



# FULLY POWERED UP

We are ready and alert at all times, in our ongoing efforts to safeguard and advance Singapore's public health and safety. That is why HSA makes it a priority to power up our capabilities and capacities, and to continually improve our core competencies.

Our strengths lie firmly grounded in our people. All of whom are equipped with scientific and regulatory expertise, and service quality, that make HSA a dynamic organisation.

While we strengthen our resources from the inside out, we actively seek collaborations within Singapore and overseas to further our skills and knowledge in what we do, and in preparation for what's to come.

All of this makes it possible for us to power our mission to ensure the safety and quality of health products, secure the nation's blood supply, and serve the administration of justice with forensic medicine, forensic science and analytical chemistry testing.

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## OUR VISION

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

## OUR MISSION

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



## OUR CORE VALUES



### · Service to the Nation

We are part of the Singapore Public Service, committed to integrity, excellence and efficiency.



### · Passion for Excellence

We aim to be the best in all that we do.



### · Develop Our Community

We value our people and build trusted teams.



### · Inspire Trust

We act with credibility, professionalism and integrity, to instil public trust and confidence.



### · Live Innovation

We seek constantly to improve and transform.



# OUR ORGANISATIONAL EXCELLENCE ACCOLADES

**The Public Service Achievement Award**

2014

**The Public Service Milestone Award**

2010

**Singapore Quality Class Star**

March 2014

**Singapore Quality Class**

since 2009

**People Developer Certification**

since 2002

**Singapore Innovation Class**

first public healthcare agency to be endorsed

2003

**Singapore Service Class**

March 2014

**Singapore H.E.A.L.T.H. Platinum Award**

2012

**Public Service Award for Organisational Excellence**

2006

**Meritorious Defence Partner Award**

since 2005

**Meritorious Home Team Partner Award**

since 2008

**Community Chest Awards**

since 2003

**Singapore Family Friendly Employer Award**

2004

**ISO 9001:2008**

**Information Management Department**

**Corporate Headquarters**

since 2011



# OUR PROFESSIONAL EXCELLENCE ACCOLADES

## Health Products Regulation Group

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### **ISO 9001:2008**

Tobacco Regulation Branch  
since February 2011

### **Accreditation to Pharmaceutical Inspection Co-operation Scheme (PIC/S)**

Audit & Licensing Division  
since January 2000

## Blood Services Group

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### **Joint Accreditation Committee – International Society for Cell Therapy and European Blood & Bone Marrow Transplantation (JACIE)**

July 2013

### **American Society for Histocompatibility and Immunogenetics (ASHI)**

August 2008

### **AABB Accreditation**

first national blood service in Asia to be accredited  
May 2006

### **Certified On-the-Job Training Centre**

December 2005

### **World Health Organization Collaborating Centre for Transfusion Medicine**

since 1992

## Applied Sciences Group

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### **Forensic Medicine Division**

#### **National Association of Medical Examiners (NAME)**

first agency outside North America to be accredited  
September 2005

#### **Commendation for Significant Contribution in Helping Singapore Overcome SARS**

March - May 2003

#### **Accreditation of Laboratory for Pathology Training by The Royal College of Pathologists of Australasia**

since 1999

## **Forensic Science Division, Biology Division, Illicit Drugs Division and Analytical Toxicology Division**

### **Excellence for Singapore Award**

1999

### **American Society of Crime Laboratory Directors / Laboratory Accreditation Board (ASCLD/LAB)**

since June 1996

## **Pharmaceutical Division & Food Safety Division**

### **Public Service Award for Organisational Excellence**

July 2003

### **Singapore Quality Class**

since August 2002

### **ISO/IEC 17025 Accreditation under Singapore Accreditation Council – Singapore Laboratory Accreditation Scheme (SAC-SINGLAS)**

since 1997

## **Pharmaceutical Division**

### **Associate Membership to the General European Official Medicines Control Laboratories (OMCL) Network (GEON)**

since May 2014

### **World Health Organization Collaborating Centre for Tobacco Testing and Research**

since June 2009

### **ASEAN Leading Country for Colorants and Tretinoin Analysis in Cosmetic Products**

since 2004

### **World Health Organization Collaborating Centre for Drug Quality Assurance**

since February 1993

## **Food Safety Division**

### **ASEAN Reference Laboratory for Mycotoxins Analysis**

since June 2004

### **World Health Organization Collaborating Centre for Food Contamination Monitoring**

since July 1992

## **Chemical Metrology Division**

### **Accredited as a Proficiency Testing Provider under ISO/IEC 17043 by the Singapore Accreditation Council**

since August 2013

# Chairman's Message

## WHAT ARE YOUR THOUGHTS ABOUT HSA SINCE ASSUMING THE ROLE OF CHAIRMAN IN DECEMBER 2013?

Having worked with HSA in my previous portfolio, I am happy to be part of this dynamic organisation. I would like to thank former Chairman, Professor John Wong and CEO, Assoc Professor John Lim for their dedication in building HSA into what it is today.

Professor Wong's guidance in his two years here has proven invaluable in boosting HSA's scientific rigour, capacity and infrastructure. Assoc Professor Lim has strengthened the agency's organisational structure and manpower to effectively deliver its diverse functions in the eight years of his tenure. He has also promoted staff's commitment to scientific excellence, encouraged engagement with our stakeholders, and enhanced HSA's global reputation.

I would also like to take this opportunity to welcome incoming CEO, Dr Mimi Choong. Her in-depth experience in various ministries is an advantage for us. I look forward to working with her in leading and further developing HSA. In addition, I would like to thank Ms Liew Wei Li, who recently stepped down after six years of sterling service on the Board.

Our people are our greatest assets and I am delighted to be among one of the best groups of scientists, regulatory professionals and corporate staff in the world. I have witnessed the great passion they have in their work – knowing that it serves the greater interest of the public. Working as a whole, HSAians enable our organisation to adhere to the highest standards of accreditation and to be well-regarded internationally. I look forward to working with HSA's dedicated Senior Management team in developing strategies and systems that will ensure HSA continues to stay relevant and proactive in addressing the changing environment.

We play a pivotal role in protecting national health and safety and serving the administration of justice. The diversity of professional and scientific skills means that there continues to be a huge potential for new opportunities for synergy and development. I look forward to journeying with HSA as we continue to reach new frontiers, ensure the highest level of safety for our national blood supply, inspire the trust of the public as we wisely regulate health products, and advance the administration of justice through our scientific capabilities.

## HOW IS THE CHANGING ENVIRONMENT IMPACTING HSA?

The healthcare and biomedical landscape is constantly evolving. Advancing sciences and technologies have enabled many breakthroughs. With this, industry players hope to leverage these developments to market the latest medical technologies and drugs such as cell and tissue therapies, software with medical devices and combination products. Meanwhile, healthcare professionals and patients desire access to these latest medical innovations. HSA's regulatory framework must be equipped to keep pace with this progress. To do so, we need a precise balance between smart and effective regulation to ensure the safety and quality of health products, while ensuring timely access to new and efficacious health products.

Another challenge that we are facing is Singapore's ageing population, and the expansion of our healthcare system. With the number of elderly citizens expected to triple to 900,000 by 2030, and the plans to add at least one new acute or community hospital annually up to 2020, our blood demand is expected to increase tremendously. Adding to this are new and emerging infectious diseases, which means more stringent blood donation deferral criteria are likely to be implemented in order to keep our blood safe.

To ensure that blood is available to all who need it, we have to expand our blood donation capacity almost twofold by 2030. To start off, we will be adding two more satellite blood donation centres by 2018, bringing the total number of blood donation centres to five.

## WHAT ARE YOUR KEY PRIORITIES FOR HSA'S FUTURE?

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Firstly, developing human capital must always continue to be a strategic priority for HSA. As an organisation of science, our people's expertise and capabilities are our most critical factors. Our scientists, healthcare professionals and administrators must be of the highest calibre. We must train, retain and attract the right people to take on new challenges.

To ensure that we are on the right track, we continually review our scientific and professional skill sets to meet current and future needs. We encourage participation in international conferences and exchange programmes, as well as international projects, to keep HSAians updated on the latest scientific developments.

Secondly, I seek to further strengthen local and international collaborations and networking in the scientific and regulatory arenas. Science and technology are growing at super speed, and with easy access to travel and the Internet, more regulatory issues are becoming cross-border. Strengthening our collaborations will enable us to leverage the strengths of similar agencies, and, at the same time, learn from their operations and policy making strategies.

Thirdly, I wish to power up our preparedness and risk management frameworks. We need to be capable of anticipating threats in our operating environments and to be equipped to respond appropriately. This must remain a core strength of our institution. Our ability to deal with risks and crises has grown over the years. We have strengthened our quality assurance frameworks and our Internal Audit & Risk Management set-up, and are developing a comprehensive blueprint to enhance enterprise risk management. It is also a prerogative that HSAians promote the highest quality outcomes and are sensitised to risk.

Finally, on this journey with HSA, I look forward to working with my colleagues to uphold the quality and reputation, and add to the growth, of our high performing institution.

Our people are our greatest assets and I am delighted to be among one of the best groups of scientists, regulatory professionals and corporate staff in the world. I have witnessed the great passion they have in their work.



**Professor Satkunanantham  
s/o Kandiah  
Chairman**

# CEO's Message

HSA has, in its short 13-year history, built a strong reputation for scientific professionalism and competence. We have continuously pushed forward and embraced our scientific and regulatory missions with great pride and enthusiasm.



**Assoc Professor John Lim**  
Chief Executive Officer

## WHAT DO YOU THINK EMPOWERS AND INSPIRES HSA?

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The nature of HSA's work to ensure national health and safety attracts professionals with a commitment to help others. An altruistic ethos pervades the HSA culture and work ethic. This has given HSAians a strong identity in spite of the wide range of HSA's scientific responsibilities. I am proud of our team that has always aimed for scientific excellence and has matured through various challenges over the years – they have continued to make sound decisions and promote regulatory and scientific innovation benefiting Singaporeans, as well as the wider international community.

At the heart of every successful organisation is its people, and this is particularly true for a scientific organisation like HSA. HSA is committed to developing the potential of every member of the family. It is the expertise, quality, integrity and commitment of HSAians that will ensure that the organisation can effectively continue to deliver on its Vision and Mission to safeguard public health and safety.

We recognise that no man or organisation is an island. That is why successive CEOs have continued to forge strong links with regulatory and scientific counterpart agencies from around the world since HSA's formation. These partnerships have resulted in closer cooperation and mutually beneficial exchanges that complement and augment our strengths. By sharing our expertise beyond Singapore, we also expand our organisation's breadth of capabilities and standing as one of the world's significant scientific and regulatory authorities.

Our international accreditations are testament to the high calibre of the work we do. In 2005, HSA became the first forensic medicine facility outside North America to be accredited by the National Association of Medical Examiners (NAME). HSA was also Asia's first national blood service to receive the international gold standard of AABB accreditation in 2006. Our forensic science division was successfully re-accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) in 2001, and is in a select group of non-US laboratories since 1996 to achieve this. Having four World Health Organization collaborating centres in HSA also demonstrates the trust that the global community has in our expertise.

## WHAT ARE SOME OF HSA'S ACCOMPLISHMENTS IN THE PAST YEAR?

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As our stakeholders are important to us, we have continued to focus on forging strong, collaborative partnerships, and promoting constant dialogue and engagement sessions.

HSA is also committed to enhancing efficiency by adopting Whole-of-Government cross-agency strategies. One key initiative was an inter-agency Forensic Services Review Taskforce where we worked with various government agencies to enhance our key forensic science services.

The inaugural Excellent Stakeholder and Partnership Awards (ESPA) was held in November 2013 to celebrate collective efforts with stakeholders in strengthening and streamlining our health products regulatory ecosystem. This event honoured 62 government agencies and public health institutions, as well as clinicians, pharmacists and various associations who had worked closely with our Health Products Regulation Group over the years.

To keep our blood services functioning and flowing smoothly, we have been constantly looking at ways to boost the donor experience. The Bloodbank@HSA was renovated in September 2013 to enhance space efficiency and improve the ambience for donors. Bloodbank@Woodlands was also enhanced with extended opening hours on weekends, a new queue management system and an interactive electronic questionnaire.

## HOW HAS HSA BEEN PUSHING ITSELF FORWARD?

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We have continued to pursue excellence in all that we do. In 2014, we underwent the 4-in-1 Integrated Assessment by SPRING Singapore and were successful in recertifications for the *Singapore Quality Class (SQC)*, *People Developer (PD)* and *Singapore Innovation Class (I-Class)*, and a new certification for the *Singapore Service Class (S-Class)*. Our progress and improvements qualified us for the higher category of SQC-STAR.

Another feather in HSA's cap was the recognition through the Public Service Achievement Award presented at the Excellence in Public Service Awards Ceremony held in May 2014.

In terms of ensuring the highest standards and benchmarks, our Cell Therapy Laboratory was accredited by the Joint Accreditation Committee – International Society for Cell Therapy and European Blood & Marrow Transplantation (JACIE). At the same time, three of our test methods under the Pharmaceutical Division were successfully accredited in April 2013 by the Singapore Accreditation Council (SAC-SINGLAS). Our Chemical Metrology Laboratory was also accredited by SAC-SINGLAS as a Proficiency Testing Provider in accordance with the requirements of ISO/IEC 17043:2010 in August 2013.

It is the collective involvement of all HSAians over the years that has enabled the organisation to be recognised as a leading international scientific and regulatory authority, effectively safeguarding public health and providing top-notch scientific services.

## WHAT MORE CAN WE EXPECT IN THE YEAR AHEAD?

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HSA will continue to focus on enhancing scientific and regulatory expertise. To address the challenges of an ever-changing environment and meet stakeholder needs, HSA's laboratories are continually exploring new testing and scientific capabilities, such as in food testing and the identification of new psychoactive substances. In the blood services laboratories, the gel-card method was introduced to increase the efficiency of screening for common phenotypes amongst donors. The regulatory group is also gearing up to address the regulation of new or updated categories of health products.

HSA's ability to anticipate and deal with risk has grown over the years and we have matured through experience. Going forward, we will further strengthen our quality coordination frameworks and develop a comprehensive blueprint to enhance the organisational risk management framework. HSA's orientation and sensitivity to current and future risks must always continue to be fine-tuned to ensure rational use of limited resources and appropriate responses to developing situations. The commitment to highest quality outcomes across our services must be unwavering.

## HOW DO YOU THINK HSA CAN EFFECTIVELY CONTINUE IN ITS MISSION?

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It is the collective involvement of all HSAians over the years that has enabled the organisation to be recognised as a leading international scientific and regulatory authority, effectively safeguarding public health and providing top-notch scientific services.

To sustain this momentum, I believe that HSAians must always aspire to be at the forefront of scientific and regulatory excellence and innovation, with a firm belief in the organisation's vision, mission and defining core values. At the same time, there must be grounding in the realities of the local and international environment in which HSA operates. HSA should always aim to be in tune with developing public health and safety concerns, cognisant of stakeholder perspectives, explain decisions clearly through good public communication, and commit to implementing actions and programmes effectively.

During my eight years as CEO of HSA, I am thankful for having worked with very supportive senior management in the Ministry of Health, and visionary Chairmen and Board members who have provided much wise and strategic guidance. It has been my greatest privilege to have worked with all the remarkable, committed professionals and members of HSA's senior management, and the whole HSA family. It is as a team that we have been able to develop and grow this extraordinary agency – an achievement that we can certainly celebrate.

I am delighted to extend a very warm welcome to Dr Mimi Choong as HSA's fourth CEO. She brings with her tremendous experience and valuable perspectives from a range of key ministries, including the Ministries of Health, Home Affairs and Education. I have no doubt that with her expertise and leadership in public service, Mimi will further grow and sustain HSA as a reputable and high performing organisation protecting and advancing national health and safety. I wish her and all HSAians the very best!

# Leadership Changes



Professor John Wong

HSA would like to express our sincere appreciation to **Professor John Wong** for his invaluable contributions and visionary leadership of the HSA Board. Professor Wong, who stepped down as Board Chairman at the end of 2013, promoted HSA's development as a well-respected scientific and regulatory authority with strong local and international collaborations. We extend our best wishes for his new appointment as Chief Executive of the National University Health System.

We warmly welcome Professor Satkunanantham s/o Kandiah as HSA's new Chairman from 1 January 2014. Professor Satku brings to HSA almost a decade of invaluable expertise as Director of Medical Services at the Ministry of Health. We look forward to his wise counsel and guidance to strengthen HSA's scientific rigour, capacity and infrastructure.



Assoc Professor John Lim

After eight years as Chief Executive Officer of HSA, **Assoc Professor John Lim** returned to the Ministry of Health on 1 July 2014 as Deputy Director of Medical Services (Industry and Research Matters). He will also take up the concurrent appointment of Executive Director of the Centre of Regulatory Excellence at the Duke-NUS Graduate Medical School.

During his tenure, Assoc Professor Lim significantly grew HSA's professional expertise and diverse capabilities of health product regulation, transfusion medicine, as well as forensic and applied sciences. Under his leadership, HSA's regulatory frameworks and systems were strengthened to address the challenges of new types of health products. The blood service was also made more robust with the opening of two fixed satellite blood centres at Woodlands and Dhoby Ghaut. Blood safety was enhanced by benchmarking against leading blood services organisations and adopting the best available testing technologies for the screening of infectious diseases. HSA's forensic and analytical chemistry services have also been expanded to better support law enforcement agencies, the judicial system and other government agencies. HSA would like to express our heartfelt appreciation for Assoc Professor Lim's significant contributions in positioning HSA among the leading international regulatory and scientific organisations.

HSA extends a warm welcome to Dr Mimi Choong who became Chief Executive Officer on 1 July 2014. She was formerly Deputy Secretary (Services) in the Ministry of Education and Deputy Secretary (Security) in the Ministry of Home Affairs. She has also held various key positions in the Ministries of Finance, Health, and Communications and Information Technology.

Dr Choong will build on the foundations laid by her predecessors to develop HSA as a reputable, high-performing organisation, protecting and advancing national health and safety.

