HSA partners law enforcement agencies, regulators and the judiciary in supporting the administration of justice and safeguarding public health in Singapore. Backed by our diverse scientific expertise, our team works together to make Singapore a safer place for all.
Building Our Capacity

We strive to acquire new expertise and solutions to serve the nation.

MAKING COSMETICS EVEN SAFER

We successfully added two new isothiazolinone-type biocides – methyl isothiazolinone and chloro methyl isothiazolinone – in our accredited testing scope for cosmetics. These additions enable us to analyse commonly used biocides which include triclosan and triclocarban.

MORE EFFECTIVE SHARING OF DNA RESULTS AMONG COUNTRIES

Throughout the world, different regions use varying sets of DNA markers for analysis in criminal investigations. This is why an increased set of markers is especially essential in borderless crimes, where international comparison of DNA profiles are required to identify the perpetrators who are often part of a larger syndicate. As of November 2016, we have validated and implemented the use of 24 DNA markers, up from 16. This will result in greater harmonisation and more effective sharing of DNA results among countries.

NEW FINDINGS FOR SEXUAL HEALTH SUPPLEMENT

A new sildenafil analogue (3,5-dimethylpiperazinyl dithiodesmethylcarbodenafil) was discovered from a health supplement for sexual enhancement. The identity of the analogue was determined using advanced analytical instruments including high-resolution mass spectrometry (HRMS) and nuclear magnetic resonance spectrometry (NMR). The findings were published in the Journal of Pharmaceutical and Biomedical Analysis in January 2017, and will help drug control authorities further safeguard public health, by helping them to look out for this new structurally modified adulterant in their routine screening processes.

INVESTIGATING HIT-AND-RUN ACCIDENTS

Started in 2008 in collaboration with the Singapore Police Force’s Bomb and Explosives Investigation Department, the Vehicle Paint Database is an investigative tool that narrows down possible makes of unknown samples in hit-and-run traffic accident cases. In the last two years, we have expanded our database of 1,500 samples to include paint samples from taxis. With this database, we were able to identify the taxi operator of a hit-and-run case in April 2016.

EXPANDING CERTIFIED REFERENCE MATERIALS

Certified Reference Materials (CRMs) are used as calibrants, quality controls and for validation of methods. This year, we have expanded our CRM production programme to include L-proline, and trace elements (Al, As, Cd, Ca, Cu, Cr, Pb, Mo and Ni) in drinking water.

PAVING THE WAY FOR MORE ACCURATE TRAFFIC ACCIDENT INVESTIGATIONS

Drag factor is an important parameter when reconstructing traffic accidents. The Traffic Accident Reconstruction team currently relies on studies done overseas for a range of values for drag factor. In 2016, the team collaborated with the Traffic Police to organise skid tests to determine the drag factor of roads in Singapore. As a result, a smaller range catered to the local context can be used, resulting in more accurate estimation. We will continue our efforts in 2017.

TESTING NEW WATERS

We have set up a dedicated water testing facility and expanded our water testing capabilities for ultra-trace analyses, to provide new or enhanced testing services to stakeholders.
Refining Our Techniques

We constantly improve our work processes by implementing new technologies that can enhance our efficiency.

ANALYSING RESIDUE FROM EXPLOSIVES

Post-blast samples can come in different types of matrices. This requires a range of equipment and involves different sample preparation for the analysis. In 2016, we developed a simple sample preparation process to streamline analysis procedures. This ensures that the samples are cleaned up and prepared to cater to the needs of a wide range of equipment.

We have also completed the validation and application of the X-ray diffraction technique for the analysis of explosive compounds and unknown solid substances. This non-destructive technique prevents samples from being permanently altered after analysis, making them usable for further tests and analysis.

ANALYSING THE ACTIVE INGREDIENTS IN PEPPER SPRAY AND CHILLI POWDER

Chilli powder and pepper spray have been used in assault cases where suspects attempted to irritate the victim’s eyes to incapacitate his/her sight.

Previously, only gas chromatography-mass spectrometry (GCMS) was used to analyse the active ingredients of samples, but the liquid chromatography-mass spectrometry (LCMS) method was later developed with better detection limits. When used together (GCMS and LCMS), higher conclusion levels for the detection of these active ingredients can be achieved.

