HSA will be organising the following major regional and global events in the coming year:

   - PIC/S Meeting in Singapore
   - PFIPC Meeting in Singapore
   - ASEAN-China IMPACT Conference in Indonesia
   - APEC Life Sciences Anti-counterfeiting Seminar in Singapore

CRP Transfer to NEA

After six years as one of HSA's professional centres since its formation in 2001, the Centre for Radiation Protection [CRP] was transferred to the National Environment Agency and became the Centre for Radiation Protection and Nuclear Science [CRPNS] on 1 July 2007.

CRP has built up a reputation over the years for having a sound capability in radiation protection in health and safety during the years under the guidance of HSA and CRP's predecessor departments.

Faced with an ever-changing landscape, there are increasing demands for expertise in the areas of nuclear science, security and emergency response. This move has brought together experts from both health and environmental radiation science as they discuss how to better meet the challenges ahead at a national, regional and global level.

We wish our colleagues a fulfilling journey ahead.

PRE-MARKET ACTIVITIES
Evaluation, Licensing & Certification

Drugs and Biologics

New Product Licences Issued		52
• Chemicals	[32]	
• Biologics	[9]	
• Generic [Chemicals]	[11]	
Variations in Product Licences		1,779
Registered Medicinal Products [as at 31 March 2007]		6,020
• Prescription-Only Medicines	[69%]	
• Pharmacy Medicines	[14%]	
• General Sale List Medicines	[17%]	
Import of Medicinal Products for Re-Export		2,224
Import of Unregistered Medicinal Products		3,818
• by doctor for named patient	[3, 801]	
• by tourists for personal use	[217]	

Chinese Proprietary Medicines [CPM]

CPM Listed [as at 31 March 2007]	10,111
CPM Rejected [as at 31 March 2007]	467

Cosmetic Products

Cosmetic Products Registered [as at 31 March 2007]	26, 074
New Importers Licensed	99
Cosmetic Products Rejected	14
Letters of Free Sales for Export	327

Health Supplements

Enquires on Classification, Import and Sales Requirements	5,076

Premises, Dealers, Importers & Exporters — 3,896

Manufacturers/Assemblers Licences Issued*	[141]
Wholesale Dealer's Licences Issued*	[517]
Import Licences Issued*	[945]
Export Licences Issued*	[233]
Pharmacy Certificates Issued*	[354]
Form A Poisons Licences Issued*	[461]
Form C Poisons Licences Issued*	[853]
Certificate of Pharmaceutical Products	[296]
Good Manufacturing Practice [GMP] Certificates Issued	[26]
Good Distribution Practice [GDP] Certificates Issued	[5]
Free Sale Certificates	[26]
Statement of Licensing Status Issued	[14]
GMP Clearance for Overseas Manufacturers	[25]

* includes new, renewal and amendment applications

Clinical Trials [January to December 2006]

Clinical Trials Approved:		217
• Phase I	[48]	
• Phase II	[35]	
• Phase III	[116]	
• Phase IV	[18]	
Clinical Trials by Therapeutic Areas:		
• Oncology	[26%]	
• Clinical Pharmacology	[21%]	
• Cardiology	[9%]	
• Gastroenterology/Hepatology	[8%]	
• Neurology	[7%]	
• Endocrinology	[4%]	
• Ophthalmology	[3%]	
• Renal Medicine	[3%]	
• Psychiatry	[3%]	
• Urology	[3%]	
• Others	[13%]	
Initial Reports of ADRs		3,364
Follow-up Reports of ADRs		4,131

NB: More than one suspected drug may be implicated in an ADR report.

POST-MARKET ACTIVITIES

Investigation, Surveillance and Prosecution

Complaints Received	799
Prosecution Cases Completed	131
Offenders Sentenced to Imprisonment	40

ADR Monitoring

ADR Reports from Public Hospitals, Government Clinics and National Specialty Centres	89.9%*
ADR Reports Associated with Pharmaceutical Products	96.6%

* Based on 1,523 ADR reports analysed

Top 10 Drugs Suspected of Serious ADRs

	Active ingredient	No.
1.	Atenolol	28
2.	Cotrimoxazole	28
3.	Diclofenac	28
4.	Phenytoin	25
5.	Allopurinol	21
6.	Aspirin	21
7.	Carbamazepine	21
8.	Amoxicillin	20
9.	Ceftriaxone	20
10.	Paracetamol	20

Radiation Control

Inspections on Facilities Using Ionising Radiation	573
Inspections on Facilities Using Non-ionising Radiation	63
Import and Export of Irradiating Apparatus Components	3,877
Endorsements of Nuclear Consignments on Ships	147
Thermoluminescent Dosimeters Processed [monthly]	8000
Wipe Test for Sealed Radiative Sources	212
Radioactivity Analysis on Food Samples	1,541
Investigations of Suspected Industrial Radiation Overdose	29
Tests for Applicants of Ionising Safety Licences	354
Tests for Applicants of Laser Safety Course	869

Tobacco Regulation

Tobacco Retail Outlets Licensed [as at 31 March 2007]	6,000
Illegal Sale of Tobacco to Under 18 Years	66
Youths Compounded	5,999
Youths Prosecuted in Court	292

Health Services Group

• CENTRE FOR TRANSFUSION MEDICINE

We are the national blood service, ensuring a safe and adequate blood supply and providing specialist transfusion medicine services.


Fuelling the Distance

THE HSA Journey

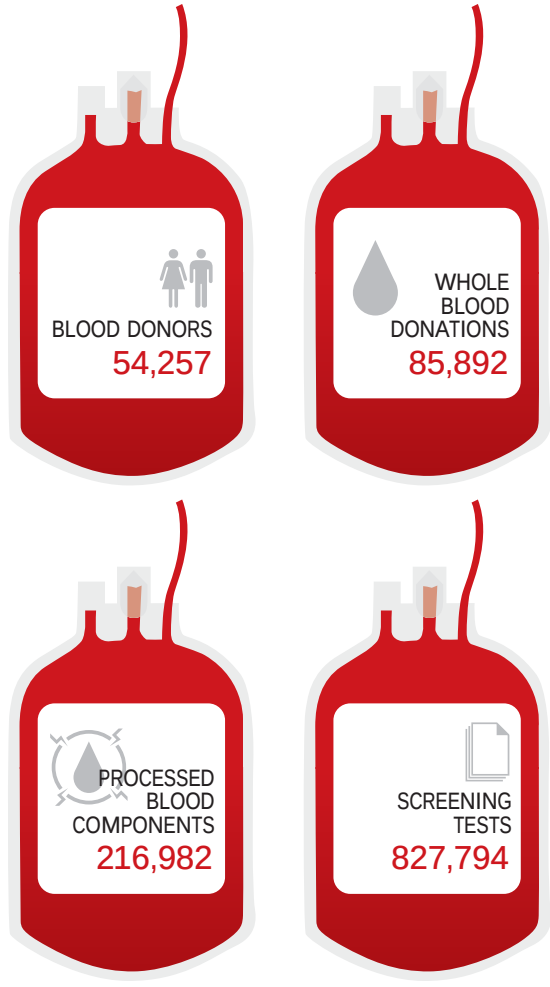
HSA Health Sciences Authority

To:

Front [Left to Right] :
Dr Marieta Chan
Dr Tan Hwee Huang
Ms Sally Lam

Back [Left to Right] :
Ms Leou Kwee Kim
Ms Selvi Govindaraju
Ng Kok Quan
Ms Toh Ching Lian
Ms Koh Geok Tin

Absent :
Dr Mickey Koh


BLOOD DONORS
54,257
WHOLE BLOOD DONATIONS
85,892
PROCESSED BLOOD COMPONENTS
216,982
SCREENING TESTS
827,794

Driving New Standards in Professional Excellence

Our emphasis in maintaining high standards of quality was rewarded in May 2006 when we became the first national blood service in Asia to be accredited by the AABB. This accreditation brings us membership of a respected organisation of international blood banks in the scientific community and affirms our high level of professionalism and commitment to quality blood banking.

In our journey towards excellence, we partnered with national blood services in eight countries in the Asia-Pacific Region to form the Asian Pacific Blood Network [APBN]. In June 2006, we hosted the official launch of the APBN, which aims to promote blood safety and efficiency of operations through global co-operation and information sharing. This followed the signing of a confidentiality agreement amongst the member countries, which was formally ratified on 28 November 2006.

We are also members of International Society of Blood Transfusion [ISBT] Working Parties for Haemovigilance, Blood Supply Management and the Hepatitis B Working Group. Along with Japan, Singapore is the only other country in Asia to join the European Haemovigilance Network, which aims to collect and exchange data on the effects of blood transfusion.



Mapping Out New Areas of Research

We actively seek to take advantage of the latest developments in blood banking science and information technology to improve the quality and efficiency of the services we offer.

Our new state-of-the-art Cell Processing Laboratory was opened in 2006. This new facility is a fully GMP-compliant [Good Manufacturing Practice] laboratory dedicated to translational cell therapy work. We are currently involved in collaborative trials with the Singapore General Hospital. Ongoing research is also being conducted in the rapidly evolving fields of immunotherapy and new cellular therapies.

Gaining Momentum through Strategic Alliances

Our Local Role

2007 marks the sixth year of a strategic partnership with the Singapore Red Cross [SRC] to manage our national blood donor programme. The blood donor recruitment effort is complemented by our ongoing public awareness campaign on the importance of regular voluntary blood donations and the need to foster blood donation as a healthy lifestyle activity.

Forging Closer Ties within the Region

In our capacities as a World Health Organisation [WHO] Collaborating Centre for Transfusion Medicine and the WHO Regional Quality Management Training Centre, we continued to help in initiatives to improve the standard and practices of transfusion medicine in the Western Pacific region. Our regional training projects include conducting training for the blood transfusion service in Myanmar, providing external proficiency testing in pre-transfusion testing in blood centres across the Western Pacific region, and working with the SRC to provide donor recruitment training programmes in Thailand and Myanmar. We have also worked with Nanyang Polytechnic to produce, on behalf of the WHO, a training CD entitled "Quality in Blood Collection".

The International Arena

We make it a priority to share and exchange knowledge within the global arena. In the year, we continued to participate actively in key international conferences as speakers and attendees in the transfusion medicine arena. These included conferences organised by the WHO, AABB, International Society of Cellular Therapy, Japanese Society of Blood Transfusion, ISBT and South Asian Association of Transfusion Medicine. We are also a member of the WHO-convened Global Collaboration in Blood Safety.

To harmonise with international practices, we converted to the ISBT 128 barcode labelling system, an international standardised barcode nomenclature for transfusion medicine.

Engaging with the Community

In June 2006, we celebrated the 60th anniversary of the National Blood Programme in Singapore with a unique World Blood Donor Day sandcastle-building activity and beach carnival. This was followed in July 2007 by a two-day scientific symposium themed "Evolving Trends in Transfusion Medicine", where regional and international experts in the field of transfusion medicine shared their expertise.

The Next Leg of Our Journey

In the coming year, we will be focusing our efforts on achieving accreditation of our Transplant Support Unit with the American Society of Histo-compatibility and Immuno-Genetics [ASHI]. Successful accreditation with ASHI will give our transplant support laboratory added international standing and recognition.

New technologies to be introduced in blood collection include Red Cell Apheresis donation. In Blood Donation Processing, the use of semi-automated blood component extractors will be introduced to streamline the workflow and further enhance the quality of blood components processed. Pathogen-inactivated frozen plasma and platelets using state-of-art pathogen inactivated technology will also be closely studied to determine their suitability for use in transfusions. Prevalence studies of the West Nile and Dengue viruses in our blood donor population will help to determine if new screening tests will need to be added for the blood supply.

We will apply the latest information technology to create more patient-centric diagnostic laboratory services including Automated Pre-Transfusion Testing system, molecular analysis for red cell antigens, flow cytometry for Human Lymphocyte Antigen cross-matching and antibody screening.

Information technology will also be used to enhance our web portal for blood donors - Donorcare@HSA. Through innovative new additions, we hope to provide added convenience and ease in the blood donation process. Collaboration with Republic Polytechnic in utilising process analysis tools in areas such as blood collection, processing and patient testing will further aid us in streamlining our processes and improving efficiency.

Blood conservation is a new area in which we will work with hospitals to enable effective management of our blood supply. Through use of procedures such as autologous blood cell salvage, we can work with clinical colleagues to maximise every drop of blood that we collect.


Navigating New Terrain
Applied Sciences Group

We represent the national forensic medical and scientific, analytical and laboratory expertise to support regulatory and other compliance agencies in the administration of justice and the safeguarding of public health.

Applied Sciences Group

- CENTRE FOR ANALYTICAL SCIENCE
- CENTRE FOR FORENSIC MEDICINE
- CENTRE FOR FORENSIC SCIENCE

THE HSA Journey

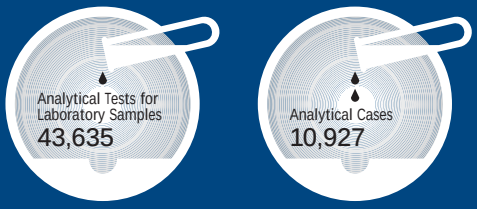
To:

Front [Left to Right] :
Ms Low Min Yong
Dr Michael Tay
A/P Gilbert Lau
Mrs Tan Wai Fun

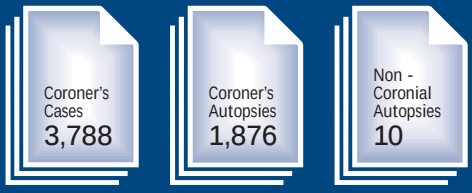
Back [Left to Right] :
Dr Yao Yi Ju
Dr George Paul
Dr Lui Chi Pang
Dr Teo Eng Swee
Ng Soon
Ms Cheah Nuan Ping

Absent :
Dr Lee Tong Kooi
Ms Lee Gek Kwee
Ms Joanne Chan

Analytical Science



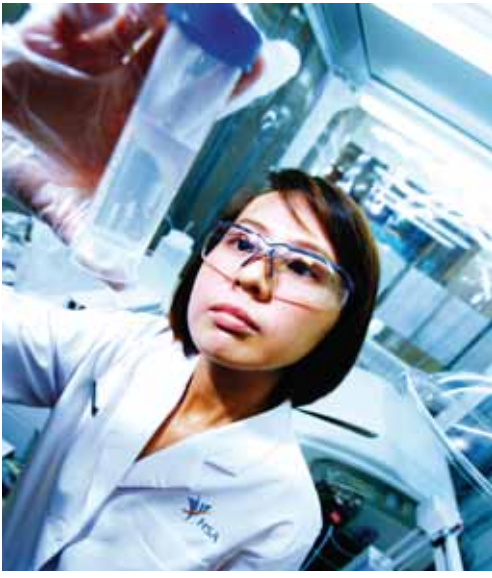
Forensic Medicine



Forensic Science

Driving New Standards in Professional Excellence

As we journey forward, we continually seek to improve upon our high standards of professional excellence, and this past year has been no exception. Across the Group, greater focus was placed on ensuring that proper resource deployment and allocation were aligned with our strategic intent to meet challenges ahead, in particular the development of professional staff and reinvestment in new information systems and appropriate, relevant technology. Our professional standards are critical for us to progress forward and we aim for the consistent attainment of high accreditation standards across all three centres.



Our Centre for Analytical Science [CAS] continues to provide services to support the Agri-Food Veterinary Authority of Singapore's [AVA] regulation of processed foods, and the regulation of pharmaceuticals, Chinese proprietary medicines, cosmetics, health supplements and cigarettes.

Since 1997, CAS has been continuously recognised by the Singapore Accreditation Council–Singapore Laboratory Accreditation Scheme [SAC-SINGLAS] under ISO/IEC Guide 25. This was further upgraded to ISO/IEC 17025 in July 2002, then to ISO/IEC17025: 2005 in June 2006. Eight of our Scientific Officers are appointed as qualified ISO/IEC technical assessors by the Singapore National Accreditation Council.

CAS continued to perform well this past year, participating in the APLAC Proficiency Testing Programmes Scheme organised by the European Directorate for the Quality of Medicines [EDQM] on Dissolution Test for Pentoxifylline Extended-release Tablets. We did very well with our water analysis results on chromium, copper, iron, lead, nickel, thallium and zinc with all the z-scores within $z \pm 2$.

CAS also participated in the 14th Asia Collaborative Study on ISO Tar and Nicotine involving 42 laboratories from 18 countries in the Asia-Pacific region and Europe. Five different brands of cigarette samples with tar levels ranging from 1mg to 15mg were tested. Our study report in March 2007 compared favourably with the other top laboratories.

Our Centre for Forensic Medicine [CFM] provides forensic medical consultancy services in support of the Coroner and the Singapore Police Force [SPF] in medico-legal death investigations within and outside of Singapore.

CFM was accredited in 2005 and continues to maintain high professional standards through a regular internal review process. In line with efforts to operate at maximum efficiency, CFM discontinued its Forensic Death Investigator [FDI] service in February 2007 due to decrease in demand.

Our Centre for Forensic Science [CFS] continues to specialise in forensic science services rendered to the SPF, Central Narcotics Bureau [CNB] and other law enforcement agencies serving the administration of justice.

Since 1996, CFS has been among the few forensic science centres in the region to achieve the American Society of Crime Laboratory Directors/Lab Accreditation Board [ASCLD/LAB] accreditation, an international accreditation scheme for excellence in forensic science service. CFS was re-accredited by the ASCLD/LAB in June 2006.

Mapping Out New Areas of Research

While primarily a service entity, we recognise that investment in innovation and R&D is critical to ensuring that we continue to succeed in delivering high quality, high value scientific expertise to our clients.

This year, we successfully applied Bloodstain Pattern Analysis [BPA] and conducted crime scene reconstructions for several high-profile murder cases. The acceptance of the evidence provided by our scientists validated the standards of expertise introduced.

Several new analytical capabilities were developed:

Chinese Proprietary Medicines

- 67 new adulterants and 13 analogues of Phosphodiesterase-5 [PDE-5] Inhibitors were identified
- New tests on analysis of Arteminsinin and Acontine were accredited

To date, we have more than 350 adulterants that have been accredited under ISO/IEC17025:2005.

Cosmetics

- Two new services to test for Chromium and Neodymium were introduced
- New test methods were developed incorporating more mass spectrometry techniques for the development of new test methods in cosmetic testing

Tobacco

- Tests were made for carbon monoxide by Non-Dispersive Infra-Red Analysis [ISO8454:1995] using the semi-automated smoking machine

Food & Water

- Potentially harmful plasticisers and additives from food contact materials were identified
- Sample extraction techniques were used to determine persistent organic pollutants [POPs] in food, such as polybrominated diphenyl ethers [PBDEs], and polychloro biphenyls [PCBs]
- Accreditation extended to include two new tests to identify Naphthalene and Uranium in water
- Multi-elemental analysis protocol for water samples were expanded to include seven more elements using Inductively Coupled Plasma-Mass Spectrometry [ICP-MS] and Ion Chromatography [IC] techniques

Gaining Momentum through Strategic Alliances

We recognise that the best way to progress is to share our knowledge with others through strategic alliances locally and internationally. Our academic collaborations include contributing actively to medical undergraduate and postgraduate education from NUS' Department of Pathology and Experimental Surgery of the Singapore General Hospital and National Cancer Centre in the areas of forensic medicine, forensic pathology and pharmacy through various research projects. We also collaborate with Nanyang Polytechnic and the Genome Institute of Singapore on the local front, and World Health Organisation [WHO] and the United Nations internationally.

Our Local Role

In partnership with the CNB, we completed two projects, including

- an evaluation study on three on-site drug-testing kits;
- a survey to determine the consumption pattern of heroin and cannabis.

The completion of the survey project on heroin and cannabis marked the conclusion to a series of surveys first undertaken in 2005 to determine the consumption pattern of drugs abused in Singapore. The drugs covered by the surveys were ketamine, Erimin 5 [nimetazepam], "Ecstasy" [N, α-dimethyl-3,4-[methylenedioxy] phenethylamine], "ice" [methamphetamine], heroin and cannabis.

Forging Closer Ties within the Region

In September 2006, we jointly organised the first regional DNA Symposium on Forensic DNA and Population Statistics Workshop with Applied Biosystems, which featured leading forensic experts from the United States, Thailand, Indonesia, Malaysia and Vietnam. We also co-hosted a symposium with Dade Behring on 'Trends and Tribulations in Drugs of Abuse Testing' in March 2007, with board members from the International Association of Forensic Toxicologists [TIAFT] invited as speakers.

For use by regional laboratories, we developed a gas chromatographic method for the quantification of safrole and isosafrole in sassafras oil. Both substances are precursor chemicals used in the illicit manufacturing of N, α-dimethyl-3,4-[methylenedioxy] phenethylamine ["Ecstasy"].

The International Arena

On the international front, we continued our collaborations with WHO in the development of draft monographs on Lamivudine Oral Solution, Lamivudine Tablets and Lamivudine and Zidovudine Tablets for the International Pharmacopeia. We also worked on the proposed additional identity tests for Lamivudine and Zidovudine Tablets and re-examined three international chemical reference substances: Diazoxide, Ethosuximide and Tolbutamide for the WHO Collaborating Centre for Chemical Reference Substances in Sweden.

We served as a WHO Temporary Advisor at a meeting on "Specifications for Medicines and Quality Control Laboratory Issues" and hosted the training of two WHO Fellows in pharmaceutical analysis. We also filled the role of technical expert in the 41st Meeting of the WHO Expert Committee on Specifications for Pharmaceutical Preparation in Geneva, Switzerland. The 4th Edition of *The International Pharmacopeia* was published in late 2006 with our collaboration.

We collaborated closely with the United Nations Office on Drugs and Crime [UNODC] on Project H44 - Scientific support to strengthen regulatory and law enforcement control of amphetamine-type stimulants and their precursors in East, South and Southeast Asia. Since the project's inception in May 2006, our newsletter *DrugNetAsia* has been published twice yearly to serve as a platform for the sharing of information among the regional forensic laboratories.

In addition, we participated as a technical member at the International Laboratory Forum on Counterfeit Medicines [ILFCM] to share information on scientific techniques that are used to detect counterfeit drugs and harmful substances in dietary supplements.

Engaging with the Community

Projects were carried out to improve the working environment for staff members, including promoting awareness of laboratory safety with a newly revised safety handbook and annual recognition awards. We also addressed the problem of proper disposal of chemicals and other wastes.

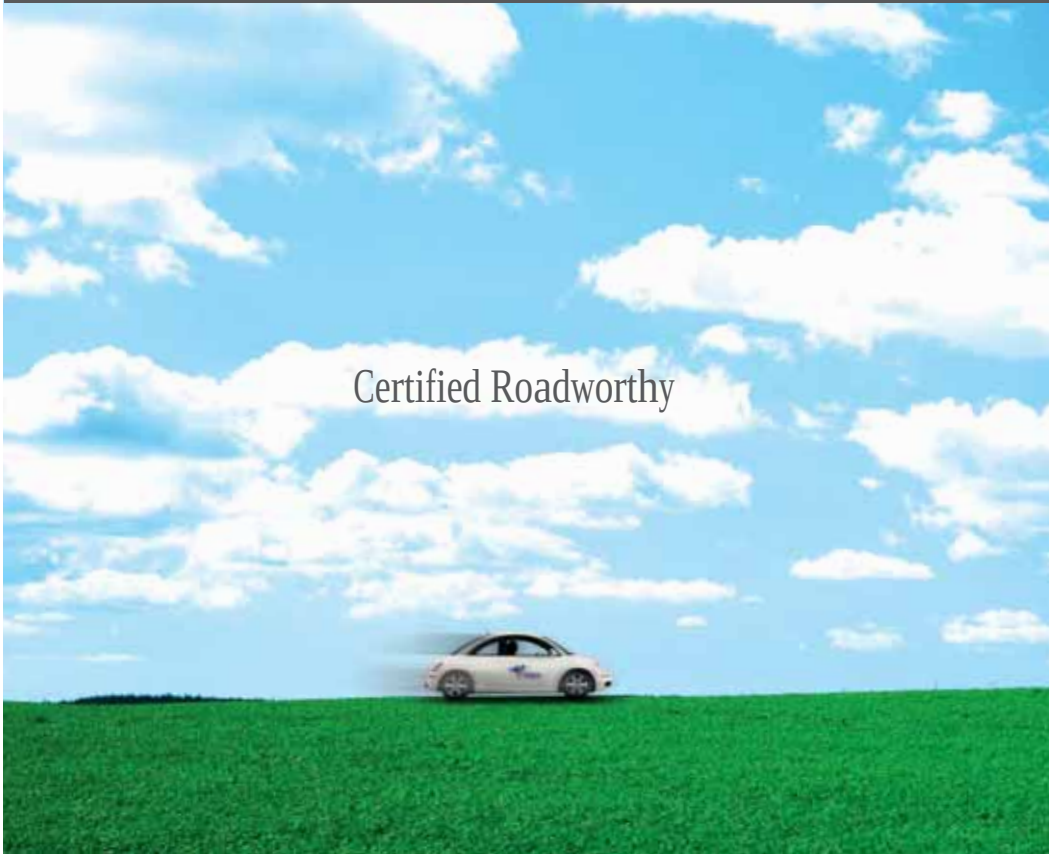
Our community activity highlights during the year included visiting and hosting several lunches and dinners for the disabled elderly and senior citizens, a beach clean up and a recycling project. We are also committed to nurturing young scientists through our student internship programmes and visits.

The Next Leg of Our Journey

We see a number of challenges on the horizon in our continuing effort to serve various regulatory agencies. We need to be nimble, responsive and focused in asserting our professional capabilities and stature in serving the community in Singapore and beyond. Numerous key initiatives will be deployed in the next three years, focussing primarily on strengthening efficiency and professional effectiveness, and pushing innovative development into new areas of expertise. Our research framework will be revamped and more funds set aside to promote R&D.

Excellence
Organisational
Excellence
Organisational

organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence



Organisational Excellence

Our ongoing pursuit of organisational excellence has led us to achieve several organisational accolades over the years. They include the Singapore Innovation Class [I-Class] in 2003, People Developer Standard [PDS] renewed in 2005, and Public Service Award for Organisational Excellence in 2006.

In 2006, focused efforts were channelled into clarifying our strategic directions in the longer term and defining the relevant organisational structures to advance HSA in our new wave of growth. Various strategic conversations and conferences were initiated across different levels of staff and departments to encourage a wider exchange of ideas and to allow greater clarity in collectively defining our next moves forward. This resulted in revised Vision and Mission statements and the development of key strategic plans to facilitate our organisational excellence journey.

A renewed HSA Organisational Excellence Framework was also rolled out to achieve greater synergy across related organisational developmental initiatives and to strengthen people integration. The three pillars of excellence identified are:

- People Excellence
- Innovation Excellence
- Quality and Service Excellence

The framework focuses on putting the appropriate structures and systems in place to reinforce organisational culture; provide an optimum environment with the right conditions; and build competencies that will enable HSA to develop into an organisation capable of thriving in a future environment of greater complexities and challenges.

People Excellence

In recognition of their achievements, 15 HSA officers were conferred the National Day Awards 2006, which included the following three special awards:

- The Commendation Medal
  Ms Lim Chin Chin [CFS, ASG]

- The Efficiency Medal
  Ms Phang Chew Yen [CTM, HSG]
  Mrs Tan-Lee Ngak Lee [CFS, ASG]

- The Public Service Medal [PBM]
  Ms Daisy Ang [Corporate Communications, Corporate HQ]

In August 2006, Ms Goh Choo Neo, Human Resource Officer from Corporate HQ was awarded the Singapore Labour Foundation Educational Tours Award for Model Workers 2006.

During the year, 58 officers were promoted in recognition of their excellent performance. Long Service Awards were also presented to 92 officers.

Five staff members were posted overseas for training under the Ministry of Health's [MOH] Health Manpower Development Plan in countries that included the USA and Australia. Under the HSA's Professional Development Programme, 17 staff upgraded their academic qualifications.

Integrating Fun and Fitness at Work

As part of our commitment to encourage our staff to lead balanced and healthy lifestyles, activities such as Active Day, Fruit Day, and Games Day were held to strengthen staff bonding and promote healthy living.

Our efforts continue to be recognised and we have been commended with the Singapore H.E.A.L.T.H* Gold Award for the last two consecutive years.

We were also awarded the Ministry of Home Affairs Award for NS Men's Employers [Commendation] in September 2006 for supporting the National Service activities of our employees.

* Helping Employees Achieve Life-Time Health

Innovation Excellence through IT

During the year, we intensified Information Technology [IT] developments in the area of system applications as mapped out in HSA's four-year IT Master Plan.

Two key application projects, namely *LISA* [*Laboratory Information Scientific Administration*] and *FIONA* [*Forensic Integrated Operations Network Application*] are being developed for the Applied Sciences Group. When completed, both systems will help towards building a paperless environment and promoting greater automation through enhanced workflow.

To align with the Government directives for Web Interface Standard [WIS] and Web Content Accessibility Guidelines [WCAG], the HSA website underwent a revamp and the new website was successfully launched in August 2007.

In support of the drive towards a more synergistic public service through shared processes and systems, we also embarked on several shared IT and infrastructural initiatives projects.

We collaborated with the National Library Board [NLB] and three other public agencies – Health Promotion Board [HPB], Media Development Authority [MDA] and the Standards, Productivity and Innovation Board [SPRING] to implement a shared Corporate Resources System [CREST]. With CREST, the areas in the management of Human Resource, Finance, Procurement and Administration will be handled more efficiently.

We also leveraged on the MOH's Shared Infrastructural [MediNet] services, a centralised infrastructure for both website and Intranet management. To optimise resources and minimise overall maintenance cost, we are working closely with HPB and MOH to establish greater centralised services for network and facility management.

Quality and Service Excellence

Through the efforts of the Quality Service Committee, we have continually upgraded our service level and have created added value for customers through procedures and systems reviews.

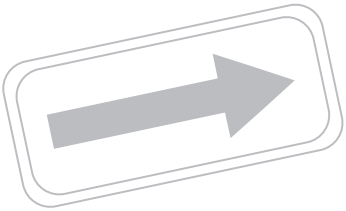
In July 2006, the Committee introduced a more user-friendly feedback form for customers to better assess the service received and provide suggestions for improvement.

We are guided by the Public Service "Minimum Service Standards". In the quarterly Mystery Customer Survey co-ordinated by the PS21 Office, we have consistently achieved a 100% satisfactory mark. An internal Frontline Customer Service Audit helps to maintain ongoing service standards.

During the year, we received 4,485 and 1,660 returns through feedback forms and email respectively.

To recognise staff members for their contribution in quality service and work improvement initiatives, the following awards were presented:

- Nine Quarterly Outstanding Service to Customer Awards [OSCA]
- One Annual OSCA Award
- One Team Outstanding Quality Improvement Award



Moving Forward

HSA will continually seek to strengthen our fundamentals – to make the organisation's Core Values resonate with all HSAians, and streamline and improve our processes further in support of HSA's overall organisational developments. To ensure better organisation-wide alignment of strategic directions and systems, we will be pursuing an integrated Organisational Excellence re-certification under the refined niche standards of I-Class and PDS. Together, we will transform aspirations into reality as we make HSA the leading innovative authority protecting and advancing national health and safety.