# HSA Board

As at August 2014



Professor  
Satkunanantham  
s/o Kandiah  
Chairman  
Health Sciences  
Authority



Mr Max Loh  
Managing Partner,  
ASEAN and  
Singapore  
Ernst & Young



Ms Serene Wee  
Chief Executive  
Singapore Academy  
of Law



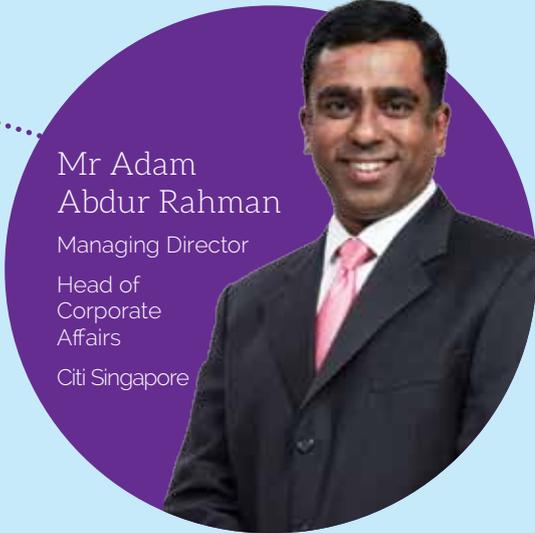
Mr Clifton Tan  
Director  
Pembroke  
Investments  
Pte Ltd



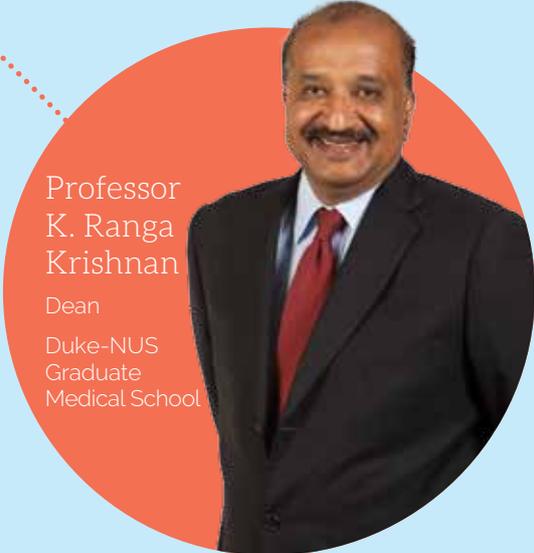
Mrs Tan Li Lian  
Director  
Contemporara  
Holdings Pte Ltd



Mr Tai Lee Siang  
Group Managing  
Director  
ONG&ONG  
Pte Ltd



Mr Adam  
Abdur Rahman  
Managing Director  
Head of  
Corporate  
Affairs  
Citi Singapore



Professor  
K. Ranga  
Krishnan  
Dean  
Duke-NUS  
Graduate  
Medical School

# HSA Board Committees

As at August 2014

## Board Executive Committee

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<b>Professor Satkunanantham s/o Kandiah</b>	Chairman
<b>Ms Serene Wee</b>	Member
<b>Professor K. Ranga Krishnan</b>	Member
<b>Mrs Tan Li Lian</b>	Member

## Audit Committee

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<b>Mr Max Loh</b>	Chairman
<b>Mr Clifton Tan</b>	Member
<b>Mr Adam Abdur Rahman</b>	Member

## Building Development Committee

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<b>Mr Tai Lee Siang</b> Group Managing Director Ong&Ong Pte Ltd	<b>Chairman</b>
<b>Dr Mimi Choong</b> Chief Executive Officer Health Sciences Authority	<b>Co-Chairman</b>
<b>Mr Hoong Bee Lok</b> Visiting Consultant Corporate Services Group Health Sciences Authority	<b>Member</b>
<b>Asst Professor Raymond Chua</b> Group Director Health Products Regulation Group Principal Director HSA Academy Health Sciences Authority	<b>Member</b>
<b>Dr Mok Ying Jang</b> Group Director Corporate Services Group Health Sciences Authority	<b>Member</b>
<b>Ms Elizabeth Quah</b> Group Director (Planning) Ministry of Health	<b>Member</b>
<b>Mr Patrick Chia</b> Director (Healthcare Infrastructure Projects) MOH Holdings	<b>Member</b>

### Board Update

We would like to express our appreciation to Ms Liew Wei Li for her invaluable support and contribution as a member of the HSA Board for the past six years. As one of HSA's longest-serving Board members, Ms Liew has made invaluable contributions in shaping HSA's strategic directions, and in enhancing HSA's yearly work plan and budget forecasting process. Her membership in the Establishment Committee since 2008, had also helped to strengthen HSA's human resource strategies through her insightful guidance and sound advice. We wish her every success for the future.

# HSA Executive Committee (EXCO)

As at August 2014



**Dr Mimi Choong**  
Chief Executive Officer  
(with effect from 1 July 2014)



**Asst Professor Raymond Chua**  
Group Director  
Health Products Regulation Group  
Principal Director  
HSA Academy



**Dr Mok Ying Jang**  
Group Director  
Corporate Services Group



**Assoc Professor Chan Cheng Leng**  
Deputy Group Director  
Health Products Regulation Group



**Dr Diana Teo**  
Senior Director  
Blood Services Group  
Chairman  
Professional Board



**Dr Ang Ai Leen**  
Deputy Group Director  
Blood Services Group

We would like to thank Assoc Professor John Lim for his invaluable contributions as HSA's Chief Executive Officer, from 1 July 2006 to 30 June 2014.

# Corporate Governance Statement

The HSA Board and Senior Management Team are committed to maintaining a high standard of corporate governance and complying with the recommendations set out by the Code of Corporate Governance. The Board believes that good governance is essential in 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, the healthcare industry, our clients, our 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 its members, who are appointed by the Minister for Health for a 2-year term. It aims to meet every two to three months to set strategic directions and formulate policies, assume the role of monitoring and reviewing of policies leading to HSA's improved management and performance.

## 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 deemed to have any such interests during the meetings are required to declare them. They are to refrain from any deliberations made when such an interest has been declared.

## Accountability and Audit

HSA's Senior Management Team is accountable to the Board. In return, the Board is accountable to the Minister for Health. To allow the Board to discharge its duties adequately, Senior Management and staff are required to provide periodic updates and 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) Board Executive Committee**

The Executive Committee assists the Board to review and make recommendations on finance and manpower related issues. These include assessing the adequacy of manpower numbers and budgets to meet operational needs, as well as ensuring that financial resources are managed and utilised prudently and in the most effective and efficient manner.

**(b) The Audit Committee**

This Committee assists the Board to review and assess 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 audits and to review audit findings.

**(c) The Building Development Committee**

This Committee assists the Board to review and provide guidance on matters related to the new HSA building project. These include having oversight of the project delivery milestones, ensuring compliance with corporate governance guidelines, as well as putting forth recommendations for the various approval aspects of the project.

## Communication with Stakeholders

The Professional Groups 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 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 ensures that the organisation's professional quality standards are maintained.

## Code of Business Conduct

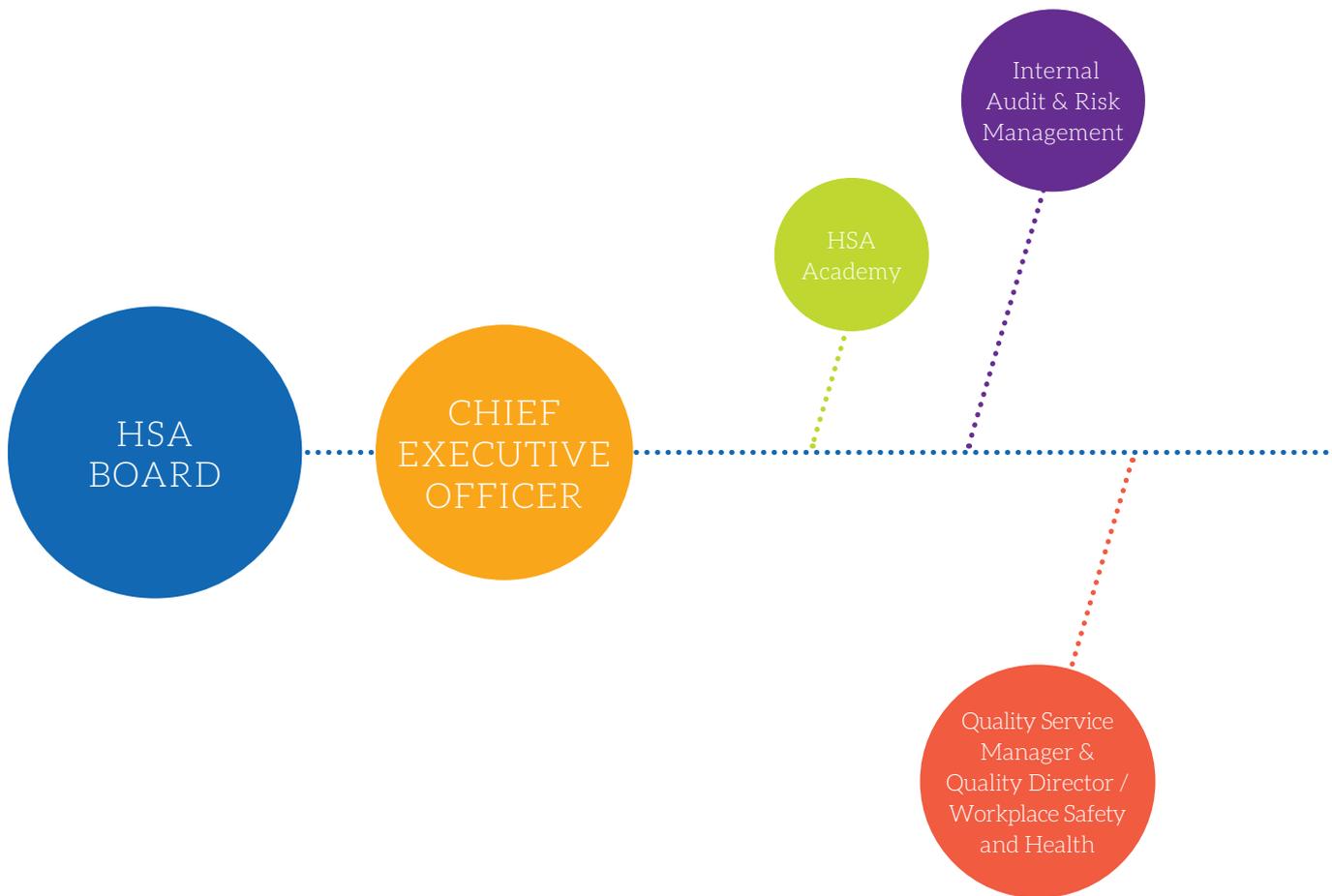
The Board, officers and employees are required to observe and maintain high standards of integrity, and be compliant with the law, government regulations, organisation policies, and best corporate practices.

## Risk Management

The Management is continually reviewing and improving business and operational activities to identify and manage areas of significant risks with appropriate measures and controls. The Management also reviews all significant control policies and procedures, and highlights significant matters to the Board, the Executive Committee, and the Audit Committee as necessary.

# Organisation Chart

As at August 2014





## CORPORATE SERVICES GROUP

### Departments

- Corporate Communications
- Emergency Planning
- Facilities Management
- Finance
- Human Capital Management and Learning & Development
- Information Management
- Legal & Prosecution
- Organisation Development & Excellence
- Strategy & Business Transformation



## HEALTH PRODUCTS REGULATION GROUP

### Divisions

- Pre-marketing
- Vigilance, Compliance & Enforcement
- Audit & Licensing



## BLOOD SERVICES GROUP

### Branches

- Blood Resources
- Blood Supply
- Patient Services
- Clinical Services



## APPLIED SCIENCES GROUP

### Divisions

- Forensic Medicine
- Forensic Science
- Illicit Drugs
- Analytical Toxicology
- Biology
- Pharmaceutical
- Food Safety
- Chemical Metrology

# Principal Officers

As at August 2014

## Corporate Headquarters

*Chief Executive Officer*  
Dr Mimi Choong  
(with effect from 1 July 2014)

**Professional Board**  
*Chairman*  
Dr Diana Teo

**Quality Service Manager & Quality**  
*Director*  
Professor Bosco Chen Bloodworth

**Internal Audit & Risk Management**  
*Director*  
Mr Axel Chan

**HSA Academy**  
*Principal Director*  
Asst Professor Raymond Chua

*Senior Director*  
Dr Christina Lim

## Corporate Services Group

*Group Director*  
Dr Mok Ying Jang

**Corporate Communications**  
*Director*  
Mr Adrian Chia

**Human Capital Management and Learning & Development**  
*Director*  
Ms Lily Goh

**Legal & Prosecution**  
*General Counsel*  
Ms Linda Chen

**Finance**  
*Director*  
Ms Grace Chan

**Facilities Management**  
*Acting Director*  
Ms Lynette Goh

**Information Management**  
*Director*  
Mr Manoj Abraham

**Strategy & Business Transformation**  
*Director*  
Mr Prashant Dhani

**Organisation Development & Excellence**  
*Assistant Director*  
Ms Joyce Nang

**Emergency Planning**  
*Assistant Director*  
Mr Christopher Ooi

**Quality Management**  
*Assistant Director*  
Mr Toi Shean Hoon

## Health Products Regulation Group

*Group Director*  
Asst Professor Raymond Chua

*Deputy Group Director*  
Assoc Professor Chan Cheng Leng

### Group Director's Office

*Director*  
Ms Ling Boon Lee

### Service Management & Industry Development Office

*Deputy Director*  
Ms Valerie Wee

### Pharmacoeconomics & Drug Utilisation

*Deputy Director*  
Mr Benjamin Ong

### International Collaboration

*Deputy Director*  
Ms Chua Siew Wei

### Quality Assurance Office

*Director*  
Mr Sia Chong Hock

### Pre-Marketing

*Assistant Group Director*  
Ms Lee Hui Keng

**Scientific Advisory Office**  
*Director*  
Ms Agnes Chan

**Clinical Trials Branch**  
*Director*  
Mr Foo Yang Tong

**Therapeutic Products Branch 1**  
*Director*  
Ms Jalene Poh

**Therapeutic Products Branch 2**  
*Director*  
Dr Dinesh Khokal

**Medical Device Branch**  
*Director*  
Ms Wong Woei Jiuang

**Complementary Health Products Branch**  
*Acting Director*  
Ms Hui Foong Mei

**Advanced Therapy Products Unit**  
*Head*  
Dr Kellathur Nadathur Srinivasan

### Vigilance, Compliance & Enforcement

*Assistant Group Director (covering)*  
Assoc Professor Chan Cheng Leng

**Enforcement Branch**  
*Director*  
Ms Ruth Lee

**Vigilance and Compliance Branch 1**  
*Director*  
Dr Dorothy Toh

**Vigilance and Compliance Branch**

2 Director  
Mrs Joanna Koh

**Tobacco Regulation Branch**

Director  
Mr Norman Chong

**Audit & Licensing**

Assistant Group Director  
Ms Lee Hui Keng

Division Director (covering)  
Mr Sia Chong Hock

Deputy Division Director  
Ms Jessica Teo

**Audit Branch**

Director (covering)  
Ms Jessica Teo

**Licensing & Certification Branch**

Director  
Dr Lai Weng Fai

**Blood Services Group**

Deputy Group Director  
Dr Ang Ai Leen

Senior Director  
Dr Diana Teo

Assistant Group Director  
(Administration)  
Col (NS) Tay Kim Chiew

Assistant Group Director  
(Operations)  
Dr Tan Hwee Huang

**Group Director's Office****Blood Service Operations**

Director  
Ms Koh Geok Tin

**Capability Development & Knowledge Management**

Senior Manager  
Ms Leou Kwee Kim

**Quality & Accreditation**

Senior Manager  
Ms J Thilakavathi

**Blood Resources Branch****Blood Resources**

Branch Director  
Mr William Sim

**Blood Supply Management Branch****Blood Supply Management**

Laboratory Director  
Ms Sally Lam

**Patient Service Branch****Immunohaematology & Cell Therapy Support**

Laboratory Director  
Dr Marieta Chan

**Applied Sciences Group**

Assistant Group Directors  
Dr Angeline Yap  
Ms Low Min Yong

Chief (Forensic Medicine)  
Dr Paul Chui

**Group Director's Office**

Head  
Mr Shao Fay

**Quality**

Director  
Dr Chow Shui Tse

**Forensic Medicine**

Chief  
Dr Paul Chui

**Forensic Medicine Division**

Division Director (covering)  
Dr Paul Chui

**Professional Practice Branch**

Branch Director  
Assoc Professor Gilbert Lau

**Operations Branch**

Branch Director  
Assoc Professor Cuthbert Teo

**Technical Capabilities Branch**

Branch Director  
Dr George Paul

**Infrastructure Branch**

Branch Director  
Dr Marian Wang

**Forensic Science**

Assistant Group Director  
Dr Angeline Yap

**Analytical Toxicology Division**

Division Director  
Dr Yao Yi Ju

**Biology Division**

Division Director  
Asst Professor Christopher Syn

**Forensic Science Division**

Division Director (covering)  
Dr Chow Shui Tse

**Illicit Drug Division**

Division Director (covering)  
Dr Angeline Yap

**Analytical Science**

Assistant Group Director  
Ms Low Min Yong

Senior Scientific Advisor  
Professor Bosco Chen Bloodworth

**Chemical Metrology Division**

Division Director  
Dr Lee Tong Kooi

**Food Safety Division**

Division Director  
Ms Joanne Chan

**Pharmaceutical Division**

Division Director (covering)  
Ms Low Min Yong





# Enhancing Our Processes



Our emphasis on constant enhancements means greater transparency, lower fees and prompt turnaround times for our industry stakeholders.

## Cost Cutting Measures for Businesses

With effect from April 2014, the validity period of the Medical Device Free Sale Certificates was extended to two years.

Medical device dealers can also save more time and reduce costs with the refined Special Authorisation Routes for unregistered medical devices. Dealers engaging only in the import for re-export purposes, as well as import and supply of unregistered medical devices for non-clinical purposes, will only need to apply for the GN-28 Authorisation Route for the import for re-export of unregistered medical devices, and GN-29 Authorisation Route for the import and supply for non-clinical purposes, respectively.