ANALYSING METALS AND FAKE JEWELLERY

HSA has validated and adopted a better screening technique for metals and fake jewellery. Using inert air instead of water, it prevents the formation of water bubbles with rough surfaces — which may result in inaccuracy — while making it suitable for non-waterproof products. Lastly, being non-destructive and much faster than previous techniques, this new technique produces results that are more reliable and reproducible in a shorter timeframe.

Meeting Global Standards

At HSA, we are committed to benchmarking our expertise internationally, and raising local and regional testing standards.

HONING OUR DNA AGE PREDICTION CAPABILITIES

In January 2016, HSA participated in a collaborative exercise on age prediction that was organised by the European DNA Profiling Group. This exercise saw the participation of 15 laboratories from Denmark, Austria, Netherlands, USA, France, Australia, UK, Spain, Germany, Norway and Switzerland. HSA did well in estimating the age of an unknown individual from a blood sample, which is of value to law enforcement in narrowing down possible perpetrators.

SETTING THE BENCHMARK FOR FOOD SAFETY STANDARDS

In June 2016, we participated in the inter-laboratory comparison of phomopsin in lupin organised by Wageningen RIKILT. Through this collaboration, we reinforced our technical competence against international standards as well as expanded our analytical know-how in upholding the safety of food.

ENSURING THE ROBUSTNESS OF DNA TESTING

HSA organised the third DNA Inter-Laboratory Collaborative Exercise in mid-2016 to compare the robustness of the DNA testing system and the mixture interpretation approaches among the Asian Forensic Sciences Network member institutions. The exercise saw the participation of 14 member institutions from China, Indonesia, Malaysia, Mongolia, the Philippines, South Korea and Thailand.
ALIGNING STANDARDS

HSA is actively involved in international comparisons and proficiency testing programmes to ensure that our laboratories’ capabilities are comparable to other countries worldwide.

1. INTERNATIONAL COMPARISONS

HSA completed three international comparisons:
- Polycyclic aromatic hydrocarbons in acetonitrile
- Low-polarity analytes in a botanical matrix: polycyclic aromatic hydrocarbons in tea leaves
- Ethanol in aqueous matrix

It also organised three international comparisons:
- High polarity analytes in biological matrix: determination of urea and uric acid in human serum
- Comparison of Certified Reference Materials and value-assigned quality controls: urea and uric acid in human serum or plasma (co-organised with the National Institute of Standards and Technology (USA))
- Elements (sodium, chloride, copper, selenium, phosphorus) in human serum

2. EXTERNAL QUALITY ASSESSMENT (EQA) AND PROFICIENCY TESTING (PT) PROGRAMMES

We continued to organise an accuracy-based EQA and PT programmes for the local clinical laboratories, and chemical testing laboratories, respectively. The analytes covered in the EQA programme included clinical markers of chronic diseases affecting the Singapore population such as diabetes mellitus and lipid disorders.

External Quality Assessment

17 clinical analytes covered

Proficiency Testing Programmes
- Asia Pacific Laboratory Accreditation Cooperation PT programme co-organised with the Singapore Accreditation Council on the determination of acesulfame potassium and sucralose in cake mix flour
- PT programme on oil and grease in water
- PT programme on trace elements in water for local water-testing laboratories.

3. EXTERNAL BENCHMARK PROFICIENCY TESTING PROGRAMMES

We achieved excellent results in the benchmark PT programmes during the year:

Pharmaceutical Laboratory
- Semi-micro determination of water by volumetric titration by the European Directorate for the Quality of Medicines & HealthCare (EDQM)
- Assay of gemfibrozil by high-performance liquid chromatography, (ii) pH measurement on sodium ascorbate and (iii) dissolution testing on gemfibrozil tablets by the ASEAN Bureau of Drug and Narcotic
- pH and melting point measurements of vanillin and sulfapyridine by the Dutch Association for the Advancement of Pharmacy
- Assay of octyl gallate and testosterone by UV-VIS Spectrophotometry organised by EDQM

Cosmetics Laboratory
- Assay of hydrogen peroxide in tooth whitening products by EDQM
- Assay of parabens in lipsticks by EDQM

Bolstering Strong Relationships

Working alongside local and global partners and stakeholders enables us to support our vision of safeguarding public health and serving the administration of justice in Singapore.