Crossing International Borders

International Visitors

Date	Visits By:
4 April 2006	Dr Margaret Stark, Past President, Association of Forensic Physicians, Principal Forensic Physician, Metropolitan Police; St George's Hospital Medical School, University of London
8 May 2006	Professor Randall Alberte, Director, Department of Biotechnology, Florida Gulf Coast University, USA
30 May 2006	Delegation from Rajamangala University of Technology, Thailand, led by Dr Philip John Barlow
12 - 16 June 2006	Mr Suteep Bussayamanont, Senior Pharmacist/Senior GMP Inspector; Mr Dumrong Thitikornkovit, Senior Pharmacist/Senior GMP Inspector; Mr Maitree Cheewakulprasit, Pharmacist/GMP Inspector; Mr Sermrat Chaiyakun, Pharmacist/GMP Inspector, Drug Control Division, Thai Food and Drug Administration
12 June - 9 July 2006	Mr Chang Hong-Tsang, Document Examiner, Forensic Science Division, Criminal Investigation Bureau, Taiwan, Republic of China
16 June 2006	11-member medical delegation from the Indonesian Red Cross
19 - 30 June 2006	Mr Chang Wei-Pin and Ms Liu Hui-Fen, Document Examiners, Laboratory Division, Investigation Bureau, Ministry of Justice, Taiwan, Republic of China
20 June 2006	• 4-member delegation from the Department of Scientific Services, Brunei • Professor Harry Fong, Professor Emeritus of Pharmacognosy, Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois, Chicago, USA
29 June 2006	Dra. Retno Utami, Head of Subdirectorate of Inspection and Certification of Manufacturing Control of Therapeutic Product and Household Product and Dra. Togi Hutadjulu, MHA, Quality Assurance Manager for GMP Unit, National Agency of Drug and Food Control, Indonesia

Date	Visits By:
3 July 2006	Mr Eric Davies, Forensic Firearms Investigator [Expert], Australian Federal Police and Sergeant Wayne Bennet, Ballistics Unit, Police HQ, Brisbane, Australia
5 July 2006	6-member medical delegation from the Pakistan Blood Bank
25 July 2006	Dr David Briggs, Director of the Office of Complementary Medicines, Therapeutic Goods Administration, Australia
31 July - 8 August 2006	Ms Rosni Jair, Acting Principal Pharmaceutical Chemist and Ms Zubaidah Mahmud, Scientific Officer, Drug Quality Control Section, Department of Pharmaceutical Services, Ministry of Health, Brunei
8 August 2006	10-member delegation from Brunei's Ministry of Health led by its Deputy Minister of Health Yang Berhormat Pehin Orang Kaya Pekerma Lela Diraja Dato Paduka Haji Hazair bin Haji Abdullah
23 August 2006	Sergeant Gerard Dutton, Officer-in-charge, Ballistics Section, Forensic Services, Tasmania Police, Australia
31 August - 1 September 2006	• Dr Richard Nesbit, Acting WHO-WPRO Regional Director • Dr Han Tieru, WHO Representative for Brunei Darussalam, Malaysia and Singapore
4 September 2006	• Dr Arthur J Eisenberg, Director, DNA Identity Laboratory, Health Science Centre, University of Texas, USA • Dr Bruce Budowle, Senior Scientist, Laboratory Division, Federal Bureau of Investigation, USA • Dr Budsaba Rerkamnuaychoke, Head, Human Genetics Unit, Department of Pathology, Faculty of Medicine, Ramathibodi Hospital, Thailand • Dr Nguyen Van Ha, Principal Investigator, DNA Lab, Institute of Forensic Science, Vietnam • Dr Herawati Sudoyo, Head, DNA Identification Unit, Eijkman Institute for Molecular Biology, Indonesia • Mr Lim Kong Boon, Branch Director, Department of Chemistry, Malaysia, Kuching, Sarawak

Date	Visits By:
19 September - 11 December 2006	4-member medical delegation from Regional Blood Transfusion Centres, Vietnam led by Professor Nguyen Anh Tri, Director, National Institute of Haematology and Blood Transfusion, Hanoi, Vietnam
27 September 2006	Dr Paul Coates, Director, Office of Dietary Supplements, National Institutes of Health, USA
27 - 28 September 2006	Dr Shaw Chen, Associate Director for Office for Drug Evaluation 1, Centre for Drug Evaluation and Research, Food and Drug Administration, USA
5 - 6 October 2006	Dr Mark Doverty, Assistant Secretary, Manufacturers Assessment Branch, Therapeutic Goods Administration, Australia
17 October 2006	Delegation from the Shanghai Innovation Research Centre for TCM, China
30 October - 10 November 2006	Mr Hu Jun, Chief of Division, Division of Evaluation I, Centre for Drug Evaluation, State Food and Drug Administration, China
17 November 2006	• Mr Ivan Ng Kuok Leong, Chief of Division of Pharmacovigilance & Pharmacoeconomics of the Government of Macau Special Administrative Region Health Bureau, China • 8-member delegation led by Mr Han Li Xin, Director, Economic Bureau, State Food and Drug Administration, China
20 - 21 November 2006	13-member delegation from Forensic Science Division, Criminal Investigation Bureau, Taiwan, Republic of China
28 November 2006	10-member delegation from Laboratory Division, Investigation Bureau, Ministry of Justice, Taiwan, Republic of China
29 November 2006	Dr Yin Hsin Ling, Institute of Forensic Medicine, Ministry of Justice, Department of Forensic Pathology, Taiwan, Republic of China
30 November - 1 December 2006	6-member delegation from the National Institute of Haematology and Blood Transfusion, Hanoi, Vietnam led by its Director, Professor Nguyen Anh Tri

Date	Visits By:
4 - 7 December 2006	7-member delegation from Ministry of Health, Indonesia
5 December 2006	Ms Su-Ryun Kim and Ms Sojin Sung, Pharmaceuticals Team, Korea Food and Drug Administration
13 - 14 December 2006	Mr Wang Ting-Cheng and Mr Chiang Shih Hung, Forensic Science Centre of Kaoshiung Municipal Police Headquarters, Taiwan, Republic of China
13 January 2007	Dr Elzaruta Arbain, Sub Directorate of Family Physician, Ministry of Health, Indonesia
8 February 2007	• Dr Panadda Silva, Director, Bureau of Laboratory Quality Standards, Department of Medical Sciences, Ministry of Public Health, Thailand • 4-member delegation from Ministry of Health, Brunei led by Minister of Health, Mr HE Pehin Dato Suyoi Osman
23 February - 2 March 2007	Professor Jeffrey McCullough, Director, Biomedical Engineering Institute, University of Minnesota, Minneapolis, USA
1 March 2007	Sergeant Mark Reynolds, Vice-President Region VI [Pacific Rim] Chapter, International Association of Bloodstain Pattern Analysts, Western Australia Police Service
6 March 2007	• Ms McSweeney Kim, Medical Technologist, Jakarta Embassy • Ms Nancy Manahan, Regional Director, US Embassy
9 March 2007	Mr Guy McCullough, National Quality & Systems Manager, Australian Red Cross Blood Service

Date	Visits By:
26 - 29 March 2007	• Mr Akira Miyajima, Chief Executive and Mr Shigeki Tsuda, Director, Internal Affairs & Human Resources Development Division, Pharmaceuticals and Medical Devices Agency, Japan • Mr Abida Syed M Haq, Principal Assistant Director, Centre for Organisational Development, National Pharmaceutical Control Bureau, Malaysia • Dr Husniah Rubiana, Head, Ms Kustantinah, Director, Control of Production of Therapeutic Product and Household Product and Ms Niniek Sudiyani, Director, Traditional Medicine, Food Supplement and Cosmetic Evaluation, National Agency for Drug and Food Control, Indonesia • Dr Siriwat Thiptaradol, Secretary General, Thai Food and Drug Administraion • Dr Precious Matsoso, Director, Technical Cooperation for Essential Drugs and Traditional Medicines, World Health Organisation
30 March 2007	• 8-member delegation from The International Association of Forensic Toxicologists [TIAFT], France led by its President, Dr Pascal Kintz • 24-member delegation from The National Institute of Haematology and Blood Transfusion, Hanoi, Vietnam led by its Director, Professor Nguyen Anh Tri

Discovering Uncharted Territories

Research Papers and Projects

Pharmaceuticals and Health-related Products Regulation

TITLE OF RESEARCH PAPER	AUTHOR[S]	PROFESSIONAL PUBLICATION
Drug-induced Liver Injury at an Asian Centre: A Prospective Study	Wai Chun Tao, Tan Bee Him, Chan Cheng Leng, Dede S. Sutedja, Lee Yin Mei, Christopher Khor & Lim Seng Gee	Liver International 2007; 27[4]: 465-74
Multistate Outbreak of Fusarium Keratitis Associated with Use of Contact Lens Solution	Chang DC, Grant B, Park Benjamin, et al & Chan Cheng Leng	Journal of American Association JAMA 2006; 296[8]: 953-63

TITLE OF RESEARCH PRESENTATION	AUTHOR[S]	PROFESSIONAL EVENT
Pharmacovigilance in Singapore	Chan Cheng Leng	Advanced Good Clinical Practice Course on Pharmacovigilance, Yong Loo Lin School of Medicine, National University of Singapore, 28 July 2006

Transfusion Medicine

TITLE OF RESEARCH PRESENTATION	AUTHOR[S]	PROFESSIONAL EVENT
Looking at Factors Governing Failure Rate in Phlebotomy	Loh Siew Leng, Toh Ching Lian, Norhayati Mohd Amir, Dr Mickey Koh & Dr Diana Teo	XXIV International Society of Blood Transfusion [ISBT] Regional Congress, Cape Town, 2 – 7 September 2006
A Haemovigilance Study of the Appropriateness of Fresh Frozen Plasma Transfusion in Singapore	Ramir Alcantara, Ng Heng Joo, Dr Mickey Koh & Dr Tan Hwee Huang	XXIV International Society of Blood Transfusion [ISBT] Regional Congress, Cape Town, 2 – 7 September 2006
Can the Minimum Donation Interval be Reduced Without Increasing the Threshold Haemoglobin Requirement? A Feasibility Study Using Serum Ferritin as an Indicator of Iron Stores	Dr Jharna N Shah, Dr Theyventheran T Devarajan, Toh Ching Lian & Dr Tan Hwee Huang	XXIV International Society of Blood Transfusion [ISBT] Regional Congress, Cape Town, 2 – 7 September 2006
Natural Killer Cells: Promising Candidates in Cancer Cell Therapy	Dr Garnet Suck	4th Annual Scientific Symposium on Transfusion Immunology and Related Topics: Cellular Therapy, Toronto, Canada, 16 September 2006

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
Development of a Multi-Centre Comprehensive Cellular Immunotherapy Programme	Dr Mickey Koh, Dr Marieta Chan, Dr Garnet Suck, Lim Tsyr Jong & Madelaine Niam

Transfusion Medicine [cont'd]

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR(S)
A Prevalence Study of Dengue Virus in Singapore Blood Donor Population	Dr Diana Teo, Sally Lam & Associate Professor Evelyn Koay
Study on the Efficacy of Inactivation of Dengue Virus by Photochemical Reaction Using Amotosalen [S-59] and UVA	Dr Mickey Koh, Sally Lam, Dr Ng Lee Ching, Tan Hwee Cheng & Tan Li Kiang
Development and Implementation of a Rh Anti-D Quantitation Procedure	Dr Marieta Chan, Michael Ng Weng Yik, Leou Kwee Kim, Kang Kok Sheng, Neo Theng Hee & Dr Diana Teo
Study on the Genotyping of Rhesus Genes RHD and RHCE in the Three Main Races of Singapore	Dr Marieta Chan, Michael Ng Weng Yik, Leou Kwee Kim, Kang Kok Sheng & Dr Diana Teo
Correlative Studies on Panel Reactive Antibody of Highly Sensitized Patient Performed by Complement-Dependent Cytotoxicity [CDC] and Flow Cytometry	Dr Marieta Chan, Phang Chew Yen, Lai May Ling, Tang Ei Mei & Dr Diana Teo
A Prevalence Study of West Nile Virus in Singapore Blood Donor Population	Sally Lam, Dr Lawrence Kiong, Lynn Wong & Ng Kooi Sim
Enhancing NK Cell Cytotoxicity to Improve Current Cancer Cell Therapies by Ex Vivo Stimulation with Neuropeptides	Dr Garnet Suck, Dr Mickey Koh, Dr Donald R. Branch, Dr Tan Suet Mien, Dr Linn Yeh Ching, Madelaine Niam & Lim Tsyr Jong

Forensic Medicine

TITLE OF RESEARCH PAPER	AUTHOR[S]	PROFESSIONAL PUBLICATION
Post-Anaesthetic Maternal Death in a Patient with Mediastinal Large B-Cell Lymphoma – A Case Report	Associate Professor Gilbert Lau	Med Sci Law 2007; 47: 74-8
Buprenorphine Related Deaths in Singapore	Dr Lai Siang Hui & Dr Teo Eng Swee	Annals, Academy of Medicine; 35[7]: 508-511, July 2006
Shaken Infants: Controversies and Medical Evidence Revisited	Dr Teo Eng Swee	SGH Proceedings Vol 16, No 1, pp 20–27, 2007
SARS-CoV Virus-Host Interactions and Comparative Etiologies of Acute Respiratory Distress Syndrome as Determined by Transcriptional and Cytokine Profiling of Formalin-Fixed Paraffin-Embedded Tissues	Baas T, Taubenberger JK, Chong PY, Dr Paul Chui & Katze MG	J Interferon Cytokine Res., 26[5]: 309-17, May 2006

TITLE OF RESEARCH PRESENTATION	AUTHOR[S]	PROFESSIONAL EVENT
The Role of the Forensic Pathologist in Disaster Victim Identification	Associate Professor Gilbert Lau	A Primer in Disaster Victim Identification [DVI], Singapore, 13 – 17 February 2006
The Therapeutic Imperative and Latrogenic Fatalities: A Forensic Perspective	Associate Professor Gilbert Lau	18th International Symposium on the Forensic Sciences, Fremantle, Australia, 4 April 2006
Buprenorphine Related Deaths in Singapore: A 24-Month Series	Dr James Sim, Dr Lai Siang Hui, Dr Yao Yi Ju, Dr Angeline Yap Tiong Whei & Dr Danny Lo Siaw Teck	EAFS 2006, Helsinki, Finland, 13 – 16 June 2006

Forensic Medicine [cont'd]

TITLE OF RESEARCH PAPER	AUTHOR[S]	PROFESSIONAL EVENT
Behind the Scenes: Medical Aspects of Mass Disaster Investigations	Dr Wee Keng Poh	Refresher Course for ITE - Care Officers, 3 November 2006
Ultrasound-Guided Intraparenchymal Implantation of Plasmid-Electroporated Primary Hepatocytes Function as Autologous Insulin-Secreting Bioimplants: Evidence of Metabolic Correction and Delayed Secondary Complications in a Pre-Clinical Porcine Model of Diabetes Mellitus	Nelson Chen KF, Wong Jen San, Irene Kee HC, Dr Lai Siang Hui, Dr Thng Choon Hua, Ng Wai Har, Robert Ng TH, Jaichandran Sivalingam, Jason Villano, Pierce Chow KH & Oi Lian Kon	4th International Huaxia Congress of Endocrinology, Hong Kong SAR, China, 15 - 18 December 2006
Thinking out of the Box – Building a BSL4 Post Mortem Facility	Dr Paul Chui	2nd Asia Pacific Biosafety Association Conference 2007, Shangri-La Hotel, Singapore, 7 – 8 March 2007
The Coroner's System of Medico-Legal Investigation of Obstetric Deaths in Singapore	Dr Wee Keng Poh	6th Singapore Congress in Obstetrics and Gynaecology, Conrad Centennial, Singapore, 23 March 2007

Forensic Science

TITLE OF RESEACH PAPER	AUTHOR[S]	PROFESSIONAL PUBLICATION
A Survey of Buprenorphine Related Deaths in Singapore	Dr Lai Siang Hui, Dr Yao Yi Ju & Dr Danny Lo Siaw Teck	Forensic Science International, 162[1-3], 80-86, 2006

Forensic Science [cont'd]

TITLE OF RESEARCH PAPER	AUTHOR[S]	PROFESSIONAL PUBLICATION
A Study on the Levels of Difficulty in the Simulation of Individual Characteristics in a Signature	Lee Gek Kwee, Yap Bei Sing, Yang Chiew Yung, Wong-Lee Lee Tiang, Tan Sock Kim & Tan Koon Puay	Journal of the American Society of Questioned Document Examiners, Vol. 9, No. 1, 29-36, 2006
An Isothermal Primer Extension Method for Whole Genome Amplification of Fresh and Degraded DNA: Applications in Comparative Genomic Hybridisation, Genotyping and Mutation Screening	Cheryl Lee IP, Leong Siew Hong, Adrian Png EH, Choo Keng Wah, Dr Christopher Syn Kiu-Choong, Dennis Lim TH, Law Hai Yang & Kon Oi Lian	Nature Protocols 1:2185-2194, 2006
An Isothermal Method for Whole Genome Amplification of Fresh and Degraded DNA for Comparative Genomic Hybridisation, Genotyping and Mutation Detection	Cheryl Lee IP, Leong Siew Hong, Adrian Png EH, Choo Keng Wah, Dr Christopher Syn Kiu-Choong, Dennis Lim TH, Law Hai Yang & Kon Oi Lian	DNA Research, 13:77-88, 2006
Sequence Polymorphism of the Mitochondrial DNA Hypervariable Regions I and II in 205 Singapore Malays	Wong Hang Yee, June Tang Sheau Wei, Dr Bruce Budowle, Marc W. Allard, Dr Christopher Syn Kiu-Choong, Tan-Siew Wai Fun & Dr Chow Shui Tse	Legal Medicine, 9:33–37, 2007

Forensic Science [cont'd]

TITLE OF RESEARCH PRESENTATION	AUTHOR[S]	PROFESSIONAL EVENT
Analysis of Paraquat in Postmortem Specimens of a Paraquat-Related Death by HPLC	Dr Yao Yi Ju, Tan Chyh Yeng, Leong Hsiao Tung, Koh Tian Hwee, Eugene Goh & Dr Danny Lo Siaw Teck	44th International Meeting of the International Association of Forensic Toxicologists [TIAFT], Ljubljana, Solvenia, 26 August - 1 September 2006
Simultaneous Determination of Newer Anti-Epileptic Drugs [AEDs] by Liquid Chromatography Mass Spectrometry [LC-MS]	Tan Chyh Yeng, Eugene Goh, Leong Hsiao Tung, Koh Tian Hwee, Lee Hong Kheng, Dr Danny Lo Siaw Teck & Dr Yao Yi Ju	44th International Meeting of the International Association of Forensic Toxicologists [TIAFT], Ljubljana, Solvenia, 26 August - 1 September 2006
The Singapore Police Force DNA Database	Tan-Siew Wai Fun, Crystal Lai Liang Sung, Simon Lim Eng Seng, Doreen Ng Kim Kim & Dr Chow Shui Tse	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
A Rapid and Simple Elution Method of DNA from FTA Classical Cards	Simon Lim Eng Seng, Tan-Siew Wai Fun & Dr Chow Shui Tse	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
Evaluation of the Use of AmpF/STR® Identifiler™ STR Loci for the Inference of Ethnic Origins of Forensic Unknown DNA Profiles in Singapore	Wong Hang Yee, Simon Lim Eng Seng, Tan-Siew Wai Fun & Dr Chow Shui Tse	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
Crime Scene Investigations	Dr Michael Tay Ming Kiong	4th NUS-HSA Joint Scientific Workshop, National University of Singapore, 10 May 2006
Causes of Failure of a Bungy Cord	Dr Michael Tay Ming Kiong, Lim Chin Chin, Su Wanjing, Wong Soon Meng & Chia Poh Ling	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007

Forensic Science [cont'd]

TITLE OF RESEARCH PRESENTATION	AUTHOR[S]	PROFESSIONAL EVENT
A Mango Bait, a Missing Girl and a Murder	Lim Chin Chin, Chow Yuen San, Chia Poh Ling, Lim Thiam Bon, Kuah Kim Lian, Kee Koh Kheng & Dr Michael Tay Ming Kiong	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
Forensic Analysis of Flesh and Flavor Compounds in Stone Fruits	Lim Chin Chin, Chia Poh Ling, Irene Tan, Su Wanjing & Dr Michael Tay Ming Kiong	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
Suspicious Fall of a Young Child from a Height	Dr Michael Tay Ming Kiong & Lim Chin Chin	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
Identifying Energetic and Hazardous Substances – the Singapore Experience	Dr Michael Tay Ming Kiong & Lim Chin Chin	First International CBRE Ops Conference, Singapore, 28 November – 1 December 2006

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
A Survey of the Abuse of Heroin in Singapore	Wendy Lim Jong Lee, Dr Angeline Yap Tiong Whei, Merula Mangudi, Tan Ying Ying, Wong Yen Ling, Song Shin Miin & Dr Lee Tong Kooi
A Survey of the Abuse of Cannabis in Singapore	Wendy Lim Jong Lee, Dr Angeline Yap Tiong Whei, Merula Mangudi, Tan Ying Ying, Wong Yen Ling, Song Shin Miin & Dr Lee Tong Kooi
Evaluation of Drug Testing Kits	Dr Angeline Yap Tiong Whei, Merula Mangudi, Rosalind Chia Sioh Chuang, Pang Shih Yun & Dr Lee Tong Kooi

Forensic Science [cont'd]

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
Simulation of Chinese Signatures Written in Regular Form	Lee Gek Kwee, Yap Bei Sing, Yang Chiew Yung, Wong-Lee Lee Tiang & Tan Sock Kim
Development of a SNP Detection Method in Forensic DNA Typing	Wong Hang Yee, Simon Lim Eng Seng & Tan-Siew Wai Fun
Synthesis and Characterisation of Urea Nitrate Explosive	Lim Chin Chin, Chia Poh Ling, Lim Thiam Bon, Vicky Chow Yuen San, Kuah Kim Lian, Kee Koh Kheng & Dr Michael Tay Ming Kiong
The Importance of Good GSR Contamination Prevention Practices in a Forensic Laboratory	Lee Lin Kiak, Vicky Chow Yuen San, Lim Chin Chin & Dr Michael Tay Ming Kiong
Application of Negative Chemical Ionisation to the Detection of High Explosives	Chia Poh Ling, Lim Chin Chin & Dr Michael Tay Ming Kiong
Raman and GC/MS Analysis of Lachrymatory Substances	Lim Chin Chin, Vicky Chow Yuen San, Chia Poh Ling, Su Wanjing, Irene Tan & Dr Michael Tay Ming Kiong

Analytical Science

TITLE OF RESEARCH PAPER/JOURNALS	AUTHOR[S]	PROFESSIONAL PUBLICATION
Electrospray Tandem Mass Spectrometric Investigations of Tadalafil and its Analogue	Zou Peng, Low Min Yong & Koh Hwee Ling	Rapid Communication in Mass Spectrometry, [20] 3488, 2006
Structural Identification of a New Acetildenafil Analogue Detected in a Premixed Bulk Powder	Zou Peng, Low Min Yong & Koh Hwee Ling	Food Additives and Contaminants, [23] 870, 2006
Determination of Sibutramine, its two Metabolites and one Analogue in a Herbal Product for Weight Loss by Liquid Chromatography Triple Quadrupole Mass Spectrometry and Time-Of-Flight Mass Spectrometry	Zou Peng, Sharon Oh Sze Yin, Joyce Kiang, Low Min Yong & Bosco Chen Bloodworth	Rapid Communication in Mass Spectrometry, [21] 614-618, 2007
Single Laboratory Validation of a Method for the Determination of Bisphenol A, Bisphenol A Diglycidyl Ether and its Derivatives in Canned Foods by Reversed-Phase Liquid Chromatography	Debbie Sun Cuilian, Leong Lai Peng, Philip John Barlow, Joanne Chan Sheot Harn & Bosco Chen Bloodworth	J. Chrom. A, 1129, 145-148, 2006
Determination of Isopropyl-9H-Thioxanthen-9-One in Packaged Beverages by SPE Clean-Up and Liquid Chromatography with Tandem Mass Spectrometry Detection	Debbie Sun Cuilian, Joanne Chan Sheot Harn, Dan Lu, Wendy Lee Hui Min & Bosco Chen Bloodworth	J. Chrom. A, 1143, 162-167, 2007
Environmental Toxicology and Health in Singapore	Bosco Chen Bloodworth, Rajasekhar Balasubramaniam, Lee Hian Kee, Jeffrey Obbard & Sam Kacew	Journal of Toxicology and Environmental Health, Part A, 69:1893, 2006

Analytical Science [cont'd]

TITLE OF RESEARCH PRESENATION	AUTHOR[S]	PROFESSIONAL EVENT
The Analysis of Multiple Mycotoxins in Food Matrices by HPLC/MS/MS	Lin Min Lee, Joanne Chan Sheot Harn & Bosco Chen Bloodworth	International Congress on Analytical Sciences [ICAS], Moscow, Russia, 25 – 30 June 2006
HPLC Analysis of Bisphenol A Diglycidyl Ether, Bisphenol F Diglycidyl Ether and Their Reaction Products in Canned Coatings and Food	Debbie Sun Cuilian	International Symposium on Chromatography, Copenhagen, Denmark, 21 – 25 August 2006
Determination of 2-Isopropyl Thioxanthone [ITX] in Food by SPE Cleanup and Liquid Chromatography with Tandem Mass Spectrometry Detection	Joanne Chan Sheot Harn	120th AOAC International Annual Meeting & Exposition, Minneapolis, USA, 17 – 21 September 2006
Detection of Irradiated Foods by Photostimulated Luminescence [PSL] and Thermoluminescence [TL] Techniques	Angela Li	HSA Professional Staff Seminar, 22 February 2007

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
Analysis of Metals, Inorganic and Organic Constituents in Water Samples	Dr Patrick Chow, See Phek Hah, Tan Buay Ting, Tan-Chew Kim Kee & Yuen Kim Loong
Development of Turbo Ionspray HPLC Tandem Mass Spectrometry Procedures to Determine Bisphenol A and Related Substances in Canned Foods	Joanne Chan Sheot Harn, Dr Loke Swee Leng, Lee Lin Min, Yap Wee Kim & Debbie Sun Cuilian
Pressurized Solvent Extraction of Food	Debbie Sun Cuilian, Joanne Chan Sheot Harn & Wendy Lee Hui Min

Analytical Science [cont'd]

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
Analysis of Brominated Flame Retardants in Food	Joanne Chan Sheot Harn, Wendy Lee Hui Min, Lee Lin Min, Lim Thye Hin, Debbie Sun Cuilian & Angela Li
Dissolution of Fungicides in Chopsticks	Angela Li, Poon-Yeo Siew Lan & Lai Kit Kee
Mycotoxins in Chinese Herbs	Debbie Sun Cuilian, Joanne Chan Sheot Harn, Lim Ze Wei, Serene Toh Hwee Khim, Lai Kit Yee & Wendy Lee Hui Min
Determination of Pyrrolizidine Alkaloids in Chinese Herbs and Chinese Proprietary Medicine	Joyce Kiang, Low Min Yong, Sharon Oh Sze Yin, Tiong Chai Ling & Tan-Yio Oon Boon
Determination of Organovhlorine and Organophorus Pesticide Residues In Chinese Proprietary Medicine	Low Min Yong, Sharon Oh Sze Yin, Joyce Kiang, Tan-Yio Oon Boon & Len Shea Mei
Determination of Cadium in Herbal Products by Microwave Digestion with Inductively Coupled Plasma – Mass Spectroscopy	Sharon Oh Sze Yin, Heeiah Gek Keow, Ng Wai Har, Len Shea Mei & Tan-Yio Oon Boon
Pressurized Solvent Extraction Combined with LC-MS/MS for Determination of Naturally-Occurring Toxic Alkaloids in Herbal Medicines	Low Min Yong, Sharon Oh Sze Yin, Joyce Kiang, Tan-Yio Oon Boon, Lim Meiyu & Tiong Chai Ling
Analysis of Organic Arsenic in Health Supplements by HPLC-ICP/MS	Low Min Yong, Sharon Oh Sze Yin, Joyce Kiang & Tan-Yio Oon Boon

Analytical Science [cont'd]

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
Screening of Western Drugs Adulterants in Capsule Shells	Low Min Yong, Sharon Oh Sze Yin, Joyce Kiang & Chay Lai Fong
Study on Pesticide Residues in Chinese Proprietary Medicines	Low Min Yong, Sharon Oh Sze Yin, Joyce Kiang & Lim Meiyu
Quantification of Prohibited and Restricted Hair Dyes in Cosmetic Products Using Chromatographic Techniques Coupled with Diode Array Detection	Cheah Nuan Ping, Low Min Yong & Faridatul Akmam Morsed
Tar and Nicotine Survey of Cigars on Sale in Singapore	Cheah Nuan Ping, Faridatul Akmam Morsed & Gomathi Bala
Simultaneous Quantitation of Lead, Copper, Arsenic, Cadmium and Thallium Using Microwave Digestion Coupled with Flow Injection Analysis System – Inductively Coupled Plasma Mass Spectrometry in Cosmetic Product	Cheah Nuan Ping, Wong-Neo Geok Eng, Faridatul Akmam Morsed & Gomathi Bala

Annual Financial Statements

Financial Year ended 31 March 2007

STATEMENT BY THE HEALTH SCIENCES AUTHORITY

In our opinion, the accompanying financial statements of the Health Sciences Authority (the Authority) as set out on pages 3 to 35 are drawn up so as to give a true and fair view of the state of affairs of the Authority as at 31 March 2007 and of the results, changes in equity and cash flows of the Authority for the financial year then ended.

On Behalf of the Authority

Prof Low Teck Seng
Acting Chairman

Dr John Lim
Chief Executive Officer

Singapore
26 June 2007

INDEPENDENT AUDITORS' REPORT TO HEALTH SCIENCES AUTHORITY

We have audited the accompanying financial statements of Health Sciences Authority (the "Authority") set out on pages 3 to 35, which comprise the balance sheet of the Authority as at 31 March 2007, the income and expenditure statement, the statement of changes in equity and cash flow statement of the Authority for the year then ended, and a summary of significant accounting policies and other explanatory notes. The financial statements for the financial year ended 31 March 2006 were audited by another auditor whose report dated 23 June 2006 expressed an unqualified opinion on those financial statements.

Management's responsibility for the financial statements

The Authority's management are responsible for the preparation and fair presentation of these financial statements in accordance with the Health Sciences Authority Act (Cap. 122C, 2002 Revised Edition) (the Act) and Singapore Financial Reporting Standards. This responsibility includes: designing, implementing and maintaining internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

Auditors' responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with the Singapore Standards on Auditing. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

In our opinion,

(i) the financial statements of the Authority are properly drawn up in accordance with the provisions of the Act and Singapore Financial Reporting Standards so as to give a true and fair view of the state of affairs of the Authority as at 31 March 2007 and the results, changes in equity and cash flows of the Authority for the year ended on that date; and

(ii) proper accounting and other records have been kept, including records of all assets of the Authority whether purchased, donated or otherwise.

During the course of our audit, nothing came to our notice that caused us to believe that the receipt, expenditure and investments of monies and the acquisition and disposal of assets by the Authority during the year have not been in accordance with the provisions of the Act.

ERNST & YOUNG
Certified Public Accountants

26 June 2007

BALANCE SHEET as at 31 March 2007

	Note	2006/2007 $	2005/2006 $ (Restated)
Equity			
Capital account	4	54,268,001	51,115,079
Accumulated surplus/(deficit)		1,848,927	(1,813,962)
Total equity		56,116,928	49,301,117
Represented by:			
Non-current asset			
Property, plant and equipment	5	90,122,739	91,853,803
Intangibles	6	11,960,395	13,273,797
Current assets			
Cash and cash equivalents	7	25,939,882	25,316,428
Trade receivables	8	11,891,961	7,308,510
Grants receivables	9	592,176	395,812
Other receivables	10	67,968	2,173,929
Prepayments		1,348,565	887,702
Inventories	11	1,785,394	1,624,602
		41,625,946	37,706,983
Current liabilities			
Trade payables	12	(9,275,430)	(3,862,307)
Other payables and accruals	13	(7,915,708)	(8,729,558)
Licence fees collected in advance		(3,943,482)	(3,467,441)
Finance lease payable	14	(52,500)	(52,500)
Provision for pension benefits	15	(313,717)	(847,560)
Long-term loans	16	(2,512,690)	(2,512,690)
Grants received in advance:			
Government	17	(4,495,817)	(8,627,928)
Non-government	18	(254,895)	(164,289)
Deferred capital grants and donations	19	(7,009,413)	(6,326,176)
		(35,773,652)	(34,590,449)
Net current assets		5,852,294	3,116,534
Less: Non-current liabilities			
Deferred capital grants and donations	19	(19,222,025)	(24,090,415)
Licence fee collected in advance		(208,064)	(243,286)
Finance lease payable	14	(91,875)	(144,375)
Provision for pension benefits	15	(4,521,157)	(4,176,872)
Long-term loans	16	(27,775,379)	(30,288,069)
		(51,818,500)	(58,943,017)
Net assets		56,116,928	49,301,117

The accompanying accounting policies and explanatory notes form an integral part of the financial statements.

INCOME AND EXPENDITURE STATEMENT for the financial year ended 31 March 2007

	Note	2006/2007 $	2005/2006 $
Income			
Laboratory analysis fees		21,608,234	20,716,903
Blood processing fees		19,130,730	17,202,937
Patient laboratory testing fees		1,847,548	2,356,454
Forensic investigation fees		7,354,449	6,468,187
Licensing fees		7,377,623	6,374,846
Professional service fees		1,093,648	1,549,250
Other income	20	1,648,596	1,111,507
		60,060,828	55,780,084
Expenditure			
Staff costs	21	40,935,000	38,447,445
Staff welfare and development		2,220,744	2,240,446
Supplies and services		16,454,761	14,862,214
Rental of premises and equipment		2,425,875	2,468,646
Blood donor expenses		3,436,338	3,234,472
Repairs and maintenance		6,233,006	5,532,613
Depreciation of property, plant and equipment	5	6,079,647	5,306,930
Amortisation of intangible	6	4,356,824	3,949,761
Professional services		3,101,413	2,759,888
Utilities		1,196,097	1,053,304
Transport, postages and communications		1,233,290	1,047,267
Publicity and public relations		178,557	103,737
Finance costs	22	1,214,068	1,298,994
Other operating expenses	23	1,957,027	1,736,732
		91,022,647	84,042,449
Deficit before grants		(30,961,819)	(28,262,365)
Grants			
Government grants	17	27,682,539	20,464,723
Non-government grants	18	177,090	1,525,147
Deferred capital grants amortised	19	6,765,079	6,564,441
		34,624,708	28,554,311
Surplus before statutory contribution to consolidated fund		3,662,889	291,946
Statutory contribution to consolidated fund	24	–	–
Surplus for the year		3,662,889	291,946

The accompanying accounting policies and explanatory notes form an integral part of the financial statements.

STATEMENT OF CHANGES IN EQUITY for the financial year ended 31 March 2007

	Note	Capital Amount $	Accumulated Surplus/ (deficit) $	Total $
Balance as at 31 March 2005		48,124,270	(2,105,908)	46,018,362
Issue of shares to Minister for Finance	4	2,990,809	-	2,990,809
Surplus for the year		-	291,946	291,946
Balance as at 31 March 2006		51,115,079	(1,813,962)	49,301,117
Issue of shares to Minister for Finance	4	3,152,922	-	3,152,922
Surplus for the year		-	3,662,889	3,662,889
Balance as at 31 March 2007		54,268,001	1,848,927	56,116,928

The accompanying accounting policies and explanatory notes form an integral part of the financial statements.

CASH FLOW STATEMENT for the financial year ended 31 March 2007

	Note	2006/2007 $	2005/2006 $
Cash flows from operating activities:			
Deficit before grants		(30,961,819)	(28,262,365)
Adjustments for:			
Depreciation of property, plant and equipment	5	6,079,647	5,306,930
Amortisation of intangibles	6	4,356,824	3,949,761
Interest income	20	(625,865)	(337,140)
Interest expense	22	1,214,068	1,298,994
Loss on disposal of property, plant and equipment	23	24,657	1,243
Loss on disposal of intangibles	23	178	-
Allowance for doubtful trade receivables	23	10,381	-
Write-off of inventories	23	9,862	11,463
Deficit before working capital changes		(19,892,067)	(18,031,114)
Operating cash flows before working capital changes:			
Increase in trade receivables		(4,593,832)	(1,506,603)
Decrease in other receivables		2,105,961	287,970
Increase in prepayments		(460,863)	(347,255)
Increase in inventories		(170,654)	(175,017)
Increase in trade payables		5,413,123	101,973
(Decrease)/increase in other payables and accruals		(813,850)	2,536,305
(Decrease)/increase in provision for pension benefits		(189,558)	921,234
Increase/(decrease) in licence fee received in advance		440,819	(103,120)
Net cash used in operating activities		(18,160,921)	(16,315,627)
Cash flows from investing activities:			
Proceeds from disposal of property, plant and equipment		2,092	280
Purchase of property, plant and equipment		(4,375,332)	(5,311,030)
Purchase of intangible		(3,043,600)	(1,788,921)
Interest received		625,865	337,140
Net cash used in investing activities		(6,790,975)	(6,762,531)

The accompanying accounting policies and explanatory notes form an integral part of the financial statements.

CASH FLOW STATEMENT for the financial year ended 31 March 2007

	Note	2006/2007 $	2005/2006 $
Cash flows from financing activities:			
Proceeds from issue of shares to Minister for Finance	4	3,152,922	2,990,809
Repayment of interest-bearing loan		(2,512,690)	(2,512,690)
Interest paid		(1,214,068)	(1,298,994)
Finance lease repayment		(52,500)	(14,948)
Government grants received	17	25,451,176	30,991,753
Non-government grants and donations received	18	505,267	3,538,631
Government grants received	19	245,243	-
Net cash from financing activities		25,575,350	33,694,561
Net increase in cash and cash equivalents		623,454	10,616,403
Cash and cash equivalents at beginning of the year		25,316,428	14,700,025
Cash and cash equivalents at end of the year		25,939,882	25,316,428

The accompanying accounting policies and explanatory notes form an integral part of the financial statements.

1. General

The Health Sciences Authority (the "Authority") is a statutory board established in the Republic of Singapore under the Health Sciences Authority Act 2001 on 1 April 2001 under the purview of the Ministry of Health ("MOH"). As a statutory board, the Authority is subject to the directions of MOH and is required to follow policies and instructions issued from time to time by its supervising ministry and other government ministries and departments such as the Ministry of Finance ("MOF").

The address and principal place of business of the Authority is 11 Outram Road, Singapore 169078. The principal activities of the Authority are:

(a) to regulate the import, manufacture, sale, disposal, transport, storage, possession and use of cosmetics, medicines, medical devices and other health-related products, tobacco products, radioactive materials and irradiating apparatuses;

(b) to conduct technological assessments of medicines, cosmetics, medical devices and other health-related products for the purpose of determining their efficacy, safety and suitability for consumption and use in Singapore and to advise the Government thereon;

(c) to collect and co-ordinate the collection of blood from donors and to test, process and distribute such blood and the related products for the purpose of building and maintaining a safe and adequate national blood supply;

(d) to provide professional, investigative and analytical services in health sciences to the Government and to any other person or body (whether in Singapore or elsewhere);

(e) to conduct or engage any other person to conduct research in health sciences, and generally to promote the development of health sciences; and

(f) to act internationally as the national authority or representative of Singapore in respect of matters related to health sciences.

There have been no significant changes in the nature of these activities during the financial year.

2. Significant accounting policies

2.1 Basis of accounting

The financial statements of the Authority, have been drawn up in accordance with the provisions of the Health Sciences Authority Act (the "Act") (Chapter 122C, 22 Revised Edition) and the Singapore Financial Reporting Standards ("FRS").

The financial statements have been prepared on a historical cost basis.

The financial statements are presented in Singapore Dollars (SGD or $).

The accounting policies have been consistently applied by the Authority and are consistent with those used in the previous financial year.

2.2 FRS and INT FRS not yet effective

The Authority has not applied the following FRS and INT FRS that have been issued but not yet effective:

No.		Title	Effective date (annual periods beginning on or after)
FRS 1	:	Amendment to FRS 1 (revised), Presentation of Financial Statements (Capital Disclosures)	1 January 2008
FRS 40	:	Investment Property	1 January 2007
FRS 107	:	Financial Instruments: Disclosures	1 January 2008
FRS 108	:	Operating Segments	1 January 2009
INT FRS 108	:	Scope of FRS 102, Share-based Payment	1 May 2006
INT FRS 109	:	Reassessment of Embedded Derivatives	1 June 2006
INT FRS 110	:	Interim Financial Reporting and Impairment	1 November 2006
INT FRS 111	:	Group and Treasury Share Transactions	1 March 2007
INT FRS 112	:	Service Concession Arrangements	1 January 2008

The Authority expects that the adoption of the above pronouncements will not have a significant impact on the financial statements in the period of initial application, except for FRS 107 and the amendment to FRS 1 as indicated below.