HSA also implemented enhancements to the Change Notification (CN) for registered medical devices in April 2013 and April 2014. In 2013, two new CN routes for specific change types of registered Class A and B medical devices were introduced, with no processing fees for one of the routes. In 2014, more comprehensive enhancements were introduced to streamline and stratify the existing change types to their impact and risk profile more closely. These new notification routes are processed immediately at no charge. Turnaround times for change notification are also published to facilitate more predictable timelines for applications.

These enhancements have resulted in many benefits, including cost reductions for applicants, improved clarity with the streamlined CN routes, and more predictable approval timelines for companies.



## An "A" for Automation

With enhancements to the electronic system MEDICS, medical device dealers on the GIRO scheme can now enjoy improved efficiency and a significant reduction in administrative work. Since August 2013, their licences have been automatically renewed, eliminating the process of manual submissions of renewal applications.

## Streamlined Legislative Controls

To remain relevant to the rapidly evolving pharmaceutical market, HSA is updating and streamlining existing legislative regulatory controls for western pharmaceutical products currently under two separate legislations - the Medicines Act and the Poisons Act to a single piece of legislation, the Health Products Act.

We are in consultation with industry associations and players, and other stakeholders to solicit feedback in order to properly assess impact and refine the proposed controls.



## National Tobacco Control

HSA is part of the National Coordinating Committee on Tobacco Control (NCCTC), which was established in 2013. Comprising 14 Singapore ministries and statutory boards, NCCTC facilitates a Whole-of-Government approach for the coordination and implementation of tobacco control policies in Singapore.

## Empowered by Good Manufacturing Practices

HSA conducted its first ever Good Manufacturing Practice (GMP) audit of a commercial facility for the manufacture of an investigational medicinal product for human cell and tissue therapy. The facility was successfully certified by HSA in January 2014.

Two new manufacturing facilities for biologicals were successfully audited and GMP-certified by HSA, adding to the growing list of such manufacturing facilities in Singapore.



## Elevating Our Operational Processes

Five projects across pre-marketing, audit and licensing, and tobacco regulation will be undergoing review to improve their key operational processes. This follows the launch of the Lean Six Sigma Initiative in August 2013 with introductory workshops for both management and staff.

In addition, 24 Green Belt candidates were identified to undergo a training programme that included classroom training and team coaching to apply Lean Six Sigma methodologies to their projects.

# Maintaining Vigilance

We continue to monitor adverse events and assess potential risks in health products such as medicines, and medical devices. Together with healthcare professionals, we aim to protect patients from unsafe health products.



## Stronger Stand in Safety

During the year, we strengthened our medical device post-market investigation peer reviews for Adverse Events (AE) and Field Safety Corrective Actions (FSCAs) through cross-team participation. Synergy across post-market teams was also enhanced through joint medical devices post-market meetings and joint inspections and site visits.

For consistency in decision-making and to boost productivity, we reviewed existing standard operating procedures and work processes. Last year, a total of 703 FSCAs were reviewed, of which 297 cases were related to local and overseas recalls of affected locally-registered medical devices.

## Keeping Watch

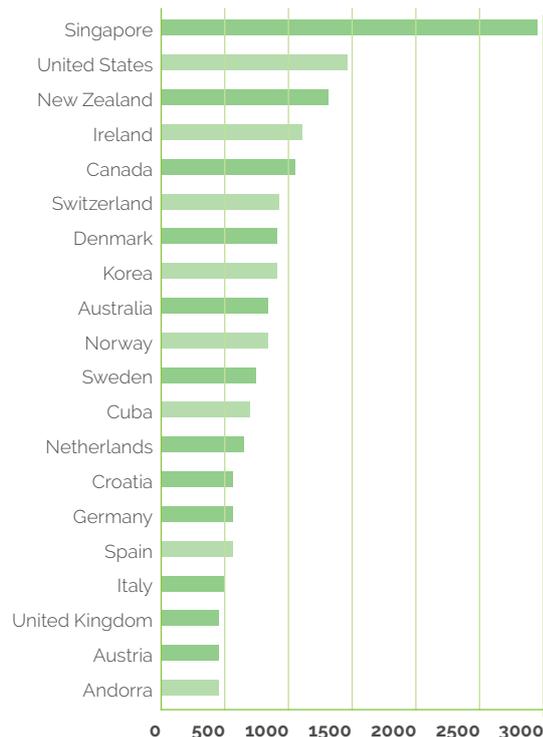
We received a total of 25,461 local AE reports associated with health products. Of these, 19,719 were captured in the national database as valid reports. Majority of these reports were associated with pharmaceuticals, followed by vaccines, biologics and complementary health products (CHPs) including Chinese Proprietary Medicines, health supplements and other traditional medicines.

Seven Dear Healthcare Professional Letters (DHCPLs) and 52 company DHCPLs were issued to inform healthcare professionals about safety issues and regulatory decisions for health products. Of the 120 CHP AE reports, 13 were associated with adulterated products. A total of eight press releases and three HSA Updates were issued to alert the public.

Through vigilant monitoring and review of local AE reports, we identified a series of drug safety signals to which healthcare professionals were duly alerted. These cases included the increased risk of hypoglycaemia from glibenclamide in elderly and renal impaired patients, sub-therapeutic effects resulting from drug interaction between vitamin K1 in Centrum Silver (Advance) and warfarin, and pure red cell aplasia associated with subcutaneous administration of Eprex® in chronic renal failure patients. A guide was also published for healthcare professionals to facilitate the assessment and reporting of drug-induced liver injury AE.

## Top of the Charts

Singapore continues to top the World Health Organization (WHO) Global Individual Case Safety Report (ICSR) database ranking, for the number of active individual case reports submitted per million inhabitants. Maintaining this position since 2011, we submitted close to 3,000 adverse drug reports per million inhabitants per year according to the October 2013 report published by the WHO Uppsala Monitoring Centre.



Active ICSRs in the WHO Global ICSR Database Per Million Inhabitants and Year (Period covers 02-09-2008 to 02-09-2013)





## Vaccine Vigilance

A total of 30,221 children were screened for Vaccine Adverse Events (VAE) following their vaccinations between April 2013 and March 2014. 208 cases of suspected VAE were further evaluated. Of these, 178 cases were considered possibly associated with vaccines. Potential safety signals were further assessed and expert opinions were also sought to ensure that the the VAEs were within the expected incidences and the benefit-risk profiles of the vaccines in use remained favourable for the local population.



## Positive Results in Pharmacogenetics

HSA, in collaboration with the Ministry of Health, issued a DHCPL in April 2013 which highly recommended genotyping for Major Histocompatibility Complex, class I, B subtype 1502 (HLA-B\*1502) allele prior to the initiation of Carbamazepine (CBZ) therapy in new patients of Asian ancestry. Prior to the DHCPL, we received an average of 15 CBZ-induced Stevens-Johnson Syndrome/Toxic Epidermal Necrolysis (SJS/TEN) reports per year over the last ten years. Post-implementation results have been positive. There has been no report of SJS/TEN associated with the use of CBZ in patients screened for the HLA-B\*1502 allele.

As part of the Human Genome Meeting 2013 held from 16 to 18 April, HSA invited several esteemed speakers to share about the various aspects of genomics in drug development and regulations. These experts, who included Dr Marisa Papaluca of the European Medicines Agency, Dr Jae-Gook Shin of Korea's Inje University College of Medicine, and Dr Eric Lai of Takeda Pharmaceutical, shared on clinical development, application of genomic biomarkers, communications of benefits and limitations of current genomics to prescribers and users as well as ethnic differences and pharmacogenomics of Asians.



## Mitigating Risks in Medicines

HSA has implemented nine local risk management plans for these medicinal products: Tysabri®, Trobalt®, Jakavi®, Velcade®, Xalkori®, Invokana®, Forxiga®, Kadcyca® and Tracleer®. The risks of adverse drug reactions were observed either at the point of market approval or during post-market surveillance. The local risk management plans include risk mitigation activities such as issuing of educational materials for physicians and patients highlighting potential risks, submitting periodic benefit-risk evaluation reports, as well as strengthening safety warnings in the package inserts. Joint benefit-risk assessments with the pre-market team were also performed on products such as citalopram, codeine, ketoconazole, and paracetamol.

# Safeguarding the Public

Enforcement is an integral part of our regulatory system to safeguard the public from unsafe products. Working with other enforcement agencies, we clamp down on illegal sale activities in Singapore.

## Crackdown on Illegal Drugs

HSA takes a serious view on the illegal import of drugs and have intensified efforts with our law enforcement partners, the Singapore Police Force (SPF), Immigration & Checkpoints Authority of Singapore (ICA) and the Central Narcotics Bureau (CNB) to deter illegal peddling of health products.



### Operation Massif

HSA + ICA

August – December 2013

**Target:** Illegal import of epam tablets containing nitrazepam

**Results:** Seizure of more than 27,000 epam tablets with an estimated street value of almost \$150,000.

### Operation Wipeout

HSA + SPF

March – October 2013

**Target:** Illegal peddling of sexual enhancement drugs in Geylang

**Results:** 53 suspects were caught.

### Sexual Enhancement Drugs and Drugs of Abuse

HSA + ICA

September 2013

**Target:** Importers of illegal sexual enhancement drugs and sleeping tablets at Changi Airport

**Results:** 1,316 units of sexual enhancement products were seized.

### Operation Grease

HSA + ICA + CNB

March – July 2013

**Target:** Local syndicate distributing illegal cough syrup

**Results:** Seizure of goods worth an estimated \$1.25 million and four recalcitrant male offenders apprehended. The seizure included 500 (3.8L) canisters and 355 (80ml and 90ml) bottles of codeine cough syrup, coupled with 5,600 units of codeine, valium, epam and clonazepam tablets.





## Tackling Cybercrime

The ease of doing business on the Internet has also inadvertently led to a proliferation of illegal sale of health products. HSA takes a proactive vigilant approach to manage and control this in cooperation with local and international enforcement agencies.

## Global Operation Pangea

HSA + around 100 countries  
18 – 25 June 2013

**Target:** Illegal online sale of health products

**Caught:** 40 posts or sites were found to be non-compliant. Over 25,000 units of illegal slimming products, cosmetics products and medical devices, amounting to an estimated street value of close to \$10,000 were seized by HSA. Four individuals are under investigation.

## Illegal Online Sale of Medical Devices

HSA  
November 2013

**Target:** Illegal online sale of contact lens which is a Class B medical device

**Caught:** Arrested a 29-year-old Singaporean female and seized 142 illegal contact lenses.

## Harmful Cosmetic Products

Cosmetic products that are sourced overseas and sold over the Internet can sometimes contain potent ingredients that are harmful to users. Upon receiving adverse events reports, we found three "Tabita" products that contained undeclared potent ingredients such as hydroquinone, tretinoin, salicylic acid and mercury. Separately, post-market surveillance by HSA found that two cosmetic products, Melati UV-Whitening Vit E Cream and ESTHER Bleaching Cream (A) and (B), also contained mercury. These products, sold in retail outlets and via the Internet, were seized from the wholesalers and retailers. Press releases were also issued to alert the public of the adulterated products.



## Educating Cosmetic Retailers

An outreach programme to promote cosmetics regulation compliance was conducted on 15 November 2013. This initiative was targeted at retailers who might have been unfamiliar with the relevant regulatory controls. We visited and distributed advisory letters to 32 shops in Lucky Plaza and Golden Mile Complex, to promote compliance with cosmetic notifications and labelling requirements.

## Stubbing Out E-cigarettes

We successfully uncovered several local major suppliers of electronic cigarettes through Internet surveillance. With the use of cyber forensics, the identities of these suppliers were established. In 2013, five major local electronic cigarette suppliers were caught and a total of 80 sets of e-cigarettes worth an estimated amount of \$31,000 were seized.



## Suspension of Tobacco Licences

In line with the national tobacco control policy, 12 tobacco retail licences were suspended for six months for selling tobacco products to minors under 18 years of age. In addition, two tobacco retail licences were revoked as the outlets were found selling tobacco products to a child below 12 and an under-18 minor in school uniform. These errant sellers were also prosecuted in court.

# Fuelling Collaborations



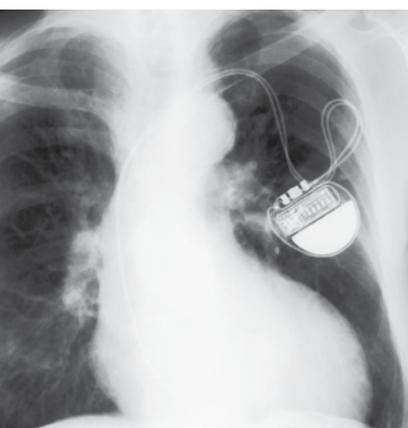
Each of us has a role to play. We believe that by collaborating with our partners – local and global – towards a common goal, we can inspire even greater results.



## Mining SAPHIRE

HSA will be receiving a \$1.8 million grant from the Biomedical Research Council Strategic Positioning Fund over three years from FY2014 to develop methodologies for active surveillance through mining electronic medical records (EMR) for signals of adverse drug reactions. This is to complement current drug safety surveillance efforts. The funding will be used to enhance IT infrastructure, develop in-house knowledge and skills, as well as to strengthen collaborations with local and overseas institutions in the area of EMR data mining.

The grant proposal, entitled "Surveillance And Pharmacogenomics Initiative for Adverse Drug Reactions" (SAPHIRE) was jointly submitted to A\*STAR by HSA, the Genome Institute of Singapore (GIS) and the Translational Laboratory in Genetic Medicine (TLGM). GIS and TLGM will be responsible for the areas relating to the discovery and validation of new pharmacogenomic biomarkers for drug safety and setting up assays for pharmacogenomic biomarkers in a certified diagnostic laboratory.



## Cardiac Patient Registry

The Singapore Cardiac Databank (SCDB) and HSA are collaborating on a pilot patient registry for the use of cardiovascular implantable medical devices. With public sector hospitals contributing to the data, SCDB serves as a registry for tracking traceability and data on health outcomes for certain cardiovascular implantable devices such as pacemakers and implantable cardioverter-defibrillators that are implanted at the various hospitals.

## Illegal Drugs Enforcement Heats Up

In view of issues involving sexual enhancement products and abuse of drugs in multiple areas, a multi-agency law enforcement group was formed in 2013 to tackle the perennial vice and illegal drug sale problems in hotspots. This Whole-of-Government approach ensures that every relevant agency is brought in for their respective areas of expertise. These agencies include the Singapore Police Force, Central Narcotics Bureau, Urban Redevelopment Authority, Immigrations & Checkpoints Authority of Singapore, National Environment Agency, Singapore Civil Defence Force, Land Transport Authority, Ministry of Manpower, Singapore Customs and HSA. To date, 50 joint operations have been conducted.

## Leveraging External Expertise

A new Orthopaedic Expert Panel, comprising seven specialists, was formed in November 2013 to provide advice on the assessment of metal-on-metal hip implants and other relevant post-market issues concerning orthopaedic devices.

We also convened the Intraocular Lens (IOL) Expert Panel meeting in February 2014 to deliberate on the issue of brown discoloration of IOL and make recommendations for healthcare professionals.

An Expert Panel of renal physicians and haematologists was convened to discuss the benefit-risk assessment of Eprex® in chronic kidney disease (CKD) patients. The Panel assessed that the benefit-risk profile of Eprex®, when administered subcutaneously, was no longer favourable in CKD patients in the Singapore context and recommended contraindication of subcutaneous administration of Eprex® in CKD patients, including end-stage renal disease patients.

## Penning Partnership

On 5 December 2013, HSA signed a Memorandum of Understanding with the Health Care Inspectorate of the Netherlands to enhance regulation on medicines and medical devices between the two countries. With this, both agencies can look forward to:

- Exchanging information on law and regulations, safety information, good distribution practices, good clinical practices and good manufacturing practices inspections, as well as pharmacogenomics and personalised medicines
- Clinical trial collaborations, post-market surveillance and inspections
- Collaborations on detection of and enforcement against counterfeit and substandard health products
- Joint education and training of senior inspectors



# Championing Excellence

We recognise the outstanding achievements of our team members and stakeholders who have raised the bar in public health.



## Championing Public Health & Safety

HSA honoured 62 healthcare professionals, partner agencies and associations at its inaugural Excellent Stakeholder and Partnership Awards on 6 November 2013. The event recognises the partnership and teamwork of government agencies, public health institutions, as well as clinicians, pharmacists and various associations.

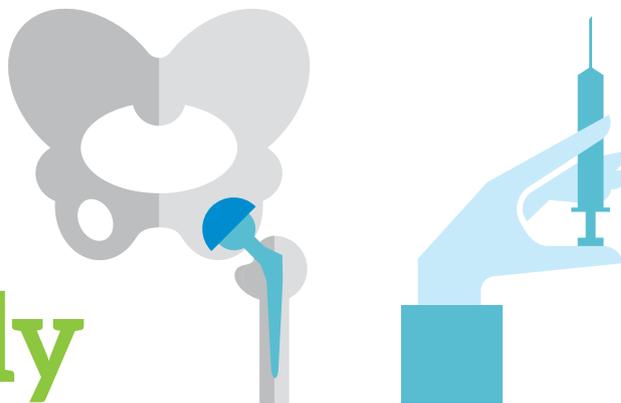
Dr Amy Khor, Senior Minister of State for Health and Manpower, graced the event. She presented the awards to nine teams from government agencies and hospitals, 11 associations and ten healthcare experts who have contributed valuable time and expertise in HSA's advisory committees and expert panels.



## ISO 9001:2008 Recertification

The Tobacco Regulation Branch successfully passed the recertification audit for ISO 9001:2008. The external audit was conducted on 6 February 2014 to assess the administration and enforcement of the Tobacco (Control of Advertisements and Sale) Act and its subsidiary legislations.

# Blazing the Trails, Locally



In our role to advance thought leadership, we seek to continually engage our partners and stakeholders by hosting various regional and international events in Singapore.

## Boosting Best Practices in Medical Devices

The Medical Device Roundtable – Adopting Best Practices for Post-Market Surveillance of Medical Devices – was held on 15 March 2013. It served as a platform to learn best practices from an international expert panel on post-market surveillance of medical devices, and to discuss the practical applications of medical device registries, particularly the cardiac and orthopaedic registries.