FRS 107, Financial Instruments: Disclosures and amendment to FRS 1 (revised), Presentation of financial statements (Capital Disclosures)

2.2 FRS and INT FRS not yet effective (cont'd)

FRS 107 introduces new disclosures to improve the information about financial instruments. It requires the disclosure of qualitative and quantitative information about exposure to risks arising from financial instruments, including specified minimum disclosures about credit risk, liquidity risk and market risk, including sensitivity analysis to market risk. The amendment to FRS 1 requires the Authority to make new disclosures to enable users of the financial statements to evaluate the Authority's objectives, policies and processes for managing capital. The Authority will apply the amendment to FRS 1 and FRS 107 from annual period beginning 1 April 2008

2.3 Significant accounting estimates and judgements

Estimates, assumptions concerning the future and judgements are made in the preparation of the financial statements. They affect the application of the Authority's accounting policies, reported amounts of assets, liabilities, income and expenses, and disclosures made. They are assessed on an on-going basis and are based on experience and relevant factors, including expectations of future events that are believed to be reasonable under the circumstances.

(a) Key sources of estimation uncertainty

The key assumptions concerning the future and other key sources of estimation uncertainty at the balance sheet date, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are discussed below.

The cost of property, plant and equipment and intangibles for the operations of the Authority is depreciated on a straight-line basis over the useful lives. Management estimates the useful lives of these property, plant and equipment and intangibles to be within 5 to 60 years and within 3 to 5 years respectively. These are common life expectancies applied in this industry. The carrying amount of the Authority's property, plant and equipment and intangibles at 31 March 2007 was $90,122,739 (2005: $91,853,803) and $11,960,395 (2005: $13,273,797) respectively. Changes in the expected level of usage and technological developments could impact the economic useful lives and the residual values of these assets, therefore future depreciation charges could be revised.

2.3 Significant accounting estimates and judgements (cont'd)

(b) Critical judgements made in applying accounting policies

The judgement made by management in the process of applying the Authority's accounting policies that have the most significant effect on the amounts recognised in the financial statements is discussed below.

Impairment of financial assets

The Authority follows the guidance of FRS 39 on determining when a financial asset is other-than-temporary impaired. This determination requires significant judgement. The Authority evaluates, among other factors, the duration and extent to which the fair value of a financial asset is less than its cost; and the financial health of and near-term business outlook for the financial asset, including factors such as industry performance, changes in technology and operational and financing cash flow.

2.4 Functional and foreign currency

Foreign currency transactions

Transactions in foreign currencies are measured in SGD, the functional currency of the Authority and are recorded on initial recognition in SGD at exchange rates approximating those ruling at the transaction dates. Monetary assets and liabilities denominated in foreign currencies are translated at the closing rate of exchange ruling at the balance sheet date. Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rates as at the dates of the initial transactions.

Exchange differences arising on the settlement of monetary items or on translating monetary items at the balance sheet date are recognised in the income and expenditure statement.

2.5 Property, plant and equipment

All items of property, plant and equipment are initially recorded at cost. Subsequent to recognition, property, plant and equipment are stated at cost less accumulated depreciation and accumulated impairment loss.

2.5 Property, plant and equipment (cont'd)

The initial cost of fixed assets comprises its purchase price, including import duties and non-refundable purchase taxes and any directly attributable costs of bringing the asset to its working condition and location for its intended use. Expenditure incurred after the fixed assets have been put into operation, such as repairs and maintenance, is normally charged to the income and expenditure statement in the period in which the costs are incurred. In situations where it can be clearly demonstrated that the expenditure has resulted in an increase in the future economic benefits expected to be obtained from the use of an item of fixed assets beyond its originally assessed standard of performance, the expenditure is capitalised as an additional cost of fixed asset.

In general, plant and equipment costing less than $2,000 each, are charged to the income and expenditure statement in the year of purchase.

Depreciation of an asset begins when it is available for use and is computed on a straight-line basis over the estimated useful life of the assets as follows:

Leasehold land and building	60 years (based on lease period)
Building improvements	20 years (based on useful life of asset)
Computer hardware	3 to 5 years
Motor vehicles	10 years
Scientific and medical equipment	5 years
Other equipment, furniture and fittings	5 to 10 years

Assets under construction included in plant and equipment are not depreciated as these assets are not available for use.

The carrying values of property, plant and equipment are reviewed for impairment when events or changes in circumstances indicate that the carrying value may not be recoverable.

The residual value, useful life and depreciation method are reviewed at each financial year-end to ensure that the amount, method and period of depreciation are consistent with previous estimates and the expected pattern of consumption of the future economic benefits embodied in the items of property, plant and equipment.

An item of property, plant and equipment is derecognised upon disposal or when no future economic benefits are expected from its use or disposal. Any gain or loss arising on derecognition of the asset is included in the income and expenditure statement in the year the asset is derecognised.

Fully depreciated assets still in use are retained in the financial statements.

2.6 Intangibles

Intangible assets acquired, which comprise of computer software development costs, are measured on initial recognition at cost. Following initial recognition, intangible assets are carried at cost less any accumulated amortisation and any accumulated impairment losses.

Amortisation of intangibles is calculated on the straight-line method to write-off the costs over their estimated useful lives of 3 to 5 years. The amortisation expense on intangible assets is recognised in the income and expenditure statement through the 'amortisation of intangible assets' line item.

The carrying value of intangibles is reviewed for impairment when events or changes in circumstances indicate that the carrying value may not be recoverable.

2.7 Impairment of non-financial assets

The Authority assesses at each reporting date whether there is an indication that an asset may be impaired. If any such indication exists, or when annual impairment testing for an asset is required, the Authority makes an estimate of the asset's recoverable amount.

An asset's recoverable amount is the higher of an asset's or cash-generating unit's fair value less costs to sell and its value in use and is determined for an individual asset, unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. Where the carrying amount of an asset exceeds its recoverable amount, the asset is considered impaired and is written down to its recoverable amount. Impairment losses of continuing operations are recognised in the income and expenditure statement as 'other operating expenses'.

An assessment is made at each reporting date as to whether there is any indication that previously recognised impairment losses recognised for an asset may no longer exist or may have decreased. If such indication exists, the recoverable amount is estimated. A previously recognised impairment loss is reversed only if there has been a change in the estimates used to determine the asset's recoverable amount since the last impairment loss was recognised. If that is the case, the carrying amount of the asset is increased to its recoverable amount. That increased amount cannot exceed the carrying amount that would have been determined, net of depreciation, had no impairment loss been recognised for the asset in prior years. Reversal of an impairment loss is recognised in the income and expenditure statement.

2.8 Financial assets

Financial assets are recognised on the balance sheet when, and only when, the Authority becomes a party to the contractual provisions of the financial instrument.

Non-derivative financial assets with fixed or determinable payments that are not quoted in an active market are classified as loans and receivables. Such assets are initially recognised at fair value, plus directly attributable transaction costs and subsequently carried at amortised cost using the effective interest method. Gains and losses are recognised in the income and expenditure statement when the loans and receivables are derecognised or impaired, as well as through the amortisation process.

The Authority classifies the following financial assets as loans and receivables:

- Cash and short term deposits
- Trade, grants and other receivables.

2.9 Cash and cash equivalents

Cash and cash equivalents comprise cash on hand and deposits held with banks, that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value.

Cash and short term deposits carried in the balance sheet are classified and accounted for as loans and receivables under FRS 39. The accounting policy is stated in Note 2.8.

2.10 Trade and other receivables

Trade and other receivables, including amounts due from related parties, are classified and accounted for as loans and receivables under FRS 39. The accounting policy for this category of financial assets is stated in Note 2.8.

An allowance is made for uncollectible amounts when there is an objective evidence that the Authority will not be able to collect the debt. Bad debts are written off when identified. Further details on the accounting policy for impairment of financial assets are stated in Note 2.12 below.

2.11 Inventories

Inventories are stated at the lower of cost (first-in first-out method) and net realisable value. Cost includes all costs of purchase, costs of conversion and other costs incurred in bringing the inventories to their present location and condition.

2.12 Impairment of financial assets

The Authority assesses at each balance sheet date whether there is any objective evidence that a financial asset or a group of financial assets is impaired.

If there is objective evidence that an impairment loss on financial assets carried at amortised cost has been incurred, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the financial asset's original effective interest rate (i.e. the effective interest rate computed at initial recognition). The carrying amount of the asset is reduced through the use of an allowance account. The amount of the loss is recognised in the income and expenditure statement.

If, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognised, the previously recognised impairment loss is reversed. Any subsequent reversal of an impairment loss is recognised in the income and expenditure statement, to the extent that the carrying value of the asset does not exceed its amortised cost at the reversal date.

2.13 Derecognition of financial assets

A financial asset is derecognised where the contractual rights to receive cash flows from the asset have expired.

On derecognition of a financial asset, the difference between the carrying amount and the sum of the consideration received is recognised in the income and expenditure statement.

2.14 Financial Liabilities

Financial liabilities include trade payables, other payables and accruals, which are normally settled on 30 day terms, and loan payable and payables to related parties. Financial liabilities are recognised on the balance sheet when, and only when, the Authority becomes a party to the contractual provisions of the financial instrument. Financial liabilities are initially recognised at fair value of consideration received less directly attributable transaction costs and subsequently measured at amortised cost using the effective interest method.

Gains and losses are recognised in the income and expenditure statement when the liabilities are derecognised as well as through the amortisation process. The liabilities are derecognised when the obligation under the liability is discharged or cancelled or expired.

2.15 Provisions

Provisions are recognised when the Authority has a present obligation (legal or constructive) where, as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

Provisions are reviewed at each balance sheet date and adjusted to reflect the current best estimate. If it is no longer probable that an outflow of resources embodying benefits will be required to settle the obligation, the provision is reversed.

2.16 Employee benefits

(a) Defined contribution plans

The Authority makes contributions to the Central Provident Fund scheme in Singapore, a defined contribution pension scheme. These contributions are recognised as an expense in the period in which the related service is performed.

(b) Defined benefit pension plan

The Authority operates unfunded defined benefit schemes for certain employees under the provisions of the Pension Act (Chapter 225).

Following the Civil Service Pension Fund's (CSPF) decision to decentralise the management of the Government Pension Fund, the Authority assumed the responsibility of managing the pension entitlements of certain officers from 1 April 2001. These officers are those who did not opt for the CPF scheme launched in 1955 and continued to be entitled to pension benefits under the CSPF scheme.

Upon retirement, the pension entitlements of these officers will be met by both CSPF and the Authority in proportion to their length of service before and after the establishment of the Authority on 1 April 2001. Accordingly, pension payable to pensionable officers prior to 1 April 2001 are excluded in arriving at the Authority's pension liabilities.

2.16 Employee benefits (cont'd)

Retirement benefits for these employees are assessed using the projected unit credit actuarial valuation method. The cost of providing for retirement benefits is charged to the income and expenditure statement so as to spread the regular cost over the service lives of employees in accordance with the actuarial valuation carried out during the year. The provision for retirement benefit is measured as the present value of the estimated future cash outflows using interest rates of Singapore Government Securities which have terms to maturity approximating the terms of the related liability. Actuarial gains and losses are recognised in the year these gains and losses arise. Such benefits are unfunded. The expenses relating to pension are included as part of staff costs.

(c) Employee leave entitlement

Employee entitlements to annual leave are recognised when they accrue to employees. A provision is made for the estimated liability for annual leave and long-service leave as a result of services rendered by employees up to the balance sheet date.

2.17 Borrowing costs

Borrowing costs are generally expensed as incurred. Borrowing costs are capitalised if they are directly attributable to the acquisition, construction or production of a qualifying asset. Capitalisation of borrowing costs commences when the activities to prepare the asset for its intended use or sale are in progress and the expenditures and borrowing costs are being incurred. Borrowing costs are capitalised until the assets are ready for their intended use. If the resulting carrying amount of the asset exceeds its recoverable amount, an impairment loss is recorded.

2.18 Leases

Finance leases, which transfer to the Authority substantially all the risks and rewards incidental to ownership of the leased item, are capitalised at the inception of the lease at the fair value of the leased asset or, if lower, at the present value of the minimum lease payments. Any initial direct costs are also added to the amount capitalised. Lease payments are apportioned between the finance charges and reduction of the lease liability so as to achieve a constant rate of interest on the remaining balance of the liability. Finance charges are charged to the income and expenditure statement.

Capitalised leased assets are depreciated over the shorter of the estimated useful life of the asset and the lease term, if there is no reasonable certainty that the Authority will obtain ownership by the end of the lease term.

2.18 Leases (cont'd)

Operating lease payments are recognised as an expense in the income and expenditure statement on a straight-line basis over the lease term. The aggregate benefit of incentives provided by the lessor is recognised as a reduction of rental expense over the lease term on a straight-line basis.

2.19 Income recognition

Revenue is recognised to the extent that it is probable that the economic benefits will flow to the Authority and the revenue can be reliably measured. The following criteria must also be met before revenue is recognised:

(a) Income from the rendering of services that are of a short duration, such as laboratory analysis fees, patient laboratory testing fees, forensic investigating fees and professional services fees are recognised when the services are completed.

(b) Income from blood processing fees are recognised when the processed blood products are used by the hospitals.

(c) Licence fees income are recognised on an accrual basis over the licence period.

(d) Fines and forfeitures are recognised on an accrual basis.

(e) Interest income is accrued on a time proportionate basis, by reference to principal outstanding and at the interest rates applicable, on an effective yield basis.

2.20 Statutory contribution to consolidated fund

In lieu of income tax, the Authority is required to make contribution to the Consolidated Fund based on the net surplus of the Authority (before donations) for the financial year adjusted for any accumulated deficits carried forward from the years that the Authority was under the contribution framework. The contribution rate used to compute the amount is pegged to the prevailing corporate tax rate that have been enacted or substantively enacted by the balance sheet date.

2.21 Deferred assets

Deferred assets are recognised for carry-forward of unused accumulated deficits, to the extent that it is probable that future surpluses will be available against which the carry-forward of unused accumulated deficits can be utilised.

The carrying amount of deferred assets is reviewed at each balance sheet date and reduced to the extent that it is no longer probable that sufficient future surpluses will be available to allow all or part of the deferred asset to be utilised. Unrecognised deferred assets are reassessed at each balance sheet date and are recognised to the extent that it has become probable that future surpluses will allow the deferred asset to be recovered.

Deferred assets and liabilities are measured at the contribution rates that are expected to apply to the year when the asset is realised or the liability is settled, based on contribution rates that have been enacted or substantively enacted at the balance sheet date.

2.22 Sales tax

Revenues, expenses and assets are recognised net of the amount of sales tax except:

- Where the sales tax incurred on a purchase of assets or services is not recoverable from the taxation authority, in which case the sales tax is recognised as part of the cost of acquisition of the asset or as part of the expense item as applicable; and

- Receivables and payables that are stated with the amount of sales tax included.

The net amount of sales tax recoverable from, or payable to, the taxation authority is included as part of receivables or payables in the balance sheet.

2.23 Grants

Government grants receivable are recognised at their fair value where there is reasonable assurance that the grant will be received and all attaching conditions will be complied with.

Government grants to meet the current year's operating expenses are recognised as income in the financial year in which the operating expenses are incurred.

2.23 Grants (cont'd)

Government grants and contributions from other organisations utilised for the purchase/construction of depreciable assets are taken to the deferred capital grants account.

Deferred capital grants are recognised in the income and expenditure statement over the period necessary to match the depreciation of the assets purchased with the related grants. Upon disposal of property, plant and equipment, the balance of the related deferred capital grants is recognised in the income and expenditure statement to match the net book value of the assets written-off.

2.24 Related parties

Related parties in these financial statements include other Government ministries, statutory boards and restructured hospitals.

Parties are considered to be related if one party has the ability, directly or indirectly, to control the other party or exercise significant influence over the other party in making financial and operating decisions. Parties are also considered to be related if they are subject to common control or common significant influence. Related parties may be ministries or statutory boards.

The significant transactions between the Authority and other Government ministries, statutory boards and restructured hospitals are disclosed in other parts of the notes to the financial statements.

3. Prior year adjustment

In the previous financial year, the Authority capitalised the input goods and services tax (GST) for the leasehold land and building. During the year, the Inland Revenue Authority of Singapore (IRAS) approved the claim of the input GST of $2,056,582 using an input tax apportionment formula. The Authority accordingly adjusted the carrying value of the leasehold land and building by the same amount. In accordance with FRS 8 Accounting policies; change in accounting estimates and error, the adjustment of the input GST has been accounted for retrospectively and the comparative for 2005/2006 has been restated accordingly.

	As previously reported 2005/2006 $	As restated 2005/2006 $
Property, plant and equipment	93,910,385	91,853,803
Other receivables	117,347	2,173,929

4. Capital account

	Number of shares			
	2006/2007	2005/2006	2006/2007 $	2005/2006 $
Issued and paid up:				
At 1 April	51,115,079	48,124,270	51,115,079	48,124,270
Issued during the year	3,152,922	2,990,809	3,152,922	2,990,809
At 31 March	54,268,001	51,115,079	54,268,001	51,115,079

This consists of shares issued to the Minister for Finance as part of the debt-equity financing framework under Finance Circular Minute No. M53/2003.

The leasehold land and building and other operating assets were transferred at net book value to the Authority when it was formed. The values of these assets were settled by interest-bearing loans and the remaining by way of equity injection from the Minister of Finance.

5. Property, plant and equipment

	Leasehold land and building $	Building improve-ments $	Computer hardware $	Motor vehicles $	Scientific and medical equipment $	Other equipment, furniture and fittings $	Work-in progress $	Total $
Cost:								
At 1 April 2006	68,138,028	11,561,551	2,820,130	116,106	21,684,787	7,643,093	489,641	112,453,336
Additions	-	-	132,693	-	1,836,585	185,317	2,220,737	4,375,332
Disposals	-	-	(510,277)	-	(1,257,958)	(74,990)	-	(1,843,225)
Transfer from work-in-progress	-	658,940	-	-	630,705	1,211,744	(2,501,389)	-
Reclassification	(927,000)	(262,676)	-	-	-	1,189,676	-	-
At 31 March 2007	67,211,028	11,957,815	2,442,546	116,106	22,894,119	10,154,840	208,989	114,985,443
Accumulated depreciation:								
At 1 April 2006	1,267,403	1,247,250	2,485,820	86,270	13,273,848	2,238,942	-	20,599,533
Depreciation for the year	1,083,050	592,165	220,823	6,069	3,040,927	1,136,613	-	6,079,647
Disposals	-	-	(510,277)	-	(1,252,023)	(54,176)	-	(1,816,476)
Reclassification	(16,737)	(22,984)	-	-	-	39,721	-	-
At 31 March 2007	2,333,716	1,816,431	2,196,366	92,339	15,062,752	3,361,100	-	24,862,704
Carrying amount:								
At 31 March 2007	64,877,312	10,141,384	246,180	23,767	7,831,367	6,793,740	208,989	90,122,739
At 1 April 2006	66,870,625	10,314,301	334,310	29,836	8,410,939	5,404,151	489,641	91,853,803

The carrying amount of scientific and medical equipment held under finance leases as at 31 March 2007 was $154,000 (2006: $196,000)

5. Property, plant and equipment (cont'd)

	Leasehold land and building $	Building improve-ments $	Computer hardware $	Motor vehicles $	Scientific and medical equipment $	Other equipment, furniture and fittings $	Work-in progress $	Total $
Cost:								
At 1 April 2005	70,194,610	9,864,635	3,082,433	61,766	17,827,556	5,826,923	2,591,362	109,449,285
Prior year adjustments (Note 3)	(2,056,582)	-	-	-	-	-	-	(2,056,582)
Restated balance as at 1 April 2005	68,138,028	9,864,635	3,082,433	61,766	17,827,556	5,826,923	2,591,362	107,392,703
Additions	-	13,120	113,560	-	1,278,768	142,875	3,974,530	5,522,853
Adjustments and reclassification	-	-	-	54,340	4,950	(4,950)	-	54,340
Disposals	-	-	(411,764)	-	(61,136)	(43,660)	-	(516,560)
Transfer from work-in-progress	-	1,683,796	35,901	-	2,634,649	1,721,905	(6,076,251)	
At 31 March 2006	68,138,028	11,561,551	2,820,130	116,106	21,684,787	7,643,093	489,641	112,453,336
Accumulated depreciation:								
At 1 April 2005	116,991	714,466	2,627,629	25,861	10,846,283	1,422,070	-	15,753,300
Adjustments and reclassification	-	-	-	54,340	638	(638)	-	54,340
Depreciation for the year	1,150,412	532,784	269,950	6,069	2,487,313	860,402	-	5,306,930
Disposals	-	-	(411,759)	-	(60,386)	(42,892)	-	(515,037)
At 31 March 2006	1,267,403	1,247,250	2,485,820	86,270	13,273,848	2,238,942	-	20,599,533
Carrying amount:								
At 31 March 2006	66,870,625	10,314,301	334,310	29,836	8,410,939	5,404,151	489,641	91,853,803
At 1 April 2005	68,021,037	9,150,169	454,804	35,905	6,981,273	4,404,853	2,591,362	91,639,403

6. Intangibles

	Computer software $	Work-in progress $	Total $
Cost:			
At 1 April 2005	19,315,244	1,662,174	20,977,418
Additions	154,595	1,634,326	1,788,921
Transfer from work-in-progress	1,001,339	(1,001,339)	-
At 1 April 2006	20,471,178	2,295,161	22,766,339
Additions	124,476	2,919,124	3,043,600
Disposals	(118,867)	-	(118,867)
Transfer from work-in-progress	4,396,320	(4,396,320)	-
At 31 March 2007	24,873,107	817,965	25,691,072
Accumulated amortisation:			
At 1 April 2005	5,542,781	–	5,542,781
Amortisation for the year	3,949,761	–	3,949,761
At 1 April 2006	9,492,542	–	9,492,542
Amortisation for the year	4,356,824	–	4,356,824
Disposals	(118,689)	–	(118,689)
At 31 March 2007	13,730,677	–	13,730,677
Carrying amount:			
At 31 March 2007	11,142,430	817,965	11,960,395
At 1 April 2006	10,978,636	2,295,161	13,273,797

7. Cash and cash equivalents

For the purpose of the cash flow statement, cash and cash equivalents comprise the following as at 31 March:

	2006/2007 $	2005/2006 $
Cash at banks and in hand	20,503,924	4,225,692
Fixed deposits	5,435,958	21,090,736
	25,939,882	25,316,428

Cash at banks earns interest at floating rates based on daily bank deposit rates of 0.19% per annum (2005/2006: 0.16%) per annum. Fixed deposits are made for varying periods of between one week and three months depending on the immediate cash requirements of the Authority, and earn interests at the respective short-term deposit rates ranging from 2.66% to 3.50% per annum (2005/2006: 1.31% to 3.50%) per annum.

8. Trade receivables

	2006/2007 $	2005/2006 $
Trade receivables	2,957,872	1,530,448
Amounts due from related parties (trade) (Note 26)	8,944,470	5,778,062
	11,902,342	7,308,510
Allowance for doubtful receivables:		
- Trade receivables	(10,381)	-
	11,891,961	7,308,510

Trade receivables

Trade receivables are non-interest bearing and are generally on 14 to 30 days' terms. They are recognised at their original invoice amounts which represent their fair values on initial recognition.

Related parties receivables

Amounts due from related parties are non-interest bearing, unsecured and repayable on invoice due date.

8. Trade receivables (cont'd)

Allowance for doubtful receivables

For the year ended 31 March 2007, an impairment loss of $10,381 (2005/2006: Nil) was recognised in the income and expenditure statement subsequent to a debt recovery assessment performed on trade receivables and amounts due from related parties.

9. Grants receivables

	2006/2007 $	2005/2006 $
Grants receivable - Government (Note 17)	592,176	197,014
Grants receivable - Non-government (Note 18)	–	198,798
	592,176	395,812

10. Other receivables

	2006/2007 $	2005/2006 $
Other receivables	40,020	117,347
Advances to staff	27,948	–
GST recoverable	–	2,056,582
	67,968	2,173,929

Advances to staff are festive advances which are interest-free and unsecured. The amounts are repayable over 2 months via deductions from the staff salaries.

11. Inventories

	2006/2007 $	2005/2006 $
Gases, laboratory and medical supplies, at lower of cost and net realisable value	1,785,394	1,624,602

During the financial year, the Authority wrote-down $9,862 (2005/2006: $11,463) of inventories which are recognised as expense in the income and expenditure statement.

12. Trade payables

	2006/2007 $	2005/2006 $
Trade payables	8,825,338	3,424,299
Amount due to related parties (trade) (Note 26)	450,092	438,008
	9,275,430	3,862,307

Trade payables

Trade payables are non-interest bearing and are normally settled on 30-day terms.

Related parties payables

Amounts due to related parties are non-interest bearing and are repayable on invoice due date. These amounts are unsecured and are to be settled in cash.

13. Other payables and accruals

	2006/2007 $	2005/2006 $
Advances from customers	66,465	59,406
Accrued employees' benefits	4,586,305	4,173,115
GST payable	418,112	270,477
Refundable security deposits	68,258	66,408
Accrued operating expenses	2,776,568	4,160,152
	7,915,708	8,729,558

14. Finance lease payable

The Authority has finance lease for a science and medical equipment, which expires in 23 December 2009. There are no restrictions placed upon the Authority by entering into these leases. The average discount rate implicit in the leases is 6.52% (2005/2006: 6.52%) per annum.

Future minimum lease payments under finance leases together with the present value of the net minimum lease payments are as follows:

	Minimum lease payments 2006/2007 $	Present value of payments 2006/2007 $	Mininum lease payments 2005/2006 $	Presents values of payments 2005/2006 $
Not later than one year	59,790	52,500	59,790	52,500
Later than one year but not later than five years	104,633	91,875	164,423	144,375
Total minimum lease payments	164,423	144,375	224,213	196,875
Less: Amounts representing finance charges	(20,048)	-	(27,338)	-
Present value of minimum lease payments	144,375	144,375	196,875	196,875

15. Provision for pension benefits

The Authority operates an unfunded defined retirement benefit plan for certain employees under the provisions of the Pension Act (Chapter 225). Benefits are payable based on the last drawn salaries of the respective employees and the employees' cumulative service period served with the Authority at the time of retirement.

Movement in the liability recognised in the balance sheet

	2006/2007 $	2005/2006 $
Balance at the beginning of financial year	5,024,432	4,103,198
Expense for the year (Note 21)	1,296,450	1,284,883
Retirement benefits paid	(1,486,007)	(363,649)
Balance at end of financial year	4,834,875	5,024,432
Represented by:		
- Current	313,717	847,560
- Non-current	4,521,157	4,176,872
	4,834,874	5,024,432
The amounts recognised in the income and expenditure statement are as follows:		
Current service cost	952,253	1,204,523
Interest cost	103,463	80,360
Additional provision for the year	240,734	-
Total included in staff costs (Note 21)	1,296,450	1,284,883

The principal assumptions used in determining the Authority's pension obligations are as follows:

(a) All pensioners under the pension scheme will retire at the exact age of 62 and opt for fully commuted gratuity on retirement.

(b) The discount rate of the pension fund is 3.0% (2005/2006: nil%) per annum.

(c) The average expected rate of salary increases is at 2.4% (2005/2006: 2.4%) per annum depending on the pensionable officer's position and rank.

(d) During the year, a provision of S$240,734 was made for 3 eligible officers who exercised the option to return to the pension scheme as offered by the government.

Pension payable to pensionable officers prior to the establishment of the Authority on 1 April 2001 will be borne by Ministry of Health and is excluded from the amount stated above.

16. Long-term loans

	Interest Rates (p.a.)	Maturity	2006/2007 $	2005/2006 $
Loans from Ministry of Finance				
- 15 years	3.86%	2020	25,480,000	26,390,000
- 5 years	3.46%	2010	4,808,069	6,410,759
			30,288,069	32,800,759

Represented by amounts payable as follows:

	2006/2007 $	2005/2006 $
Current	2,512,690	2,512,690
Non-current	27,775,379	30,288,069
Total	30,288,069	32,800,759

On 23 March 2005, the Ministry of Finance granted the Authority a loan facility of $27,300,000 for 15 years to finance the purchase of land and building and a loan facility of $8,013,449 for 5 years to finance the purchase of operating assets that were transferred from Ministry of Health as at 31 March 2005.

The loan is unsecured and repayable from the date of the first drawdown of the loan on 31 March 2005.

The interest rates per annum were fixed at the commencement of the loan, at a premium of 0.9% and 0.5% to finance the purchase of land and building and to finance the purchase of operating assets respectively, determined by the Ministry of Finance above the Daily Average 10-year Singapore Government Securities Yield.

17. Grants receivable/(received in advance) – Government

	2006/2007 $	2005/2006 $
Balance at the beginning of financial year	8,430,914	703,349
Receipts during the year	25,451,176	30,991,753
Amount transferred to deferred capital grants and donations (Note 19)	(2,295,910)	(2,799,465)
Amount transferred to income and expenditure statement	(27,682,539)	(20,464,723)
Balance at end of financial year	3,903,641	8,430,914
Grants receivable (Note 9)	592,176	197,014
Grants received in advance	(4,495,817)	(8,627,928)

Grants are received mainly from Ministry of Health and other Ministry of Finance specific programmes and the development and purchase of depreciable assets of the Authority.

Grants transferred to deferred capital grants and donations comprise primarily of amounts incurred for purchase of depreciable assets and assets under construction-in-progress.

18. Grants receivable/(received in advance) – Non-Government

	2006/2007 $	2005/2006 $
Balance at the beginning of financial year	(34,509)	(1,293,158)
Receipts during the year	505,267	3,538,631
Amount transferred to deferred capital grants and donations (Note 19)	(38,773)	(754,835)
Amount transferred to income and expenditure statement	(177,090)	(1,525,147)
Balance at end of financial year	254,895	(34,509)
Grants receivable (Note 9)	-	198,798
Grants received in advance	(254,895)	(164,289)

Grants are received mainly from other agencies to finance specific programmes of the Authority.

19. Deferred capital grants and donations

	2006/2007 $	2005/2006 $
Balance at the beginning of financial year	30,416,591	33,426,732
Amount transferred from grants received in advance		
- Government	2,295,910	2,799,465
- Non-government	38,773	754,835
Donation received during the year	245,243	–
	32,996,517	36,981,032
Less:		
Amount transferred to income and expenditure statement to match depreciation and amortisation of related assets and intangibles	(6,765,079)	(6,564,441)
Balance at end of financial year	26,231,438	30,416,591
Current liability	7,009,413	6,326,176
Non-current liability	19,222,025	24,090,415
	26,231,438	30,416,591

Deferred capital grants and donations are government grants and donations from third parties received for the purchase or the construction of depreciable assets and it represents an obligation on the part of the Authority to use and maintain the fixed assets over the rest of the useful lives. These grants will be amortised to the income and expenditure statement over the useful lives of the related assets.

20. Other income

	2006/2007 $	2005/2006 $
Rental income	4,200	3,300
Interest income	625,865	337,140
Fines and forfeitures	351,002	370,880
Foreign currency exchange (loss)/gain	(25,722)	13,995
Sponsorship income	314,865	–
Others	378,386	386,192
	1,648,596	1,111,507

Sponsorship income is received mainly for the Blood Bank 60th Anniversary.

21. Staff costs

	2006/2007 $	2005/2006 $
Employee benefits expense (including key management personnel):		
Defined pension benefit plan (Note 15)	1,296,450	1,284,883
Salaries, allowances and bonuses	36,246,402	33,855,226
Defined contribution plans	3,315,680	3,240,457
Other employee benefits	76,468	66,879
	40,935,000	38,447,445

Compensation of key management personnel

Defined pension benefit plan	648,313	153,321
Salaries, bonuses and allowances	2,027,230	2,161,099
Defined contribution plans	51,540	44,609
Short-term employee benefits	7,809	7,500
Total compensation paid to key management personnel	2,734,892	2,366,529

Key management refers to employees designated as Directors and above who have the authority and responsibility for planning, directing and controlling the activities of the Authority.

22. Finance costs

	2006/2007 $	2005/2006 $
Interest expense on long-term loans	1,206,778	1,297,171
Finance charges payable under finance leases	7,290	1,823
	1,214,068	1,298,994

23. Other operating expenses

The following items have been included in arriving at other operating expenses:

	2006/2007 $	2005/2006 $
Board members' allowance	60,000	67,500
Write-off of inventories	9,862	11,463
Loss on disposal of property, plant and equipment	24,657	1,243
Allowance for doubtful receivables	10,381	-
Loss on disposal of intangibles	178	-

24. Statutory contribution to consolidated fund

In lieu of income tax, the Authority is required to make a contribution to the Consolidated Fund in accordance with the Statutory Corporations (Contributions to Consolidated Fund) Act (Chapter 319A) and in accordance with the Finance Circular Minute No M5/2005.

The annual contribution to consolidated fund is made based on the prevailing statutory contribution rate of 20% for the year of assessment 2007 (2005/2006: 20%).

Relationship between contribution to consolidated fund and accounting surplus for the year

A reconciliation between contribution to consolidated fund and the product of accounting surplus before contribution to consolidated fund multiplied by the applicable contribution rate for the years ended 31 March 2007 and 2006 is as follows:

	2006/2007 $	2005/2006 $
Surplus before contribution to consolidated fund	3,662,889	291,946
Contribution at rates applicable to the surplus of 20% (2005/2006: 20%)	732,578	58,389
Adjustments for:		
Benefits from previously unrecognised accounting deficit brought forward and excess contributions	(732,578)	(58,389)
Contribution to consolidated fund recognised in the income and expenditure statement	–	–

24. Statutory contribution to consolidated fund (cont'd)

There is no contribution to the Consolidated Fund for the current financial year as the accounting surplus has been fully offset against the accounting deficit brought forward and excess contributions made in prior years.

The Authority has excess contributions from prior year of approximately $231,651 that are available for offset against future surpluses of the Authority, for which no deferred asset is recognised due to uncertainty of its recoverability.

25. Commitments and contingencies

(a) Capital commitments

Capital expenditure contracted for as at balance sheet date but not recognised in the financial statements is as follows:

	2006/2007 $	2005/2006 $
Estimated amounts approved and contracted for in respect of future capital expenditure but not provided for	4,610,497	283,518

(b) Operating lease commitments

The Authority has entered into operating leases for rental of premises and equipment. These leases have an average life of between 1 and 6 years. There are no restrictions placed upon the Authority by entering into these leases. Operating lease payments recognised in the income and expenditure statement during the year amounted to $2,425,875 (2005/2006: $2,468,646).

Future minimum lease payments payable under these operating leases as at 31 March are as follows:

Not later than one year	2,026,345	2,043,446
Later than one year but not later than five years	3,150,867	4,665,156
	5,177,212	6,708,602

26. Significant related party transactions

(a) Significant related party transactions

The Authority is a statutory board incorporated under the Health Sciences Authority Act. As a statutory board, all Government ministries, departments, statutory boards and restructured hospitals are deemed as related parties. Other than statutory charges and transactions disclosed elsewhere in the financial statements, the Authority has significant transactions with its supervisory ministry, Ministry of Health, and other related parties listed below:

	2006/2007 $	2005/2006 $
Income received from related parties		
Ministry of Home Affairs	22,262,044	19,932,570
Ministry of Defence	611,750	440,948
Restructured hospitals	16,174,082	16,516,300
Agri-food & Veterinary Authority	4,597,926	5,107,166
Purchase made with and reimbursement to related parties		
Restructured hospitals	2,420,962	2,071,369
Ministry of Health	568,523	1,051,819
Auditor-General Office	105,000	-
Infocomm Development Authority of Singapore	1,073,139	144,245
Inland Revenue of Singapore	923,978	11,641
National Library Board	104,160	-
Other ministries and statutory boards	909,944	819,085
Others		
Interest expense to Ministry of Finance	1,206,778	1,297,171
Staff costs to Ministry of Health	1,204,113	1,382,378

(b) Significant related party balances

The significant account balances as at 31 March that the Authority has in relation to related parties are listed below:

Amount due from:		
Restructured hospitals	6,580,786	3,208,169
Agri-food & Veterinary Authority	324,585	495,795
Ministry of Defence	134,511	49,489
Ministry of Home Affairs	1,897,655	2,006,058
Other ministries and statutory boards	6,933	18,551
	8,944,470	5,778,062
Amount due to:		
Restructured hospitals	318,386	203,788
Ministry of Health	20,519	112,847
Other ministries and statutory boards	111,187	121,373
	450,092	438,008

27. Financial risk management objectives and policies

The Authority's principal financial instruments comprise of cash, short term deposits and long term loans. The main purpose of these financial instruments is to finance the Authority's operations. The Authority has various other financial assets and liabilities such as trade receivables and trade payables, which arise directly from its operations. The Authority does not hold or issue derivative financial instruments for trading purposes.

The main risks arising from the Authority's financial instruments are interest rate risk, foreign currency risk, credit risk and liquidity risk. The Authority reviews and agrees policies for managing each of these risks and they are summarised below.

(a) Interest rate risk

The Authority's exposure to changes in interest rates relates primarily to the Authority's interest-bearing loans and fixed deposits. Funding requirements are regularly reviewed so that cash in excess of short term operating requirements are placed in fixed deposits to maximise returns. Information on interest rates exposure is disclosed in Notes 7 and 16.

(b) Foreign currency risk

The Authority does not have any material foreign exchange risk as its operations are substantially transacted in, Singapore dollars.

(c) Credit risk

The Authority's credit risk is primarily attributable to its cash and cash equivalents, trade receivables and other receivables. The Authority places its cash and cash equivalents with credit-worthy financial institutions. The credit risk with respect to receivables is low as the Authority deals with credit-worthy organisations such as government bodies and hospitals. In addition, receivable balances are monitored on an ongoing basis with the result that the Authority's exposure to bad debts is not significant.

The Authority has no significant concentration of credit risk. Trade receivables are spread over a large base of organisations.

The maximum credit risk that the Authority is exposed to is represented by carrying amounts of its financial assets as stated in the balance sheet.

27. Financial risk management objectives and policies (cont'd)

(d) Liquidity risk

The Authority funds its operations through a mix of internally-generated funds, government and non-government grants. The Authority regularly reviews its liquidity reserves, comprising cash flows from its operations and government grants, to ensure sufficient liquidity is maintained at all times. The Authority relies on the Government to fund a significant part of its operations. The framework for funding of the Authority's operations is reviewed with the Ministry of Health on a regular basis. For funding of capital projects under the debt-equity financing framework, the Authority has established an adequate amount of committed credit facilities to meet future funding needs. Under Finance Circular Minute No M53/2003, the Ministry of Finance undertakes to act as the lender of last resort to the Authority for its funding requirements.

28. Financial instruments

Fair values

The fair value of a financial instrument is the amount at which the instrument could be exchanged or settled between knowledgeable and willing parties in an arm's length transaction, other than in a forced or liquidation sale.

Financial instruments whose carrying amount approximates fair value

Management has determined that the carrying amounts of cash and short term deposits, current trade and other receivables, current trade and other payables, based on their notional amounts, reasonably approximate their fair values because these are mostly short term in nature or are repriced frequently.

The finance lease payable and loans payable to Ministry of Finance ("MOF") are carried at amortised cost in the balance sheet. Their fair values are disclosed in the following table:

	Carrying amount		Fair value	
	2006/2007 $	2005/2006 $	2006/2007 $	2005/2006 $
Finance lease payable	144,375	196,875	151,955	201,626
Loan payable to MOF	30,288,069	32,800,759	29,807,460	32,261,716

The fair value of the loan payable to Ministry of Finance is estimated using the discounted cash flow analysis based on prime rate of borrowings in the market.

29. Comparatives

The financial statements for the year ended 31 March 2006 were audited by another auditor. The following comparative figures as at 31 March 2006 have been reclassified to conform to the current year's presentation.

	As previously reported 2005/2006 $	As restated 2005/2006 $
Non-current asset		
Property, plant and equipment	105,127,600	91,853,803
Intangibles	–	13,273,797
Current liabilities		
Other payables and accruals	(12,196,999)	(8,729,558)
Licence fees collected in advance	–	(3,467,441)
Deferred capital grants and donations	–	(6,326,176)
Non-current liabilities		
Deferred capital grants and donations	(30,416,591)	(24,090,415)

30. Subsequent event

Pursuant to the Radiation Protection Act 2007 passed by Parliament on 21 May 2007 and assented to by the President on 1 June 2007, the Centre for Radiation Protection ("CRP") will be transferred to the National Environment Agency ("NEA") with effect from 1 July 2007 and to be renamed as the Centre for Radiation Protection and Nuclear Science ("CRPNS"). The transfer is to build up Singapore's institutional and human resource capabilities in the areas of nuclear science, security and emergency response. By consolidating these related responsibilities which are currently separately administered by the Authority and NEA, the move will avoid duplication of resources as well as enhance coordination in technical issues relating to radiation and nuclear science.

30. Subsequent event (cont'd)

As at 31 March 2007, the net carrying amount of the transferable assets and liabilities, which include plant and equipment, intangibles and licence fees collected in advance, is as follows:

	$
Plant and equipment	474,161
Intangibles	34,861
Deferred capital grants and donations	(255,213)
Non-current portion of licence fee collected in advance	(172,588)
Current portion of licence fee collected in advance	(1,740,710)
	(1,659,489)

The consideration for the transfer is estimated to be the net carrying amount of these assets and liabilities belonging to CRP as at the date of transfer.

31. Authorisation of financial statements

The financial statements of the Authority for the year ended 31 March 2007 were authorised for issue by the members of its Board on 26 June 2007.


The fundamental strategic and structural changes that HSA has undergone have strengthened us for our ongoing vision journey to become the leading innovative authority in the protection and advancement of national health and safety. We advance with renewed vigour on the strategic route we have mapped out, confident in our purpose and direction.

HSA Annual Report 2006/07 Editorial Team

Advisors : Dr John Lim • Dr Diana Teo

Managing Editor : Vivian Heng

Editors : Anita Sim • Lily Lim

Members : Christina Chay • Elaine Tan • Annie Tan • Ng Kooi Sim • Cheah Nuan Ping
Dr Lai Siang Hui • Yang Chiew Yung • Joyce Nang • Stephanie Wai
Ng Soon • Chan Chin Wai • Teo Lean Whee

Editorial Co-ordinator : Vivien Tan

THE HSA JOURNEY

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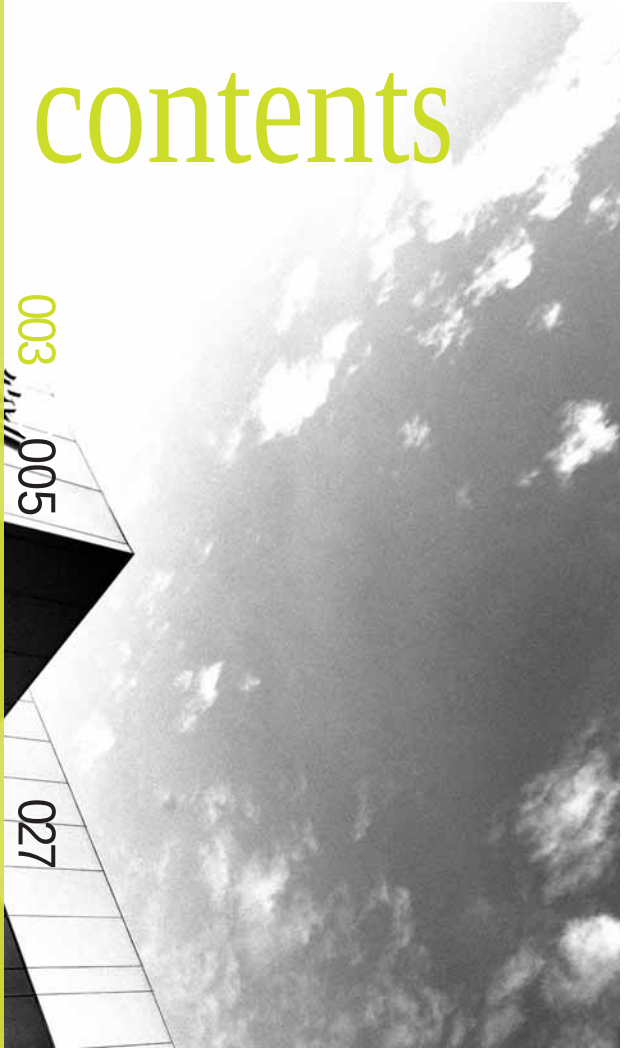
THE HSA Journey

contents



vision:

To be the
leading innovative authority
protecting and advancing
national health and safety

mission:

- To wisely regulate health products
- To serve the administration of justice
- To secure the nation's blood supply
- To safeguard public health

values:

- We are committed to professional excellence
- We create value for our clients
- We uphold our professional integrity
- We value and nurture our staff
- We encourage innovation and enterprise

A STATUTORY BOARD OF THE MINISTRY OF HEALTH
THE SINGAPORE PUBLIC SERVICE: INTEGRITY, SERVICE, EXCELLENCE

Chairman's Foreword


HSA

HSA has come through its initial birth pangs and now stands poised at a new threshold to pursue its vision to be the leading innovative authority protecting and advancing national health and safety.

To attain global excellence and inspire trust as a world-class scientific organisation and authority, HSA must establish thought leadership across its unique blend of regulatory and scientific expertise. We seek new synergies across the professional knowledge and skills embodied in our critical resource – our people. As we move forward, our focus will also be on forging strong partnerships with key counterparts abroad, leveraging on technology innovation and driving knowledge transfer.

Even as they explore innovative modes of collaborative integration, HSA's three professional groups do face some unique challenges. The Health Products Regulation Group will look to harnessing IT solutions to innovatively stretch the scope of pharmacovigilance, enhance the efficient processing of regulated products to maximise review procedures and minimise delay, and develop new regulations in product areas such as cell therapy and complementary medicine while enhancing the regulation of generic products. The Health Services Group will endeavour to ensure an ongoing, sustainable adequate and safe blood supply to meet Singapore's future needs, embrace technological advancement and innovation, and explore new aspects of cell-processing. The Applied Sciences Group will leverage on technological advancements and scope out new areas that build on its current forensic and analytical science base, such as in the area of chemical metrology.

The challenges we face on our journey forward can be successfully overcome if HSA operates as a united entity and adopts a "can do" mindset across its professional and corporate groups at all levels.

I am more than confident that HSA will not just grow into but will flourish as a regulatory and scientific organisation that embodies intelligence, efficiency, clarity and integrity. It will become an exemplary agency that will not only positively impact the health and safety of Singaporeans, but also world public health.

Professor Edison Liu
Chairman

CEO's Preface

The past year has again been an eventful one for HSA as we advanced on our vision journey. We are delighted to work with our new Board, under the Chairmanship of Professor Edison Liu. With the completion of our envisioning exercise in mid 2006, and our strategic regrouping into the Corporate HQ and three professional groups - Health Products Regulation, Health Services and Applied Sciences - HSA looks ahead with optimism to all the possibilities that await us on the road ahead.

I am continually encouraged by the commitment and quality of our people, who demonstrate tremendous dedication and potential. Across the professional groups, exciting possibilities exist to develop new synergies for growth with the diversity of scientific and professional expertise that currently exists in HSA, as well as new skill sets that will come in over time. HSA is a distinctive organisation encompassing important functions normally found in a number of different counterpart agencies overseas. We therefore have unique opportunities to develop innovative regulatory and scientific frameworks that could serve as new paradigms for the future. This fits in well both with our fundamental role as a public sector organisation protecting and advancing our nation's public health and the Singapore Public Service's increasingly global orientation.

In order for this to come about, reviewing and clarifying our Core Values is a critical enabler to make HSA a Trusted, Teamed and Transforming authority. The organisational and individual congruence we need to enable us to accomplish our Vision and Mission must stem from a clear sense of our identity and purpose.

Therefore, the strengthening and development of a strong and sound organisational culture is one clear focus for the year ahead, even as we continue to refine and implement our strategic plans. We have also identified key organisational initiatives in the areas of enhancing our pro-enterprise orientation, reviewing our costing and pricing framework, and re-engineering key processes. In recognition of the value we accord to our people, a significant HR review is also ongoing to ensure that HSA can attract the right people, retain them through performance and innovation recognition rewards, and develop them to their full potential.

The HSA Journey is one of transforming possibilities into realities. The strong support of all HSA staff, our parent Ministry of Health and the HSA Board, combined with our understanding of the critical role we play in safeguarding the health and safety of Singaporeans and the potential we have to extend our role as a global citizen, all combine to energise and motivate us for the journey ahead.

Dr John Lim
Chief Executive Officer

HSA Board

Chairman

01. Professor Edison Liu
Executive Director
Genome Institute of Singapore

Board Members

02. Professor Low Teck Seng
Principal & CEO
Republic Polytechnic

03. Dr Jennifer Lee
Director [Health Services Integration]
Ministry of Heath

04. Dr Lee Chien Earn
Senior Director [Healthcare Performance Group]
Ministry of Heath

05. Professor Walter Tan
Medical Director
Raffles Hospital

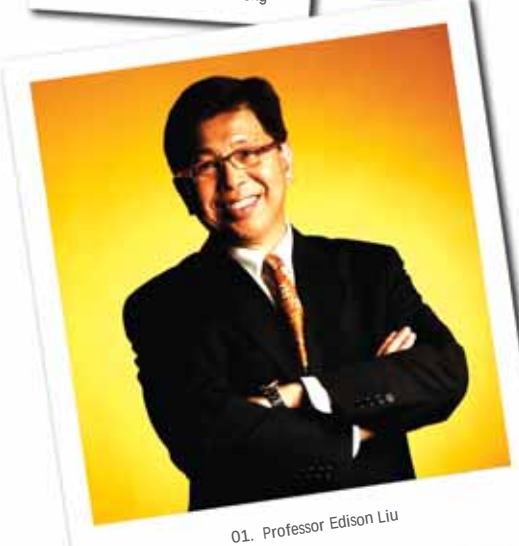
06. Dr Chong Yoke Sin
Chief Executive Officer
NCS Group

07. Professor Alastair Campbell
Director, Centre for Biomedical Ethics
Yong Loo Lin School of Medicine
National University of Singapore

08. Mr Khoo Chow Huat
Group Director [Policy]
People's Association

02. Professor Low Teck Seng

03. Dr Jennifer Lee



01. Professor Edison Liu

04. Dr Lee Chien Earn

05. Professor Walter Tan

08. Mr Khoo Chow Huat

07. Professor Alastair Campbell

06. Dr Chong Yoke Sin

HSA Board Committees

Audit Committee

• Professor Low Teck Seng	Chairman
• Professor Walter Tan	Member
• Mr Khoo Chow Huat	Member

Staff Establishment Committee

• Dr Jennifer Lee	Chairman
• Professor Low Teck Seng	Member
• Mr Khoo Chow Huat	Member
• Professor Alastair Campbell	Member

Finance Committee

• Dr Chong Yoke Sin	Chairman
• Dr Jennifer Lee	Member
• Dr Lee Chien Earn	Member

Board Changes

We would like to express our deepest appreciation to Professor Lim Mong King for his leadership as the second Chairman of HSA for the last four years and as a Board Member since HSA's inauguration. We are also very grateful to Mr Giam Chin Toon, Mr Khoo Chin Hean, Professor Edmund Lee, Mr Lim Hock San, Mr Ng Wai Choong and Ms Olivia Lum for their stewardship of HSA as Board Members and who stepped down with effect from 31 March 2007.

We congratulate Professor Edison Liu on his appointment as our new Chairman with effect from 1 April 2007, after serving as our Deputy Chairman for a year. We are happy to have Professor Low Teck Seng, Dr Jennifer Lee and Dr Lee Chien Earn continue as Board Members, and extend a warm welcome to our new Board Members: Professor Walter Tan, Medical Director of Raffles Hospital; Dr Chong Yoke Sin, Chief Executive Officer of NCS Group; Professor Alastair Campbell, Director of the Centre for Biomedical Ethics at the National University of Singapore, and Mr Khoo Chow Huat, Group Director [Policy] of People's Association. Together, they will help define HSA's strategic directions for the next phase of our journey.

HSA Leadership

as at july 2007

Front [Left to Right] :

Dr Diana Teo
- Senior Director, Health Services Group
- Director, Centre for Transfusion Medicine

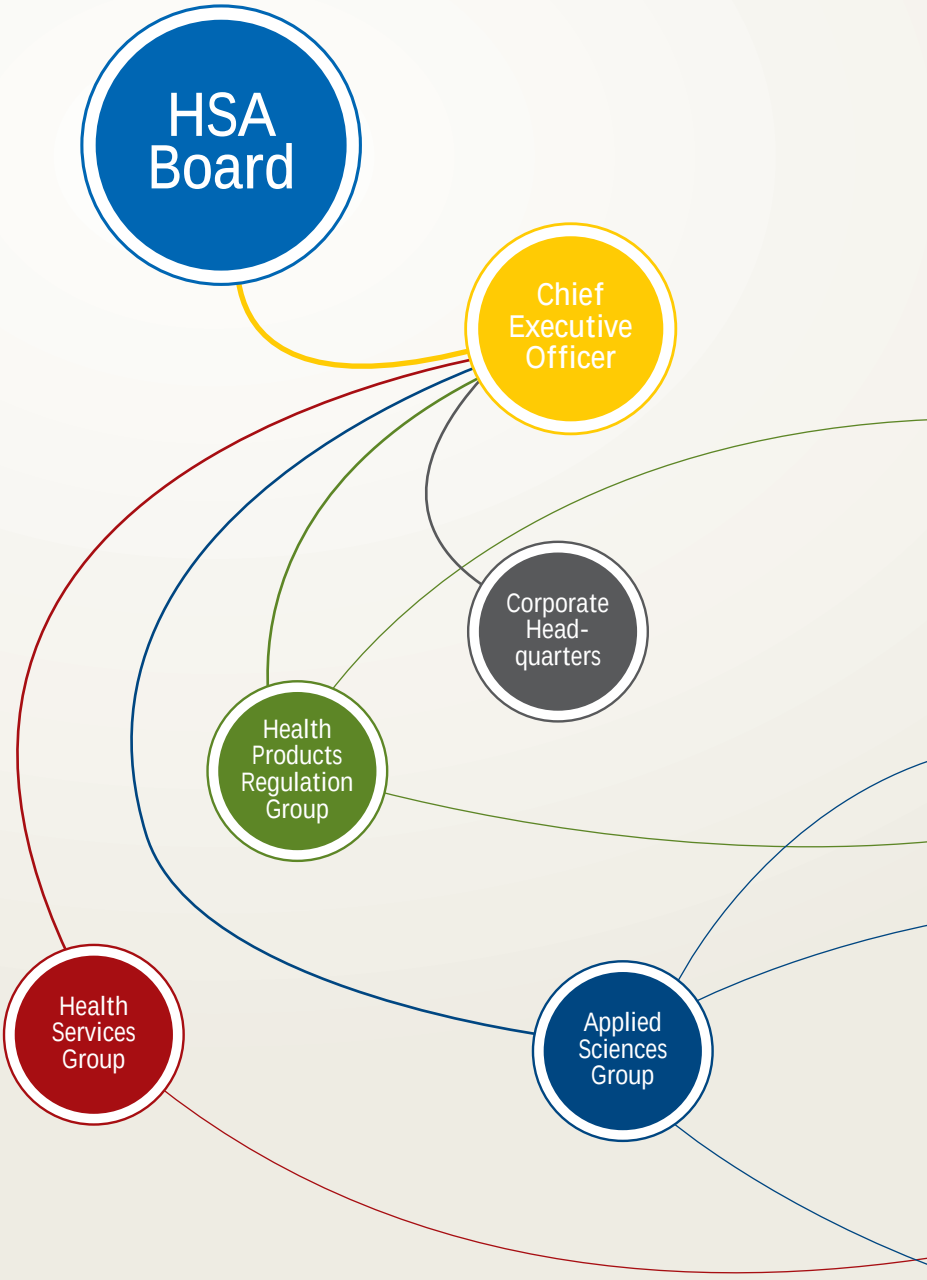
Dr Paul Chui
- Senior Director, Applied Sciences Group
- Director, Centre for Forensic Medicine

Back [Left to Right] :

Professor Bosco Chen Bloodworth
- Director [Quality]/Quality Service Manager
- Director, Centre for Analytical Science

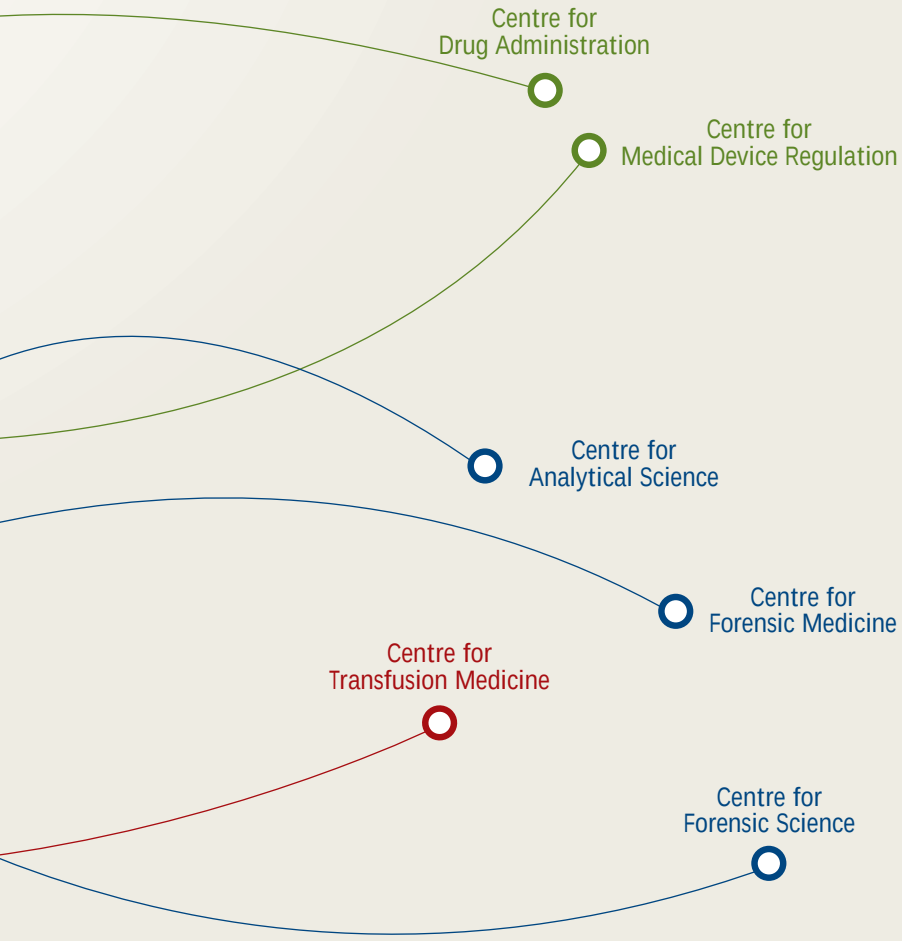
Dr John Lim
- Chief Executive Officer
- Senior Director, Health Products Regulation Group

Dr Christina Lim
- Administrator, Health Products Regulation Group
- Senior Advisor, International Collaboration


HSA Board
Chief Executive Officer
Corporate Head-quarters
Health Products Regulation Group
Health Services Group
Applied Sciences Group

Organisation Chart

wef july 2007



Principal Officers

wef july 2007

CORPORATE HEADQUARTERS

CEO'S OFFICE

- CORPORATE PLANNING
  Deputy Director
  Ms Lim Peck Seah

- CORPORATE OPERATIONS
  Deputy Director
  Dr Lam Kian Ming

- CORPORATE DEVELOPMENT
  Deputy Director
  Ms Maureen Goh

- INTERNATIONAL COLLABORATION
  Senior Advisor
  Dr Christina Lim

QUALITY
Director/Quality Service Manager
Professor Bosco Chen Bloodworth

LEGAL
Legal Counsel
Ho Meng Hee

CORPORATE COMMUNICATIONS
Deputy Director
Mrs Vivian Heng

CORPORATE SERVICES
Deputy Director
Chua Hong Tong

FINANCE
Deputy Director
Ms Grace Chan

HUMAN RESOURCE
Deputy Director
Mrs Sarojini Padmanathan

INFORMATION MANAGEMENT
Deputy Director
Chan Chin Wai

HEALTH PRODUCTS REGULATION GROUP CDA | CMDR

Senior Director
Dr John Lim

Administrator
Dr Christina Lim

Senior Advisor
Wong Yew Sin

Strategic Planning Office
Deputy Director
Mdm Suwarin Chaturapit

Head, Policy & Planning
Ms Lee Hui Keng

Head, Legislative Policy
Kelvin Tan

CENTRE FOR DRUG ADMINISTRATION

Senior Deputy Director
Yee Shen Kuan

Product Evaluation & Registration Division
Head, Drug Registration
Dr Lu Set

Head, Clinical Trials Branch
Foo Yang Tong

Head, Regulatory & Project Management
Tan Tek Seng

Compliance & Complementary Medicines Division
Complementary Medicines Branch
Deputy Director, Complementary Medicines Branch & Head, Cosmetics Control Unit
Mrs Marie Tham

Head, Chinese Proprietary Medicines Unit
Ms Chu Swee Seng

Head, Health Supplements Unit
Chao Ye Peng

Compliance Branch
Head, Prosecution Unit
Kelvin Tan

Head, Investigation & Surveillance Unit
R. Sivalingam

Head, Tobacco Regulation Unit
Tham Lup Hong

Manufacturing & Quality Audit Division
Deputy Director &
Head, Good Manufacturing Practice Unit
Sia Chong Hock

Head, Good Distribution Practice Unit
Ms Hui Foong Mei

Head, Certification Unit
Dr Lai Weng Fai

Head, International Operations Unit
Boon Meow Hoe

Pharmacovigilance, Communications & Research Division
Deputy Director
Mdm Suwarin Chaturapit

Assistant Director
Ms Chan Cheng Leng

Head, Pharmacovigilance Unit &
Head, Information & Research Unit
Ms Chan Cheng Leng

CENTRE FOR MEDICAL DEVICE REGULATION
Manager
Alfred Kwek

Manager
Seet Wing Gang

HEALTH SERVICES GROUP
CTM

Senior Director
Dr Diana Teo

CENTRE FOR TRANSFUSION MEDICINE
Director
Dr Diana Teo

Deputy Director, Laboratories & Clinical Service
Dr Mickey Koh

Deputy Director, Blood Resources
Dr Tan Hwee Huang

Scientific Head, Blood Processing, Testing & Inventory
Ms Sally Lam

Scientific Head, Hospital Services
Dr Marieta Chan

Head, Blood Programme Support
Ms Koh Geok Tin

Quality Manager
Ms Panneer Selvi Govindaraju

Head, Blood Collection
Ms Toh Ching Lian

Laboratory Manager, Blood Processing, Testing & Inventory
Ng Kok Quan

Laboratory Manager, Hospital Services
Ms Leou Kwee Kim

APPLIED SCIENCES GROUP
CAS | CFM | CFS

Senior Director
Dr Paul Chui

CENTRE FOR ANALYTICAL SCIENCE
Director
Professor Bosco Chen Bloodworth

Head, Planning, Research & Development Unit & Quality Manager
Ms Cheah Nuan Ping

Head, Quality and Infrastructure Support Unit & Deputy Quality Manager
Ng Soon

Food Division
Deputy Director
Ms Joanne Chan

Head, Food Laboratory & Head, Water Testing Laboratory
Ms Joanne Chan

Pharmaceutical Division
Deputy Director & Head, Pharmaceutical Laboratory
Ms Low Min Yong

Head, Cosmetics Laboratory & Head, Cigarette Testing Laboratory
Ms Cheah Nuan Ping

CENTRE FOR FORENSIC MEDICINE
Director
Dr Paul Chui

Deputy Director & Head, Professional Standards
Associate Professor Gilbert Lau

Principal Forensic Consultant
Dr Wee Keng Poh

Consultant Forensic Pathologist & Head, Professional Training & Education
Dr Lai Siang Hui

Consultant Forensic Pathologist & Head, Research
Dr George Paul

Consultant Forensic Pathologist
Dr Teo Eng Swee

CENTRE FOR FORENSIC SCIENCE
Physical Evidence Division
Deputy Director & Head, Criminalistics Laboratory
Dr Michael Tay Ming Kiong

Head, DNA Profiling Laboratory & Head, DNA Database Laboratory
Mrs Tan Wai Fun

Head, Document Examination Laboratory
Ms Lee Gek Kwee

Drugs & Toxicology Division
Deputy Director & Head, Narcotics I Laboratory
Dr Lee Tong Kooi

Head, Narcotics II Laboratory
Dr Lui Chi Pang

Head, Toxicology Laboratory
Dr Yao Yi Ju

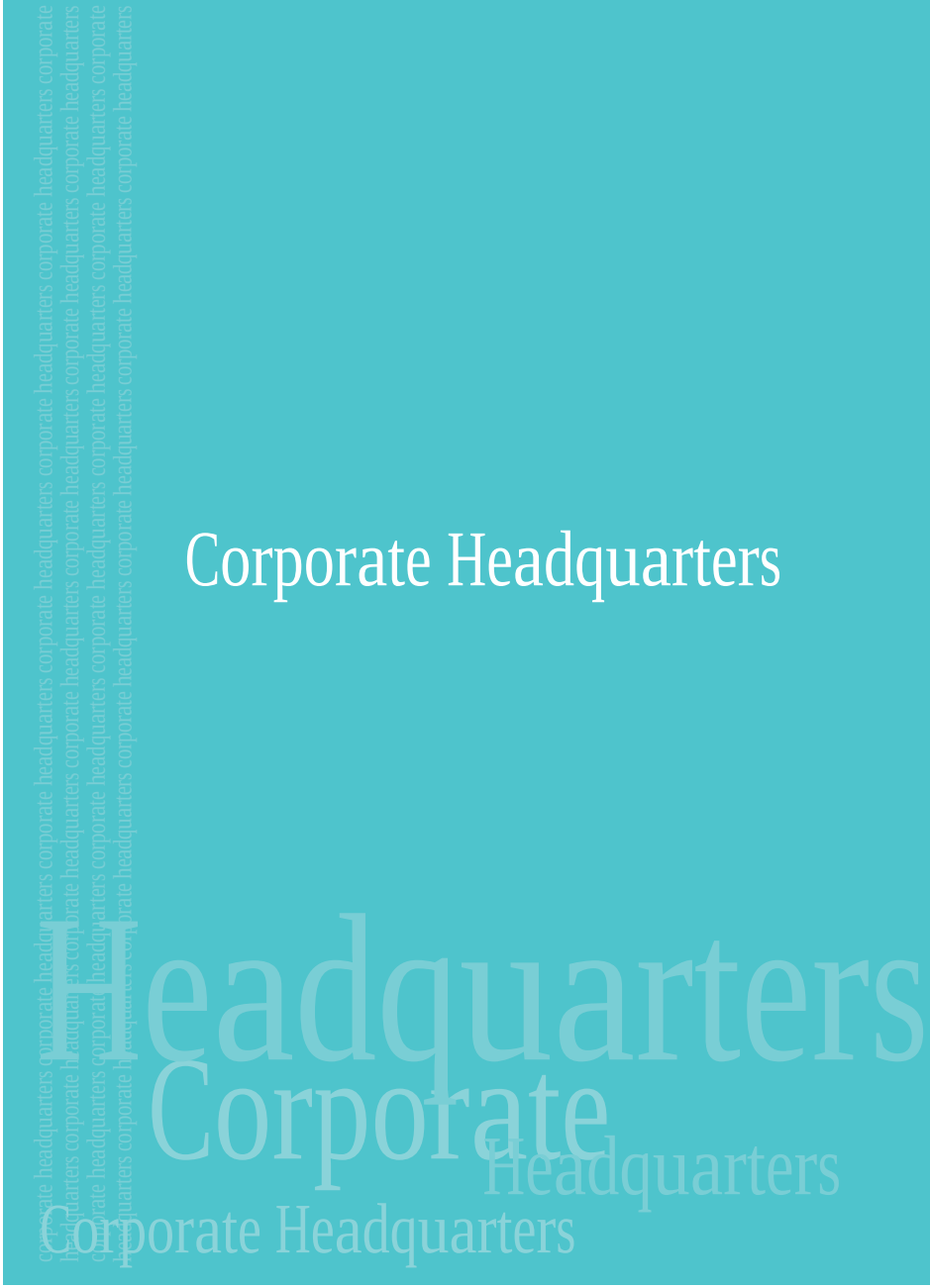
Retirements

After long and illustrious careers that spanned more than 30 years, two of our Centre Directors, Mr Wong Yew Sin and Dr Chow Shui Tse, officially retired from the Singapore Public Service in January and March 2007 respectively.

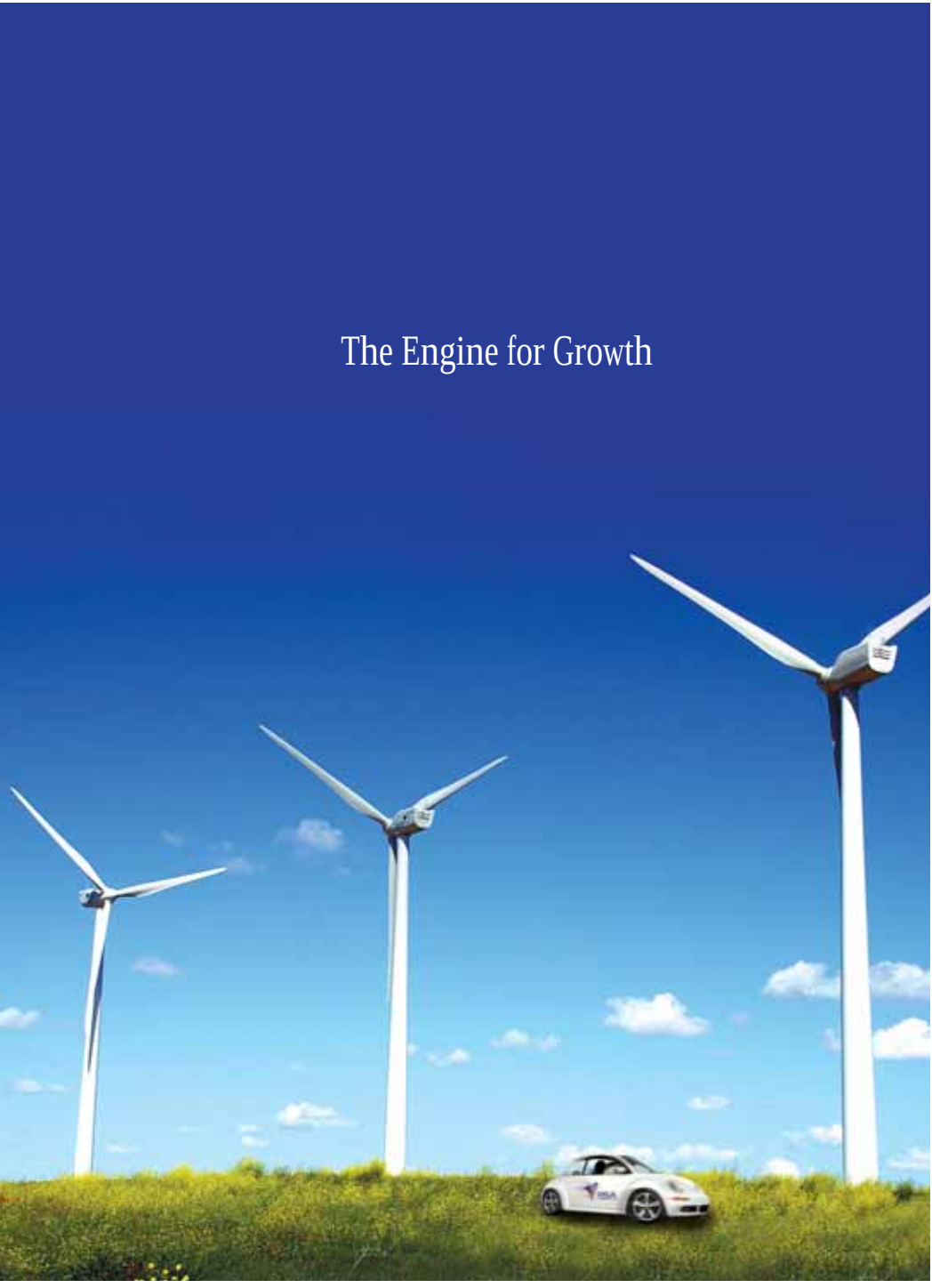
Mr Wong was the Director of the Centre for Medical Device Regulation [CMDR], Health Products Regulation Group since HSA's inception in 2001. In his scientific service career, he received several awards and was conferred the prestigious Public Service Medal [Silver] in 1995. He has represented HSA at various national scientific committees and played a key role in regional and international meetings on medical devices. He continues to serve as a Special Advisor in the Health Products Regulation Group on a part-time basis.