Dr Amy Khor, Senior Minister of State for Health and Manpower was Guest-of-Honour, and the invited panel and speakers included international regulatory agencies, international registry bodies, academia, industry representatives and clinicians.

We also organised the following events over the year:

- Medical Device Regulatory Symposium – A Global Update of Pre- and Post-Market Medical Device Regulation, March 2013
- A\*STAR-HSA Seminar – Regulatory Framework on Medical Device Development and Clinical Trials, May 2013
- Dialogue Sessions on Adverse Events and Field Safety Corrective Actions with Biomedical Engineers from Restructured Hospitals, June 2013

## Drug Stability Data Review

A review of the stability data requirements for new product applications was initiated in June 2013. The review began in consultation with the Singapore Association of Pharmaceutical Industries, Singapore Pharmaceutical Trade Organisation and Singapore Pharmaceutical Manufacturer's Council, and subsequently involved all stakeholders at the Health Products Regulatory Conference in September 2013. The stability data requirements were subsequently revised on 1 January 2014 to facilitate submission of product applications and to reduce regulatory burden.

## Advancing Regulatory Collaboration

At the annual Health Product Regulatory Conference 2013 held on 9 and 10 September 2013, international speakers from academia, external regulatory authorities, partner agencies and industry shared insights on global and local regulatory developments. Topics included registration of medicinal products, pharmacovigilance and risk management of medicinal products and the ASEAN harmonisation of regulatory requirements for health products.



In addition, post-conference scientific meetings were organised on the third day where medical device and medicinal stakeholders shared their product development pipelines, and latest scientific and technological advancements.





## Growing the Standards of Herbal Medicines

HSA hosted the 11th Standing Committee Meeting of the Western Pacific Regional Forum for the Harmonisation of Herbal Medicines (FHH) on 22 and 23 October 2013. Supported by the WHO, FHH aims to achieve consensus on technical documents related to the safety, efficacy and quality of herbal medicines, especially in areas where there have been a lack of standards and references.

# Being Top Notch, Globally

Since HSA's inception in 2001, it has grown by leaps and bounds in its knowledge, expertise and global reputation. In the past year, we were honoured to have been involved in numerous regional and global events and visits, sharing ideas as well as learning from our counterparts.



## Piloting the MRCT Training Programme

The first-in-world pilot training programme on Multi-Regional Clinical Trials (MRCT) was successfully concluded on 19 March 2014 in Singapore. Endorsed by the Asia-Pacific Economic Cooperation (APEC), it was jointly organised by HSA and the Duke-NUS Graduate Medical School Singapore.

The programme aimed to enhance the understanding of the acceptance of MRCT results for review by regulatory authorities, facilitate training in internationally recognised technical guidance, and promote science-based review and evaluation of MRCTs. 50 participants from 19 APEC member countries underwent the training.



## Harmonising Pharmaceutical Guidelines

On 1 April 2014, HSA implemented two technical guidelines from the ASEAN Pharmaceutical Products Working Group meeting in Bali, Indonesia in May 2013. The two guidelines are Version 7.2 of the ASEAN Variation Guideline (AVG) and Version 6 of the ASEAN Guideline on Drug Product Stability Study.

The AVG, meant to harmonise submission of technical documents when changes are made to registered products, will be implemented in phases. The first step involves aligning technical requirements and terminology to the current guidelines.

# Spreading Our Wings

We are proud to have worked with our counterparts in the following projects and meetings:

COUNTERPARTS	PROJECTS / DISCUSSIONS	DATE, LOCATION
<b>World Health Organization (WHO)</b>	Temporary Advisor to WHO Informal Technical Consultation on the Regulation of Electronic Nicotine Delivery Systems	March 2014 Manila, the Philippines
	Pre-qualification Programme	January 2014 Beijing, China
<b>Japan's Pharmaceuticals and Medical Devices Agency and Ministry of Health, Labour and Welfare</b>		
	GMP for Medicinal Products and Drug Evaluations	February 2014 Tokyo, Japan
<b>Malaysia's National Pharmaceutical Control Bureau</b>	Collaboration on Product Registration	August 2013 Kuala Lumpur, Malaysia
	ASEAN Variation Guidelines Training Workshop	August 2013 Kuala Lumpur, Malaysia
<b>INTERPOL and the International Institute of Research Against Counterfeit Medicines</b>	Storm Enforcement Network – Train the Trainer Course	April 2013 Singapore
<b>World Health Summit</b>	Convenor of "Challenges in Drug and Device Regulation" session at the World Health Summit Regional Meeting – Asia 2013	April 2013 Singapore

## Convening with the World's Pharmaceutical Experts

We are pleased to have renewed our membership with the Pharmaceutical Inspection Cooperation Scheme (PIC/S) in April 2013. We have actively contributed and participated in PIC/S activities and events. These include being elected Chair of the Sub-Committee on Training on 1 January 2014, and participating in the following events:

- Bi-annual PIC/S Executive Bureau meeting, PIC/S Committee Meeting, PIC/S Sub-Committee on Training and Annual PIC/S Seminar
- PIC/S joint assessment of National Drug Regulatory Authorities (Japan and Korea) which had applied for membership accession to PIC/S
- PIC/S Expert Circle on Active Pharmaceutical Ingredients, Human blood, Tissues and Cells, Good Distribution Practice and Quality Risk Management



## Celebrating PMDA's 10th Anniversary

In celebration of its 10th anniversary, the Pharmaceuticals and Medical Devices Agency (PMDA) of Japan hosted the PMDA Forum on 8 February 2014. HSA's CEO, Assoc Professor John Lim was invited as a guest speaker where he spoke on "PMDA from the International Perspective - Future Collaboration and Expectation for PMDA".

Following the PMDA Forum, Drug Information Association Japan held a special symposium on how to expedite the delivery of new drugs to patients worldwide with the aim of contributing to future global health. Invited guest speakers included representatives from regulatory authorities, the WHO, Japan Patient Association and the pharmaceutical industry. At the symposium, Assoc Professor John Lim spoke on "Global Contribution and Expectations for New Drugs and Strategy for Fostering New Drug Development".

## Hosting the World

We had the pleasure of receiving our esteemed guests on their visits to Singapore. These meetings offered opportunities for productive exchanges and updates in the area of regulatory controls. These include:

### December 2013

Mr Teng Jiakai, Vice Minister, China Food and Drug Administration, China



### October 2013

Ministry of Health, Indonesia

### February 2014

Dr Egbert Flory, Deputy Chief of the Division Medical Biotechnology and Head of the Section Somatic Cell Therapeutics & Tissue Engineering, Paul-Ehrlich Institut, Germany

### October 2013

International Narcotics Control Board



### October 2013

Swissmedic, Switzerland



### July 2013

Thailand Food and Drug Administration, Thailand



### April 2013

Dr Hanneke Brandt-Dominicus, Pharmacovigilance Assessor, Medicines Evaluation Board, the Netherlands





# POWERING HOPE

**Blood Services Group**

Blood is the source of life. As the blood service for the country, we play a critical role in safeguarding the well-being of donors and recipients by ensuring that blood is available and accessible on a timely basis, giving hope and life in times of need.

# Friendlier and Faster for All



We recognise that without the generosity of our blood donors, we would not have the consistent supply of blood for our nation's needs. To retain donors and encourage more to come forward, we are constantly trying our best to make the blood donation process more comfortable and convenient for our donors.



## Bloodbank@HSA Gets a Makeover

Blood donors at Bloodbank@HSA can now enjoy an enhanced donor experience with the completion of its renovation in September 2013.

The reconfigured Bloodbank@HSA has an increased capacity of up to 320 donors, in the event of increased donation during an emergency. Additional facilities include 10 movable form-filling counters, four extra registration counters, an extra medical screening room, and a new queue-management system display at the donor refreshments area.

## Enhancing Donor Experience at Bloodbank@Woodlands

Bloodbank@Woodlands has seen several key improvements over the course of the year with extended opening hours, a better waiting environment and a more efficient process for screening our donors.

- **Extending Hours for a Life-saving Cause**

Weekend operating hours at Bloodbank@Woodlands were extended from 10am to 5pm in November 2013 to offer donors greater convenience. This was in response to donors' feedback that they would be more likely to donate blood if the blood bank remained open till later during weekends.

- **A Better Waiting Environment**

A new queue-management system implemented in May 2013 has enabled a more systematic and efficient way of donor management. Donors are informed of the approximate total processing time and their donation status upon collection of the queue ticket, creating a better waiting environment.

- **Interactive Questionnaire**

We launched an electronic questionnaire system in September 2013 to guide and educate donors on aspects of blood donation while they are completing the questionnaire. The interactive system is also offered in various languages. Upon completion of the questionnaire, donors can simply print the form and proceed for registration.



# Emergency Readiness

When it comes to safeguarding public health, nothing is left to chance. We held an emergency blood exercise on 27 October 2013 to test the preparedness in meeting a surge in national blood demand during a civil emergency. The exercise scenario depicted an industrial accident during peak hours with many casualties requiring intensive blood support.



## Ever Ready to Respond

The one-day intensive blood collection exercise was held at four locations islandwide: Bloodbank@HSA, Bloodbank@Dhoby Ghaut, Bloodbank@Woodlands and Bedok Community Centre. To ensure that staff are trained to deal with an emergency blood collection scenario, the exercise covered three broad areas: stress-testing the systems to handle a surge in blood collection; ensuring the processing and testing activities are robust; and raising public awareness of blood donation.

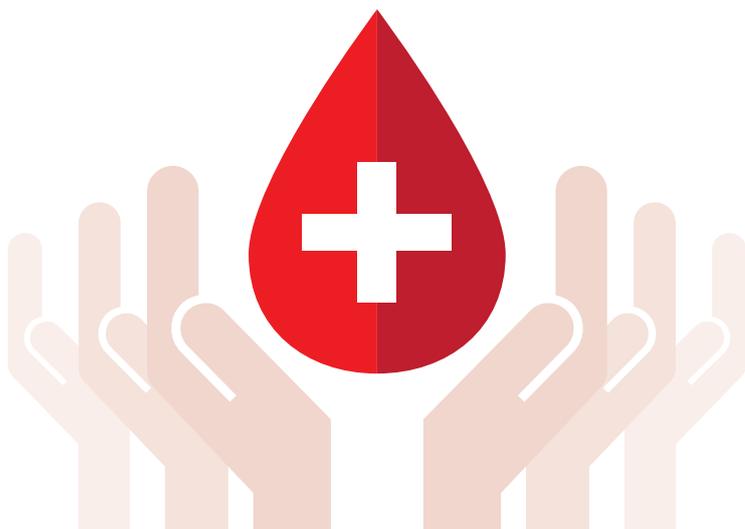
The exercise mobilised about 270 staff members from HSA, the Health Promotion Board and the Singapore Red Cross, as well as 100 volunteers from the Singapore Red Cross. More than 1,100 units of blood were collected during the exercise.

# Celebrating Our 10th World Blood Donor Day

The National Blood Programme honoured its blood donor heroes at the 10th World Blood Donor Day for their selfless contributions to saving lives. Over the past decade, blood donation in Singapore has gained traction with an increase of almost 80% from 66,000 units to more than 118,000 units in 2012.

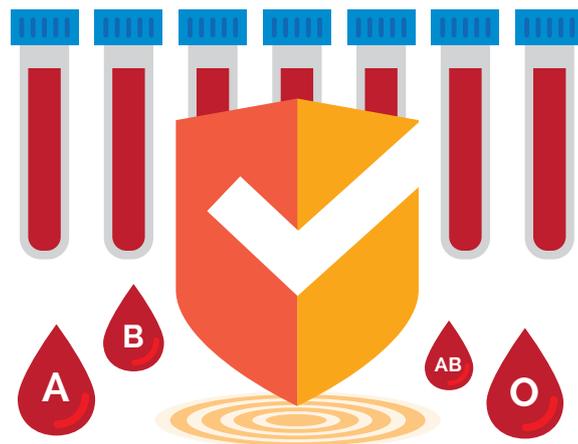
## World Blood Donor Day

Held at Downtown East on 8 June 2013 and graced by Mr Teo Ser Luck, Minister of State for Trade and Industry and Mayor of the North East District of Singapore, the event's theme was "The Gift that Connects Lives". Over 5,000 guests were present as we recognised 1,473 individuals and 32 corporate and community Bloodmobile Organisers (BMOs) for their invaluable contributions.



# Maintaining Public Trust

We have one of the world's safest blood supplies. However, this is a fact that we do not take for granted. We consider safety our number one priority, and we always aim to stay at the forefront with the latest testing methods to ensure this.



## New Test for the West Nile Virus

The West Nile Virus (WNV), a mosquito-borne flavivirus that is transmitted to humans through infected mosquitoes, can also be transmitted through transfusion. Persons considered to be at risk of infection are those who have travelled to areas such as the United States of America, Canada or Greece in the previous 28 days. As 80% of people infected with WNV are asymptomatic, we have, since June 2013, performed WNV Nucleic Acid Testing on donations collected from persons at risk of WNV infection before the blood units are released for use.



## Mass Screening Method for Increased Efficiency

Ready stocks of red cell antigen phenotyped blood need to be kept available for patients with antibody challenges. In the first quarter of 2014, we adopted the gel-card method, which allows for mass screening of common phenotypes in blood donors and large-batch testing for one or multiple specific antigens. The fully-automated test helps to increase our efficiency and reduces turnaround time. With this, we have continued to build and expand the blood inventory of red cell antigen phenotyped blood units to meet the needs of our patients.

## 5-Year Dengue Study

The incidence of dengue infection in Singapore has been rising in recent years. Since 2002, we have implemented precautionary measures to address the safety of our national blood supply in relation to the local dengue infection situation.

To further manage dengue risk in blood safety, we embarked on a collaborative study with the National Environment Agency's Environment Health Institute in the third quarter of 2013 to determine local dengue sero-incidence and sero-prevalence. The results of the study, which will be ready by the third quarter of 2018, will provide further knowledge on implementing necessary strategies for dengue detection in donors.



# Faster and Safer Transfusions

Our strict protocols have consistently worked for us in the past; but we know that with technological advances, they can always be improved to increase their effectiveness. By reviewing our protocols, we have achieved better results in getting blood from the blood bank to the hospitals, and in ensuring safer blood transfusion.



## Getting Blood to Patients Faster

Time is crucial in any emergency. Getting blood from our blood bank to the hospitals and ultimately to the patient requires strict processes that can take up valuable time. To shorten the amount of time needed to process and release blood and blood products to the hospitals, we launched the Electronic Blood Approval System in June 2013.

When our medical officers upload blood release approvals onto the web portal, staff of the respective hospitals' blood banks are automatically alerted via e-mail, and they can log-in to the web portal to retrieve the approvals. Our Cross-match and Despatch Lab staff are also alerted simultaneously via secure intranet-based email.

This method has proven to be faster and more efficient than the previous faxed, handwritten blood approvals. In addition, all records of blood release approvals are now saved electronically, and time stamped.



## Better Blood Support for Paediatric Patients

A new paediatric blood transfusion protocol that was successfully implemented in July 2013 has resulted in the speedy provision of effective blood support to paediatric trauma patients at KK Women's & Children's Hospital (KKWCH). The pilot weight-based Paediatric Trauma Massive Transfusion Protocol started at the KK Paediatrics Department and the Children's Accident & Emergency Department as a collaborative effort between KKWCH and the Blood Services Group.

Standby emergency blood components are now stored at KKWCH. This new protocol not only allows paediatric trauma patients faster access to blood, but also allows the early introduction of haemostatic components such as platelets and fresh frozen plasma in a high ratio to red cells in a paediatric setting.

## Ensuring Safe Blood for Female Patients

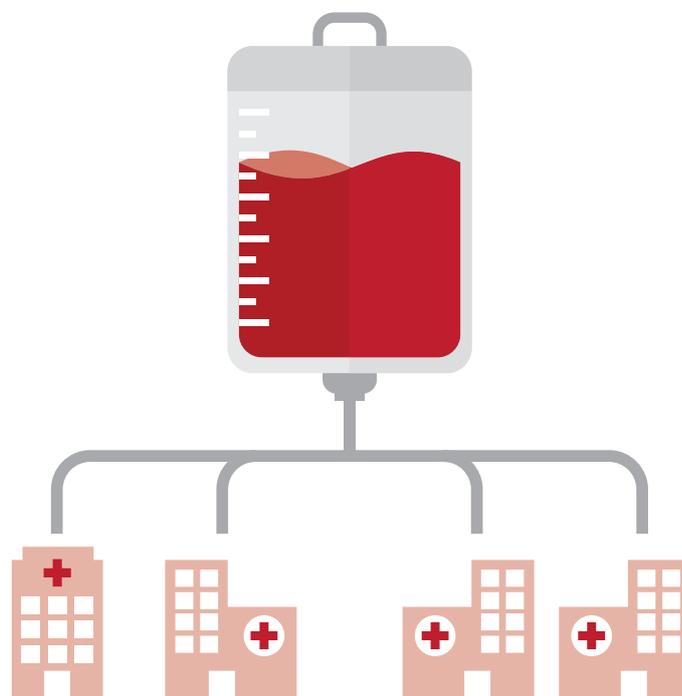
The reduced expression of D antigens on red blood cells in certain weak RhD phenotypes may result in donor units being serologically mistyped and mislabelled as "D-negative". In particular, there is concern about the very weak form of D named DEL. The risk of alloimmunisation from such transfusions is especially significant for D-negative recipients who are female, and of childbearing age.

To mitigate this risk, we started providing RhD negative red cells of "rr" phenotype (homozygous cde) for all RhD negative and RhD variant females from March 2013. Doing so reduces the risk of alloimmunisation to RhD and helps prevent subsequent haemolytic disease of the newborn due to RhD incompatibility.



## Providing Platelet Support

In early 2013, we introduced a workflow algorithm to identify human leukocyte antigen (HLA)-matched platelets to offer timely and regular platelet support of platelet refractory patients due to HLA-alloimmunisation.