Dr Chow was the Director of the Centre for Forensic Science [CFS], Applied Sciences Group, also from HSA's inception. Across his forensic science career, he was instrumental in building up CFS and its predecessor departments to world-class standards. Under his leadership, CFS gained international recognition for its forensic science capabilities and quality. It is among the few forensic science centres in the region to be accredited by the *American Society of Crime Laboratory Directors/ Laboratory Accreditation Board* [*ASCLD/LAB*] since 1996.

Corporate Headquarters



The Engine for Growth



THE HSA Journey

To:

Front [Left to Right] :
Ms Maureen Goh
Mrs Sarojini Padmanathan
Chua Hong Tong
Ms Lim Peck Seah

Back [Left to Right] :
Mrs Vivian Heng
Dr Lam Kian Ming
Chan Chin Wai
Ms Grace Chan
Ho Meng Hee

Our Corporate Headquarters [HQ] - comprising the offices of Corporate Planning, Corporate Operations, Corporate Development, International Collaboration, Quality, the Legal Counsel, Corporate Communications, Corporate Services, Finance, Human Resource [HR] and Information Management supports HSA as a whole in achieving its vision, mission and goals through strategic co-ordination, reliable systems, effective policies and efficient processes.

In the past year, the Corporate HQ has seen a number of changes in its reporting structure and grouping of capabilities to strengthen its overall effectiveness. Four taskforces were formed and consultants were brought in to review and recommend enhancements to make the corporate systems relevant and prepared for new frontiers. The taskforces, headed by the Senior Directors and comprising representatives from both the Corporate HQ and professional groups, meet on a regular basis to review the four key areas of pro-enterprise, HR strategies and plans, business processes, and pricing and costing.

Though newly established, the initiatives of these taskforces have been significant. The HR Strategy and Planning Taskforce, for example, is the key driving force behind the current and fundamental HR compensation and performance review in HSA. The Pricing and Costing Taskforce has initiated a study to review the key costing assumptions and operational issues, while the Pro-enterprise Taskforce is rolling out initiatives to increase the interfacing with our stakeholders.

These new efforts, together with our continuous striving for quality and standards, aim to make the Corporate HQ a strong, trusted and thriving arm of HSA to effectively co-ordinate and partner with the three professional groups as the whole organisation progresses forward on its journey towards excellence.

Corporate Governance Statement

The Board and Management are committed to maintaining a high standard of corporate governance and endorse the recommendations of the Code of Corporate Governance. The Board believes that good governance is essential to enhancing corporate performance and accountability, ensuring transparency and protecting stakeholders' interests at all times. Our stakeholders include the Ministry of Health, Ministry of Finance, other government agencies, industry, clients, suppliers and the public at large.

This statement outlines the main corporate governance practices of the organisation that are in place.

The Board

The Board comprises the Chairman and seven members who are appointed by the Minister for Health for a 3-year term. The Board meets every two months to set strategic directions and to formulate policies, as well as to assume the role of monitoring and reviewing of policies leading to improved management and outcomes.

Board Members' Remuneration

HSA follows the Government's Directorship and Consultancy Appointments Council (DCAC) guidelines in determining the remuneration of the Board Members.

Notice and Declaration of Directorships and Interest in Shares and Debentures

Board Members are required to declare their directorships in various organisations and their interests in shares and debentures in various corporations. Board Members are deemed to be interested in any transactions which may be made by and between such corporations.

Accountability and Audit

The Senior Management Team is accountable to the Board and the Board is accountable to the Minister for Health. The Board is furnished with complete and adequate information in a timely manner to allow the Board to discharge its duties properly. Senior management staff are invited to give briefings and to answer any queries that the Board may have on the operations and planning of the organisation.

For Accountability purposes, the Board has established the following sub-committees:

(a) The Audit Committee

This Committee assists the Board in reviewing and assuring itself of the adequacy of internal accounting controls and financial reporting controls. It meets at least twice a year with the Management and auditors to determine the scope of the external and internal audit and to review the findings of the auditors.

(i) Internal Audit

HSA has engaged an external party to provide the internal audit function on an annual basis. To date, internal audit has covered areas such as the Inventory and Procurement processes, Billings and Collections, Human Resource and Payroll, Accounts Payable, and Fixed Assets.

(ii) External Audit

The external statutory audit of the financial statements has been conducted by Ernst & Young. They commenced their assignment in 2006 for the FY2006 financial statements.

(b) The Staff Establishment Committee

The Staff Establishment Committee assists the Board in reviewing the adequacy of staffing numbers and budgets to meet operational needs and of Human Resource Policies for compensation and benefits. It oversees some staff matters such as the appointment of senior management positions.

(c) The Finance Committee

This Committee assists the Board in ensuring that financial resources are managed and utilised prudently and in the most effective and efficient manner, contributing towards the organisation's overall mission.

Communication with Stakeholders

The Professional Centres conduct regular consultations with the industry and their clients, seeking to keep them informed of new directions and regulations, and to listen to their concerns. HSA publishes an annual report to meet statutory requirements and to provide information to our stakeholders.

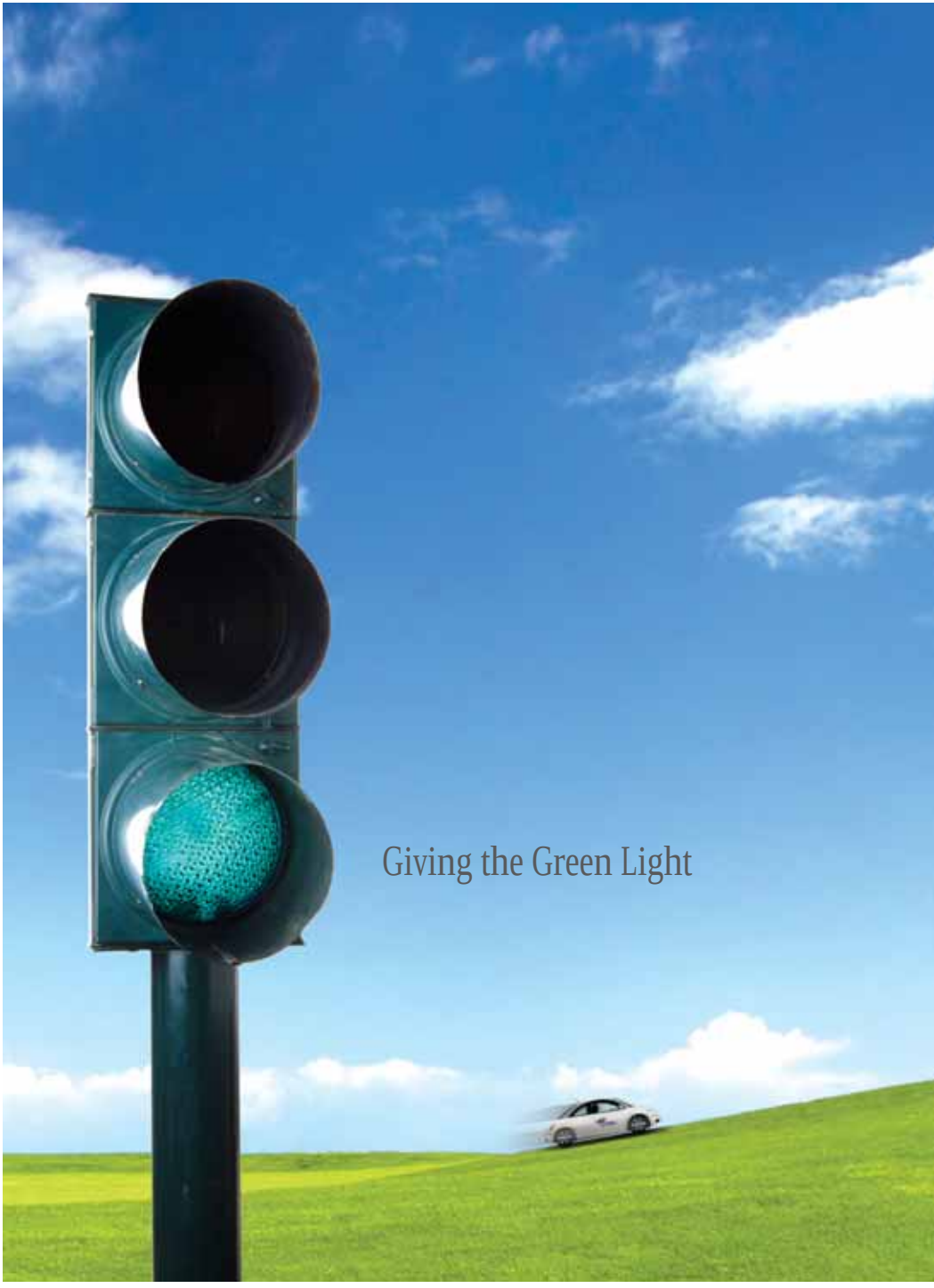
In addition, regular updates on matters of interest to our stakeholders are posted on our internet website. Our Quality Service Manager promptly handles all feedback and queries received from interested parties.

Code of Business Conduct

The Board, officers and employees are required to observe and maintain high standards of integrity, and are in compliance with the law and government regulations, and organisation policies.

Risk Management

The Management is continually reviewing and improving the business and operational activities to identify areas of significant business risks as well as appropriate measures to control and mitigate these risks. The Management also reviews all significant control policies and procedures and highlights all significant matters to the Board and the Audit Committee.


Giving the Green Light

We ensure that drugs, innovative therapeutics, medical devices, and health-related products in Singapore are wisely regulated to meet appropriate standards of safety, quality and efficacy.

Health Products Regulation Group

- CENTRE FOR DRUG ADMINISTRATION
- CENTRE FOR MEDICAL DEVICE REGULATION
- CENTRE FOR RADIATION PROTECTION*

CMDR CRP CDA

* With effect from 1 July 2007, the Centre for Radiation Protection has been transferred to the National Environment Agency and renamed as the Centre for Radiation Protection and Nuclear Science.

THE HSA Journey

To:

Front [Left to Right] :
Ms Chu Swee Seng
Yee Shen Kuan
Mrs Marie Tham

Back [Left to Right] :
Alfred Kwek
Seet Wing Gang
Chao Ye Peng
Kelvin Tan
Tham Lup Hong
R. Sivalingam

THE HSA Journey

To:

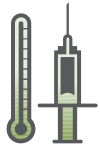
Front [Left to Right] :
Ms Lee Hui Keng
Mdm Suwarin Chaturapit
Sia Chong Hock
Ms Chan Cheng Leng

Back [Left to Right] :
Dr Lu Set
Dr Lai Weng Fai
Ms Hui Foong Mei
Boon Meow Hoe
Foo Yang Tong
Ho Yu Nam

New Drugs Registered
52

Chinese Proprietary Medicines Listed
1,340

Cosmetic Products Registered
7,983



Medical Devices Listed*
4,376

Irradiating Apparatus & Radioactive Materials Licensed
30,120

Clinical Trials Approved
217

Medical Advertisement Permits Issued
1,306

Site Audits Conducted for Good Manufacturing & Good Distribution Practices
468

Premises, Dealers, Importers & Exporters Licensed/Certified**
3,896

Tobacco Retail Outlets Licensed
916

Products Recalled
42

Adverse Drug Reaction Reports Received
11,984

* as at 31 March 2007
** includes new, renewal and amendment applications

Driving New Standards in Professional Excellence

Our Centre for Drug Administration [CDA] regulates medicinal products, complementary health products, cosmetics and tobacco products in Singapore. It administers and enforces the Medicines Act, Poisons Act, Sale of Drugs Act, Medicines [Advertisement and Sale] Act and Misuse of Drug Regulations and Smoking [Control of Advertisements and Sale of Tobacco] Act. A robust framework comprising pre- and post-marketing regulatory activities is applied. This comprises pre-market evaluation, licensing and certification activities, on-going post-marketing monitoring through inspections and surveillance, and Adverse Drug Reactions [ADRs] Reporting to track continued standards of products marketed in Singapore.

Our Centre for Medical Device Regulation [CMDR] has administered the interim Voluntary Product Registration Scheme [VPRS] for higher-risk medical devices since 2002. We are well on track to a legislated, regulated environment for medical devices in Singapore.

Our Centre for Radiation Protection [CRP], while with HSA, was the national regulatory authority for the safe use of ionising and non-ionising radiation of irradiating apparatus and radioactive materials in Singapore. It enforced the Radiation Protection Act and its subsidiary regulations through a system of licensing and inspection. Besides personalised monitoring services and radioactivity analyses, it also provided consultancy and training on radiation safety.

Innovative Regulation

On 12 February 2007, the Health Products Bill was passed by Parliament. The resulting Health Products Act was designed as an omnibus legislation that will consolidate, and eventually replace, the existing four separate Acts regulating medicines and other health-related products currently administered by HSA. The Health Products Act is notable in that it incorporates a legislative mechanism that allows the different controlling provisions in the Act to be effected on different categories of health products in a modular manner. This gives HSA more flexibility in tailoring different regulatory regimes for different categories of health products, and avoiding over- or under-regulating any particular category of product.

Medical devices is the first category of health products to be regulated under this new Health Products Act. Based on the principles endorsed by the Global Harmonisation Task Force [GHTF], which include licensing of medical device dealers as well as the products, the proposed framework underwent a two-month public consultation exercise between February and April 2007. In March 2007, as part of our continuing efforts to engage stakeholders in the formulation of the medical device regulations, we also conducted an industry briefing to representatives from over a hundred companies. The Phase I implementation of this new framework by 2007 will bring Singapore in line with international best practices on the regulation of medical devices.

Responsive Regulatory System

To ensure that rules and regulations are kept current and meet the needs of our stakeholders in the changing environment, HSA conducts ongoing reviews of its rules and regulations in consultation with its stakeholders. New initiatives arising from the regulatory reviews are developed together with our stakeholders and communicated to ensure clarity and transparency.

The drug registration system and requirements were reviewed. The major initiatives are:

- for safety labelling updates to be submitted through notification rather than the approval process, allowing predictability and better planning by the industry
- the waiver of Certificate of Pharmaceutical Product [CPP] for new product applications where other forms of approval documents can be used as appropriate substitutes
- for a major revision of the drug registration guidance document for the industry, to enhance clarity and transparency

To communicate these new drug registration initiatives, a two-day drug registration workshop for the industry was held in February 2007 and attended by over 200 industry representatives from Singapore, Malaysia, Indonesia, Australia, France and the USA.

The regulatory controls for Chinese Proprietary Medicines [CPM] were also reviewed and, in July 2006, the CPM product labelling requirements were revised to include an advisory on consumer discretion.

The licensing requirements for retail pharmacists were also reviewed and streamlined. Since 1 July 2006, pharmacists are no longer required to amend Form C poisons licences when they practise at pharmacy outlets under the same management.

To improve transparency in the product classification system for health products and food and to assist traders in carrying out preliminary self-classification of products, we have jointly developed a Food-Health Products Classification Tree with the Agri-Food and Veterinary Authority.

As part of our stepped-up efforts against retailers who illegally sell tobacco products to underage persons, the list of suspended tobacco retailers was made available on our website from April 2007.

Networked Risk Management

Networking and strategic alliances allow HSA to tap on knowledge and data beyond the agency and strengthen our regulatory decision-making and risk management processes. In FY 2006, we evaluated and approved several major new drugs, which included:

New Chemical Drugs

- Alvesco [ciclesonide] Mictonorm [Popiverine]
- Certican [everolimus]
- Protos [strontium ranelate]
- Faslodex [fulvestrant]
- Macugen [pegatanib]

New Biological Drugs

- Rabipur [rabies vaccine]
- Gardasil [HPV vaccine]
- ProQuad [MMR & varicella vaccine]
- Xolair [omalizumab]
- Neulastim [pegfilgrastim]

In January 2006, we introduced electronic reporting of ADRs, in addition to submissions through fax, mail or email. This was through the Critical Medical Information Store [CMIS]* of the Electronic Medical Record Exchange [EMRX]**.

We worked with the Ministry of Health [MOH] to implement the drug safety module of the Healthcare Professional Portal [HPP], to enhance our outreach to healthcare professionals, important partners in our risk management system. Since June 2006, healthcare professionals in Singapore receive important and urgent drug safety alerts almost immediately through SMS, e-mail and fax, and can make ADR report enquiries on-line.

* CMIS [Critical Medical Information Store] of the EMRX serves as a shared electronic repository of patients' medical alerts, ADR and drug allergy data. The CMIS online ADR reporting form is also available at the HPP to allow healthcare professionals from the private sector to submit ADR reports. The HPP is a one-stop portal for the healthcare professional community to access multiple e-services relating to professional practice and information repository using single-sign-on through a common interface.

** EMRX [Electronic Medical Record Exchange] is an electronic platform which enables hospitals and government clinics across the two public healthcare clusters, National Healthcare Group and Singapore Health Services, to share vital patient medical information such as inpatient discharge summaries, medical history and laboratory results.


HOME
HSA warns against
using toxic
remedy for

Risk communication is achieved through drug safety alerts to healthcare professionals and the public, and the *Adverse Drug Reaction News Bulletin*. In 2006, we published three issues of the Bulletin, which was disseminated to over 9,000 doctors, pharmacists and dentists in Singapore. We also worked closely with the pharmaceutical companies to issue six *Dear Healthcare Professional* letters, which updated healthcare professionals on emerging and potential drug safety problems.

In 2006, HSA participated in investigations initiated from alerts by the Singapore National Eye Centre [SNEC] on an increased incidence of Fusarium Keratitis seen in contact lens users at the centre. We worked closely with MOH, SNEC and other local institutions, as well as the US Communicable Disease Center and US Food and Drug Administration. This eventually resulted in a voluntary withdrawal of Bausch & Lomb's ReNu products in Singapore on 17 February 2006 and a global voluntary withdrawal of ReNu MoistureLoc Contact Lens Solution on 15 April 2006.

Gaining Momentum through Strategic Alliances

Our Local Role

HSA works closely with local and overseas agencies to prevent illegal and unsafe drugs from entering our market. In 2006, we conducted several joint seizures on illegal codeine cough mixtures with other enforcement agencies, including the Central Narcotics Bureau [CNB], the Immigration & Checkpoints Authority [ICA] and the Singapore Police Force [SPF]. In one such operation, eight barrels of 200 litres of codeine mixture were seized, the largest seizure of such mixtures by HSA.

In August 2006, two individuals were arrested by CNB for illegally dealing in Dormicum. One of them, a foreign doctor, was sentenced to 15 months' imprisonment. The case involved 15,000 tablets and was one of the largest seizures of smuggled Dormicum tablets to date.

Working closely with ICA, we foiled several attempts to bring consignments of counterfeit and illegal medicinal products into Singapore. In one case, about 30 different types of illegal medicinal products, amounting to 100,000 tablets and capsules with an estimated street value of over S$500,000, were intercepted and seized.

In January 2007, we provided assistance to the Malaysian Health Ministry in their investigations on a case which involved the importation of an adulterated product, 'Miagra', worth RM14 million.

During the year, we made presentations at various local radiological security and safety seminars, including the SIN/US "Radiological Dispersal Device [RDD] Threat Reduction Workshop" organised by Defence Science and Technology Agency, and Ministry of Defence's Chemical, Biological, Radiological and Explosives seminar on Safety & Security.

Forging Closer Ties within the Region

ASEAN Consultative Committee for Standards and Quality [ACCSQ] Product Working Groups [PWGs]

In support of an integrated ASEAN healthcare vision led by the Ministry of Trade and Industry, the regulatory group continued to be actively engaged in numerous activities through PWGs established under the ACCSQ:

- Pharmaceutical PWG
- Traditional Medicines & Health Supplements PWG
- ASEAN Cosmetics Committee
- Medical Device PWG

Together with its ASEAN counterparts, the PWGs worked towards harmonising regulatory measures in product and labelling standards, Good Manufacturing Practices [GMP] standards, registration dossiers, the post-marketing alert system and negotiations on a Mutual Recognition Arrangement [MRA] for GMP Inspections for Medicinal Products.

Pharmaceuticals Product Working Group [PPWG]

The PPWG held its 12th Meeting in October 2006. HSA chaired the Implementation Working Group [IWG] and the MRA GMP Inspection Taskforce, which are responsible for coordinating the implementation of the ASEAN Common Technical Dossier [ACTD] and development of an MRA for GMP Inspection respectively. At the 12th Meeting, an agreement was reached to allow the ACTD developed by the International Conference for Harmonisation [ICH] for innovative products.

Traditional Medicines and Health Supplements Product Working Group [TMHS PWG]

With the support from the local traditional medicines and health supplements associations, we successfully hosted the 5th ACCSQ TMHS PWG meeting on 27 and 28 July 2006 and a seminar which preceded the meeting. The meeting attracted 178 regulatory and industry representatives from Asia, Europe and the USA and featured eminent experts from the World Health Organisation [WHO], Europe, USA and China. The 6th TMHS PWG Meeting was held in December 2006 and continued to focus on working out the definitions of traditional medicines and health supplements, the studies and surveys on technical requirements, GMP standards, quality control testing, labelling requirements and the regulatory infrastructure and product placement system.

ASEAN Cosmetics Committee [ACC]

The 7th ACC meeting was held in December 2006. At the meeting, the ASEAN Guidelines for the Safety Assessment of Cosmetic Products were formally adopted and Singapore was appointed to lead in its development.

Medical Device Product Working Group [MDPWG]

We successfully hosted the 5th ACCSQ MDPWG meeting in January 2007, which was attended by 95 government delegates and representatives from the ASEAN Secretariat and the medical device industry. At the meeting, the member countries formally adopted the "Dear Doctor Letter" Guideline, which allows a manufacturer or competent authority to inform healthcare professionals of any product safety issues. In addition, Singapore's proposed framework on "Post-Marketing Alert System" [PMAS] that aims to facilitate inter-ASEAN adverse event and product recall reporting was also accepted.

Asian Harmonisation Working Party [AHWP]*

As the co-chair of the AHWP Technical Committee, we have been working with other member countries to fine-tune the post-market alert system and common submission dossier template. In February 2007, we also represented AHWP to participate in the GHTF Study Group 1 [SG1]** meeting in Japan.

* The Asian Harmonisation Working Party [AHWP] studies and recommends ways to harmonise medical device regulations in the region and coordinates with the Global Harmonisation Task Force [GHTF] and Asia-Pacific Economic Cooperation [APEC].

** The SG1 compares operational medical device regulatory systems around the world and is responsible for developing a standardised format for pre-market submissions and harmonised product labelling requirements.

The International Arena

Memoranda of Understanding [MOU]

In 2006, HSA signed MOU with Health Canada's Health Products and Food Branch and the United States Pharmacopoeia. The MOU with the two international organisations aim to enhance mutual communication and scientific collaboration, encourage collaborative efforts in health products regulation, analysis and research, and increase the awareness of the importance of the quality and safety of medicinal products between agencies.

Relationships with the US Food and Drug Administration [FDA] and the Australian Therapeutics Goods Administration continue to be strengthened.

International Atomic Energy Agency [IAEA]

During the year, we participated in several IAEA events, which included delivering the Singapore Statement during the IAEA General in Vienna, and two regional co-ordination meetings on Public Exposure Control and Radioactive Waste Management in Myanmar and Indonesia respectively.

In July 2006, we hosted a week-long training course organised under IAEA/Regional Co-operative Agreement on the Organisation and Implementation of a National Regulatory Programme for the Control of Radiation Sources, including the Code of Conduct on the Safety and Security of Radiation Sources. During the month, a study visit was also organised for an IAEA fellow from the Iran Nuclear Regulatory Authority to study Singapore's system of radiation control.

WHO International Electromagnetic Field Project Advisory Committee

As a member of the WHO International Electromagnetic Field Project Advisory Committee, we participated in the Geneva meeting in June 2007. The focused research knowledge shared during the meeting has enhanced the EMF control programmes locally.

In addition, to strengthen international preparedness and regional response system for Nuclear and Radiological Emergencies, we also participated in a National Competent Authority Workshop in Melbourne, Australia in November.

International Medicinal Products Anti-Counterfeiting Taskforce [IMPACT]
Initiated by the WHO, the IMPACT is a voluntary grouping of governments, organisations, institutions, agencies and associations from developing and developed countries aimed at sharing expertise, identifying problems, seeking solutions, co-ordinating activities and working towards the common goal of fighting counterfeit medical products. To accomplish this mandate, IMPACT will focus on five key areas, namely: Legislative and Regulatory Infrastructure, Enforcement, Technology, and Risk Communication. Singapore, represented by HSA, was nominated as one of the Vice-Chairs of the IMPACT taskforce and thus became a member of the IMPACT Planning Group. Five Working Groups were established to address the five key areas of concern, and have been working independently to present their proposals at the Second General Meeting in December 2007.

WHO-sponsored GMP Audit
During the year, we participated in GMP audits in China and India sponsored by the WHO as part of its pre-qualification programme to ensure medicinal products of acceptable standards of quality, safety and efficacy are available for United Nation agencies' procurement.

We continued our obligations and commitments in several regional and international agreements and forums. Some of the major involvements include:

- US-Singapore Free Trade Agreement
- MRA on GMP Inspections with Australia
- MOU with the US FDA
- Singapore-Japan Joint Statement on Medicinal Product GMP Inspection under the Japan-Singapore Economic Partnership Agreement
- Pharmaceutical Inspection Convention/ Pharmaceutical Cooperation Scheme [PIC/S]
- Permanent Forum on International Pharmaceutical Crime [PFIPC]
- WHO-supported Western Pacific Regional Forum for the Harmonisation of Herbal Medicines [FHH]
- WHO-supported International Regulatory Cooperation for Herbal Medicines [IRCH]
- ASEAN Working Group on Technical Cooperation in Pharmaceuticals [AWGTCP]
- Brunei-Malaysia-Indonesia-Singapore-Thailand [BMIST] Public Health Conference

The Next Leg of Our Journey

With the rapidly evolving landscape of biomedical and life sciences, the emergence of novel technologies and their application in health products development and Singapore's ongoing biomedical sciences initiatives, HSA is facing new challenges in regulating novel health products with our limited resources. At the same time, this opens up new opportunities for the regulatory group to tap on HSA's other professional groups' expertise and external expertise in Singapore and abroad. As HSA moves forward, it is increasingly important for us to be innovative in our regulatory approaches and capabilities development.

We will enhance our capabilities in the following four key areas:

1. Conduct risk assessments of new health products, including medical devices, novel biologics and other innovative health products. HSA is building up our capability through expansion of our in-house scientific capabilities as well as by leveraging on expertise in our partner agencies and research institutes. By improving our risk assessment capability, we aim to enhance our professional evaluation capabilities and marketing approval timelines.

2. Manage the evolving risks of products through systematic surveillance, enforcement and a risk communication programme. HSA will review and target implementation of effective risk-based programmes to monitor the safety and regulatory compliance of health products throughout product lifecycles. Our legislative framework will also be enhanced to enable HSA to more effectively enforce post-marketing studies from the pharmaceutical industry that will allow us to further characterise the safety profiles of selected drugs. We will also explore tapping the promising tools of pharmacogenetics to innovatively detect ADRs in our local population, which in the future may facilitate approvals of certain drugs tracked under this scheme.

   In the area of risk communication, we will continue to step up efforts to provide early warnings to our healthcare professionals of emerging or potential drug safety problems to enable them to make discerning choices on the safer use of drugs and health products.

3. Develop smart regulation and policies for health products that protect public safety while facilitating the growth of the biomedical industry. HSA is refining its regulatory philosophy in line with our mission to wisely regulate health products by applying a risk-based rather than a "one-size-fits-all" regulatory approach. The recently passed Health Products Act will be instrumental in helping us achieve these objectives. HSA intends to actively engage our stakeholders in the implementation of the Health Products Act, so as to better meet their needs and expectations in transparency, clarity, responsiveness and robustness in our regulation of health products.

4. Enhance our strategic alliances, connectedness and influence in the regional and international regulatory arena. This will position Singapore as a thought leader in the field and facilitate our participation in decisions shaping the future of the regulation of health products. Moving ahead, we will focus on efforts to strengthen relationships and develop closer co-operation with our key reference agencies and our regional partners in ASEAN. In the coming year, we will also actively participate and lead in regional and global initiatives, especially in ASEAN health products harmonisation, GMP inspections and anti-counterfeiting and enforcement initiatives. HSA will be organising the following major regional and global events in the coming year:

   - PIC/S Meeting in Singapore
   - PFIPC Meeting in Singapore
   - ASEAN-China IMPACT Conference in Indonesia
   - APEC Life Sciences Anti-counterfeiting Seminar in Singapore

CRP Transfer to NEA

After six years as one of HSA's professional centres since its formation in 2001, the Centre for Radiation Protection [CRP] was transferred to the National Environment Agency and became the Centre for Radiation Protection and Nuclear Science [CRPNS] on 1 July 2007.

CRP has built up a reputation over the years for having a sound capability in radiation protection in health and safety during the years under the guidance of HSA and CRP's predecessor departments.

Faced with an ever-changing landscape, there are increasing demands for expertise in the areas of nuclear science, security and emergency response. This move has brought together experts from both health and environmental radiation science as they discuss how to better meet the challenges ahead at a national, regional and global level.

We wish our colleagues a fulfilling journey ahead.

PRE-MARKET ACTIVITIES
Evaluation, Licensing & Certification

Drugs and Biologics

New Product Licences Issued		52
• Chemicals	[32]	
• Biologics	[9]	
• Generic [Chemicals]	[11]	
Variations in Product Licences		1,779
Registered Medicinal Products [as at 31 March 2007]		6,020
• Prescription-Only Medicines	[69%]	
• Pharmacy Medicines	[14%]	
• General Sale List Medicines	[17%]	
Import of Medicinal Products for Re-Export		2,224
Import of Unregistered Medicinal Products		3,818
• by doctor for named patient	[3, 801]	
• by tourists for personal use	[217]	

Chinese Proprietary Medicines [CPM]

CPM Listed [as at 31 March 2007]	10,111
CPM Rejected [as at 31 March 2007]	467

Cosmetic Products

Cosmetic Products Registered [as at 31 March 2007]	26, 074
New Importers Licensed	99
Cosmetic Products Rejected	14
Letters of Free Sales for Export	327

Health Supplements

Enquires on Classification, Import and Sales Requirements	5,076

Premises, Dealers, Importers & Exporters — 3,896

Manufacturers/Assemblers Licences Issued*	[141]
Wholesale Dealer's Licences Issued*	[517]
Import Licences Issued*	[945]
Export Licences Issued*	[233]
Pharmacy Certificates Issued*	[354]
Form A Poisons Licences Issued*	[461]
Form C Poisons Licences Issued*	[853]
Certificate of Pharmaceutical Products	[296]
Good Manufacturing Practice [GMP] Certificates Issued	[26]
Good Distribution Practice [GDP] Certificates Issued	[5]
Free Sale Certificates	[26]
Statement of Licensing Status Issued	[14]
GMP Clearance for Overseas Manufacturers	[25]

* includes new, renewal and amendment applications

Clinical Trials [January to December 2006]

Clinical Trials Approved:		217
• Phase I	[48]	
• Phase II	[35]	
• Phase III	[116]	
• Phase IV	[18]	
Clinical Trials by Therapeutic Areas:		
• Oncology	[26%]	
• Clinical Pharmacology	[21%]	
• Cardiology	[9%]	
• Gastroenterology/Hepatology	[8%]	
• Neurology	[7%]	
• Endocrinology	[4%]	
• Ophthalmology	[3%]	
• Renal Medicine	[3%]	
• Psychiatry	[3%]	
• Urology	[3%]	
• Others	[13%]	
Initial Reports of ADRs		3,364
Follow-up Reports of ADRs		4,131

NB: More than one suspected drug may be implicated in an ADR report.

POST-MARKET ACTIVITIES

Investigation, Surveillance and Prosecution

Complaints Received	799
Prosecution Cases Completed	131
Offenders Sentenced to Imprisonment	40

ADR Monitoring

ADR Reports from Public Hospitals, Government Clinics and National Specialty Centres	89.9%*
ADR Reports Associated with Pharmaceutical Products	96.6%

* Based on 1,523 ADR reports analysed

Top 10 Drugs Suspected of Serious ADRs

	Active ingredient	No.
1.	Atenolol	28
2.	Cotrimoxazole	28
3.	Diclofenac	28
4.	Phenytoin	25
5.	Allopurinol	21
6.	Aspirin	21
7.	Carbamazepine	21
8.	Amoxicillin	20
9.	Ceftriaxone	20
10.	Paracetamol	20

Radiation Control

Inspections on Facilities Using Ionising Radiation	573
Inspections on Facilities Using Non-ionising Radiation	63
Import and Export of Irradiating Apparatus Components	3,877
Endorsements of Nuclear Consignments on Ships	147
Thermoluminescent Dosimeters Processed [monthly]	8000
Wipe Test for Sealed Radiative Sources	212
Radioactivity Analysis on Food Samples	1,541
Investigations of Suspected Industrial Radiation Overdose	29
Tests for Applicants of Ionising Safety Licences	354
Tests for Applicants of Laser Safety Course	869

Tobacco Regulation

Tobacco Retail Outlets Licensed [as at 31 March 2007]	6,000
Illegal Sale of Tobacco to Under 18 Years	66
Youths Compounded	5,999
Youths Prosecuted in Court	292

Health Services Group

• CENTRE FOR TRANSFUSION MEDICINE

We are the national blood service, ensuring a safe and adequate blood supply and providing specialist transfusion medicine services.


Fuelling the Distance

THE HSA Journey

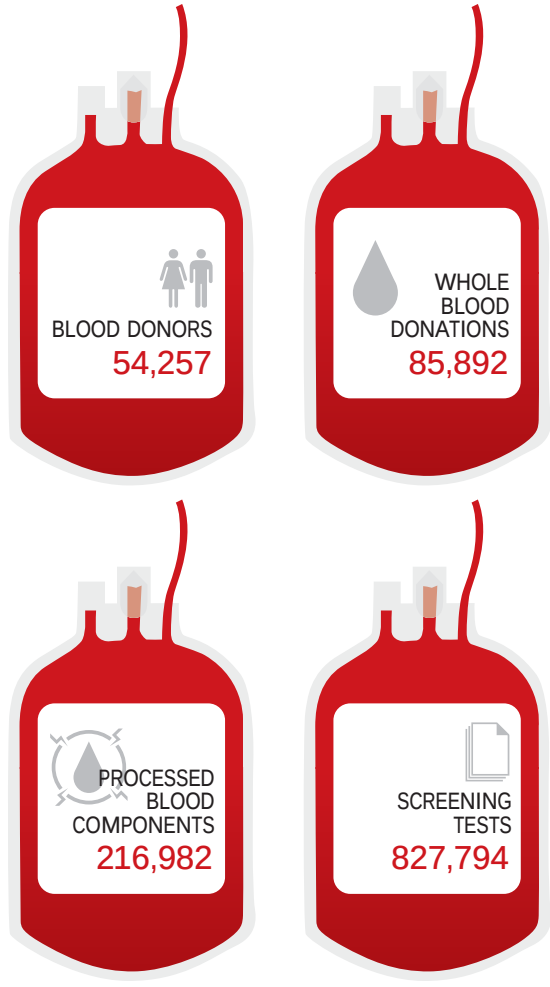
HSA Health Sciences Authority

To:

Front [Left to Right] :
Dr Marieta Chan
Dr Tan Hwee Huang
Ms Sally Lam

Back [Left to Right] :
Ms Leou Kwee Kim
Ms Selvi Govindaraju
Ng Kok Quan
Ms Toh Ching Lian
Ms Koh Geok Tin

Absent :
Dr Mickey Koh


BLOOD DONORS
54,257
WHOLE BLOOD DONATIONS
85,892
PROCESSED BLOOD COMPONENTS
216,982
SCREENING TESTS
827,794

Driving New Standards in Professional Excellence

Our emphasis in maintaining high standards of quality was rewarded in May 2006 when we became the first national blood service in Asia to be accredited by the AABB. This accreditation brings us membership of a respected organisation of international blood banks in the scientific community and affirms our high level of professionalism and commitment to quality blood banking.

In our journey towards excellence, we partnered with national blood services in eight countries in the Asia-Pacific Region to form the Asian Pacific Blood Network [APBN]. In June 2006, we hosted the official launch of the APBN, which aims to promote blood safety and efficiency of operations through global co-operation and information sharing. This followed the signing of a confidentiality agreement amongst the member countries, which was formally ratified on 28 November 2006.

We are also members of International Society of Blood Transfusion [ISBT] Working Parties for Haemovigilance, Blood Supply Management and the Hepatitis B Working Group. Along with Japan, Singapore is the only other country in Asia to join the European Haemovigilance Network, which aims to collect and exchange data on the effects of blood transfusion.



Mapping Out New Areas of Research

We actively seek to take advantage of the latest developments in blood banking science and information technology to improve the quality and efficiency of the services we offer.

Our new state-of-the-art Cell Processing Laboratory was opened in 2006. This new facility is a fully GMP-compliant [Good Manufacturing Practice] laboratory dedicated to translational cell therapy work. We are currently involved in collaborative trials with the Singapore General Hospital. Ongoing research is also being conducted in the rapidly evolving fields of immunotherapy and new cellular therapies.

Gaining Momentum through Strategic Alliances

Our Local Role

2007 marks the sixth year of a strategic partnership with the Singapore Red Cross [SRC] to manage our national blood donor programme. The blood donor recruitment effort is complemented by our ongoing public awareness campaign on the importance of regular voluntary blood donations and the need to foster blood donation as a healthy lifestyle activity.

Forging Closer Ties within the Region

In our capacities as a World Health Organisation [WHO] Collaborating Centre for Transfusion Medicine and the WHO Regional Quality Management Training Centre, we continued to help in initiatives to improve the standard and practices of transfusion medicine in the Western Pacific region. Our regional training projects include conducting training for the blood transfusion service in Myanmar, providing external proficiency testing in pre-transfusion testing in blood centres across the Western Pacific region, and working with the SRC to provide donor recruitment training programmes in Thailand and Myanmar. We have also worked with Nanyang Polytechnic to produce, on behalf of the WHO, a training CD entitled "Quality in Blood Collection".

The International Arena

We make it a priority to share and exchange knowledge within the global arena. In the year, we continued to participate actively in key international conferences as speakers and attendees in the transfusion medicine arena. These included conferences organised by the WHO, AABB, International Society of Cellular Therapy, Japanese Society of Blood Transfusion, ISBT and South Asian Association of Transfusion Medicine. We are also a member of the WHO-convened Global Collaboration in Blood Safety.

To harmonise with international practices, we converted to the ISBT 128 barcode labelling system, an international standardised barcode nomenclature for transfusion medicine.

Engaging with the Community

In June 2006, we celebrated the 60th anniversary of the National Blood Programme in Singapore with a unique World Blood Donor Day sandcastle-building activity and beach carnival. This was followed in July 2007 by a two-day scientific symposium themed "Evolving Trends in Transfusion Medicine", where regional and international experts in the field of transfusion medicine shared their expertise.

The Next Leg of Our Journey

In the coming year, we will be focusing our efforts on achieving accreditation of our Transplant Support Unit with the American Society of Histo-compatibility and Immuno-Genetics [ASHI]. Successful accreditation with ASHI will give our transplant support laboratory added international standing and recognition.

New technologies to be introduced in blood collection include Red Cell Apheresis donation. In Blood Donation Processing, the use of semi-automated blood component extractors will be introduced to streamline the workflow and further enhance the quality of blood components processed. Pathogen-inactivated frozen plasma and platelets using state-of-art pathogen inactivated technology will also be closely studied to determine their suitability for use in transfusions. Prevalence studies of the West Nile and Dengue viruses in our blood donor population will help to determine if new screening tests will need to be added for the blood supply.

We will apply the latest information technology to create more patient-centric diagnostic laboratory services including Automated Pre-Transfusion Testing system, molecular analysis for red cell antigens, flow cytometry for Human Lymphocyte Antigen cross-matching and antibody screening.

Information technology will also be used to enhance our web portal for blood donors - Donorcare@HSA. Through innovative new additions, we hope to provide added convenience and ease in the blood donation process. Collaboration with Republic Polytechnic in utilising process analysis tools in areas such as blood collection, processing and patient testing will further aid us in streamlining our processes and improving efficiency.

Blood conservation is a new area in which we will work with hospitals to enable effective management of our blood supply. Through use of procedures such as autologous blood cell salvage, we can work with clinical colleagues to maximise every drop of blood that we collect.


Navigating New Terrain
Applied Sciences Group

We represent the national forensic medical and scientific, analytical and laboratory expertise to support regulatory and other compliance agencies in the administration of justice and the safeguarding of public health.

Applied Sciences Group

- CENTRE FOR ANALYTICAL SCIENCE
- CENTRE FOR FORENSIC MEDICINE
- CENTRE FOR FORENSIC SCIENCE

THE HSA Journey

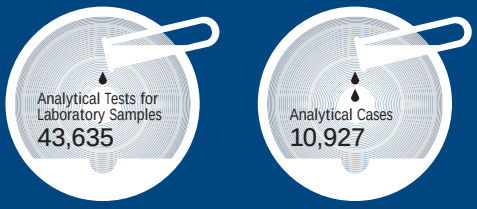
To:

Front [Left to Right] :
Ms Low Min Yong
Dr Michael Tay
A/P Gilbert Lau
Mrs Tan Wai Fun

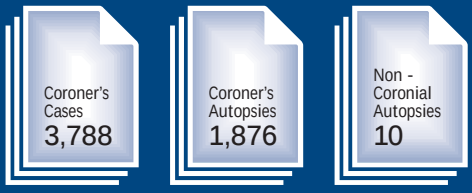
Back [Left to Right] :
Dr Yao Yi Ju
Dr George Paul
Dr Lui Chi Pang
Dr Teo Eng Swee
Ng Soon
Ms Cheah Nuan Ping

Absent :
Dr Lee Tong Kooi
Ms Lee Gek Kwee
Ms Joanne Chan

Analytical Science



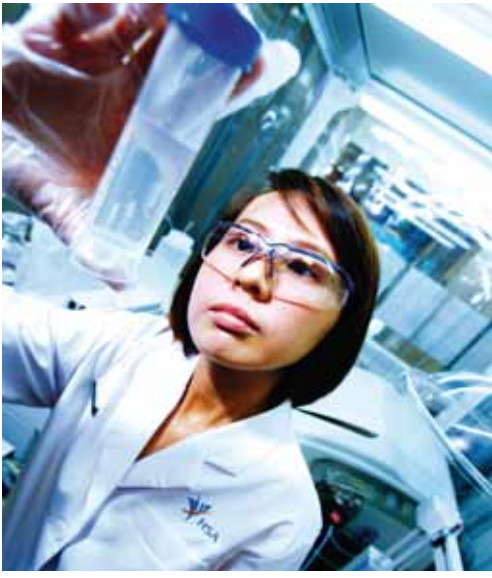
Forensic Medicine



Forensic Science

Driving New Standards in Professional Excellence

As we journey forward, we continually seek to improve upon our high standards of professional excellence, and this past year has been no exception. Across the Group, greater focus was placed on ensuring that proper resource deployment and allocation were aligned with our strategic intent to meet challenges ahead, in particular the development of professional staff and reinvestment in new information systems and appropriate, relevant technology. Our professional standards are critical for us to progress forward and we aim for the consistent attainment of high accreditation standards across all three centres.



Our Centre for Analytical Science [CAS] continues to provide services to support the Agri-Food Veterinary Authority of Singapore's [AVA] regulation of processed foods, and the regulation of pharmaceuticals, Chinese proprietary medicines, cosmetics, health supplements and cigarettes.

Since 1997, CAS has been continuously recognised by the Singapore Accreditation Council–Singapore Laboratory Accreditation Scheme [SAC-SINGLAS] under ISO/IEC Guide 25. This was further upgraded to ISO/IEC 17025 in July 2002, then to ISO/IEC17025: 2005 in June 2006. Eight of our Scientific Officers are appointed as qualified ISO/IEC technical assessors by the Singapore National Accreditation Council.

CAS continued to perform well this past year, participating in the APLAC Proficiency Testing Programmes Scheme organised by the European Directorate for the Quality of Medicines [EDQM] on Dissolution Test for Pentoxifylline Extended-release Tablets. We did very well with our water analysis results on chromium, copper, iron, lead, nickel, thallium and zinc with all the z-scores within $z \pm 2$.

CAS also participated in the 14th Asia Collaborative Study on ISO Tar and Nicotine involving 42 laboratories from 18 countries in the Asia-Pacific region and Europe. Five different brands of cigarette samples with tar levels ranging from 1mg to 15mg were tested. Our study report in March 2007 compared favourably with the other top laboratories.

Our Centre for Forensic Medicine [CFM] provides forensic medical consultancy services in support of the Coroner and the Singapore Police Force [SPF] in medico-legal death investigations within and outside of Singapore.

CFM was accredited in 2005 and continues to maintain high professional standards through a regular internal review process. In line with efforts to operate at maximum efficiency, CFM discontinued its Forensic Death Investigator [FDI] service in February 2007 due to decrease in demand.

Our Centre for Forensic Science [CFS] continues to specialise in forensic science services rendered to the SPF, Central Narcotics Bureau [CNB] and other law enforcement agencies serving the administration of justice.

Since 1996, CFS has been among the few forensic science centres in the region to achieve the American Society of Crime Laboratory Directors/Lab Accreditation Board [ASCLD/LAB] accreditation, an international accreditation scheme for excellence in forensic science service. CFS was re-accredited by the ASCLD/LAB in June 2006.

Mapping Out New Areas of Research

While primarily a service entity, we recognise that investment in innovation and R&D is critical to ensuring that we continue to succeed in delivering high quality, high value scientific expertise to our clients.

This year, we successfully applied Bloodstain Pattern Analysis [BPA] and conducted crime scene reconstructions for several high-profile murder cases. The acceptance of the evidence provided by our scientists validated the standards of expertise introduced.

Several new analytical capabilities were developed:

Chinese Proprietary Medicines

- 67 new adulterants and 13 analogues of Phosphodiesterase-5 [PDE-5] Inhibitors were identified
- New tests on analysis of Arteminsinin and Acontine were accredited

To date, we have more than 350 adulterants that have been accredited under ISO/IEC17025:2005.

Cosmetics

- Two new services to test for Chromium and Neodymium were introduced
- New test methods were developed incorporating more mass spectrometry techniques for the development of new test methods in cosmetic testing

Tobacco

- Tests were made for carbon monoxide by Non-Dispersive Infra-Red Analysis [ISO8454:1995] using the semi-automated smoking machine

Food & Water

- Potentially harmful plasticisers and additives from food contact materials were identified
- Sample extraction techniques were used to determine persistent organic pollutants [POPs] in food, such as polybrominated diphenyl ethers [PBDEs], and polychloro biphenyls [PCBs]
- Accreditation extended to include two new tests to identify Naphthalene and Uranium in water
- Multi-elemental analysis protocol for water samples were expanded to include seven more elements using Inductively Coupled Plasma-Mass Spectrometry [ICP-MS] and Ion Chromatography [IC] techniques

Gaining Momentum through Strategic Alliances

We recognise that the best way to progress is to share our knowledge with others through strategic alliances locally and internationally. Our academic collaborations include contributing actively to medical undergraduate and postgraduate education from NUS' Department of Pathology and Experimental Surgery of the Singapore General Hospital and National Cancer Centre in the areas of forensic medicine, forensic pathology and pharmacy through various research projects. We also collaborate with Nanyang Polytechnic and the Genome Institute of Singapore on the local front, and World Health Organisation [WHO] and the United Nations internationally.

Our Local Role

In partnership with the CNB, we completed two projects, including

- an evaluation study on three on-site drug-testing kits;
- a survey to determine the consumption pattern of heroin and cannabis.

The completion of the survey project on heroin and cannabis marked the conclusion to a series of surveys first undertaken in 2005 to determine the consumption pattern of drugs abused in Singapore. The drugs covered by the surveys were ketamine, Erimin 5 [nimetazepam], "Ecstasy" [N, α-dimethyl-3,4-[methylenedioxy] phenethylamine], "ice" [methamphetamine], heroin and cannabis.

Forging Closer Ties within the Region

In September 2006, we jointly organised the first regional DNA Symposium on Forensic DNA and Population Statistics Workshop with Applied Biosystems, which featured leading forensic experts from the United States, Thailand, Indonesia, Malaysia and Vietnam. We also co-hosted a symposium with Dade Behring on 'Trends and Tribulations in Drugs of Abuse Testing' in March 2007, with board members from the International Association of Forensic Toxicologists [TIAFT] invited as speakers.

For use by regional laboratories, we developed a gas chromatographic method for the quantification of safrole and isosafrole in sassafras oil. Both substances are precursor chemicals used in the illicit manufacturing of N, α-dimethyl-3,4-[methylenedioxy] phenethylamine ["Ecstasy"].

The International Arena

On the international front, we continued our collaborations with WHO in the development of draft monographs on Lamivudine Oral Solution, Lamivudine Tablets and Lamivudine and Zidovudine Tablets for the International Pharmacopeia. We also worked on the proposed additional identity tests for Lamivudine and Zidovudine Tablets and re-examined three international chemical reference substances: Diazoxide, Ethosuximide and Tolbutamide for the WHO Collaborating Centre for Chemical Reference Substances in Sweden.

We served as a WHO Temporary Advisor at a meeting on "Specifications for Medicines and Quality Control Laboratory Issues" and hosted the training of two WHO Fellows in pharmaceutical analysis. We also filled the role of technical expert in the 41st Meeting of the WHO Expert Committee on Specifications for Pharmaceutical Preparation in Geneva, Switzerland. The 4th Edition of *The International Pharmacopeia* was published in late 2006 with our collaboration.

We collaborated closely with the United Nations Office on Drugs and Crime [UNODC] on Project H44 - Scientific support to strengthen regulatory and law enforcement control of amphetamine-type stimulants and their precursors in East, South and Southeast Asia. Since the project's inception in May 2006, our newsletter *DrugNetAsia* has been published twice yearly to serve as a platform for the sharing of information among the regional forensic laboratories.

In addition, we participated as a technical member at the International Laboratory Forum on Counterfeit Medicines [ILFCM] to share information on scientific techniques that are used to detect counterfeit drugs and harmful substances in dietary supplements.

Engaging with the Community

Projects were carried out to improve the working environment for staff members, including promoting awareness of laboratory safety with a newly revised safety handbook and annual recognition awards. We also addressed the problem of proper disposal of chemicals and other wastes.

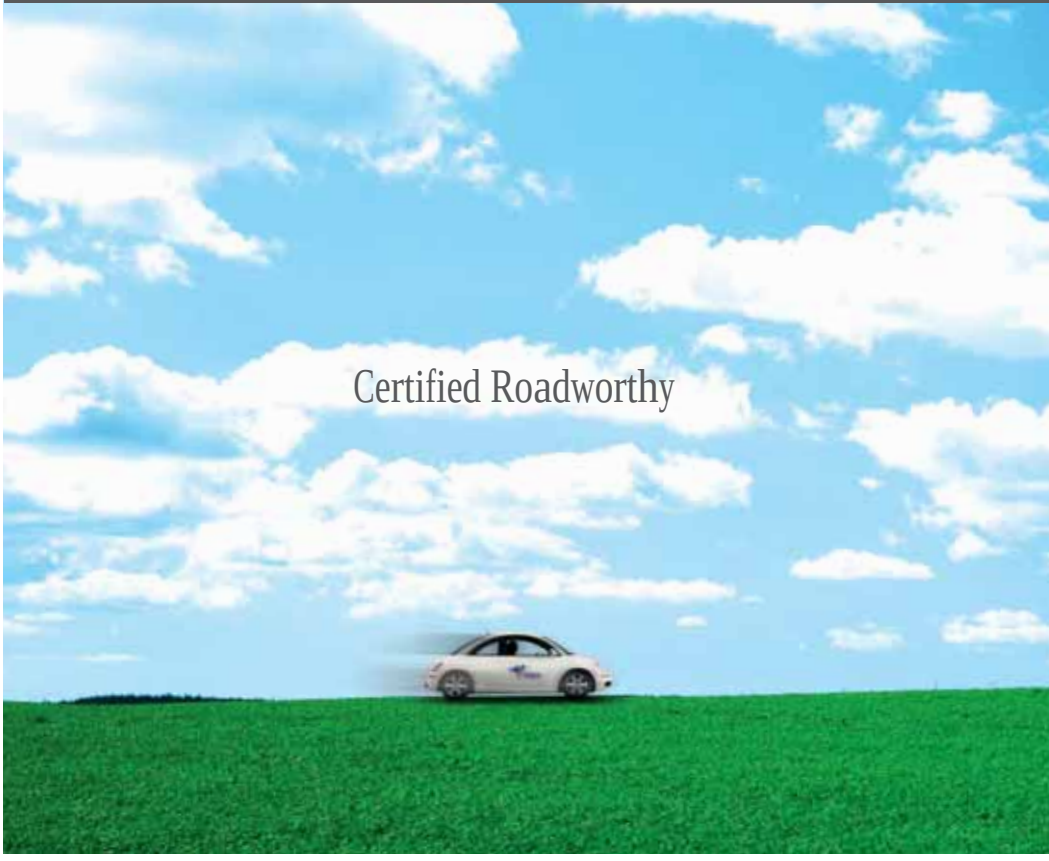
Our community activity highlights during the year included visiting and hosting several lunches and dinners for the disabled elderly and senior citizens, a beach clean up and a recycling project. We are also committed to nurturing young scientists through our student internship programmes and visits.

The Next Leg of Our Journey

We see a number of challenges on the horizon in our continuing effort to serve various regulatory agencies. We need to be nimble, responsive and focused in asserting our professional capabilities and stature in serving the community in Singapore and beyond. Numerous key initiatives will be deployed in the next three years, focussing primarily on strengthening efficiency and professional effectiveness, and pushing innovative development into new areas of expertise. Our research framework will be revamped and more funds set aside to promote R&D.

Excellence
Organisational
Excellence
Organisational

organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence organisational excellence



Organisational Excellence

Our ongoing pursuit of organisational excellence has led us to achieve several organisational accolades over the years. They include the Singapore Innovation Class [I-Class] in 2003, People Developer Standard [PDS] renewed in 2005, and Public Service Award for Organisational Excellence in 2006.

In 2006, focused efforts were channelled into clarifying our strategic directions in the longer term and defining the relevant organisational structures to advance HSA in our new wave of growth. Various strategic conversations and conferences were initiated across different levels of staff and departments to encourage a wider exchange of ideas and to allow greater clarity in collectively defining our next moves forward. This resulted in revised Vision and Mission statements and the development of key strategic plans to facilitate our organisational excellence journey.

A renewed HSA Organisational Excellence Framework was also rolled out to achieve greater synergy across related organisational developmental initiatives and to strengthen people integration. The three pillars of excellence identified are:

- People Excellence
- Innovation Excellence
- Quality and Service Excellence

The framework focuses on putting the appropriate structures and systems in place to reinforce organisational culture; provide an optimum environment with the right conditions; and build competencies that will enable HSA to develop into an organisation capable of thriving in a future environment of greater complexities and challenges.

People Excellence

In recognition of their achievements, 15 HSA officers were conferred the National Day Awards 2006, which included the following three special awards:

- The Commendation Medal
  Ms Lim Chin Chin [CFS, ASG]

- The Efficiency Medal
  Ms Phang Chew Yen [CTM, HSG]
  Mrs Tan-Lee Ngak Lee [CFS, ASG]

- The Public Service Medal [PBM]
  Ms Daisy Ang [Corporate Communications, Corporate HQ]

In August 2006, Ms Goh Choo Neo, Human Resource Officer from Corporate HQ was awarded the Singapore Labour Foundation Educational Tours Award for Model Workers 2006.

During the year, 58 officers were promoted in recognition of their excellent performance. Long Service Awards were also presented to 92 officers.

Five staff members were posted overseas for training under the Ministry of Health's [MOH] Health Manpower Development Plan in countries that included the USA and Australia. Under the HSA's Professional Development Programme, 17 staff upgraded their academic qualifications.

Integrating Fun and Fitness at Work

As part of our commitment to encourage our staff to lead balanced and healthy lifestyles, activities such as Active Day, Fruit Day, and Games Day were held to strengthen staff bonding and promote healthy living.

Our efforts continue to be recognised and we have been commended with the Singapore H.E.A.L.T.H* Gold Award for the last two consecutive years.

We were also awarded the Ministry of Home Affairs Award for NS Men's Employers [Commendation] in September 2006 for supporting the National Service activities of our employees.

* Helping Employees Achieve Life-Time Health

Innovation Excellence through IT

During the year, we intensified Information Technology [IT] developments in the area of system applications as mapped out in HSA's four-year IT Master Plan.

Two key application projects, namely *LISA* [*Laboratory Information Scientific Administration*] and *FIONA* [*Forensic Integrated Operations Network Application*] are being developed for the Applied Sciences Group. When completed, both systems will help towards building a paperless environment and promoting greater automation through enhanced workflow.

To align with the Government directives for Web Interface Standard [WIS] and Web Content Accessibility Guidelines [WCAG], the HSA website underwent a revamp and the new website was successfully launched in August 2007.

In support of the drive towards a more synergistic public service through shared processes and systems, we also embarked on several shared IT and infrastructural initiatives projects.

We collaborated with the National Library Board [NLB] and three other public agencies – Health Promotion Board [HPB], Media Development Authority [MDA] and the Standards, Productivity and Innovation Board [SPRING] to implement a shared Corporate Resources System [CREST]. With CREST, the areas in the management of Human Resource, Finance, Procurement and Administration will be handled more efficiently.

We also leveraged on the MOH's Shared Infrastructural [MediNet] services, a centralised infrastructure for both website and Intranet management. To optimise resources and minimise overall maintenance cost, we are working closely with HPB and MOH to establish greater centralised services for network and facility management.

Quality and Service Excellence

Through the efforts of the Quality Service Committee, we have continually upgraded our service level and have created added value for customers through procedures and systems reviews.

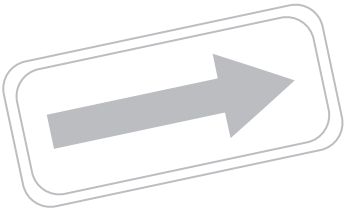
In July 2006, the Committee introduced a more user-friendly feedback form for customers to better assess the service received and provide suggestions for improvement.

We are guided by the Public Service "Minimum Service Standards". In the quarterly Mystery Customer Survey co-ordinated by the PS21 Office, we have consistently achieved a 100% satisfactory mark. An internal Frontline Customer Service Audit helps to maintain ongoing service standards.

During the year, we received 4,485 and 1,660 returns through feedback forms and email respectively.

To recognise staff members for their contribution in quality service and work improvement initiatives, the following awards were presented:

- Nine Quarterly Outstanding Service to Customer Awards [OSCA]
- One Annual OSCA Award
- One Team Outstanding Quality Improvement Award



Moving Forward

HSA will continually seek to strengthen our fundamentals – to make the organisation's Core Values resonate with all HSAians, and streamline and improve our processes further in support of HSA's overall organisational developments. To ensure better organisation-wide alignment of strategic directions and systems, we will be pursuing an integrated Organisational Excellence re-certification under the refined niche standards of I-Class and PDS. Together, we will transform aspirations into reality as we make HSA the leading innovative authority protecting and advancing national health and safety.

Crossing International Borders

International Visitors

Date	Visits By:
4 April 2006	Dr Margaret Stark, Past President, Association of Forensic Physicians, Principal Forensic Physician, Metropolitan Police; St George's Hospital Medical School, University of London
8 May 2006	Professor Randall Alberte, Director, Department of Biotechnology, Florida Gulf Coast University, USA
30 May 2006	Delegation from Rajamangala University of Technology, Thailand, led by Dr Philip John Barlow
12 - 16 June 2006	Mr Suteep Bussayamanont, Senior Pharmacist/Senior GMP Inspector; Mr Dumrong Thitikornkovit, Senior Pharmacist/Senior GMP Inspector; Mr Maitree Cheewakulprasit, Pharmacist/GMP Inspector; Mr Sermrat Chaiyakun, Pharmacist/GMP Inspector, Drug Control Division, Thai Food and Drug Administration
12 June - 9 July 2006	Mr Chang Hong-Tsang, Document Examiner, Forensic Science Division, Criminal Investigation Bureau, Taiwan, Republic of China
16 June 2006	11-member medical delegation from the Indonesian Red Cross
19 - 30 June 2006	Mr Chang Wei-Pin and Ms Liu Hui-Fen, Document Examiners, Laboratory Division, Investigation Bureau, Ministry of Justice, Taiwan, Republic of China
20 June 2006	• 4-member delegation from the Department of Scientific Services, Brunei • Professor Harry Fong, Professor Emeritus of Pharmacognosy, Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois, Chicago, USA
29 June 2006	Dra. Retno Utami, Head of Subdirectorate of Inspection and Certification of Manufacturing Control of Therapeutic Product and Household Product and Dra. Togi Hutadjulu, MHA, Quality Assurance Manager for GMP Unit, National Agency of Drug and Food Control, Indonesia

Date	Visits By:
3 July 2006	Mr Eric Davies, Forensic Firearms Investigator [Expert], Australian Federal Police and Sergeant Wayne Bennet, Ballistics Unit, Police HQ, Brisbane, Australia
5 July 2006	6-member medical delegation from the Pakistan Blood Bank
25 July 2006	Dr David Briggs, Director of the Office of Complementary Medicines, Therapeutic Goods Administration, Australia
31 July - 8 August 2006	Ms Rosni Jair, Acting Principal Pharmaceutical Chemist and Ms Zubaidah Mahmud, Scientific Officer, Drug Quality Control Section, Department of Pharmaceutical Services, Ministry of Health, Brunei
8 August 2006	10-member delegation from Brunei's Ministry of Health led by its Deputy Minister of Health Yang Berhormat Pehin Orang Kaya Pekerma Lela Diraja Dato Paduka Haji Hazair bin Haji Abdullah
23 August 2006	Sergeant Gerard Dutton, Officer-in-charge, Ballistics Section, Forensic Services, Tasmania Police, Australia
31 August - 1 September 2006	• Dr Richard Nesbit, Acting WHO-WPRO Regional Director • Dr Han Tieru, WHO Representative for Brunei Darussalam, Malaysia and Singapore
4 September 2006	• Dr Arthur J Eisenberg, Director, DNA Identity Laboratory, Health Science Centre, University of Texas, USA • Dr Bruce Budowle, Senior Scientist, Laboratory Division, Federal Bureau of Investigation, USA • Dr Budsaba Rerkamnuaychoke, Head, Human Genetics Unit, Department of Pathology, Faculty of Medicine, Ramathibodi Hospital, Thailand • Dr Nguyen Van Ha, Principal Investigator, DNA Lab, Institute of Forensic Science, Vietnam • Dr Herawati Sudoyo, Head, DNA Identification Unit, Eijkman Institute for Molecular Biology, Indonesia • Mr Lim Kong Boon, Branch Director, Department of Chemistry, Malaysia, Kuching, Sarawak

Date	Visits By:
19 September - 11 December 2006	4-member medical delegation from Regional Blood Transfusion Centres, Vietnam led by Professor Nguyen Anh Tri, Director, National Institute of Haematology and Blood Transfusion, Hanoi, Vietnam
27 September 2006	Dr Paul Coates, Director, Office of Dietary Supplements, National Institutes of Health, USA
27 - 28 September 2006	Dr Shaw Chen, Associate Director for Office for Drug Evaluation 1, Centre for Drug Evaluation and Research, Food and Drug Administration, USA
5 - 6 October 2006	Dr Mark Doverty, Assistant Secretary, Manufacturers Assessment Branch, Therapeutic Goods Administration, Australia
17 October 2006	Delegation from the Shanghai Innovation Research Centre for TCM, China
30 October - 10 November 2006	Mr Hu Jun, Chief of Division, Division of Evaluation I, Centre for Drug Evaluation, State Food and Drug Administration, China
17 November 2006	• Mr Ivan Ng Kuok Leong, Chief of Division of Pharmacovigilance & Pharmacoeconomics of the Government of Macau Special Administrative Region Health Bureau, China • 8-member delegation led by Mr Han Li Xin, Director, Economic Bureau, State Food and Drug Administration, China
20 - 21 November 2006	13-member delegation from Forensic Science Division, Criminal Investigation Bureau, Taiwan, Republic of China
28 November 2006	10-member delegation from Laboratory Division, Investigation Bureau, Ministry of Justice, Taiwan, Republic of China
29 November 2006	Dr Yin Hsin Ling, Institute of Forensic Medicine, Ministry of Justice, Department of Forensic Pathology, Taiwan, Republic of China
30 November - 1 December 2006	6-member delegation from the National Institute of Haematology and Blood Transfusion, Hanoi, Vietnam led by its Director, Professor Nguyen Anh Tri

Date	Visits By:
4 - 7 December 2006	7-member delegation from Ministry of Health, Indonesia
5 December 2006	Ms Su-Ryun Kim and Ms Sojin Sung, Pharmaceuticals Team, Korea Food and Drug Administration
13 - 14 December 2006	Mr Wang Ting-Cheng and Mr Chiang Shih Hung, Forensic Science Centre of Kaoshiung Municipal Police Headquarters, Taiwan, Republic of China
13 January 2007	Dr Elzaruta Arbain, Sub Directorate of Family Physician, Ministry of Health, Indonesia
8 February 2007	• Dr Panadda Silva, Director, Bureau of Laboratory Quality Standards, Department of Medical Sciences, Ministry of Public Health, Thailand • 4-member delegation from Ministry of Health, Brunei led by Minister of Health, Mr HE Pehin Dato Suyoi Osman
23 February - 2 March 2007	Professor Jeffrey McCullough, Director, Biomedical Engineering Institute, University of Minnesota, Minneapolis, USA
1 March 2007	Sergeant Mark Reynolds, Vice-President Region VI [Pacific Rim] Chapter, International Association of Bloodstain Pattern Analysts, Western Australia Police Service
6 March 2007	• Ms McSweeney Kim, Medical Technologist, Jakarta Embassy • Ms Nancy Manahan, Regional Director, US Embassy
9 March 2007	Mr Guy McCullough, National Quality & Systems Manager, Australian Red Cross Blood Service

Date	Visits By:
26 - 29 March 2007	• Mr Akira Miyajima, Chief Executive and Mr Shigeki Tsuda, Director, Internal Affairs & Human Resources Development Division, Pharmaceuticals and Medical Devices Agency, Japan • Mr Abida Syed M Haq, Principal Assistant Director, Centre for Organisational Development, National Pharmaceutical Control Bureau, Malaysia • Dr Husniah Rubiana, Head, Ms Kustantinah, Director, Control of Production of Therapeutic Product and Household Product and Ms Niniek Sudiyani, Director, Traditional Medicine, Food Supplement and Cosmetic Evaluation, National Agency for Drug and Food Control, Indonesia • Dr Siriwat Thiptaradol, Secretary General, Thai Food and Drug Administraion • Dr Precious Matsoso, Director, Technical Cooperation for Essential Drugs and Traditional Medicines, World Health Organisation
30 March 2007	• 8-member delegation from The International Association of Forensic Toxicologists [TIAFT], France led by its President, Dr Pascal Kintz • 24-member delegation from The National Institute of Haematology and Blood Transfusion, Hanoi, Vietnam led by its Director, Professor Nguyen Anh Tri

Discovering Uncharted Territories

Research Papers and Projects

Pharmaceuticals and Health-related Products Regulation

TITLE OF RESEARCH PAPER	AUTHOR[S]	PROFESSIONAL PUBLICATION
Drug-induced Liver Injury at an Asian Centre: A Prospective Study	Wai Chun Tao, Tan Bee Him, Chan Cheng Leng, Dede S. Sutedja, Lee Yin Mei, Christopher Khor & Lim Seng Gee	Liver International 2007; 27[4]: 465-74
Multistate Outbreak of Fusarium Keratitis Associated with Use of Contact Lens Solution	Chang DC, Grant B, Park Benjamin, et al & Chan Cheng Leng	Journal of American Association JAMA 2006; 296[8]: 953-63

TITLE OF RESEARCH PRESENTATION	AUTHOR[S]	PROFESSIONAL EVENT
Pharmacovigilance in Singapore	Chan Cheng Leng	Advanced Good Clinical Practice Course on Pharmacovigilance, Yong Loo Lin School of Medicine, National University of Singapore, 28 July 2006

Transfusion Medicine

TITLE OF RESEARCH PRESENTATION	AUTHOR[S]	PROFESSIONAL EVENT
Looking at Factors Governing Failure Rate in Phlebotomy	Loh Siew Leng, Toh Ching Lian, Norhayati Mohd Amir, Dr Mickey Koh & Dr Diana Teo	XXIV International Society of Blood Transfusion [ISBT] Regional Congress, Cape Town, 2 – 7 September 2006
A Haemovigilance Study of the Appropriateness of Fresh Frozen Plasma Transfusion in Singapore	Ramir Alcantara, Ng Heng Joo, Dr Mickey Koh & Dr Tan Hwee Huang	XXIV International Society of Blood Transfusion [ISBT] Regional Congress, Cape Town, 2 – 7 September 2006
Can the Minimum Donation Interval be Reduced Without Increasing the Threshold Haemoglobin Requirement? A Feasibility Study Using Serum Ferritin as an Indicator of Iron Stores	Dr Jharna N Shah, Dr Theyventheran T Devarajan, Toh Ching Lian & Dr Tan Hwee Huang	XXIV International Society of Blood Transfusion [ISBT] Regional Congress, Cape Town, 2 – 7 September 2006
Natural Killer Cells: Promising Candidates in Cancer Cell Therapy	Dr Garnet Suck	4th Annual Scientific Symposium on Transfusion Immunology and Related Topics: Cellular Therapy, Toronto, Canada, 16 September 2006

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
Development of a Multi-Centre Comprehensive Cellular Immunotherapy Programme	Dr Mickey Koh, Dr Marieta Chan, Dr Garnet Suck, Lim Tsyr Jong & Madelaine Niam

Transfusion Medicine [cont'd]