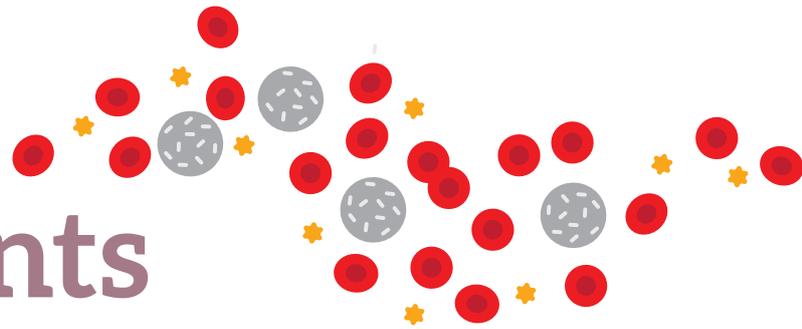
## Optimising Care with Patient Blood Management

With our long-term objective to ensure safe, expeditious blood transfusion appropriate to clinical needs, we began introducing Patient Blood Management (PBM) programmes. PBM aims to reduce the need for blood transfusion through pre-emptive measures to reduce blood loss in surgical procedures, increase patients' own blood production, and optimise tolerance to anaemia.

We focused initially on elective surgical patients, in particular, pre-operative measures that can help prevent post-operative anaemia and the need for transfusion. In January 2014, we invited a haematologist and transfusion medicine specialist, Assoc Professor Erica Wood from Australia, as a Health Manpower Development Plan expert, to speak on PBM to clinical staff from the blood bank and the restructured hospitals.

We have also written two recommendations that will assist the hospitals in the implementation of their PBM. We will continue to work with the respective Hospital Transfusion Committees in achieving these goals.

# Life-giving Advancements



Since the last quarter of 2013, the cord blood expansion and Cytokine Induced Killer (CIK) processing initiatives have now been upgraded from the clinical trial stage and are now part of our routine services at the Cell Therapy Facility.

## More Cord Blood for More Patients

In 2013, we embarked on the Cord Blood Expansion programme, an initiative that aims to provide Good Manufacturing Practice grade expanded cord blood for bone marrow transplants. While Umbilical Cord Blood (UCB) can be used to form healthy bone marrow, the quantity of cord blood cells is usually low and insufficient for an adult. Therefore, cord blood cells have to be expanded in quantity before they are infused into the patient.

By using the ex vivo expansion system based on Insulin-like Growth Factor Binding Protein 2 (IGFBP2), we can increase the UCB Hematopoietic Stem Cells (HSC) by approximately 20-fold. The outcome for such technology extends the utility of UCB HSC transplants and the technology aims to benefit more patients as it does not rely on immediate family members for matching bone marrow.



## Growing Good Cells to Fight Cancer

CIK processing, for the treatment of cancer, has been incorporated into our accredited workflow, enhancing our product quality and safety management.

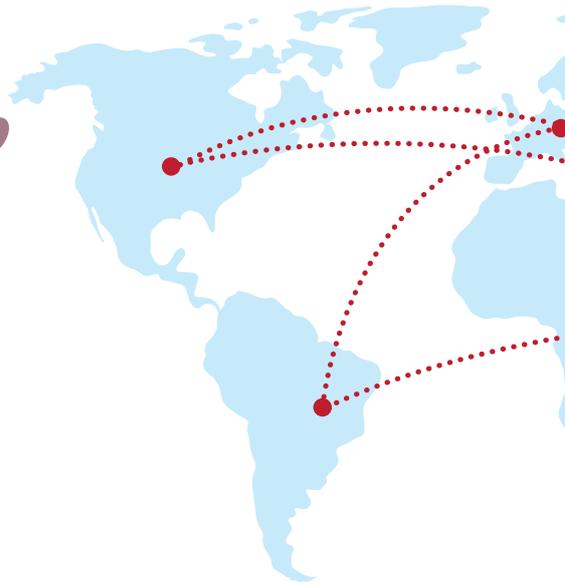
CIK cells, which are naturally occurring cells, can help kill cancer cells. These cells are collected from the patients' blood after their chemotherapy sessions, grown and infused into the patient to help them fight the remaining cancer cells. The therapy has effectively reduced the number of chemotherapy sessions for patients and proven successful in preventing relapses during clinical trials.

## Excellence in Cell Therapy Facility (CTF)

We are pleased to be recognised on the international platform with the JACIE accreditation of the CTF in 2013. This accreditation was awarded by the Joint Accreditation Committee (JACIE) for the International Society for Cellular Therapy (ISCT) and the European Group for Blood and Marrow Transplantation (EBMT).



# Giving Our Best, and Learning from the Best



We take a proactive approach to developing better strategies and ways of working. We also continuously draw on the experience and research of leading experts in the field, and we give back by sharing our knowledge with others.

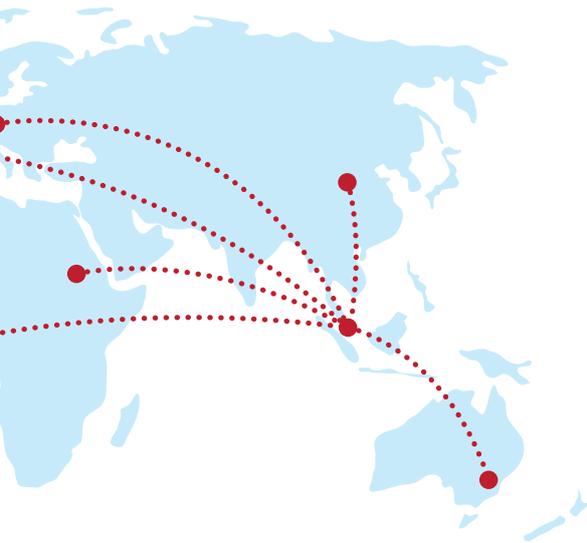
## Leveraging on Lean Six Sigma



In 2013, we completed five Lean Six Sigma projects with two of the best projects selected for poster presentations at the International Society Blood Transfusion Conference in Seoul in June 2014. The five projects were:

- Enhance the Efficiency of Processing Double Dose Apheresis Platelet;
- Minimising Percentage of Frozen Plasma Discard Due To Breakages;
- Reducing the Vaso-vagal Reaction (VVR) in School Mobiles to Provide Better Blood Donation Experience;
- Review Process Effectiveness of Temperature Monitoring; and
- Maximise Collection Efficiency at Bloodbank@DhobyGhaut.

In November 2013, ten of our staff attended a one-day Lean workshop in Kuala Lumpur, organised by the Asia Pacific Blood Network (APBN). The workshop gave participants of various countries the opportunity to share their projects and learning. We also presented on the "Improving the Factor VIII Level in Cryoprecipitate" project which was completed in 2012.



## Learning from the Experts

We welcomed two overseas experts from the American Red Cross to Singapore at the Transfusion-Transmissible Pathogens Seminar on 27 November 2013. Dr Roger Dodd, Vice President, Biomedical Services Research and Development, was invited to speak on the "Tools for Recognition of Emerging Transfusion-Transmissible Infections", while Dr Susan Stramer, President of AABB and International Expert in Transfusion Transmitted Infectious Disease, spoke on "West Nile Virus, Dengue Virus and Chagas Testing – The US Experience".

We also invited four overseas experts from the USA and Australia to speak at a seminar entitled, "An Afternoon of Blood, Cells, Tissues and Organs" on 12 February 2014. Attended by health professionals, regulators and scientists, this seminar was organised in conjunction with the ICCBBA Director Annual Meeting in Singapore. A visit to the blood bank, followed by a discussion with the Blood Services Group's senior staff, was also organised on 13 February.

## Training in Transfusion Medicine

We have always placed great emphasis on sharing our knowledge with blood banks from other countries, to level-up the overall standard of transfusion medicine internationally. In the past year, we welcomed several esteemed delegates:

### April 2013 - January 2014

Six delegates from RIPAS Hospital, Brunei Darussalam, each completed a one-month work attachment over the course of the year.

### January - March 2014

One delegate from the National Blood Centre in Kuala Lumpur, Malaysia, was attached with us for "Blood Transfusion for Transplantation Services" training.



### November 2013

Three delegates from the Myanmar National Blood Centre received training in quality management in blood transfusion service.



### November 2013

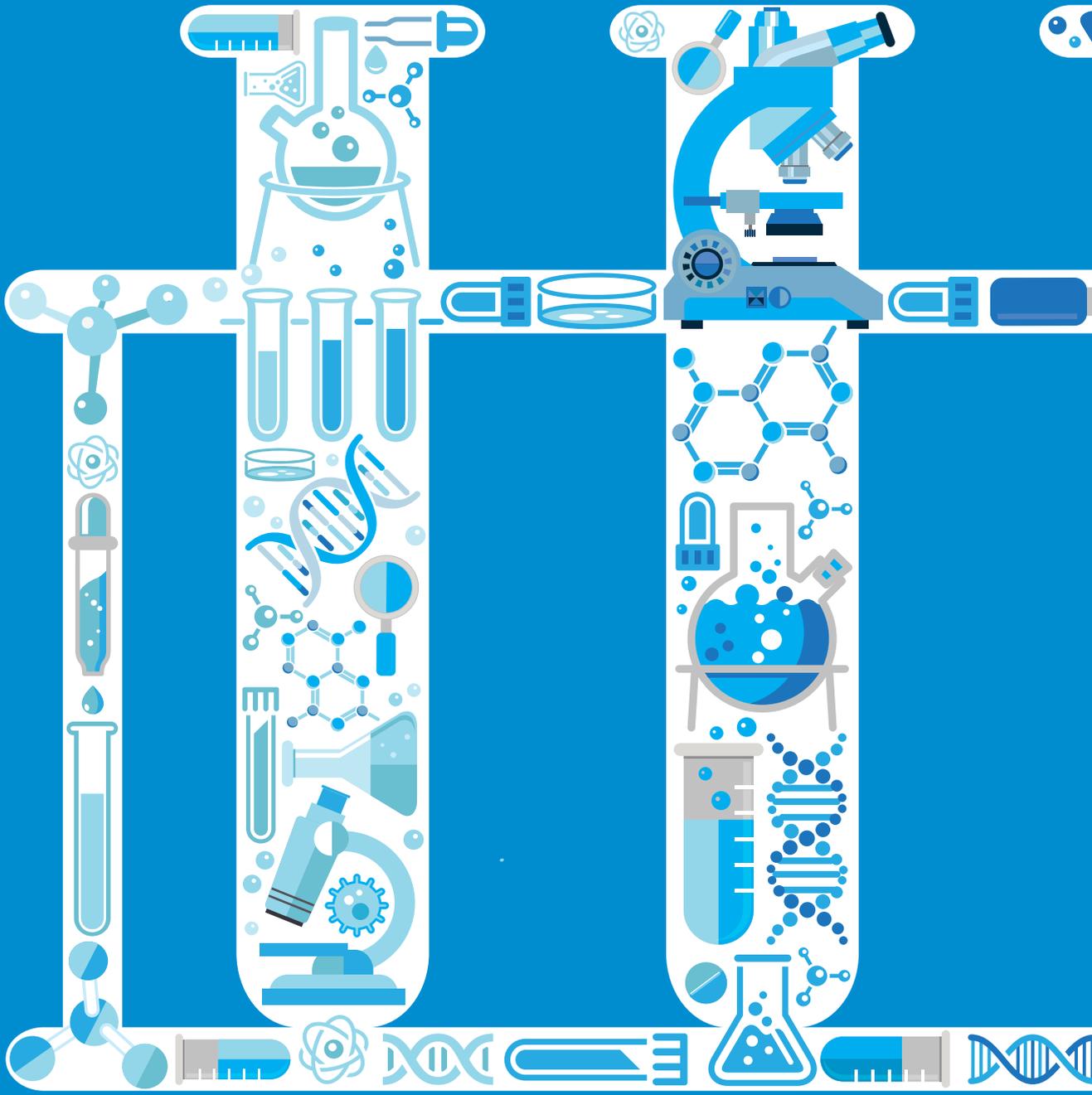
Two delegates under the Asian Association of Transfusion Medicine Fellowship were trained in clinical transfusion medicine, haemotherapy and immunohaematology.

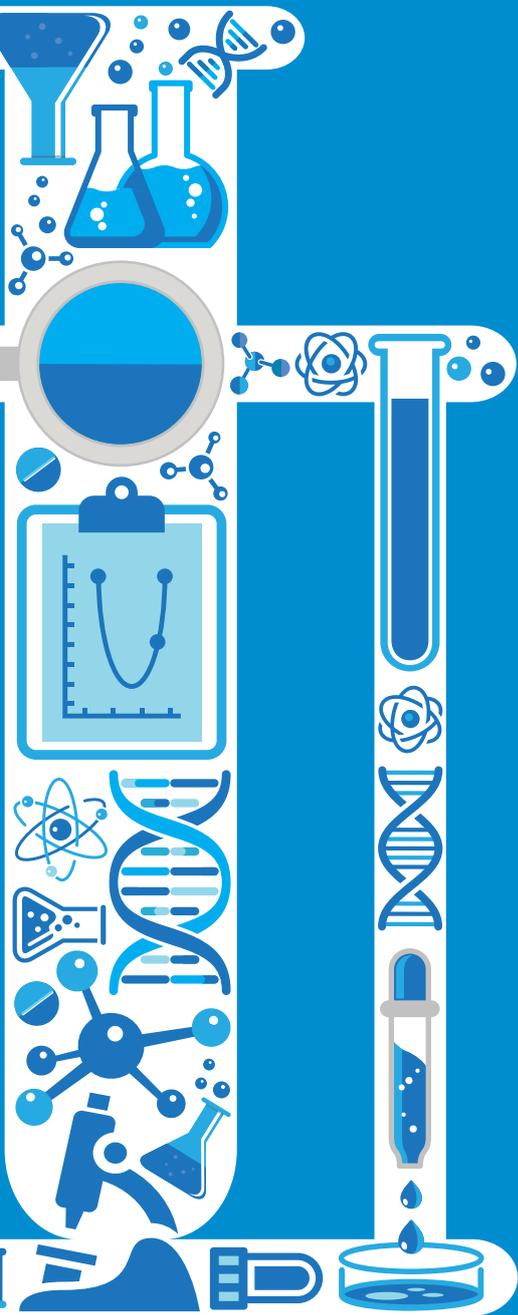
### August 2013

We conducted the Specialist Project "Train-the-Trainers in Red Cell Serology" in Yangon and Mandalay. The project, which was funded by the Singapore International Foundation, aimed to help the Yangon National Blood Centre to build up their red cell serological capability and clinical transfusion programme.

### August - September 2013

One medical delegate from the Blood Service Department in Oman received training in quality management under the WHO programme.





# POWERING SCIENCE

**Applied Sciences Group**

Through our pursuit of excellence in innovation and research, we work together with our counterparts, locally and overseas, to serve the administration of justice and safeguard public health.

# Boosting Forensic Science Expertise

In the year, we developed new testing and analysis methods to support the needs of our law enforcement agencies. Accuracy, efficiency and speed are key to our success.



## Better Evidential Value in Glass Testing

In forensic glass examinations, Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) has been increasingly used to provide better evidential value to glass comparison.

By using the LA-ICP-MS technique, a very small glass fragment (less than 1 millimetre in size) is usually sufficient for analysis. This technique also facilitates better quantitative analysis of trace elements. This means glass samples with very similar major element contents can now be further differentiated based on the profiles of trace elements present in them.



## Down to the Details in Illicit Drugs

There is rapid worldwide emergence of New Psychoactive Substances (NPS) that possess very similar structures, which makes it more complex and harder to analyse.



To overcome this, we have introduced the novel Gas Chromatography Quadrupole Time-Of-Flight Mass Spectrometry (GC/Q-TOF MS) to differentiate and identify multiple NPS and close drug analogues in seized drug exhibits with high confidence. The preliminary results of the GC/Q-TOF MS system have so far demonstrated good performance, including high accuracy, selectivity and specificity.



We have also developed screening methods to detect NPS in urine using Orbitrap Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS) to facilitate the screening of a large number of NPS with speed and certainty.

## Bio-Safety First

We officially commenced work at the Anthropology Laboratory and autoclave room, upon completion of the facility at the end of 2011 and its risk assessment in 2012. These facilities have added a better and safer environment for forensic medicine work. In the Anthropology Laboratory, we can now process bones in a bio-safe manner for forensic anthropologic examinations. This will allow better understanding of trauma mechanisms and documentation of surface findings on bones.



# Small Changes, High Impact

We constantly seek new ways to improve our processes and make our work more efficient. Through the use of technology and development of new workflows, we are able to achieve better output with fewer resources.



## Providing Fast and Crucial Leads with DNA

The development of new workflows has allowed for faster DNA profiling from crime case exhibits, bringing it down to under 24 hours. This has helped provide urgent and crucial leads in identifying the perpetrators in several sexual offence cases and also in the identification of burnt bodies.

We have also validated an additional six short tandem repeat markers for kinship analysis. The additional markers were chosen for their small amplicon sizes, and will significantly increase the ability to identify individuals through their DNA profile, especially when dealing with degraded samples.

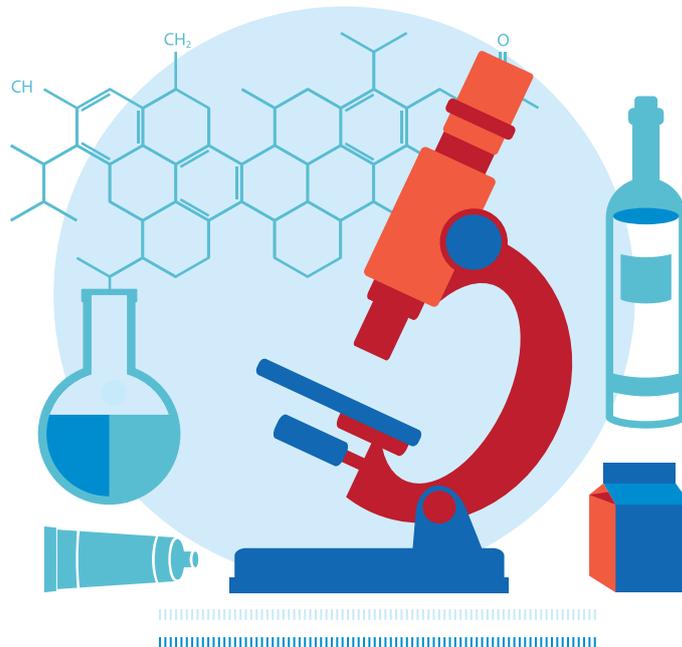


## Enhancing Productivity with Automation

Seizure sampling and preparation work processes were reviewed. With the use of automated machines such as tablet counters and crushers, laborious counting and sample preparation, especially in huge seizure cases, have been reduced. This initiative has enhanced the accuracy of counting and overall productivity, and prevented cross-contamination. Staff morale has improved while turnaround time for seizure analyses has been shortened.