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR(S)
A Prevalence Study of Dengue Virus in Singapore Blood Donor Population	Dr Diana Teo, Sally Lam & Associate Professor Evelyn Koay
Study on the Efficacy of Inactivation of Dengue Virus by Photochemical Reaction Using Amotosalen [S-59] and UVA	Dr Mickey Koh, Sally Lam, Dr Ng Lee Ching, Tan Hwee Cheng & Tan Li Kiang
Development and Implementation of a Rh Anti-D Quantitation Procedure	Dr Marieta Chan, Michael Ng Weng Yik, Leou Kwee Kim, Kang Kok Sheng, Neo Theng Hee & Dr Diana Teo
Study on the Genotyping of Rhesus Genes RHD and RHCE in the Three Main Races of Singapore	Dr Marieta Chan, Michael Ng Weng Yik, Leou Kwee Kim, Kang Kok Sheng & Dr Diana Teo
Correlative Studies on Panel Reactive Antibody of Highly Sensitized Patient Performed by Complement-Dependent Cytotoxicity [CDC] and Flow Cytometry	Dr Marieta Chan, Phang Chew Yen, Lai May Ling, Tang Ei Mei & Dr Diana Teo
A Prevalence Study of West Nile Virus in Singapore Blood Donor Population	Sally Lam, Dr Lawrence Kiong, Lynn Wong & Ng Kooi Sim
Enhancing NK Cell Cytotoxicity to Improve Current Cancer Cell Therapies by Ex Vivo Stimulation with Neuropeptides	Dr Garnet Suck, Dr Mickey Koh, Dr Donald R. Branch, Dr Tan Suet Mien, Dr Linn Yeh Ching, Madelaine Niam & Lim Tsyr Jong

Forensic Medicine

TITLE OF RESEARCH PAPER	AUTHOR[S]	PROFESSIONAL PUBLICATION
Post-Anaesthetic Maternal Death in a Patient with Mediastinal Large B-Cell Lymphoma – A Case Report	Associate Professor Gilbert Lau	Med Sci Law 2007; 47: 74-8
Buprenorphine Related Deaths in Singapore	Dr Lai Siang Hui & Dr Teo Eng Swee	Annals, Academy of Medicine; 35[7]: 508-511, July 2006
Shaken Infants: Controversies and Medical Evidence Revisited	Dr Teo Eng Swee	SGH Proceedings Vol 16, No 1, pp 20–27, 2007
SARS-CoV Virus-Host Interactions and Comparative Etiologies of Acute Respiratory Distress Syndrome as Determined by Transcriptional and Cytokine Profiling of Formalin-Fixed Paraffin-Embedded Tissues	Baas T, Taubenberger JK, Chong PY, Dr Paul Chui & Katze MG	J Interferon Cytokine Res., 26[5]: 309-17, May 2006

TITLE OF RESEARCH PRESENTATION	AUTHOR[S]	PROFESSIONAL EVENT
The Role of the Forensic Pathologist in Disaster Victim Identification	Associate Professor Gilbert Lau	A Primer in Disaster Victim Identification [DVI], Singapore, 13 – 17 February 2006
The Therapeutic Imperative and Latrogenic Fatalities: A Forensic Perspective	Associate Professor Gilbert Lau	18th International Symposium on the Forensic Sciences, Fremantle, Australia, 4 April 2006
Buprenorphine Related Deaths in Singapore: A 24-Month Series	Dr James Sim, Dr Lai Siang Hui, Dr Yao Yi Ju, Dr Angeline Yap Tiong Whei & Dr Danny Lo Siaw Teck	EAFS 2006, Helsinki, Finland, 13 – 16 June 2006

Forensic Medicine [cont'd]

TITLE OF RESEARCH PAPER	AUTHOR[S]	PROFESSIONAL EVENT
Behind the Scenes: Medical Aspects of Mass Disaster Investigations	Dr Wee Keng Poh	Refresher Course for ITE - Care Officers, 3 November 2006
Ultrasound-Guided Intraparenchymal Implantation of Plasmid-Electroporated Primary Hepatocytes Function as Autologous Insulin-Secreting Bioimplants: Evidence of Metabolic Correction and Delayed Secondary Complications in a Pre-Clinical Porcine Model of Diabetes Mellitus	Nelson Chen KF, Wong Jen San, Irene Kee HC, Dr Lai Siang Hui, Dr Thng Choon Hua, Ng Wai Har, Robert Ng TH, Jaichandran Sivalingam, Jason Villano, Pierce Chow KH & Oi Lian Kon	4th International Huaxia Congress of Endocrinology, Hong Kong SAR, China, 15 - 18 December 2006
Thinking out of the Box – Building a BSL4 Post Mortem Facility	Dr Paul Chui	2nd Asia Pacific Biosafety Association Conference 2007, Shangri-La Hotel, Singapore, 7 – 8 March 2007
The Coroner's System of Medico-Legal Investigation of Obstetric Deaths in Singapore	Dr Wee Keng Poh	6th Singapore Congress in Obstetrics and Gynaecology, Conrad Centennial, Singapore, 23 March 2007

Forensic Science

TITLE OF RESEACH PAPER	AUTHOR[S]	PROFESSIONAL PUBLICATION
A Survey of Buprenorphine Related Deaths in Singapore	Dr Lai Siang Hui, Dr Yao Yi Ju & Dr Danny Lo Siaw Teck	Forensic Science International, 162[1-3], 80-86, 2006

Forensic Science [cont'd]

TITLE OF RESEARCH PAPER	AUTHOR[S]	PROFESSIONAL PUBLICATION
A Study on the Levels of Difficulty in the Simulation of Individual Characteristics in a Signature	Lee Gek Kwee, Yap Bei Sing, Yang Chiew Yung, Wong-Lee Lee Tiang, Tan Sock Kim & Tan Koon Puay	Journal of the American Society of Questioned Document Examiners, Vol. 9, No. 1, 29-36, 2006
An Isothermal Primer Extension Method for Whole Genome Amplification of Fresh and Degraded DNA: Applications in Comparative Genomic Hybridisation, Genotyping and Mutation Screening	Cheryl Lee IP, Leong Siew Hong, Adrian Png EH, Choo Keng Wah, Dr Christopher Syn Kiu-Choong, Dennis Lim TH, Law Hai Yang & Kon Oi Lian	Nature Protocols 1:2185-2194, 2006
An Isothermal Method for Whole Genome Amplification of Fresh and Degraded DNA for Comparative Genomic Hybridisation, Genotyping and Mutation Detection	Cheryl Lee IP, Leong Siew Hong, Adrian Png EH, Choo Keng Wah, Dr Christopher Syn Kiu-Choong, Dennis Lim TH, Law Hai Yang & Kon Oi Lian	DNA Research, 13:77-88, 2006
Sequence Polymorphism of the Mitochondrial DNA Hypervariable Regions I and II in 205 Singapore Malays	Wong Hang Yee, June Tang Sheau Wei, Dr Bruce Budowle, Marc W. Allard, Dr Christopher Syn Kiu-Choong, Tan-Siew Wai Fun & Dr Chow Shui Tse	Legal Medicine, 9:33–37, 2007

Forensic Science [cont'd]

TITLE OF RESEARCH PRESENTATION	AUTHOR[S]	PROFESSIONAL EVENT
Analysis of Paraquat in Postmortem Specimens of a Paraquat-Related Death by HPLC	Dr Yao Yi Ju, Tan Chyh Yeng, Leong Hsiao Tung, Koh Tian Hwee, Eugene Goh & Dr Danny Lo Siaw Teck	44th International Meeting of the International Association of Forensic Toxicologists [TIAFT], Ljubljana, Solvenia, 26 August - 1 September 2006
Simultaneous Determination of Newer Anti-Epileptic Drugs [AEDs] by Liquid Chromatography Mass Spectrometry [LC-MS]	Tan Chyh Yeng, Eugene Goh, Leong Hsiao Tung, Koh Tian Hwee, Lee Hong Kheng, Dr Danny Lo Siaw Teck & Dr Yao Yi Ju	44th International Meeting of the International Association of Forensic Toxicologists [TIAFT], Ljubljana, Solvenia, 26 August - 1 September 2006
The Singapore Police Force DNA Database	Tan-Siew Wai Fun, Crystal Lai Liang Sung, Simon Lim Eng Seng, Doreen Ng Kim Kim & Dr Chow Shui Tse	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
A Rapid and Simple Elution Method of DNA from FTA Classical Cards	Simon Lim Eng Seng, Tan-Siew Wai Fun & Dr Chow Shui Tse	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
Evaluation of the Use of AmpF/STR® Identifiler™ STR Loci for the Inference of Ethnic Origins of Forensic Unknown DNA Profiles in Singapore	Wong Hang Yee, Simon Lim Eng Seng, Tan-Siew Wai Fun & Dr Chow Shui Tse	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
Crime Scene Investigations	Dr Michael Tay Ming Kiong	4th NUS-HSA Joint Scientific Workshop, National University of Singapore, 10 May 2006
Causes of Failure of a Bungy Cord	Dr Michael Tay Ming Kiong, Lim Chin Chin, Su Wanjing, Wong Soon Meng & Chia Poh Ling	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007

Forensic Science [cont'd]

TITLE OF RESEARCH PRESENTATION	AUTHOR[S]	PROFESSIONAL EVENT
A Mango Bait, a Missing Girl and a Murder	Lim Chin Chin, Chow Yuen San, Chia Poh Ling, Lim Thiam Bon, Kuah Kim Lian, Kee Koh Kheng & Dr Michael Tay Ming Kiong	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
Forensic Analysis of Flesh and Flavor Compounds in Stone Fruits	Lim Chin Chin, Chia Poh Ling, Irene Tan, Su Wanjing & Dr Michael Tay Ming Kiong	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
Suspicious Fall of a Young Child from a Height	Dr Michael Tay Ming Kiong & Lim Chin Chin	59th Annual Meeting of the American Academy of Forensic Sciences [AAFS], San Antonio, USA, 19 - 24 February 2007
Identifying Energetic and Hazardous Substances – the Singapore Experience	Dr Michael Tay Ming Kiong & Lim Chin Chin	First International CBRE Ops Conference, Singapore, 28 November – 1 December 2006

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
A Survey of the Abuse of Heroin in Singapore	Wendy Lim Jong Lee, Dr Angeline Yap Tiong Whei, Merula Mangudi, Tan Ying Ying, Wong Yen Ling, Song Shin Miin & Dr Lee Tong Kooi
A Survey of the Abuse of Cannabis in Singapore	Wendy Lim Jong Lee, Dr Angeline Yap Tiong Whei, Merula Mangudi, Tan Ying Ying, Wong Yen Ling, Song Shin Miin & Dr Lee Tong Kooi
Evaluation of Drug Testing Kits	Dr Angeline Yap Tiong Whei, Merula Mangudi, Rosalind Chia Sioh Chuang, Pang Shih Yun & Dr Lee Tong Kooi

Forensic Science [cont'd]

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
Simulation of Chinese Signatures Written in Regular Form	Lee Gek Kwee, Yap Bei Sing, Yang Chiew Yung, Wong-Lee Lee Tiang & Tan Sock Kim
Development of a SNP Detection Method in Forensic DNA Typing	Wong Hang Yee, Simon Lim Eng Seng & Tan-Siew Wai Fun
Synthesis and Characterisation of Urea Nitrate Explosive	Lim Chin Chin, Chia Poh Ling, Lim Thiam Bon, Vicky Chow Yuen San, Kuah Kim Lian, Kee Koh Kheng & Dr Michael Tay Ming Kiong
The Importance of Good GSR Contamination Prevention Practices in a Forensic Laboratory	Lee Lin Kiak, Vicky Chow Yuen San, Lim Chin Chin & Dr Michael Tay Ming Kiong
Application of Negative Chemical Ionisation to the Detection of High Explosives	Chia Poh Ling, Lim Chin Chin & Dr Michael Tay Ming Kiong
Raman and GC/MS Analysis of Lachrymatory Substances	Lim Chin Chin, Vicky Chow Yuen San, Chia Poh Ling, Su Wanjing, Irene Tan & Dr Michael Tay Ming Kiong

Analytical Science

TITLE OF RESEARCH PAPER/JOURNALS	AUTHOR[S]	PROFESSIONAL PUBLICATION
Electrospray Tandem Mass Spectrometric Investigations of Tadalafil and its Analogue	Zou Peng, Low Min Yong & Koh Hwee Ling	Rapid Communication in Mass Spectrometry, [20] 3488, 2006
Structural Identification of a New Acetildenafil Analogue Detected in a Premixed Bulk Powder	Zou Peng, Low Min Yong & Koh Hwee Ling	Food Additives and Contaminants, [23] 870, 2006
Determination of Sibutramine, its two Metabolites and one Analogue in a Herbal Product for Weight Loss by Liquid Chromatography Triple Quadrupole Mass Spectrometry and Time-Of-Flight Mass Spectrometry	Zou Peng, Sharon Oh Sze Yin, Joyce Kiang, Low Min Yong & Bosco Chen Bloodworth	Rapid Communication in Mass Spectrometry, [21] 614-618, 2007
Single Laboratory Validation of a Method for the Determination of Bisphenol A, Bisphenol A Diglycidyl Ether and its Derivatives in Canned Foods by Reversed-Phase Liquid Chromatography	Debbie Sun Cuilian, Leong Lai Peng, Philip John Barlow, Joanne Chan Sheot Harn & Bosco Chen Bloodworth	J. Chrom. A, 1129, 145-148, 2006
Determination of Isopropyl-9H-Thioxanthen-9-One in Packaged Beverages by SPE Clean-Up and Liquid Chromatography with Tandem Mass Spectrometry Detection	Debbie Sun Cuilian, Joanne Chan Sheot Harn, Dan Lu, Wendy Lee Hui Min & Bosco Chen Bloodworth	J. Chrom. A, 1143, 162-167, 2007
Environmental Toxicology and Health in Singapore	Bosco Chen Bloodworth, Rajasekhar Balasubramaniam, Lee Hian Kee, Jeffrey Obbard & Sam Kacew	Journal of Toxicology and Environmental Health, Part A, 69:1893, 2006

Analytical Science [cont'd]

TITLE OF RESEARCH PRESENATION	AUTHOR[S]	PROFESSIONAL EVENT
The Analysis of Multiple Mycotoxins in Food Matrices by HPLC/MS/MS	Lin Min Lee, Joanne Chan Sheot Harn & Bosco Chen Bloodworth	International Congress on Analytical Sciences [ICAS], Moscow, Russia, 25 – 30 June 2006
HPLC Analysis of Bisphenol A Diglycidyl Ether, Bisphenol F Diglycidyl Ether and Their Reaction Products in Canned Coatings and Food	Debbie Sun Cuilian	International Symposium on Chromatography, Copenhagen, Denmark, 21 – 25 August 2006
Determination of 2-Isopropyl Thioxanthone [ITX] in Food by SPE Cleanup and Liquid Chromatography with Tandem Mass Spectrometry Detection	Joanne Chan Sheot Harn	120th AOAC International Annual Meeting & Exposition, Minneapolis, USA, 17 – 21 September 2006
Detection of Irradiated Foods by Photostimulated Luminescence [PSL] and Thermoluminescence [TL] Techniques	Angela Li	HSA Professional Staff Seminar, 22 February 2007

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
Analysis of Metals, Inorganic and Organic Constituents in Water Samples	Dr Patrick Chow, See Phek Hah, Tan Buay Ting, Tan-Chew Kim Kee & Yuen Kim Loong
Development of Turbo Ionspray HPLC Tandem Mass Spectrometry Procedures to Determine Bisphenol A and Related Substances in Canned Foods	Joanne Chan Sheot Harn, Dr Loke Swee Leng, Lee Lin Min, Yap Wee Kim & Debbie Sun Cuilian
Pressurized Solvent Extraction of Food	Debbie Sun Cuilian, Joanne Chan Sheot Harn & Wendy Lee Hui Min

Analytical Science [cont'd]

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
Analysis of Brominated Flame Retardants in Food	Joanne Chan Sheot Harn, Wendy Lee Hui Min, Lee Lin Min, Lim Thye Hin, Debbie Sun Cuilian & Angela Li
Dissolution of Fungicides in Chopsticks	Angela Li, Poon-Yeo Siew Lan & Lai Kit Kee
Mycotoxins in Chinese Herbs	Debbie Sun Cuilian, Joanne Chan Sheot Harn, Lim Ze Wei, Serene Toh Hwee Khim, Lai Kit Yee & Wendy Lee Hui Min
Determination of Pyrrolizidine Alkaloids in Chinese Herbs and Chinese Proprietary Medicine	Joyce Kiang, Low Min Yong, Sharon Oh Sze Yin, Tiong Chai Ling & Tan-Yio Oon Boon
Determination of Organovhlorine and Organophorus Pesticide Residues In Chinese Proprietary Medicine	Low Min Yong, Sharon Oh Sze Yin, Joyce Kiang, Tan-Yio Oon Boon & Len Shea Mei
Determination of Cadium in Herbal Products by Microwave Digestion with Inductively Coupled Plasma – Mass Spectroscopy	Sharon Oh Sze Yin, Heeiah Gek Keow, Ng Wai Har, Len Shea Mei & Tan-Yio Oon Boon
Pressurized Solvent Extraction Combined with LC-MS/MS for Determination of Naturally-Occurring Toxic Alkaloids in Herbal Medicines	Low Min Yong, Sharon Oh Sze Yin, Joyce Kiang, Tan-Yio Oon Boon, Lim Meiyu & Tiong Chai Ling
Analysis of Organic Arsenic in Health Supplements by HPLC-ICP/MS	Low Min Yong, Sharon Oh Sze Yin, Joyce Kiang & Tan-Yio Oon Boon

Analytical Science [cont'd]

TITLE OF RESEARCH PROJECT	PRINCIPAL INVESTIGATOR[S]
Screening of Western Drugs Adulterants in Capsule Shells	Low Min Yong, Sharon Oh Sze Yin, Joyce Kiang & Chay Lai Fong
Study on Pesticide Residues in Chinese Proprietary Medicines	Low Min Yong, Sharon Oh Sze Yin, Joyce Kiang & Lim Meiyu
Quantification of Prohibited and Restricted Hair Dyes in Cosmetic Products Using Chromatographic Techniques Coupled with Diode Array Detection	Cheah Nuan Ping, Low Min Yong & Faridatul Akmam Morsed
Tar and Nicotine Survey of Cigars on Sale in Singapore	Cheah Nuan Ping, Faridatul Akmam Morsed & Gomathi Bala
Simultaneous Quantitation of Lead, Copper, Arsenic, Cadmium and Thallium Using Microwave Digestion Coupled with Flow Injection Analysis System – Inductively Coupled Plasma Mass Spectrometry in Cosmetic Product	Cheah Nuan Ping, Wong-Neo Geok Eng, Faridatul Akmam Morsed & Gomathi Bala

Annual Financial Statements

Financial Year ended 31 March 2007

STATEMENT BY THE HEALTH SCIENCES AUTHORITY

In our opinion, the accompanying financial statements of the Health Sciences Authority (the Authority) as set out on pages 3 to 35 are drawn up so as to give a true and fair view of the state of affairs of the Authority as at 31 March 2007 and of the results, changes in equity and cash flows of the Authority for the financial year then ended.

On Behalf of the Authority

Prof Low Teck Seng
Acting Chairman

Dr John Lim
Chief Executive Officer

Singapore
26 June 2007

INDEPENDENT AUDITORS' REPORT TO HEALTH SCIENCES AUTHORITY

We have audited the accompanying financial statements of Health Sciences Authority (the "Authority") set out on pages 3 to 35, which comprise the balance sheet of the Authority as at 31 March 2007, the income and expenditure statement, the statement of changes in equity and cash flow statement of the Authority for the year then ended, and a summary of significant accounting policies and other explanatory notes. The financial statements for the financial year ended 31 March 2006 were audited by another auditor whose report dated 23 June 2006 expressed an unqualified opinion on those financial statements.

Management's responsibility for the financial statements

The Authority's management are responsible for the preparation and fair presentation of these financial statements in accordance with the Health Sciences Authority Act (Cap. 122C, 2002 Revised Edition) (the Act) and Singapore Financial Reporting Standards. This responsibility includes: designing, implementing and maintaining internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

Auditors' responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with the Singapore Standards on Auditing. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

In our opinion,

(i) the financial statements of the Authority are properly drawn up in accordance with the provisions of the Act and Singapore Financial Reporting Standards so as to give a true and fair view of the state of affairs of the Authority as at 31 March 2007 and the results, changes in equity and cash flows of the Authority for the year ended on that date; and

(ii) proper accounting and other records have been kept, including records of all assets of the Authority whether purchased, donated or otherwise.

During the course of our audit, nothing came to our notice that caused us to believe that the receipt, expenditure and investments of monies and the acquisition and disposal of assets by the Authority during the year have not been in accordance with the provisions of the Act.

ERNST & YOUNG
Certified Public Accountants

26 June 2007

BALANCE SHEET as at 31 March 2007

	Note	2006/2007 $	2005/2006 $ (Restated)
Equity			
Capital account	4	54,268,001	51,115,079
Accumulated surplus/(deficit)		1,848,927	(1,813,962)
Total equity		56,116,928	49,301,117
Represented by:			
Non-current asset			
Property, plant and equipment	5	90,122,739	91,853,803
Intangibles	6	11,960,395	13,273,797
Current assets			
Cash and cash equivalents	7	25,939,882	25,316,428
Trade receivables	8	11,891,961	7,308,510
Grants receivables	9	592,176	395,812
Other receivables	10	67,968	2,173,929
Prepayments		1,348,565	887,702
Inventories	11	1,785,394	1,624,602
		41,625,946	37,706,983
Current liabilities			
Trade payables	12	(9,275,430)	(3,862,307)
Other payables and accruals	13	(7,915,708)	(8,729,558)
Licence fees collected in advance		(3,943,482)	(3,467,441)
Finance lease payable	14	(52,500)	(52,500)
Provision for pension benefits	15	(313,717)	(847,560)
Long-term loans	16	(2,512,690)	(2,512,690)
Grants received in advance:			
Government	17	(4,495,817)	(8,627,928)
Non-government	18	(254,895)	(164,289)
Deferred capital grants and donations	19	(7,009,413)	(6,326,176)
		(35,773,652)	(34,590,449)
Net current assets		5,852,294	3,116,534
Less: Non-current liabilities			
Deferred capital grants and donations	19	(19,222,025)	(24,090,415)
Licence fee collected in advance		(208,064)	(243,286)
Finance lease payable	14	(91,875)	(144,375)
Provision for pension benefits	15	(4,521,157)	(4,176,872)
Long-term loans	16	(27,775,379)	(30,288,069)
		(51,818,500)	(58,943,017)
Net assets		56,116,928	49,301,117

The accompanying accounting policies and explanatory notes form an integral part of the financial statements.

INCOME AND EXPENDITURE STATEMENT for the financial year ended 31 March 2007

	Note	2006/2007 $	2005/2006 $
Income			
Laboratory analysis fees		21,608,234	20,716,903
Blood processing fees		19,130,730	17,202,937
Patient laboratory testing fees		1,847,548	2,356,454
Forensic investigation fees		7,354,449	6,468,187
Licensing fees		7,377,623	6,374,846
Professional service fees		1,093,648	1,549,250
Other income	20	1,648,596	1,111,507
		60,060,828	55,780,084
Expenditure			
Staff costs	21	40,935,000	38,447,445
Staff welfare and development		2,220,744	2,240,446
Supplies and services		16,454,761	14,862,214
Rental of premises and equipment		2,425,875	2,468,646
Blood donor expenses		3,436,338	3,234,472
Repairs and maintenance		6,233,006	5,532,613
Depreciation of property, plant and equipment	5	6,079,647	5,306,930
Amortisation of intangible	6	4,356,824	3,949,761
Professional services		3,101,413	2,759,888
Utilities		1,196,097	1,053,304
Transport, postages and communications		1,233,290	1,047,267
Publicity and public relations		178,557	103,737
Finance costs	22	1,214,068	1,298,994
Other operating expenses	23	1,957,027	1,736,732
		91,022,647	84,042,449
Deficit before grants		(30,961,819)	(28,262,365)
Grants			
Government grants	17	27,682,539	20,464,723
Non-government grants	18	177,090	1,525,147
Deferred capital grants amortised	19	6,765,079	6,564,441
		34,624,708	28,554,311
Surplus before statutory contribution to consolidated fund		3,662,889	291,946
Statutory contribution to consolidated fund	24	–	–
Surplus for the year		3,662,889	291,946

The accompanying accounting policies and explanatory notes form an integral part of the financial statements.

STATEMENT OF CHANGES IN EQUITY for the financial year ended 31 March 2007

	Note	Capital Amount $	Accumulated Surplus/ (deficit) $	Total $
Balance as at 31 March 2005		48,124,270	(2,105,908)	46,018,362
Issue of shares to Minister for Finance	4	2,990,809	-	2,990,809
Surplus for the year		-	291,946	291,946
Balance as at 31 March 2006		51,115,079	(1,813,962)	49,301,117
Issue of shares to Minister for Finance	4	3,152,922	-	3,152,922
Surplus for the year		-	3,662,889	3,662,889
Balance as at 31 March 2007		54,268,001	1,848,927	56,116,928

The accompanying accounting policies and explanatory notes form an integral part of the financial statements.

CASH FLOW STATEMENT for the financial year ended 31 March 2007

	Note	2006/2007 $	2005/2006 $
Cash flows from operating activities:			
Deficit before grants		(30,961,819)	(28,262,365)
Adjustments for:			
Depreciation of property, plant and equipment	5	6,079,647	5,306,930
Amortisation of intangibles	6	4,356,824	3,949,761
Interest income	20	(625,865)	(337,140)
Interest expense	22	1,214,068	1,298,994
Loss on disposal of property, plant and equipment	23	24,657	1,243
Loss on disposal of intangibles	23	178	-
Allowance for doubtful trade receivables	23	10,381	-
Write-off of inventories	23	9,862	11,463
Deficit before working capital changes		(19,892,067)	(18,031,114)
Operating cash flows before working capital changes:			
Increase in trade receivables		(4,593,832)	(1,506,603)
Decrease in other receivables		2,105,961	287,970
Increase in prepayments		(460,863)	(347,255)
Increase in inventories		(170,654)	(175,017)
Increase in trade payables		5,413,123	101,973
(Decrease)/increase in other payables and accruals		(813,850)	2,536,305
(Decrease)/increase in provision for pension benefits		(189,558)	921,234
Increase/(decrease) in licence fee received in advance		440,819	(103,120)
Net cash used in operating activities		(18,160,921)	(16,315,627)
Cash flows from investing activities:			
Proceeds from disposal of property, plant and equipment		2,092	280
Purchase of property, plant and equipment		(4,375,332)	(5,311,030)
Purchase of intangible		(3,043,600)	(1,788,921)
Interest received		625,865	337,140
Net cash used in investing activities		(6,790,975)	(6,762,531)

The accompanying accounting policies and explanatory notes form an integral part of the financial statements.

CASH FLOW STATEMENT for the financial year ended 31 March 2007

	Note	2006/2007 $	2005/2006 $
Cash flows from financing activities:			
Proceeds from issue of shares to Minister for Finance	4	3,152,922	2,990,809
Repayment of interest-bearing loan		(2,512,690)	(2,512,690)
Interest paid		(1,214,068)	(1,298,994)
Finance lease repayment		(52,500)	(14,948)
Government grants received	17	25,451,176	30,991,753
Non-government grants and donations received	18	505,267	3,538,631
Government grants received	19	245,243	-
Net cash from financing activities		25,575,350	33,694,561
Net increase in cash and cash equivalents		623,454	10,616,403
Cash and cash equivalents at beginning of the year		25,316,428	14,700,025
Cash and cash equivalents at end of the year		25,939,882	25,316,428

The accompanying accounting policies and explanatory notes form an integral part of the financial statements.

1. General

The Health Sciences Authority (the "Authority") is a statutory board established in the Republic of Singapore under the Health Sciences Authority Act 2001 on 1 April 2001 under the purview of the Ministry of Health ("MOH"). As a statutory board, the Authority is subject to the directions of MOH and is required to follow policies and instructions issued from time to time by its supervising ministry and other government ministries and departments such as the Ministry of Finance ("MOF").

The address and principal place of business of the Authority is 11 Outram Road, Singapore 169078. The principal activities of the Authority are:

(a) to regulate the import, manufacture, sale, disposal, transport, storage, possession and use of cosmetics, medicines, medical devices and other health-related products, tobacco products, radioactive materials and irradiating apparatuses;

(b) to conduct technological assessments of medicines, cosmetics, medical devices and other health-related products for the purpose of determining their efficacy, safety and suitability for consumption and use in Singapore and to advise the Government thereon;

(c) to collect and co-ordinate the collection of blood from donors and to test, process and distribute such blood and the related products for the purpose of building and maintaining a safe and adequate national blood supply;

(d) to provide professional, investigative and analytical services in health sciences to the Government and to any other person or body (whether in Singapore or elsewhere);

(e) to conduct or engage any other person to conduct research in health sciences, and generally to promote the development of health sciences; and

(f) to act internationally as the national authority or representative of Singapore in respect of matters related to health sciences.

There have been no significant changes in the nature of these activities during the financial year.

2. Significant accounting policies

2.1 Basis of accounting

The financial statements of the Authority, have been drawn up in accordance with the provisions of the Health Sciences Authority Act (the "Act") (Chapter 122C, 22 Revised Edition) and the Singapore Financial Reporting Standards ("FRS").

The financial statements have been prepared on a historical cost basis.

The financial statements are presented in Singapore Dollars (SGD or $).

The accounting policies have been consistently applied by the Authority and are consistent with those used in the previous financial year.

2.2 FRS and INT FRS not yet effective

The Authority has not applied the following FRS and INT FRS that have been issued but not yet effective:

No.		Title	Effective date (annual periods beginning on or after)
FRS 1	:	Amendment to FRS 1 (revised), Presentation of Financial Statements (Capital Disclosures)	1 January 2008
FRS 40	:	Investment Property	1 January 2007
FRS 107	:	Financial Instruments: Disclosures	1 January 2008
FRS 108	:	Operating Segments	1 January 2009
INT FRS 108	:	Scope of FRS 102, Share-based Payment	1 May 2006
INT FRS 109	:	Reassessment of Embedded Derivatives	1 June 2006
INT FRS 110	:	Interim Financial Reporting and Impairment	1 November 2006
INT FRS 111	:	Group and Treasury Share Transactions	1 March 2007
INT FRS 112	:	Service Concession Arrangements	1 January 2008

The Authority expects that the adoption of the above pronouncements will not have a significant impact on the financial statements in the period of initial application, except for FRS 107 and the amendment to FRS 1 as indicated below.

FRS 107, Financial Instruments: Disclosures and amendment to FRS 1 (revised), Presentation of financial statements (Capital Disclosures)

2.2 FRS and INT FRS not yet effective (cont'd)

FRS 107 introduces new disclosures to improve the information about financial instruments. It requires the disclosure of qualitative and quantitative information about exposure to risks arising from financial instruments, including specified minimum disclosures about credit risk, liquidity risk and market risk, including sensitivity analysis to market risk. The amendment to FRS 1 requires the Authority to make new disclosures to enable users of the financial statements to evaluate the Authority's objectives, policies and processes for managing capital. The Authority will apply the amendment to FRS 1 and FRS 107 from annual period beginning 1 April 2008

2.3 Significant accounting estimates and judgements

Estimates, assumptions concerning the future and judgements are made in the preparation of the financial statements. They affect the application of the Authority's accounting policies, reported amounts of assets, liabilities, income and expenses, and disclosures made. They are assessed on an on-going basis and are based on experience and relevant factors, including expectations of future events that are believed to be reasonable under the circumstances.

(a) Key sources of estimation uncertainty

The key assumptions concerning the future and other key sources of estimation uncertainty at the balance sheet date, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are discussed below.

The cost of property, plant and equipment and intangibles for the operations of the Authority is depreciated on a straight-line basis over the useful lives. Management estimates the useful lives of these property, plant and equipment and intangibles to be within 5 to 60 years and within 3 to 5 years respectively. These are common life expectancies applied in this industry. The carrying amount of the Authority's property, plant and equipment and intangibles at 31 March 2007 was $90,122,739 (2005: $91,853,803) and $11,960,395 (2005: $13,273,797) respectively. Changes in the expected level of usage and technological developments could impact the economic useful lives and the residual values of these assets, therefore future depreciation charges could be revised.

2.3 Significant accounting estimates and judgements (cont'd)

(b) Critical judgements made in applying accounting policies

The judgement made by management in the process of applying the Authority's accounting policies that have the most significant effect on the amounts recognised in the financial statements is discussed below.

Impairment of financial assets

The Authority follows the guidance of FRS 39 on determining when a financial asset is other-than-temporary impaired. This determination requires significant judgement. The Authority evaluates, among other factors, the duration and extent to which the fair value of a financial asset is less than its cost; and the financial health of and near-term business outlook for the financial asset, including factors such as industry performance, changes in technology and operational and financing cash flow.

2.4 Functional and foreign currency

Foreign currency transactions

Transactions in foreign currencies are measured in SGD, the functional currency of the Authority and are recorded on initial recognition in SGD at exchange rates approximating those ruling at the transaction dates. Monetary assets and liabilities denominated in foreign currencies are translated at the closing rate of exchange ruling at the balance sheet date. Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rates as at the dates of the initial transactions.

Exchange differences arising on the settlement of monetary items or on translating monetary items at the balance sheet date are recognised in the income and expenditure statement.

2.5 Property, plant and equipment

All items of property, plant and equipment are initially recorded at cost. Subsequent to recognition, property, plant and equipment are stated at cost less accumulated depreciation and accumulated impairment loss.

2.5 Property, plant and equipment (cont'd)

The initial cost of fixed assets comprises its purchase price, including import duties and non-refundable purchase taxes and any directly attributable costs of bringing the asset to its working condition and location for its intended use. Expenditure incurred after the fixed assets have been put into operation, such as repairs and maintenance, is normally charged to the income and expenditure statement in the period in which the costs are incurred. In situations where it can be clearly demonstrated that the expenditure has resulted in an increase in the future economic benefits expected to be obtained from the use of an item of fixed assets beyond its originally assessed standard of performance, the expenditure is capitalised as an additional cost of fixed asset.

In general, plant and equipment costing less than $2,000 each, are charged to the income and expenditure statement in the year of purchase.

Depreciation of an asset begins when it is available for use and is computed on a straight-line basis over the estimated useful life of the assets as follows:

Leasehold land and building	60 years (based on lease period)
Building improvements	20 years (based on useful life of asset)
Computer hardware	3 to 5 years
Motor vehicles	10 years
Scientific and medical equipment	5 years
Other equipment, furniture and fittings	5 to 10 years

Assets under construction included in plant and equipment are not depreciated as these assets are not available for use.

The carrying values of property, plant and equipment are reviewed for impairment when events or changes in circumstances indicate that the carrying value may not be recoverable.

The residual value, useful life and depreciation method are reviewed at each financial year-end to ensure that the amount, method and period of depreciation are consistent with previous estimates and the expected pattern of consumption of the future economic benefits embodied in the items of property, plant and equipment.

An item of property, plant and equipment is derecognised upon disposal or when no future economic benefits are expected from its use or disposal. Any gain or loss arising on derecognition of the asset is included in the income and expenditure statement in the year the asset is derecognised.

Fully depreciated assets still in use are retained in the financial statements.

2.6 Intangibles

Intangible assets acquired, which comprise of computer software development costs, are measured on initial recognition at cost. Following initial recognition, intangible assets are carried at cost less any accumulated amortisation and any accumulated impairment losses.

Amortisation of intangibles is calculated on the straight-line method to write-off the costs over their estimated useful lives of 3 to 5 years. The amortisation expense on intangible assets is recognised in the income and expenditure statement through the 'amortisation of intangible assets' line item.

The carrying value of intangibles is reviewed for impairment when events or changes in circumstances indicate that the carrying value may not be recoverable.

2.7 Impairment of non-financial assets

The Authority assesses at each reporting date whether there is an indication that an asset may be impaired. If any such indication exists, or when annual impairment testing for an asset is required, the Authority makes an estimate of the asset's recoverable amount.

An asset's recoverable amount is the higher of an asset's or cash-generating unit's fair value less costs to sell and its value in use and is determined for an individual asset, unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. Where the carrying amount of an asset exceeds its recoverable amount, the asset is considered impaired and is written down to its recoverable amount. Impairment losses of continuing operations are recognised in the income and expenditure statement as 'other operating expenses'.

An assessment is made at each reporting date as to whether there is any indication that previously recognised impairment losses recognised for an asset may no longer exist or may have decreased. If such indication exists, the recoverable amount is estimated. A previously recognised impairment loss is reversed only if there has been a change in the estimates used to determine the asset's recoverable amount since the last impairment loss was recognised. If that is the case, the carrying amount of the asset is increased to its recoverable amount. That increased amount cannot exceed the carrying amount that would have been determined, net of depreciation, had no impairment loss been recognised for the asset in prior years. Reversal of an impairment loss is recognised in the income and expenditure statement.

2.8 Financial assets

Financial assets are recognised on the balance sheet when, and only when, the Authority becomes a party to the contractual provisions of the financial instrument.

Non-derivative financial assets with fixed or determinable payments that are not quoted in an active market are classified as loans and receivables. Such assets are initially recognised at fair value, plus directly attributable transaction costs and subsequently carried at amortised cost using the effective interest method. Gains and losses are recognised in the income and expenditure statement when the loans and receivables are derecognised or impaired, as well as through the amortisation process.

The Authority classifies the following financial assets as loans and receivables:

- Cash and short term deposits
- Trade, grants and other receivables.

2.9 Cash and cash equivalents

Cash and cash equivalents comprise cash on hand and deposits held with banks, that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value.

Cash and short term deposits carried in the balance sheet are classified and accounted for as loans and receivables under FRS 39. The accounting policy is stated in Note 2.8.

2.10 Trade and other receivables

Trade and other receivables, including amounts due from related parties, are classified and accounted for as loans and receivables under FRS 39. The accounting policy for this category of financial assets is stated in Note 2.8.

An allowance is made for uncollectible amounts when there is an objective evidence that the Authority will not be able to collect the debt. Bad debts are written off when identified. Further details on the accounting policy for impairment of financial assets are stated in Note 2.12 below.

2.11 Inventories

Inventories are stated at the lower of cost (first-in first-out method) and net realisable value. Cost includes all costs of purchase, costs of conversion and other costs incurred in bringing the inventories to their present location and condition.

2.12 Impairment of financial assets

The Authority assesses at each balance sheet date whether there is any objective evidence that a financial asset or a group of financial assets is impaired.

If there is objective evidence that an impairment loss on financial assets carried at amortised cost has been incurred, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the financial asset's original effective interest rate (i.e. the effective interest rate computed at initial recognition). The carrying amount of the asset is reduced through the use of an allowance account. The amount of the loss is recognised in the income and expenditure statement.

If, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognised, the previously recognised impairment loss is reversed. Any subsequent reversal of an impairment loss is recognised in the income and expenditure statement, to the extent that the carrying value of the asset does not exceed its amortised cost at the reversal date.

2.13 Derecognition of financial assets

A financial asset is derecognised where the contractual rights to receive cash flows from the asset have expired.

On derecognition of a financial asset, the difference between the carrying amount and the sum of the consideration received is recognised in the income and expenditure statement.

2.14 Financial Liabilities

Financial liabilities include trade payables, other payables and accruals, which are normally settled on 30 day terms, and loan payable and payables to related parties. Financial liabilities are recognised on the balance sheet when, and only when, the Authority becomes a party to the contractual provisions of the financial instrument. Financial liabilities are initially recognised at fair value of consideration received less directly attributable transaction costs and subsequently measured at amortised cost using the effective interest method.

Gains and losses are recognised in the income and expenditure statement when the liabilities are derecognised as well as through the amortisation process. The liabilities are derecognised when the obligation under the liability is discharged or cancelled or expired.

2.15 Provisions

Provisions are recognised when the Authority has a present obligation (legal or constructive) where, as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

Provisions are reviewed at each balance sheet date and adjusted to reflect the current best estimate. If it is no longer probable that an outflow of resources embodying benefits will be required to settle the obligation, the provision is reversed.

2.16 Employee benefits

(a) Defined contribution plans

The Authority makes contributions to the Central Provident Fund scheme in Singapore, a defined contribution pension scheme. These contributions are recognised as an expense in the period in which the related service is performed.

(b) Defined benefit pension plan

The Authority operates unfunded defined benefit schemes for certain employees under the provisions of the Pension Act (Chapter 225).

Following the Civil Service Pension Fund's (CSPF) decision to decentralise the management of the Government Pension Fund, the Authority assumed the responsibility of managing the pension entitlements of certain officers from 1 April 2001. These officers are those who did not opt for the CPF scheme launched in 1955 and continued to be entitled to pension benefits under the CSPF scheme.

Upon retirement, the pension entitlements of these officers will be met by both CSPF and the Authority in proportion to their length of service before and after the establishment of the Authority on 1 April 2001. Accordingly, pension payable to pensionable officers prior to 1 April 2001 are excluded in arriving at the Authority's pension liabilities.

2.16 Employee benefits (cont'd)

Retirement benefits for these employees are assessed using the projected unit credit actuarial valuation method. The cost of providing for retirement benefits is charged to the income and expenditure statement so as to spread the regular cost over the service lives of employees in accordance with the actuarial valuation carried out during the year. The provision for retirement benefit is measured as the present value of the estimated future cash outflows using interest rates of Singapore Government Securities which have terms to maturity approximating the terms of the related liability. Actuarial gains and losses are recognised in the year these gains and losses arise. Such benefits are unfunded. The expenses relating to pension are included as part of staff costs.

(c) Employee leave entitlement

Employee entitlements to annual leave are recognised when they accrue to employees. A provision is made for the estimated liability for annual leave and long-service leave as a result of services rendered by employees up to the balance sheet date.

2.17 Borrowing costs

Borrowing costs are generally expensed as incurred. Borrowing costs are capitalised if they are directly attributable to the acquisition, construction or production of a qualifying asset. Capitalisation of borrowing costs commences when the activities to prepare the asset for its intended use or sale are in progress and the expenditures and borrowing costs are being incurred. Borrowing costs are capitalised until the assets are ready for their intended use. If the resulting carrying amount of the asset exceeds its recoverable amount, an impairment loss is recorded.

2.18 Leases

Finance leases, which transfer to the Authority substantially all the risks and rewards incidental to ownership of the leased item, are capitalised at the inception of the lease at the fair value of the leased asset or, if lower, at the present value of the minimum lease payments. Any initial direct costs are also added to the amount capitalised. Lease payments are apportioned between the finance charges and reduction of the lease liability so as to achieve a constant rate of interest on the remaining balance of the liability. Finance charges are charged to the income and expenditure statement.

Capitalised leased assets are depreciated over the shorter of the estimated useful life of the asset and the lease term, if there is no reasonable certainty that the Authority will obtain ownership by the end of the lease term.

2.18 Leases (cont'd)

Operating lease payments are recognised as an expense in the income and expenditure statement on a straight-line basis over the lease term. The aggregate benefit of incentives provided by the lessor is recognised as a reduction of rental expense over the lease term on a straight-line basis.

2.19 Income recognition

Revenue is recognised to the extent that it is probable that the economic benefits will flow to the Authority and the revenue can be reliably measured. The following criteria must also be met before revenue is recognised:

(a) Income from the rendering of services that are of a short duration, such as laboratory analysis fees, patient laboratory testing fees, forensic investigating fees and professional services fees are recognised when the services are completed.

(b) Income from blood processing fees are recognised when the processed blood products are used by the hospitals.

(c) Licence fees income are recognised on an accrual basis over the licence period.

(d) Fines and forfeitures are recognised on an accrual basis.

(e) Interest income is accrued on a time proportionate basis, by reference to principal outstanding and at the interest rates applicable, on an effective yield basis.

2.20 Statutory contribution to consolidated fund

In lieu of income tax, the Authority is required to make contribution to the Consolidated Fund based on the net surplus of the Authority (before donations) for the financial year adjusted for any accumulated deficits carried forward from the years that the Authority was under the contribution framework. The contribution rate used to compute the amount is pegged to the prevailing corporate tax rate that have been enacted or substantively enacted by the balance sheet date.

2.21 Deferred assets

Deferred assets are recognised for carry-forward of unused accumulated deficits, to the extent that it is probable that future surpluses will be available against which the carry-forward of unused accumulated deficits can be utilised.

The carrying amount of deferred assets is reviewed at each balance sheet date and reduced to the extent that it is no longer probable that sufficient future surpluses will be available to allow all or part of the deferred asset to be utilised. Unrecognised deferred assets are reassessed at each balance sheet date and are recognised to the extent that it has become probable that future surpluses will allow the deferred asset to be recovered.

Deferred assets and liabilities are measured at the contribution rates that are expected to apply to the year when the asset is realised or the liability is settled, based on contribution rates that have been enacted or substantively enacted at the balance sheet date.

2.22 Sales tax

Revenues, expenses and assets are recognised net of the amount of sales tax except:

- Where the sales tax incurred on a purchase of assets or services is not recoverable from the taxation authority, in which case the sales tax is recognised as part of the cost of acquisition of the asset or as part of the expense item as applicable; and

- Receivables and payables that are stated with the amount of sales tax included.

The net amount of sales tax recoverable from, or payable to, the taxation authority is included as part of receivables or payables in the balance sheet.

2.23 Grants

Government grants receivable are recognised at their fair value where there is reasonable assurance that the grant will be received and all attaching conditions will be complied with.

Government grants to meet the current year's operating expenses are recognised as income in the financial year in which the operating expenses are incurred.

2.23 Grants (cont'd)

Government grants and contributions from other organisations utilised for the purchase/construction of depreciable assets are taken to the deferred capital grants account.

Deferred capital grants are recognised in the income and expenditure statement over the period necessary to match the depreciation of the assets purchased with the related grants. Upon disposal of property, plant and equipment, the balance of the related deferred capital grants is recognised in the income and expenditure statement to match the net book value of the assets written-off.

2.24 Related parties

Related parties in these financial statements include other Government ministries, statutory boards and restructured hospitals.

Parties are considered to be related if one party has the ability, directly or indirectly, to control the other party or exercise significant influence over the other party in making financial and operating decisions. Parties are also considered to be related if they are subject to common control or common significant influence. Related parties may be ministries or statutory boards.

The significant transactions between the Authority and other Government ministries, statutory boards and restructured hospitals are disclosed in other parts of the notes to the financial statements.

3. Prior year adjustment

In the previous financial year, the Authority capitalised the input goods and services tax (GST) for the leasehold land and building. During the year, the Inland Revenue Authority of Singapore (IRAS) approved the claim of the input GST of $2,056,582 using an input tax apportionment formula. The Authority accordingly adjusted the carrying value of the leasehold land and building by the same amount. In accordance with FRS 8 Accounting policies; change in accounting estimates and error, the adjustment of the input GST has been accounted for retrospectively and the comparative for 2005/2006 has been restated accordingly.

	As previously reported 2005/2006 $	As restated 2005/2006 $
Property, plant and equipment	93,910,385	91,853,803
Other receivables	117,347	2,173,929

4. Capital account

	Number of shares			
	2006/2007	2005/2006	2006/2007 $	2005/2006 $
Issued and paid up:				
At 1 April	51,115,079	48,124,270	51,115,079	48,124,270
Issued during the year	3,152,922	2,990,809	3,152,922	2,990,809
At 31 March	54,268,001	51,115,079	54,268,001	51,115,079

This consists of shares issued to the Minister for Finance as part of the debt-equity financing framework under Finance Circular Minute No. M53/2003.

The leasehold land and building and other operating assets were transferred at net book value to the Authority when it was formed. The values of these assets were settled by interest-bearing loans and the remaining by way of equity injection from the Minister of Finance.

5. Property, plant and equipment

	Leasehold land and building $	Building improvements $	Computer hardware $	Motor vehicles $	Scientific and medical equipment $	Other equipment, furniture and fittings $	Work-in progress $	Total $
Cost:								
At 1 April 2006	68,138,028	11,561,551	2,820,130	116,106	21,684,787	7,643,093	489,641	112,453,336
Additions	-	-	132,693	-	1,836,585	185,317	2,220,737	4,375,332
Disposals	-	-	(510,277)	-	(1,257,958)	(74,990)	-	(1,843,225)
Transfer from work-in-progress	-	658,940	-	-	630,705	1,211,744	(2,501,389)	-
Reclassification	(927,000)	(262,676)	-	-	-	1,189,676	-	-
At 31 March 2007	67,211,028	11,957,815	2,442,546	116,106	22,894,119	10,154,840	208,989	114,985,443
Accumulated depreciation:								
At 1 April 2006	1,267,403	1,247,250	2,485,820	86,270	13,273,848	2,238,942	-	20,599,533
Depreciation for the year	1,083,050	592,165	220,823	6,069	3,040,927	1,136,613	-	6,079,647
Disposals	-	-	(510,277)	-	(1,252,023)	(54,176)	-	(1,816,476)
Reclassification	(16,737)	(22,984)	-	-	-	39,721	-	-
At 31 March 2007	2,333,716	1,816,431	2,196,366	92,339	15,062,752	3,361,100	-	24,862,704
Carrying amount:								
At 31 March 2007	64,877,312	10,141,384	246,180	23,767	7,831,367	6,793,740	208,989	90,122,739
At 1 April 2006	66,870,625	10,314,301	334,310	29,836	8,410,939	5,404,151	489,641	91,853,803

The carrying amount of scientific and medical equipment held under finance leases as at 31 March 2007 was $154,000 (2006: $196,000)

5. Property, plant and equipment (cont'd)

	Leasehold land and building $	Building improve-ments $	Computer hardware $	Motor vehicles $	Scientific and medical equipment $	Other equipment, furniture and fittings $	Work-in progress $	Total $
Cost:								
At 1 April 2005	70,194,610	9,864,635	3,082,433	61,766	17,827,556	5,826,923	2,591,362	109,449,285
Prior year adjustments (Note 3)	(2,056,582)	-	-	-	-	-	-	(2,056,582)
Restated balance as at 1 April 2005	68,138,028	9,864,635	3,082,433	61,766	17,827,556	5,826,923	2,591,362	107,392,703
Additions	-	13,120	113,560	-	1,278,768	142,875	3,974,530	5,522,853
Adjustments and reclassification	-	-	-	54,340	4,950	(4,950)	-	54,340
Disposals	-	-	(411,764)	-	(61,136)	(43,660)	-	(516,560)
Transfer from work-in-progress	-	1,683,796	35,901	-	2,634,649	1,721,905	(6,076,251)	
At 31 March 2006	68,138,028	11,561,551	2,820,130	116,106	21,684,787	7,643,093	489,641	112,453,336
Accumulated depreciation:								
At 1 April 2005	116,991	714,466	2,627,629	25,861	10,846,283	1,422,070	-	15,753,300
Adjustments and reclassification	-	-	-	54,340	638	(638)	-	54,340
Depreciation for the year	1,150,412	532,784	269,950	6,069	2,487,313	860,402	-	5,306,930
Disposals	-	-	(411,759)	-	(60,386)	(42,892)	-	(515,037)
At 31 March 2006	1,267,403	1,247,250	2,485,820	86,270	13,273,848	2,238,942	-	20,599,533
Carrying amount:								
At 31 March 2006	66,870,625	10,314,301	334,310	29,836	8,410,939	5,404,151	489,641	91,853,803
At 1 April 2005	68,021,037	9,150,169	454,804	35,905	6,981,273	4,404,853	2,591,362	91,639,403

6. Intangibles

	Computer software $	Work-in progress $	Total $
Cost:			
At 1 April 2005	19,315,244	1,662,174	20,977,418
Additions	154,595	1,634,326	1,788,921
Transfer from work-in-progress	1,001,339	(1,001,339)	-
At 1 April 2006	20,471,178	2,295,161	22,766,339
Additions	124,476	2,919,124	3,043,600
Disposals	(118,867)	-	(118,867)
Transfer from work-in-progress	4,396,320	(4,396,320)	-
At 31 March 2007	24,873,107	817,965	25,691,072
Accumulated amortisation:			
At 1 April 2005	5,542,781	–	5,542,781
Amortisation for the year	3,949,761	–	3,949,761
At 1 April 2006	9,492,542	–	9,492,542
Amortisation for the year	4,356,824	–	4,356,824
Disposals	(118,689)	–	(118,689)
At 31 March 2007	13,730,677	–	13,730,677
Carrying amount:			
At 31 March 2007	11,142,430	817,965	11,960,395
At 1 April 2006	10,978,636	2,295,161	13,273,797

7. Cash and cash equivalents

For the purpose of the cash flow statement, cash and cash equivalents comprise the following as at 31 March:

	2006/2007 $	2005/2006 $
Cash at banks and in hand	20,503,924	4,225,692
Fixed deposits	5,435,958	21,090,736
	25,939,882	25,316,428

Cash at banks earns interest at floating rates based on daily bank deposit rates of 0.19% per annum (2005/2006: 0.16%) per annum. Fixed deposits are made for varying periods of between one week and three months depending on the immediate cash requirements of the Authority, and earn interests at the respective short-term deposit rates ranging from 2.66% to 3.50% per annum (2005/2006: 1.31% to 3.50%) per annum.

8. Trade receivables

	2006/2007 $	2005/2006 $
Trade receivables	2,957,872	1,530,448
Amounts due from related parties (trade) (Note 26)	8,944,470	5,778,062
	11,902,342	7,308,510
Allowance for doubtful receivables:		
- Trade receivables	(10,381)	-
	11,891,961	7,308,510

Trade receivables

Trade receivables are non-interest bearing and are generally on 14 to 30 days' terms. They are recognised at their original invoice amounts which represent their fair values on initial recognition.

Related parties receivables

Amounts due from related parties are non-interest bearing, unsecured and repayable on invoice due date.

8. Trade receivables (cont'd)

Allowance for doubtful receivables

For the year ended 31 March 2007, an impairment loss of $10,381 (2005/2006: Nil) was recognised in the income and expenditure statement subsequent to a debt recovery assessment performed on trade receivables and amounts due from related parties.

9. Grants receivables

	2006/2007 $	2005/2006 $
Grants receivable - Government (Note 17)	592,176	197,014
Grants receivable - Non-government (Note 18)	–	198,798
	592,176	395,812

10. Other receivables

	2006/2007 $	2005/2006 $
Other receivables	40,020	117,347
Advances to staff	27,948	–
GST recoverable	–	2,056,582
	67,968	2,173,929

Advances to staff are festive advances which are interest-free and unsecured. The amounts are repayable over 2 months via deductions from the staff salaries.

11. Inventories

	2006/2007 $	2005/2006 $
Gases, laboratory and medical supplies, at lower of cost and net realisable value	1,785,394	1,624,602

During the financial year, the Authority wrote-down $9,862 (2005/2006: $11,463) of inventories which are recognised as expense in the income and expenditure statement.

12. Trade payables

	2006/2007 $	2005/2006 $
Trade payables	8,825,338	3,424,299
Amount due to related parties (trade) (Note 26)	450,092	438,008
	9,275,430	3,862,307

Trade payables

Trade payables are non-interest bearing and are normally settled on 30-day terms.

Related parties payables

Amounts due to related parties are non-interest bearing and are repayable on invoice due date. These amounts are unsecured and are to be settled in cash.

13. Other payables and accruals

	2006/2007 $	2005/2006 $
Advances from customers	66,465	59,406
Accrued employees' benefits	4,586,305	4,173,115
GST payable	418,112	270,477
Refundable security deposits	68,258	66,408
Accrued operating expenses	2,776,568	4,160,152
	7,915,708	8,729,558

14. Finance lease payable

The Authority has finance lease for a science and medical equipment, which expires in 23 December 2009. There are no restrictions placed upon the Authority by entering into these leases. The average discount rate implicit in the leases is 6.52% (2005/2006: 6.52%) per annum.

Future minimum lease payments under finance leases together with the present value of the net minimum lease payments are as follows:

	Minimum lease payments 2006/2007 $	Present value of payments 2006/2007 $	Mininum lease payments 2005/2006 $	Presents values of payments 2005/2006 $
Not later than one year	59,790	52,500	59,790	52,500
Later than one year but not later than five years	104,633	91,875	164,423	144,375
Total minimum lease payments	164,423	144,375	224,213	196,875
Less: Amounts representing finance charges	(20,048)	-	(27,338)	-
Present value of minimum lease payments	144,375	144,375	196,875	196,875

15. Provision for pension benefits

The Authority operates an unfunded defined retirement benefit plan for certain employees under the provisions of the Pension Act (Chapter 225). Benefits are payable based on the last drawn salaries of the respective employees and the employees' cumulative service period served with the Authority at the time of retirement.

Movement in the liability recognised in the balance sheet

	2006/2007 $	2005/2006 $
Balance at the beginning of financial year	5,024,432	4,103,198
Expense for the year (Note 21)	1,296,450	1,284,883
Retirement benefits paid	(1,486,007)	(363,649)
Balance at end of financial year	4,834,875	5,024,432
Represented by:		
- Current	313,717	847,560
- Non-current	4,521,157	4,176,872
	4,834,874	5,024,432
The amounts recognised in the income and expenditure statement are as follows:		
Current service cost	952,253	1,204,523
Interest cost	103,463	80,360
Additional provision for the year	240,734	-
Total included in staff costs (Note 21)	1,296,450	1,284,883

The principal assumptions used in determining the Authority's pension obligations are as follows:

(a) All pensioners under the pension scheme will retire at the exact age of 62 and opt for fully commuted gratuity on retirement.

(b) The discount rate of the pension fund is 3.0% (2005/2006: nil%) per annum.

(c) The average expected rate of salary increases is at 2.4% (2005/2006: 2.4%) per annum depending on the pensionable officer's position and rank.

(d) During the year, a provision of S$240,734 was made for 3 eligible officers who exercised the option to return to the pension scheme as offered by the government.

Pension payable to pensionable officers prior to the establishment of the Authority on 1 April 2001 will be borne by Ministry of Health and is excluded from the amount stated above.

16. Long-term loans

	Interest Rates (p.a.)	Maturity	2006/2007 $	2005/2006 $
Loans from Ministry of Finance				
- 15 years	3.86%	2020	25,480,000	26,390,000
- 5 years	3.46%	2010	4,808,069	6,410,759
			30,288,069	32,800,759

Represented by amounts payable as follows:

	2006/2007 $	2005/2006 $
Current	2,512,690	2,512,690
Non-current	27,775,379	30,288,069
Total	30,288,069	32,800,759

On 23 March 2005, the Ministry of Finance granted the Authority a loan facility of $27,300,000 for 15 years to finance the purchase of land and building and a loan facility of $8,013,449 for 5 years to finance the purchase of operating assets that were transferred from Ministry of Health as at 31 March 2005.

The loan is unsecured and repayable from the date of the first drawdown of the loan on 31 March 2005.

The interest rates per annum were fixed at the commencement of the loan, at a premium of 0.9% and 0.5% to finance the purchase of land and building and to finance the purchase of operating assets respectively, determined by the Ministry of Finance above the Daily Average 10-year Singapore Government Securities Yield.

17. Grants receivable/(received in advance) – Government

	2006/2007 $	2005/2006 $
Balance at the beginning of financial year	8,430,914	703,349
Receipts during the year	25,451,176	30,991,753
Amount transferred to deferred capital grants and donations (Note 19)	(2,295,910)	(2,799,465)
Amount transferred to income and expenditure statement	(27,682,539)	(20,464,723)
Balance at end of financial year	3,903,641	8,430,914
Grants receivable (Note 9)	592,176	197,014
Grants received in advance	(4,495,817)	(8,627,928)

Grants are received mainly from Ministry of Health and other Ministry of Finance specific programmes and the development and purchase of depreciable assets of the Authority.

Grants transferred to deferred capital grants and donations comprise primarily of amounts incurred for purchase of depreciable assets and assets under construction-in-progress.

18. Grants receivable/(received in advance) – Non-Government

	2006/2007 $	2005/2006 $
Balance at the beginning of financial year	(34,509)	(1,293,158)
Receipts during the year	505,267	3,538,631
Amount transferred to deferred capital grants and donations (Note 19)	(38,773)	(754,835)
Amount transferred to income and expenditure statement	(177,090)	(1,525,147)
Balance at end of financial year	254,895	(34,509)
Grants receivable (Note 9)	-	198,798
Grants received in advance	(254,895)	(164,289)

Grants are received mainly from other agencies to finance specific programmes of the Authority.

19. Deferred capital grants and donations

	2006/2007 $	2005/2006 $
Balance at the beginning of financial year	30,416,591	33,426,732
Amount transferred from grants received in advance		
- Government	2,295,910	2,799,465
- Non-government	38,773	754,835
Donation received during the year	245,243	–
	32,996,517	36,981,032
Less:		
Amount transferred to income and expenditure statement to match depreciation and amortisation of related assets and intangibles	(6,765,079)	(6,564,441)
Balance at end of financial year	26,231,438	30,416,591
Current liability	7,009,413	6,326,176
Non-current liability	19,222,025	24,090,415
	26,231,438	30,416,591

Deferred capital grants and donations are government grants and donations from third parties received for the purchase or the construction of depreciable assets and it represents an obligation on the part of the Authority to use and maintain the fixed assets over the rest of the useful lives. These grants will be amortised to the income and expenditure statement over the useful lives of the related assets.

20. Other income

	2006/2007 $	2005/2006 $
Rental income	4,200	3,300
Interest income	625,865	337,140
Fines and forfeitures	351,002	370,880
Foreign currency exchange (loss)/gain	(25,722)	13,995
Sponsorship income	314,865	–
Others	378,386	386,192
	1,648,596	1,111,507

Sponsorship income is received mainly for the Blood Bank 60th Anniversary.

21. Staff costs

	2006/2007 $	2005/2006 $
Employee benefits expense (including key management personnel):		
Defined pension benefit plan (Note 15)	1,296,450	1,284,883
Salaries, allowances and bonuses	36,246,402	33,855,226
Defined contribution plans	3,315,680	3,240,457
Other employee benefits	76,468	66,879
	40,935,000	38,447,445

Compensation of key management personnel

Defined pension benefit plan	648,313	153,321
Salaries, bonuses and allowances	2,027,230	2,161,099
Defined contribution plans	51,540	44,609
Short-term employee benefits	7,809	7,500
Total compensation paid to key management personnel	2,734,892	2,366,529

Key management refers to employees designated as Directors and above who have the authority and responsibility for planning, directing and controlling the activities of the Authority.

22. Finance costs

	2006/2007 $	2005/2006 $
Interest expense on long-term loans	1,206,778	1,297,171
Finance charges payable under finance leases	7,290	1,823
	1,214,068	1,298,994

23. Other operating expenses

The following items have been included in arriving at other operating expenses:

	2006/2007 $	2005/2006 $
Board members' allowance	60,000	67,500
Write-off of inventories	9,862	11,463
Loss on disposal of property, plant and equipment	24,657	1,243
Allowance for doubtful receivables	10,381	-
Loss on disposal of intangibles	178	-

24. Statutory contribution to consolidated fund

In lieu of income tax, the Authority is required to make a contribution to the Consolidated Fund in accordance with the Statutory Corporations (Contributions to Consolidated Fund) Act (Chapter 319A) and in accordance with the Finance Circular Minute No M5/2005.

The annual contribution to consolidated fund is made based on the prevailing statutory contribution rate of 20% for the year of assessment 2007 (2005/2006: 20%).

Relationship between contribution to consolidated fund and accounting surplus for the year

A reconciliation between contribution to consolidated fund and the product of accounting surplus before contribution to consolidated fund multiplied by the applicable contribution rate for the years ended 31 March 2007 and 2006 is as follows:

	2006/2007 $	2005/2006 $
Surplus before contribution to consolidated fund	3,662,889	291,946
Contribution at rates applicable to the surplus of 20% (2005/2006: 20%)	732,578	58,389
Adjustments for:		
Benefits from previously unrecognised accounting deficit brought forward and excess contributions	(732,578)	(58,389)
Contribution to consolidated fund recognised in the income and expenditure statement	–	–

24. Statutory contribution to consolidated fund (cont'd)

There is no contribution to the Consolidated Fund for the current financial year as the accounting surplus has been fully offset against the accounting deficit brought forward and excess contributions made in prior years.

The Authority has excess contributions from prior year of approximately $231,651 that are available for offset against future surpluses of the Authority, for which no deferred asset is recognised due to uncertainty of its recoverability.

25. Commitments and contingencies

(a) Capital commitments

Capital expenditure contracted for as at balance sheet date but not recognised in the financial statements is as follows:

	2006/2007 $	2005/2006 $
Estimated amounts approved and contracted for in respect of future capital expenditure but not provided for	4,610,497	283,518

(b) Operating lease commitments

The Authority has entered into operating leases for rental of premises and equipment. These leases have an average life of between 1 and 6 years. There are no restrictions placed upon the Authority by entering into these leases. Operating lease payments recognised in the income and expenditure statement during the year amounted to $2,425,875 (2005/2006: $2,468,646).

Future minimum lease payments payable under these operating leases as at 31 March are as follows:

Not later than one year	2,026,345	2,043,446
Later than one year but not later than five years	3,150,867	4,665,156
	5,177,212	6,708,602

26. Significant related party transactions

(a) Significant related party transactions

The Authority is a statutory board incorporated under the Health Sciences Authority Act. As a statutory board, all Government ministries, departments, statutory boards and restructured hospitals are deemed as related parties. Other than statutory charges and transactions disclosed elsewhere in the financial statements, the Authority has significant transactions with its supervisory ministry, Ministry of Health, and other related parties listed below:

	2006/2007 $	2005/2006 $
Income received from related parties		
Ministry of Home Affairs	22,262,044	19,932,570
Ministry of Defence	611,750	440,948
Restructured hospitals	16,174,082	16,516,300
Agri-food & Veterinary Authority	4,597,926	5,107,166
Purchase made with and reimbursement to related parties		
Restructured hospitals	2,420,962	2,071,369
Ministry of Health	568,523	1,051,819
Auditor-General Office	105,000	-
Infocomm Development Authority of Singapore	1,073,139	144,245
Inland Revenue of Singapore	923,978	11,641
National Library Board	104,160	-
Other ministries and statutory boards	909,944	819,085
Others		
Interest expense to Ministry of Finance	1,206,778	1,297,171
Staff costs to Ministry of Health	1,204,113	1,382,378

(b) Significant related party balances

The significant account balances as at 31 March that the Authority has in relation to related parties are listed below:

Amount due from:		
Restructured hospitals	6,580,786	3,208,169
Agri-food & Veterinary Authority	324,585	495,795
Ministry of Defence	134,511	49,489
Ministry of Home Affairs	1,897,655	2,006,058
Other ministries and statutory boards	6,933	18,551
	8,944,470	5,778,062
Amount due to:		
Restructured hospitals	318,386	203,788
Ministry of Health	20,519	112,847
Other ministries and statutory boards	111,187	121,373
	450,092	438,008

27. Financial risk management objectives and policies

The Authority's principal financial instruments comprise of cash, short term deposits and long term loans. The main purpose of these financial instruments is to finance the Authority's operations. The Authority has various other financial assets and liabilities such as trade receivables and trade payables, which arise directly from its operations. The Authority does not hold or issue derivative financial instruments for trading purposes.

The main risks arising from the Authority's financial instruments are interest rate risk, foreign currency risk, credit risk and liquidity risk. The Authority reviews and agrees policies for managing each of these risks and they are summarised below.

(a) Interest rate risk

The Authority's exposure to changes in interest rates relates primarily to the Authority's interest-bearing loans and fixed deposits. Funding requirements are regularly reviewed so that cash in excess of short term operating requirements are placed in fixed deposits to maximise returns. Information on interest rates exposure is disclosed in Notes 7 and 16.

(b) Foreign currency risk

The Authority does not have any material foreign exchange risk as its operations are substantially transacted in, Singapore dollars.

(c) Credit risk

The Authority's credit risk is primarily attributable to its cash and cash equivalents, trade receivables and other receivables. The Authority places its cash and cash equivalents with credit-worthy financial institutions. The credit risk with respect to receivables is low as the Authority deals with credit-worthy organisations such as government bodies and hospitals. In addition, receivable balances are monitored on an ongoing basis with the result that the Authority's exposure to bad debts is not significant.

The Authority has no significant concentration of credit risk. Trade receivables are spread over a large base of organisations.

The maximum credit risk that the Authority is exposed to is represented by carrying amounts of its financial assets as stated in the balance sheet.

27. Financial risk management objectives and policies (cont'd)

(d) Liquidity risk

The Authority funds its operations through a mix of internally-generated funds, government and non-government grants. The Authority regularly reviews its liquidity reserves, comprising cash flows from its operations and government grants, to ensure sufficient liquidity is maintained at all times. The Authority relies on the Government to fund a significant part of its operations. The framework for funding of the Authority's operations is reviewed with the Ministry of Health on a regular basis. For funding of capital projects under the debt-equity financing framework, the Authority has established an adequate amount of committed credit facilities to meet future funding needs. Under Finance Circular Minute No M53/2003, the Ministry of Finance undertakes to act as the lender of last resort to the Authority for its funding requirements.

28. Financial instruments

Fair values

The fair value of a financial instrument is the amount at which the instrument could be exchanged or settled between knowledgeable and willing parties in an arm's length transaction, other than in a forced or liquidation sale.

Financial instruments whose carrying amount approximates fair value

Management has determined that the carrying amounts of cash and short term deposits, current trade and other receivables, current trade and other payables, based on their notional amounts, reasonably approximate their fair values because these are mostly short term in nature or are repriced frequently.

The finance lease payable and loans payable to Ministry of Finance ("MOF") are carried at amortised cost in the balance sheet. Their fair values are disclosed in the following table:

	Carrying amount		Fair value	
	2006/2007 $	2005/2006 $	2006/2007 $	2005/2006 $
Finance lease payable	144,375	196,875	151,955	201,626
Loan payable to MOF	30,288,069	32,800,759	29,807,460	32,261,716

The fair value of the loan payable to Ministry of Finance is estimated using the discounted cash flow analysis based on prime rate of borrowings in the market.

29. Comparatives

The financial statements for the year ended 31 March 2006 were audited by another auditor. The following comparative figures as at 31 March 2006 have been reclassified to conform to the current year's presentation.

	As previously reported 2005/2006 $	As restated 2005/2006 $
Non-current asset		
Property, plant and equipment	105,127,600	91,853,803
Intangibles	–	13,273,797
Current liabilities		
Other payables and accruals	(12,196,999)	(8,729,558)
Licence fees collected in advance	–	(3,467,441)
Deferred capital grants and donations	–	(6,326,176)
Non-current liabilities		
Deferred capital grants and donations	(30,416,591)	(24,090,415)

30. Subsequent event

Pursuant to the Radiation Protection Act 2007 passed by Parliament on 21 May 2007 and assented to by the President on 1 June 2007, the Centre for Radiation Protection ("CRP") will be transferred to the National Environment Agency ("NEA") with effect from 1 July 2007 and to be renamed as the Centre for Radiation Protection and Nuclear Science ("CRPNS"). The transfer is to build up Singapore's institutional and human resource capabilities in the areas of nuclear science, security and emergency response. By consolidating these related responsibilities which are currently separately administered by the Authority and NEA, the move will avoid duplication of resources as well as enhance coordination in technical issues relating to radiation and nuclear science.

30. Subsequent event (cont'd)

As at 31 March 2007, the net carrying amount of the transferable assets and liabilities, which include plant and equipment, intangibles and licence fees collected in advance, is as follows:

	$
Plant and equipment	474,161
Intangibles	34,861
Deferred capital grants and donations	(255,213)
Non-current portion of licence fee collected in advance	(172,588)
Current portion of licence fee collected in advance	(1,740,710)
	(1,659,489)

The consideration for the transfer is estimated to be the net carrying amount of these assets and liabilities belonging to CRP as at the date of transfer.

31. Authorisation of financial statements

The financial statements of the Authority for the year ended 31 March 2007 were authorised for issue by the members of its Board on 26 June 2007.


The fundamental strategic and structural changes that HSA has undergone have strengthened us for our ongoing vision journey to become the leading innovative authority in the protection and advancement of national health and safety. We advance with renewed vigour on the strategic route we have mapped out, confident in our purpose and direction.

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