# In Our Element

We are dedicated to bolstering our expertise in analytical science and chemistry testing. We seek to surpass our own standards to support health products and food safety regulation.



## Innovations in Food Safety

This year, we developed a total of 20 new analytical services that were used to support our key client, the Agri-Food and Veterinary Authority of Singapore, as well as other commercial customers. These included silicon oligomers analysis in food contact materials and multi-mycotoxins in maize products.

As an ongoing analytical service for our customers, we have also gone into investigative testing to determine the authenticity of food products. For instance, we use Isotope-Ratio Mass Spectrometry to test honey to provide confidence to buyers and suppliers on the origin of these products.



## Boosting Measurement Capabilities

During the year, we completed eight international chemical metrology comparisons. This was up from five in 2012. These comparisons covered health status markers and inorganic elements in human serum, toxic elements in brown rice flour and cosmetic cream, and quantitative nuclear magnetic resonance method for purity assessment.

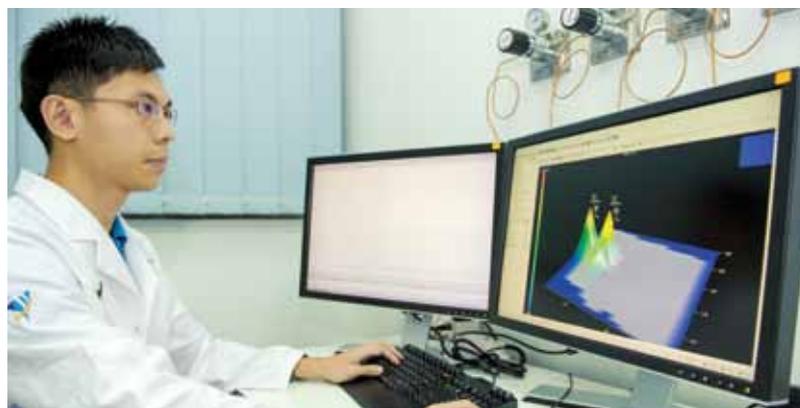


## A Wider Menu in Proficiency Testing Programmes

We continued to expand our External Quality Assessment Programme in Clinical Chemistry to enable local clinical laboratories to assess the accuracy and comparability of their test results. For the first time, a protein-based analyte, glycated haemoglobin (HbA<sub>1c</sub>), was included in the list of new analytes. Two proficiency testing schemes on the determination of preservatives in soy sauce and lead in alcoholic beverage for local food testing laboratories were also conducted.

## Expansion of Certified Reference Materials

Our Certified Reference Materials (CRMs) production programme was also expanded with the launch of seven new CRMs on clinical analytes in human serum, preservatives in soy sauce, and high purity preservatives. These CRMs are offered for sale to local and overseas testing laboratories as quality controls, method validation samples and calibrants. The CRM on organic clinical analytes in human serum was also listed in the Joint Committee for Traceability in the Laboratory Medicine Database in February 2014.



## Supporting Internal Customers

In our continued efforts to support the work of the Health Products Regulation Group, we have been working on testing methodologies of natural toxic alkaloids such as amygdalin and berberine in herbal products, and the separation of common chiral drugs using high-end instruments such as 2-Dimensional Gas Chromatography-Mass Spectrometry Time-of-Flight. We have also developed methodologies to determine fluoride in oral hygiene products, and organic acids (glycolic acids and lactic acid) in skincare products.



## New Accreditations

Three of our test methods under the Pharmaceutical Division were successfully accredited in April 2013 by the Singapore Accreditation Council (SAC-SINGLAS). These included the identification of benzene in cosmetic products, the screening of hair dyes in hair care products, and the determination of aconite and ephedra alkaloids. Our Food Safety Laboratory, Pharmaceutical Laboratory, Cosmetics Laboratory and Cigarette Testing Laboratory were also re-accredited to ISO/IEC 17025: Testing and Calibration of Laboratories by SAC-SINGLAS in 2013.

Similarly, the Chemical Metrology Laboratory was also accredited by SAC-SINGLAS as a Proficiency Testing Provider in accordance with the requirements of ISO/IEC 17043:2010 in August 2013. The accreditation is an affirmation of our capability to produce data that are accurate, traceable and reproducible.

# Serving Singapore

At home, we collaborate and reach out to our local partners and institutions to share our knowledge in our fields of expertise. By boosting our capabilities and partnerships, we seek to better serve the needs of all our stakeholders.

## Going in the Right Direction

A multi-agency taskforce was established to review the demand and supply of forensic services in Singapore. The taskforce proposed nine recommendations in its final report. These will be followed through by the multi-agency National Committee on Forensic Science Services guiding the direction on the use and supply of forensic services in Singapore.

## Designated Institute for National Metrology Centre

HSA and A\*STAR signed an MOU on 24 February 2014 to formalise the designation of HSA to undertake the responsibilities on behalf of the National Metrology Centre as its Designated Institute, with respect to metrology in chemistry in the areas of food, healthcare, medical science, pharmaceuticals and health products, as well as forensics.





## Raising Staff Proficiency

Our staff undertook various international collaborations throughout the year. These projects are testament to their competency and capabilities:

- International method development on inorganic arsenic in rice under the Food and Agriculture Organization of the United Nations Codex Committee on Food contaminants. An article in the Association of Analytical Communities journal was published as a result of the collaboration.
- Proficiency test of pyrrolizidine alkaloids in honey and plant material organised by the European Commission, Joint Research Centre, Institute for Reference Materials and Measurements as a display of widening technical capacity. A new service on pyrrolizidine alkaloids was launched for the Agri-Food and Veterinary Authority of Singapore in 2013.

To further enhance the understanding and implementation of the quality system, a group of 22 scientists and quality managers attended an American Society of Crime Laboratory Directors/ Laboratory Accreditation Board assessor training course. The course helped to prepare our staff to take up roles as assessors in the laboratory's annual assessment.

## Reaching Out to Local Partners

We are committed to sharing forensic knowledge with local agencies and tertiary institutions, and have hosted a number of training sessions and made presentations through forums, lectures and events. These organisations include:

- Attorney-General's Chambers
- Central Narcotics Bureau
- Criminal Investigation Department
- Home Team School of Criminal Investigation
  - Nanyang Polytechnic
- Nanyang Technological University
- National University of Singapore
  - Ngee Ann Polytechnic
  - Raffles Institution
  - Republic Polytechnic
  - Temasek Poytechnic

# Expanding Our International Footprint

While we have a strong culture for innovation, we recognise that by collaborating with expert minds around the world, we can achieve even more.

## The Future of Forensic Science in Asia

We were honoured to host the 5th Asian Forensic Sciences Network (AFSN) Annual Meeting and Symposium from 11 to 14 November 2013. This annual meeting and symposium, which comprised plenary lectures, scientific sessions, workgroup meetings and the AFSN annual general meeting, saw an overwhelming attendance of over 500 delegates from 65 institutes across 20 countries.



Mr Masagos Zulkifli, Senior Minister of State for Ministry of Home Affairs and Ministry of Foreign Affairs, and Associate Professor Muhammad Faishal Ibrahim, Parliamentary Secretary to the Ministry of Health, graced the opening ceremony and the dinner conference respectively. The plenary lectures welcomed six distinguished speakers from around the world, including Austria, New Zealand, Australia and the USA, as well as from the United Nations. A total of 69 oral papers and 58 posters were presented.

The event aims to provide Asian forensic science institutes with a forum for scientific discussion and to enhance the quality of forensic sciences in Asia through expert working groups, training, collaborative studies, proficiency tests and accreditation. On top of offering the opportunity to establish links with other similar networks for the promotion and advancement of forensic science, the event also seeks to formulate strategies relating to forensic science issues in Asia.

During the year, we also actively contributed to the advancement of AFSN in these capacities:

- Board Member and International Liaison Officer
- Chair of Illicit Drugs Workgroup
- Vice-Chair of Trace Evidence Workgroup
- Vice-Chair of Quality Assurance and Standard Committee
- Secretary of Toxicology Workgroup

As the International Liaison Officer in AFSN, we represented AFSN in the International Forensic Strategic Alliance Annual Meeting which took place in Lyon, France, on 6 and 7 October 2013. During this meeting, the Presidency was transferred from The Academia Iberoamericana de Criminalística y Estudios Forenses to AFSN, which we will hold for a term of two years.



## Getting Down to the Bottom of the Food Chain

Working in partnership with the International Atomic Energy Agency (IAEA) has enabled us to work more efficiently in food authentication – in particular, tracking food sources by its geographical origin. In this coordination project which gathers global experts in the field, the focus was on food safety and quality as well as food security.

By applying food traceability through authentication techniques, we are able to assist the Agri-Food and Veterinary Authority (AVA) in reducing food fraud by minimising the amount of recalls of food consignments, just by determining its biological origin scientifically. One such project is the authentication of fish and egg using stable isotope.

In January 2014, we started a project in collaboration with AVA and IAEA on the authentication of dairy products to identify the source of dairy products.

We serve as the ASEAN reference laboratory on mycotoxin testing, and in 2013, we organised the proficiency test programme on aflatoxins B & G, and ochratoxin A in chilli powder. This proficiency testing programme aims to improve the testing capabilities of all national laboratories within ASEAN. A total of 17 laboratories from seven ASEAN countries participated in the programme.



## First in Asia

We successfully completed a Mutual Joint Audit, conducted by the Official Medicines Control Laboratories (OMCL) in November 2013. Having met the OMCL's stringent quality management requirements, we attained associate membership status in this renowned network, making us the first laboratory in Asia to be recognised as an Associate Member. This membership will provide exposure to the activities of the European Directorate for the Quality Medicines and Healthcare in the field of pharmaceutical testing, enabling us to keep abreast of emerging advancements in the pharmaceutical testing field.



## Contributing to Patient Safety

In June 2013, we attended the International Laboratories Forum on Counterfeit Medicines in Santander, Spain. Our presentations at the meeting included topics on adverse drug reaction cases associated with plants' inherent toxicity and new novel PDE-5 inhibitors detected in health products.

HSA was also invited to present at the National Pharmacy Enforcement Conference 2013 on Forensic Analysis and Enforcement on Substandard, Spurious, Falsely-Labelled, Falsified, or Counterfeit Medicinal Products. Held in Penang, Malaysia, in April 2013, our presentation was on the topic of "An Emerging Threat: Adulteration of Complementary Health Products with Western Drugs and their Analogues".

## Strengthening Ties with WHO

We are privileged to have continued contributing to several WHO initiatives, including the following:

- Expert to WHO on Specifications for Medicines and Quality Control Laboratory Committee
- Vice-Chair to WHO Tobacco Laboratory Network (WHO TobLabNet)
- WHO Temporary Advisor for the "Regional Meeting on Drug Testing Laboratories" in Bangkok, Thailand, April 2013
- WHO Temporary Advisor for the "Consultation Meeting on New Medicines, Quality Control and Laboratory Standards" in Geneva, Switzerland, June 2013
- WHO Temporary Advisor for the "48th Meeting of the WHO Expert Committee on Specifications for Pharmaceutical Preparations" in Geneva, Switzerland, October 2013
- Expert for WHO at the 8th Working Group Meeting of Articles 9 & 10 of WHO Framework Convention of Tobacco Control in Geneva, Switzerland, January 2014



We were successfully redesignated as a WHO Collaborating Centre for Tobacco Testing and Research in June 2013 for a 2-year term. We have also been supporting WHO in the development and validation of the method on "Determination of Humectants in Cigarette Tobacco Fillers".

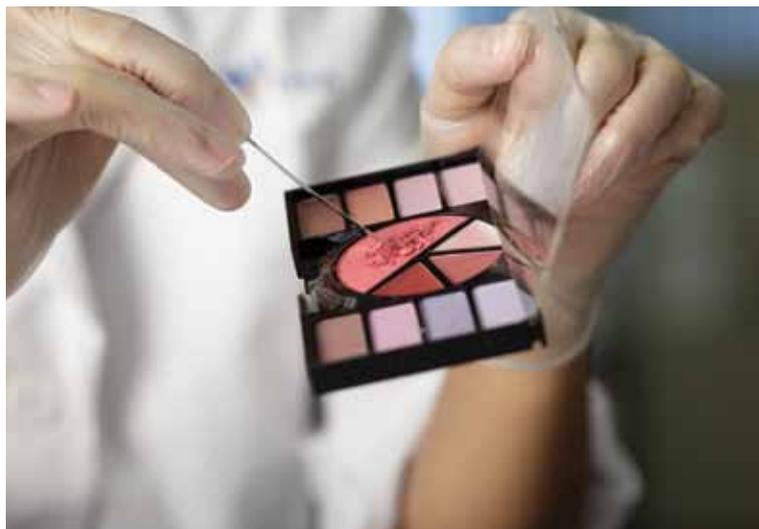
We were also officially designated as the reference laboratory for the testing of tobacco products for the Solomon Islands at the end of 2013. This designation is part of WHO's initiatives in promoting the Cigarette Testing Laboratory as a regional laboratory to support Western Pacific countries in their tobacco control activities.

Our laboratory was redesignated as a WHO Collaborating Centre for Drug Quality Assurance in March 2014 for a 4-year term. We have also been invited by WHO to continue our support in monograph development for ceftriaxone and magnesium sulfate injections.

## Our ASEAN Presence

We continue to be actively involved in the ASEAN Reference Substance Project, which establishes ASEAN secondary drug reference standards for use in ASEAN member countries. We plan to take a more active role in this area coordinating the validation of chloramphenicol as the new ASEAN Reference Substance, and collaborating in the study for cefixime, to be organised by the National Institute of Drug Quality Control, Vietnam.

HSA continues to contribute proactively as Vice-Chair of the ASEAN Cosmetic Testing Laboratories Committee (ACTLC). In 2013, the ACTLC successfully revised the ASEAN Cosmetics Method to incorporate current technology. This document will be published on the ASEAN Cosmetic Harmonised Testing Method website. Our Cosmetics Laboratory has also affirmed its competence and good standing among its counterparts in its participation of the ASEAN Proficiency Testing on the Determination on Hydroquinone in Cosmetics Products.





## DNA Links to Europe

We are proud to be invited to join both the European DNA Profiling Group (EDNAP) and the European Network of Forensic Science Institutes DNA Working Group (ENFSI DNAWG) as guest members. EDNAP comprises one representative forensic DNA laboratory from each European nation and is the official working group of the International Society of Forensic Genetics. Guest membership in EDNAP gives us the opportunity to harmonise DNA methods and QA systems in collaborative inter-comparison exercises. ENFSI DNAWG is recognised by the European Community as the sole voice of the forensic DNA community in Europe. Participation in the ENFSI DNAWG allows a role in the shaping of guidelines on quality assurance, interpretation and reporting of forensic DNA analyses.

We are also actively involved in contributing in the following capacities at various workgroups and organisations:

- Associate Member Institute, European Paint and Glass Workgroup
- Core Committee Member of the Scientific Working Group for the Analysis of Seized Drugs
- International Forensic Expert under the International Quality Assurance Programme of the United Nations Office on Drugs and Crime

## Involvements in Chemical Metrology Community

HSA was granted Observer Status to the Consultative Committee for Amount of Substance – Metrology in Chemistry by the International Committee for Weights and Measures in October 2013. We also became a member of the Joint Committee for Traceability in Laboratory Medicine.



## Swatting out Pesticides in Herbs

We were invited by the Shanghai Institute of Food and Drug Control, to participate in their inter-laboratory comparison study on pesticides analysis for Chinese medicinal herbs. A total of 242 pesticides were analysed in the study.

## Enhancing Standards in Cosmetics Testing

Together with the Korea Research Institute of Standards and Science (KRISS), we worked on a project to determine toxic elements in cosmetic creams. The materials, prepared by HSA, were analysed by both institutes and yielded comparable results. KRISS used the extra samples to conduct a proficiency testing programme in Korea while HSA further developed the material into a CRM.

## The French Connection

HSA signed a Collaboration Memorandum with France's Laboratoire National de Metrologie et d'Essais in the area of clinical metrology. Having signed the Memorandum on 1 August 2013, both parties have since completed the projects to determine total cholesterol and total glycerides in human sera.

## Partnership with New Zealand

In 2013, we signed an MOU with the Institute of Environmental Science & Research, New Zealand, for the provision of training, urgent technical assistance and collaboration on forensic services and research. This tie-up, which is for a period of three years, serves as part of the business continuity plan for the Forensic Laboratory.

# Mutual Learning with Our Foreign Colleagues

Over the years, we have gained significantly by tapping on the mutual expertise of our teams as well as our foreign counterparts.

## In 2013, we were pleased to welcome the following visiting experts and guests:

1 Dr Ullar Lanno, Director of Estonian Forensic Science Institute, and Chairman of European Network of Forensic Science Institutes (ENFSI), December 2013

• Mr Scott Oulton, Associate Deputy Assistant Administrator, Drug Enforcement Administration, USA, November 2013

• Dr Michael Uhl, Chemistry Director of the Bavarian State Criminal Police Office, Germany, November 2013

• Professor James Robertson, National Centre for Forensic Science, Australia, November 2013

• Dr Viroj Sumyai, Board Member, and Mr Matthew Nice of the International Narcotics Control Board, October 2013

2 Dr Yukihiro Goda and Dr Takashi Hakamatsuka, Japan's National Institute of Health Sciences, October 2013

• Four scientists from the National Agency of Food and Drug Control Indonesia, October 2013

3 10 scientists from the Department of Scientific Services, Brunei Darussalam, over three visits in the period of May - November 2013

• Metropolitan Police Bureau and Visitors from Mahidol University, Thailand, April 2013



• We were honoured to host His Excellency, Dr Hamad Al Ghaferi, Director General of the National Rehabilitation Centre, United Arab Emirates, and his delegation, on 7 May 2014. The analysis of illicit drugs and NPS in exhibits and urine, as well as the regulatory framework for controlled drugs and psychotropic substances were discussed.

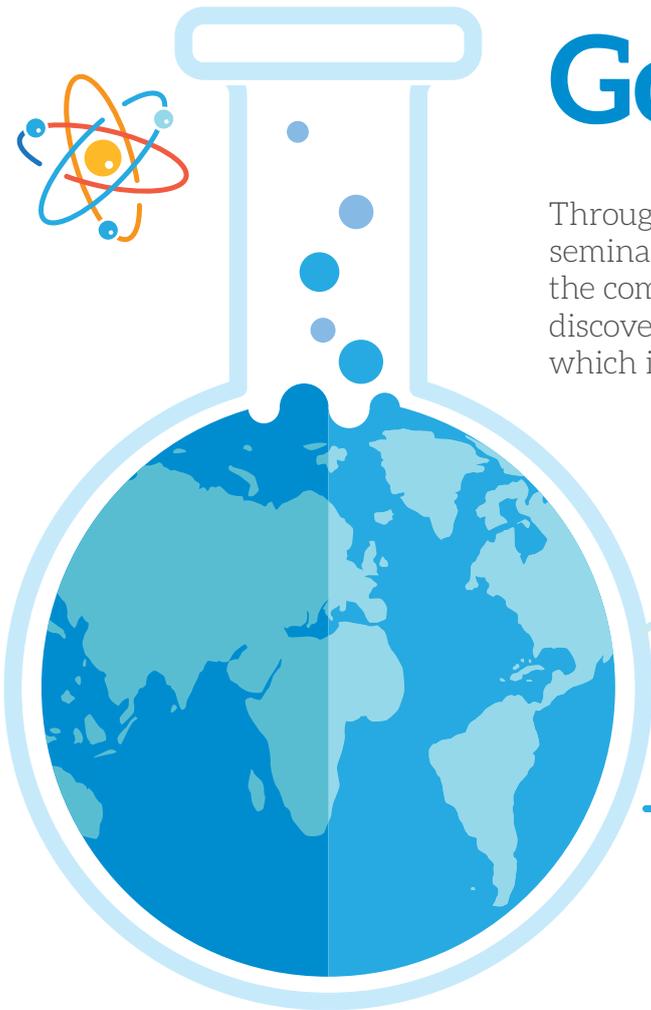
4 We played host to His Excellency, Pehin Dato Adanan Yusof, Minister of Health from Brunei at the Cigarette Testing Laboratory on 8 April 2013, when he came to better understand Singapore's National Tobacco Control Programme. The visit was mutually beneficial for both countries as it strengthened rapport between both ministries.

5 On 15 April 2013, we also hosted Mr Zhou Jian and his delegates from China's National Institutes for Food and Drug Control, where we shared our experiences in quality management system and scientific application in the fields of pharmaceutical and cosmetics analysis.



# Going Global

Through participation in international forums and seminars, we encourage exchange and sharing among the community. These are important platforms to discover and discuss new developments and trends which impact our work.



We participated and presented a paper at the 3rd International Multidisciplinary Forum on New Drugs, Lisbon, in June 2013 to bring awareness about the drug situation in this region. The presentation was a summary of a survey on the emergence of new psychoactive substances in which nine drug testing laboratories in Asia participated. We also took part in the 19th ENFSI Drugs Working Group Annual Meeting in May 2013 in Dubrovnik, Croatia.

We gave a keynote lecture on "New Designer Drugs of Abuse & Their Market Trends" at the 11th Indo Pacific Association of Law, Medicine and Science Congress 2013, in October 2013. Practitioners from diverse fields such as crime scene investigation, forensic pathology, forensic medicine, forensic linguistics and law gathered for the 6-day meeting which focused on the latest developments and issues in these fields.

We participated in and presented one paper at the 25th World Congress of the International Society for Forensic Genetics in September 2013, in Melbourne, Australia. Two papers were also presented at the 24th International Symposium on Human Identification in October 2013, in Atlanta, Georgia, USA. We gave a lecture on "Establishment of a DNA Database and Quality Assurance" at the Forensic DNA Network of Thailand annual meeting in November 2013.







# POWERING POSSIBILITIES

## Corporate Headquarters

We pride ourselves in forging collaborative partnerships with our Professional Groups and external stakeholders. By working together, we power possibilities: developing effective policies and implementing processes in our vision to protect and advance national health and safety.



# People Power

Our people are the foundation for success in whatever we do. We seek to develop holistic policies and implement programmes that nurture, motivate and inspire our staff so they are impassioned and empowered to give the best of their abilities to help HSA fulfill our goals for the nation.



## Captains of Trust

As a Public Service organisation, we recognise the importance of maintaining the trust of those we serve. In 2013, we updated the HSA Code of Conduct in line with the Public Service – we aim to uphold public confidence and trust, deter and detect fraud and corruption, and minimise and manage indebtedness. This Code covers various areas of professional and work excellence, including communications, exercising financial prudence, workplace safety and health, disciplinary procedures and internal disclosure.



## Building Public Confidence

Building public confidence in HSA as a trusted and responsible authority is driven by proactive communications of public advisories and positive media stories on our professional capabilities. In 2013, we issued timely media advisories to inform the public and stakeholders of adulterated health products, product recalls and the enforcement actions that we took on illegal activities. Our media stories centred on blood donation, regulatory initiatives and our forensic expertise.

To keep ourselves updated on online sentiments, we initiated social media monitoring. Together with the mainstream media monitoring work that we do, we are poised to quicken our response time and keep abreast of potential issues.

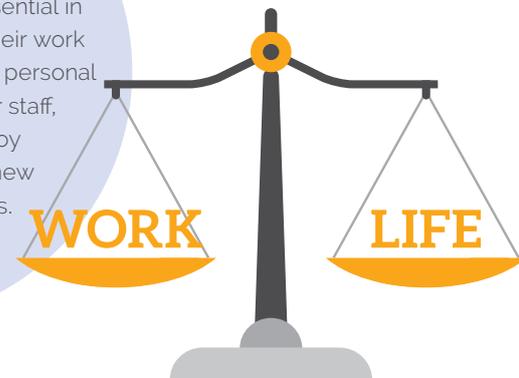
Public education remains one of our tools to safeguard public health and we are working on communication materials to increase awareness of the dangers of illegal health products.





## Happy at Work, Happy at Home

A good work-life balance is essential in enabling employees to enjoy their work over the long term. To cater to the personal and family lifestyle needs of our staff, HSA employees can now enjoy flexi-work arrangements with new staggered work-hour options.



## Empowered with Employer and Employee Rights

A new collective agreement was signed between HSA and the Amalgamated Union of Statutory Board Employees (AUSBE) on 8 October 2013. The collective agreement covers the terms and conditions of employment for staff under the Health Sciences Technical & Executive and Nursing Schemes, and includes improvements to benefits pertaining to the Long Service Award, as well as enhanced medical and dental benefits. This agreement reflects the strategic partnership and close collaborative working relationship between HSA and AUSBE in building an engaged and dedicated workforce.



## Mastering the Key to Safety

In 2013, in addition to the weekly laboratory safety training, we introduced sharing sessions with our laboratory staff to cover topics such as biosafety, licensing requirements for explosive precursors, handling mercury and chemical spills, as well as emergency responses for fires, bomb threats and Anthrax attacks. At least nine sharing sessions were held in the year with positive results. These sessions have created an open environment for more active engagement, generating a joint sense of responsibility between management and staff towards workplace health and safety. Staff also took the initiative to highlight safety concerns and propose preventive actions, all of which were subsequently shared at the following sharing session.

# Getting *IT* Right

Harnessing the technological advancements of the IT world has allowed HSA and its stakeholders to get things done smarter, swifter and more securely.



## Locked and Loaded

With risks on security increasing, a secure file transfer solution for HSA's end users was developed to ensure that files can be transferred in a secure and controlled manner with our external partners. This solution was completed and rolled out in the first quarter of 2014.



## HSA Website Refreshes

The HSA website was relaunched with a new and improved look in the third quarter of 2014. The new website has been redesigned to reflect end-user needs by taking into account the current habits of visitors, feedback from our stakeholders, and a usability research study. The information architecture has been fine-tuned to match the needs of visitors to our website, including prioritising the most frequently visited services and featuring them more prominently.



## Knowledge is Power

Over the past two years, HSA has successfully completed the pilot and rollout of a new Email Management System, which archives past and present emails. This archival system retains information and institutional knowledge contained in email exchanges, capturing them easily into a centralised electronic repository for ease of retrieval and management. This minimises disruption and ensures continuity even with movements in staff.

# Furthering Opportunities



The HSA Academy drives thought leadership and innovation within the health sciences industry in Singapore. We support our various Professional Groups in their events to strengthen the organisation's scientific and research capabilities, as well as extend our circle of influence regionally and around the world.

## Strengthening Innovation Locally and Globally

Leveraging the combined strengths of experts from various fields, we seek to explore and establish new ways of managing current and emerging challenges. By leading these collaborative efforts, we aim to advance the role of both HSA and Singapore in shaping cutting-edge approaches in health products regulation, transfusion medicine, forensics and analytical sciences, both in the local and global arena.

### To do so, we continue to focus our efforts on:

- Forging closer working relationships with our Professional Groups to identify and address scientific issues or concerns;
- Creating platforms for experts to convene and share scientific opinions or recommendations, tackle challenges and devise solutions; and
- Adding value by building up our internal capabilities to produce scientific reports on proceedings, and capture key recommendations for further discussion and implementation.



# Our MOU Partners

• Health Canada, Canada

• United States Food and Drug Administration, United States

• United States Pharmacopeia, United States

• The National Institute of Metrology, Standardization and Industrial Quality, Brazil



## Dynamic Partnerships

On 5 December 2013, we strengthened our partnership with the Health Care Inspectorate of the Netherlands by signing a Memorandum of Understanding (MOU). The MOU enhances cooperation in the field of regulation on medicines and medical devices between the two states.



- Health Products Regulatory Authority, Ireland
- International Criminal Police Organization - INTERPOL
- Medicines and Healthcare Products Regulatory Agency, United Kingdom
- Medicines Evaluation Board, the Netherlands
- Medical Products Agency, Sweden
- Netherlands Forensic Institute, the Netherlands
- Paul-Erlich-Institut, Germany
- Swissmedic, Switzerland
- The Health Care Inspectorate, the Netherlands

- Beijing Red Cross Blood Centre, China
- China Food and Drug Administration, China

- Ministry of Health, Labour and Welfare, together with the Pharmaceuticals and Medical Devices Agency, Japan
- Ministry of Food and Drug Safety, Republic of Korea
- National Forensic Service, Republic of Korea

- Ministry of Health, Malaysia
- Agency for Science, Technology and Research, Singapore
  - Pharmaceutical Society of Singapore, Singapore
  - Saw Swee Hock School of Public Health (National University of Singapore), Singapore
  - Singapore Red Cross Society, Singapore
  - Singapore Sports Council, Singapore

- Therapeutic Goods Administration, Australia
- Victorian Institute of Forensic Medicine, Australia
- Medsafe, New Zealand

# Amplifying Excellence



We are pleased to report that we have achieved the Singapore Service Class (S-Class) and successful renewals for the Singapore Quality Class (SQC), People Developer (PD) and Singapore Innovation Class (I-Class) certifications.



## Zest for Distinction

HSA underwent the 4-in-1 Integrated Assessment conducted by SPRING Singapore in February 2014. Not only have we been successfully certified for the SQC, PD, I-Class and S-Class, but we also qualified for the SQC-STAR which is awarded to organisations that have demonstrated superior performance in their SQC assessment. These national recognitions are a testament to the approach and commitment to organisational excellence in HSA.

## Protecting Our Quality & Service Standards

Our CEO launched the revised collective Strategic Service Intent on 13 May 2013 at the HSA Staff Forum. The Service Intent restates our vision "to protect and advance national health and safety", as well as to promote the three tenets of Quality, Service and Trust that are aligned to HSA's core values. This is not only relevant to external stakeholders, but to internal service within HSA as well.



### Quality

It is paramount in the work we do, and resonates with us in our regulatory and scientific responsibilities. We aim to be accurate and efficient, provide safe and reliable outcomes, and ensure that our work is carried out with integrity.

### Service

We have to serve with empathy, and take the effort to understand and be sensitive to our customers' and stakeholders' needs, exhibit professionalism, and deliver our services promptly and effectively.



### Customers, First and Always

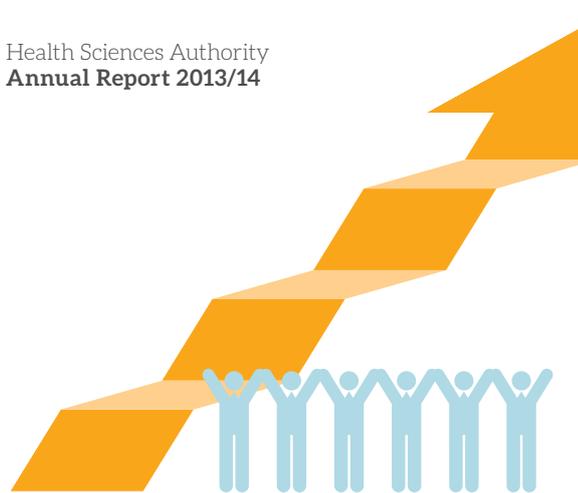
We celebrated our fifth HSA Customer Service Day on 28 February 2013. Taking the theme, "Trust Me, I Can", Mr Kenneth Kwan, a motivational speaker from Deep Impact Pte Ltd, was invited to share his experience on building trust at both the organisational and personal levels.

In recognition of their outstanding display of service excellence, we presented the Excellent Service Award (EXSA) 2013 to 52 HSA officers. This national award recognises individuals who have delivered quality service. It seeks to develop service role models for staff to emulate and create service champions. A silver award winner was also a winner of the PS21 Star Service Award 2014 during the Public Service Week. We congratulate our winners for their exemplary service.



### Public Service Achievement Award

HSA was awarded the Public Service Achievement Award at the Excellence in Public Service Awards ceremony on 23 May 2014. This award recognises the achievements of business excellence standards in public agencies. It also aims to encourage agencies to strive for comprehensive business excellence and to attain a cluster of business standards, anchored on the SQC or Singapore Quality Award.



# Sustaining Success

As we move to take HSA towards our next lap of growth, we constantly review and update our milestones and action plans for continuous improvement. Working together as a cohesive organisation, we recognise that our shared mission and values can propel us to always give our best to those we serve.



## Taking Charge from the Core

For an organisation to work effectively, it is crucial that every team member understands our core values and works bearing these in mind. To this end, the HSA-wide Team Building programme has been realigned to supplement Orientation as part of the 'onboarding' programme, to help all employees taking on a new role in the organisation improve their fit and readiness, and acquire the necessary knowledge, skills, and behaviour. This promotes better understanding of HSA's core values among new employees, enhances synergies and helps build, sustain and perpetuate high-performing teams across the organisation.



## Bonding and Growing Together

HSA prides itself as a learning organisation with an environment where team members can bond and grow together as a family. Over the year, we held various corporate-wide events, including the Staff Forum, Learning Day in conjunction with Public Service Week, National Day Observance and Celebration Day, as well as our annual New Year Gathering and Dinner & Dance.

## Championing Best Practices

The HSA Organisational Excellence (OE) Forum for HSAians was held on 26 July 2013. The forum aims to enable HSAians to expand their system thinking capabilities and open their minds beyond the workplace. At the forum, officers from the Land Transport Authority were invited to share with us their valuable experience in building an effective and robust Quality Management System of their corporate and regulatory processes.

## Showing the Way

HSA hosted a learning journey for fellow public officers at Bloodbank@HSA on 5 November 2013 in conjunction with the PS21 ExCEL Convention 2013. There, they were given insights into the blood collection process, and how the different components of blood are processed in the laboratory to meet the needs of our patients.

# Passion for Service

At HSA, we are committed to sharing our experiences and bringing hope to others. Our Corporate Social Responsibility Framework, CARE (Community Action, Responsible for our Environment) reminds us that we should pay it forward in the three main areas of need: social volunteerism, preservation of the environment, and cultivating a community-caring culture.



## Empowering and Educating

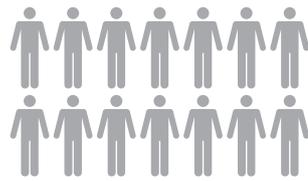
For the past three years, we have been in partnership with APSN Katong School to organise activities for their students. In support of their English Learning Journey, we took the students on a study visit to the SEA Aquarium at Resorts World Sentosa where they learned about marine life. We also invited students to build their entrepreneurial skills while having fun with art and craft, by selling handmade items on HSA's Public Service Observance & Learning Day. In addition, we collaborated with the school on a poster design contest, "Keep Our Environment Clean and Green". For the project, HSAians mentored the students on their poster designs to give them a better understanding of environmental issues, while encouraging them to care for the environment.



## Time with Our Pioneers

Among the efforts to support the needy elderly community, HSA volunteers made generous donations to purchase food and basic necessities and presented 100 bags of these items to the elderly residents of Lions Befrienders through the "HSA CAREs through Sponsoring, Packing and Distributing" project in May 2013. Our volunteers also spent time with the seniors in a fun "Paint-a-brolly" activity.

# Our Achievements in Figures



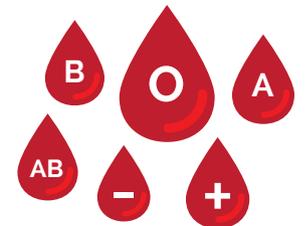
Blood Donors

**70,824**



Whole Blood  
Donations

**111,626**



Blood Components  
Processed

**253,132**



**Blood  
Services  
Group**

Key Statistics  
as at end December 2013

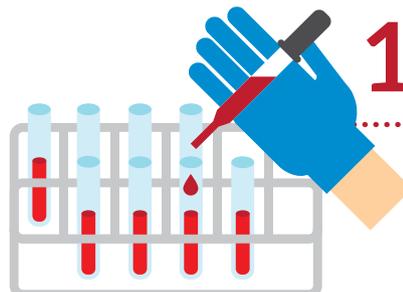


Apheresis Donations

**9,734**

Laboratory Tests  
Conducted

**1,102,933**



### Food Safety Division



Analytical Tests for Laboratory Samples

**30,144**

Analytical Cases

**4,218**

### Forensic Medicine Division



Coroner's Cases

**4,100**

Coroner's Autopsies

**1,848**

### Illicit Drugs Division



Forensic Cases

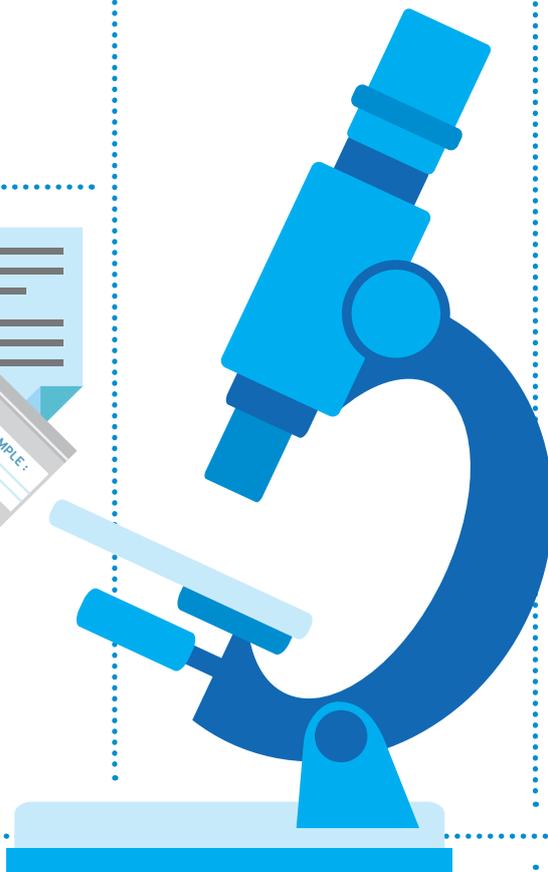
**2,571**

Forensic Exhibits

**6,330**

## Applied Sciences Group

Key Statistics as at end March 2014



### Pharmaceutical Division



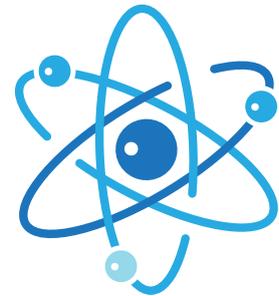
Analytical Tests for Laboratory Samples

**16,748**

Analytical Cases

**3,125**

### Forensic Science Division



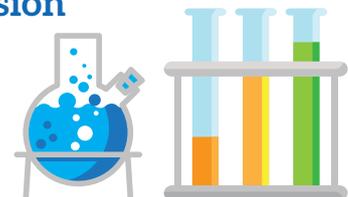
Forensic Cases

**253**

Forensic Exhibits

**1,093**

### Analytical Toxicology Division



Forensic Cases

**26,264**

Forensic Exhibits

**43,879**

### Biology Division



Forensic Cases

**26,714**

Forensic Exhibits

**34,086**



Western Pharmaceutical Product Licences Approved **197**

Western Pharmaceutical Product Licences (New Innovator Drug) Approved

**98**

Western Pharmaceutical Product Licences (Generics) Approved

**99**

Approved Products on the Singapore Medical Device Register

**14,009**



APPROVED



Medical Device Product Listing Approved (Class A, B, C & D)

**2,627**

Registered Western Pharmaceutical Products

**5,430**

Total Number of Chinese Proprietary Medicines Listed

**10,195**

New Chinese Proprietary Medicines Listed

**629**



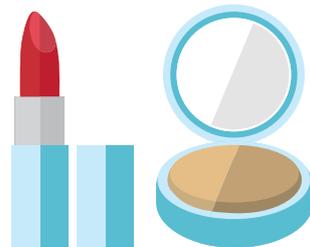
**Health Products Regulation Group**

Key Statistics as at end March 2014



Total Number of Notified Cosmetic Products

**144,344**



New Cosmetic Products Notified

**40,913**



Clinical Trials Certificates Granted

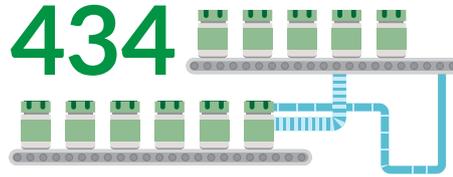
**291**



Medical Advertisement Permits Approved

**3,092**

Site Audits Conducted for Good Manufacturing & Good Distribution Practices and Pharmacies



Applications Processed for Travellers Bringing Personal Medication into Singapore



Premises, Dealers and Importers & Exporters of Health Products Licensed/Certified/Approved

**5,563**

**Manufacturers of Health Products** Licensed/Certified/Approved

404

**Importers of Health Products** Licensed/Certified/Approved

3,055

**Wholesalers of Health Products** Licensed/Certified/Approved

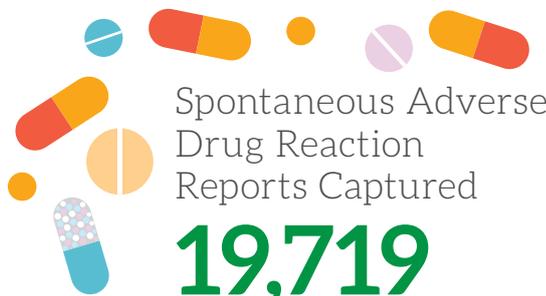
1,254

**Retail Pharmacies** Licensed/Certified/Approved

379

**Exporters of Health Products** Licensed/Certified/Approved

471



Post-Market Feedback Received (Relating to Potential Contravention of Health Product Legislation)

**3,572**

Total Number of Licensed Tobacco Retail Outlets

**5,125**

Tobacco Retail Licences Approved

**592**



Under-18 Smokers Caught

**5,520**



Number of Electronic Cigarettes Cases Referred to HSA

**5,062**

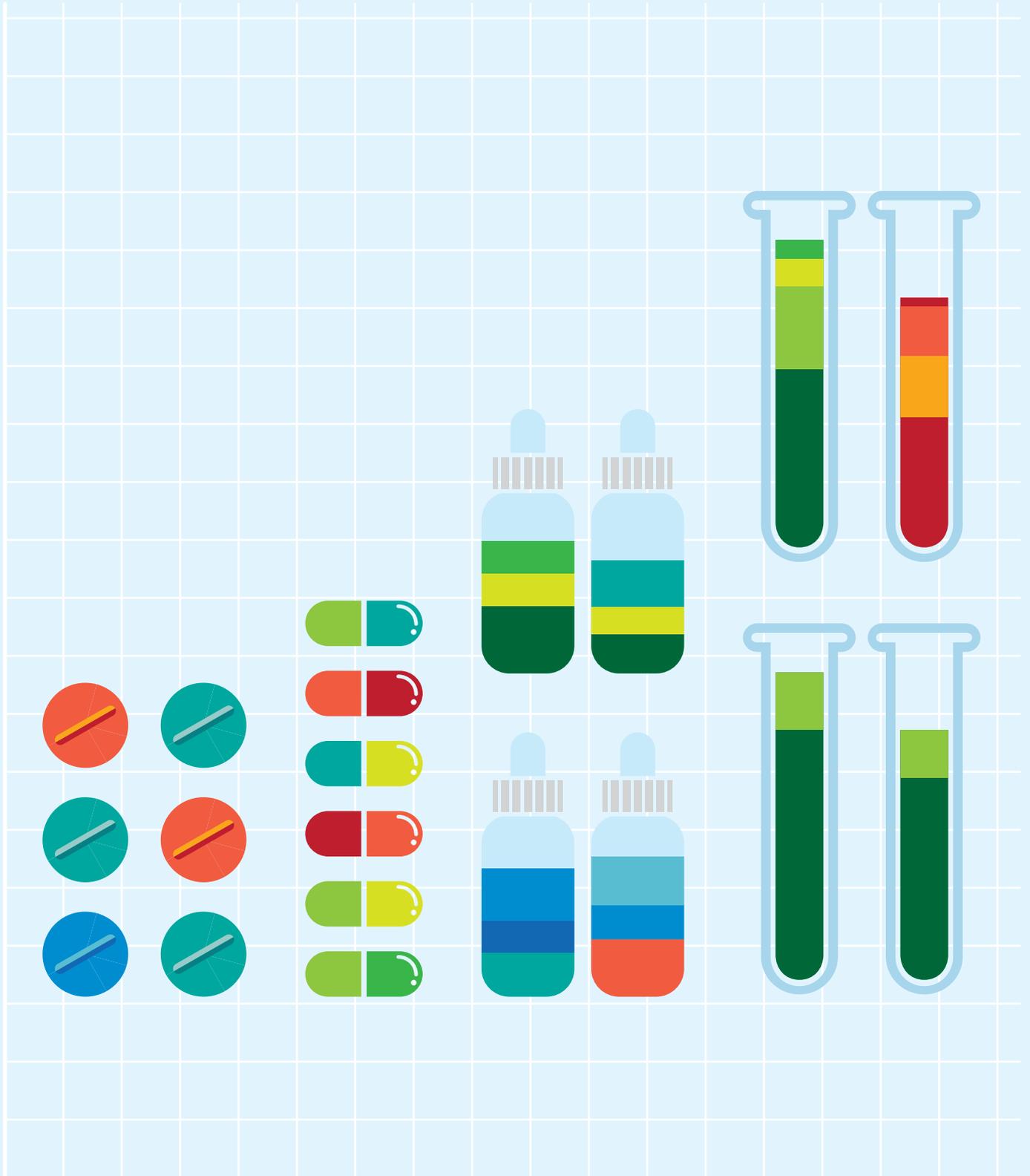


Number of Field Safety Corrective Action

Reporting for Medical Devices Received

**703**

# Financial Highlights



## Balance Sheet

	FY13/14 \$'000	FY12/13 \$'000 (Restated)	Increase / (Decrease)	
			\$'000	%
Property, Plant & Equipment	91,816	96,464	(4,648)	(5)
Intangibles	2,512	4,577	(2,065)	(45)
Current Assets	121,280	108,846	12,434	11
<b>Total Assets</b>	<b>215,608</b>	<b>209,887</b>	<b>5,721</b>	<b>3</b>
Equity	121,587	114,646	6,941	6
Long-Term Loans	19,110	22,021	(2,911)	(13)
Other Non-Current Liabilities	10,061	11,016	(955)	(9)
Current Liabilities	64,850	62,204	2,646	4
<b>Total Equity and Liabilities</b>	<b>215,608</b>	<b>209,887</b>	<b>5,721</b>	<b>3</b>

## Income & Expenditure Statement

The Authority has achieved an overall net surplus of \$6.9m for FY13/14.

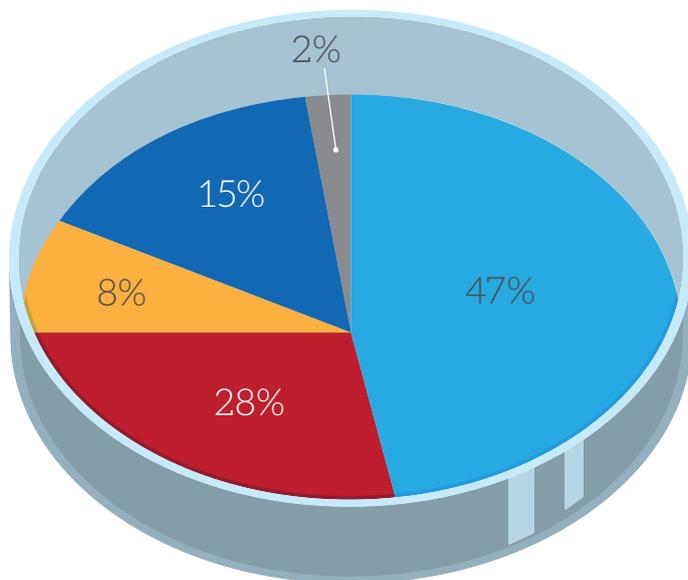
	FY13/14 \$'000	FY12/13 \$'000 (Restated)	Increase / (Decrease)	
			\$'000	%
Operating Income	121,810	118,443	3,367	3
Operating Expenditure	(192,192)	(177,040)	15,152	9
<b>Deficit before Government Grants</b>	<b>(70,382)</b>	<b>(58,597)</b>	<b>11,785</b>	<b>20</b>
Government Grants	78,776	70,448	8,328	12
<b>Surplus before Contribution to Consolidated Fund</b>	<b>8,394</b>	<b>11,851</b>	<b>(3,457)</b>	<b>(29)</b>
Contribution to Consolidated Fund	(1,427)	(2,015)	(588)	(29)
<b>Net Surplus</b>	<b>6,967</b>	<b>9,836</b>	<b>(2,869)</b>	<b>(29)</b>
Other Comprehensive Income	(141)	(374)	(233)	(62)
Contribution to Consolidated Fund	24	64	(40)	(63)
<b>Net Comprehensive Income</b>	<b>(117)</b>	<b>(310)</b>	<b>(193)</b>	<b>(62)</b>
<b>Net Surplus and Comprehensive Income for the Year</b>	<b>6,850</b>	<b>9,526</b>	<b>(2,676)</b>	<b>(28)</b>

## Operating Income

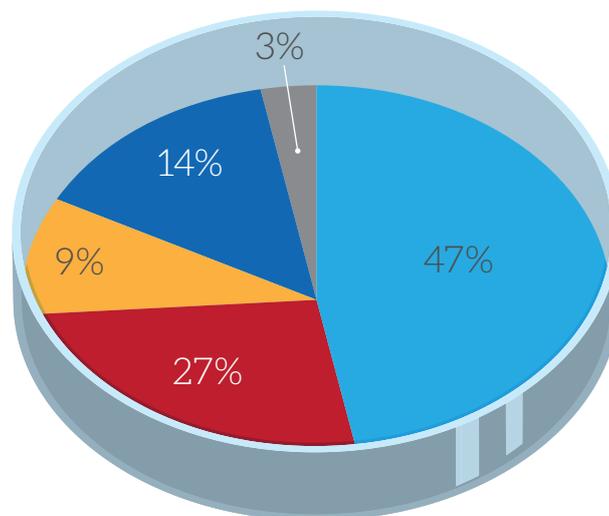
The Authority earned a total operating income of \$121.8m in FY13/14, an increase of \$3.4m (3%) over FY12/13's revenue of \$118.4m.

	FY13/14 \$'000	FY12/13 \$'000 (Restated)	Increase / (Decrease) \$'000	%
Laboratory Analysis Fees	57,738	56,259	1,479	3
Blood Processing and Patient Laboratory Fees	34,651	32,047	2,604	8
Forensic Investigation Fees	9,081	10,237	(1,156)	(11)
Licensing Fees	17,709	16,072	1,637	10
Other Income	2,631	3,828	(1,197)	(31)
<b>Total Operating Income</b>	<b>121,810</b>	<b>118,443</b>	<b>3,367</b>	<b>3</b>

FY13/14



FY12/13



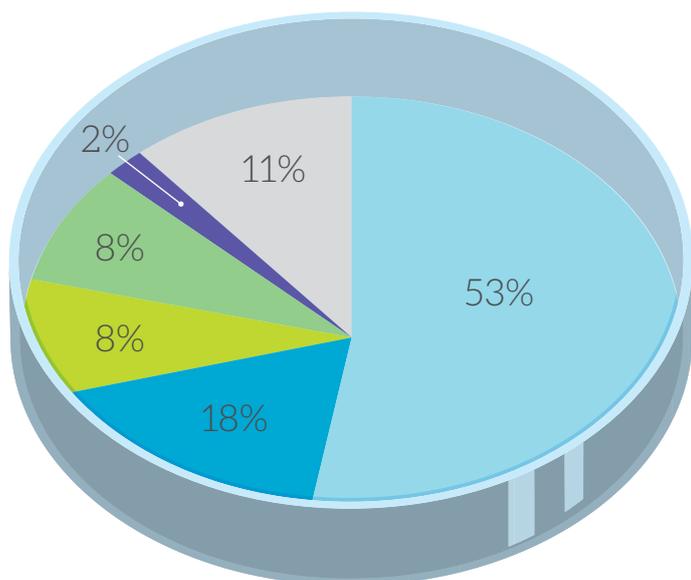
- Laboratory Analysis Fees
- Blood Processing and Patient Laboratory Fees
- Forensic Investigation Fees
- Licensing Fees
- Other Income

## Operating Expenditure

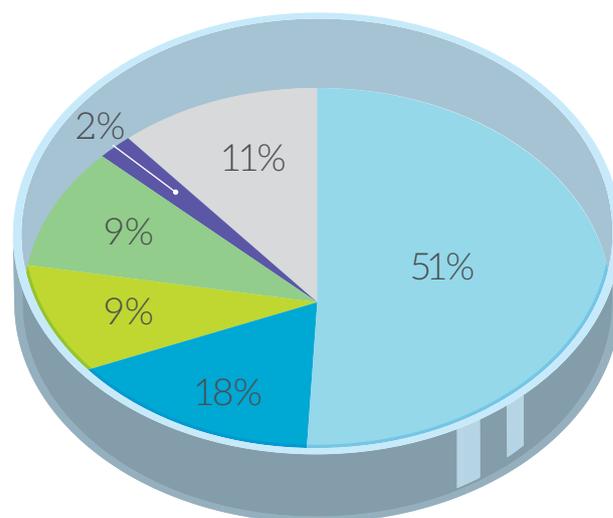
The Authority incurred a total operating expenditure of \$192.2m in FY13/14, an increase of \$15.2m (9%) over FY12/13's expenditure of \$177.0m.

	FY13/14 \$'000	FY12/13 \$'000 (Restated)	Increase / (Decrease) \$'000	%
Staff Costs	102,578	90,277	12,301	14
Supplies and Services	34,844	32,058	2,786	9
Repairs and Maintenance	15,471	15,959	(488)	(3)
Depreciation and Amortisation	15,414	16,166	(752)	(5)
Blood Donor Expenses	3,490	3,285	205	6
Other Operating Expenses	20,395	19,295	1,100	6
<b>Total Operating Expenditure</b>	<b>192,192</b>	<b>177,040</b>	<b>15,152</b>	<b>9</b>

FY13/14



FY12/13



- Staff Costs
- Supplies and Services
- Repairs and Maintenance
- Depreciation and Amortisation
- Blood Donor Expenses
- Other Operating Expenses



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