MEMORANDUM OF UNDERSTANDING (MOU) TO TEACH FORENSIC SCIENCE

HSA signed an MoU with the Singapore University of Social Sciences (SUSS) on 4 April 2017 to teach the forensic science introductory course in the School of Law.

COLLABORATION MEMORANDUM WITH LABORATOIRE NATIONAL DE METROLOGIE ET D’ESSAIS (LNE)

The Memorandum of Collaboration (MoC) between HSA and LNE in France was renewed for another three years in May 2016. This MoC will enable the Chemical Metrology Laboratory and LNE to continue exchanging scientific information and reference materials relating to clinical and peptide/protein chemistry.

AGREEMENT WITH FORE FRONT TEST CO LTD

We signed an agreement with Fore Front Test Co Ltd, Korea, appointing the company as the exclusive distributor of our CRMs in the Republic of Korea for a period of two years from October 2016.

COLLABORATION WITH THE U.S. CENTERS FOR DISEASE CONTROL (CDC) AND PREVENTION

HSA collaborated with the U.S. CDC on the measurement of two clinical markers for lipid disorders (LDL-cholesterol and HDL-cholesterol) in human serum. The serum materials were measured by both institutions and the results obtained were found to be comparable.
WORKING WITH THE POLICE

We worked closely with the Singapore Police Force to examine evidence from the high-profile shooting case that took place near Shangri-La Hotel in 2015. The Forensic Chemistry & Physics Laboratory provided multi-disciplinary examinations (chemical analysis of unknowns, explosive analysis, glass, paint, vehicle speeds, textile damage, firearms, gunshot residue, trajectory, bloodstain pattern analysis and crime scene reconstruction) and issued a total of six forensic reports. Three of our experts testified at the Coroner’s Inquiry held in 2016.

SUPPORTING THE AGRI-FOOD AND VETERINARY AUTHORITY OF SINGAPORE (AVA)

Five new analytical testing services were launched in support of AVA. The tests included anthraquinone in food contact materials, pyrrolizidine alkaloids in flour and spices, multiple mycotoxins in beer and liquors, bisphenol A, BDAE, BFDBE and derivatives by ultra fast liquid chromatography in food contact materials and authentication of pine nuts.

SHARING ON EQA RESULTS AND MEASUREMENT UNCERTAINTY

In February 2017, we organised an EQA Programme Sharing Session. The sharing session provided a platform for an in-depth discussion of results from the 2016 EQA programme, and to share on the approaches to estimating measurement uncertainty using data from EQA Programmes.

COLLABORATING WITH THE NATIONAL ENVIRONMENT AGENCY (NEA)

We took on a joint project with NEA from January to April 2016 to check the safety of cooking oil used in eateries across the country. The project aimed to investigate contaminants present in cooking oil as well as the fraudulent use of gutter oil. With more than 100 samples tested, NEA was able to use the results to work with hawkers on ensuring the safe use of cooking oils.

INVESTIGATING FUNGICIDES

Fungicides, if present in food, are detrimental to health. To help safeguard public health, HSA embarked on a one-year joint research agreement with Shimadzu Asia Pacific (Pte) Ltd on a project to explore a rapid determination of fungicides. The project involved a new technology, SFE-LC/MS/MS for food contact material testing and was titled “Single laboratory method validation of a method for the determination of fungicides in food simulants from disposable wooden cutlery”. It was completed and presented at the Food Science 2016 Conference in November.

LEARNING FROM THE EXPERTS

HSA staff attended the Singapore Academy of Law Expert Witness Course and met experts such as Queen Counsel Ms Alison Pople from Cloth Fair Chambers, UK, a Prosecutor, Defence Counsel, Judge and Coroner. Held in March 2017, the course saw the experts sharing their perspectives on the roles forensic experts play in the criminal justice system.

SHARING OUR KNOWLEDGE

We welcomed an engineer from the Shanghai Food and Drug Packaging Material Control Centre, for a three-week training on laboratory quality management systems and the analysis of western medicines.

TRAINING OUR STAFF

To boost our capabilities, we sent our staff for training to ensure that they acquire new knowledge and improve their skillsets.

MANAGING BIOLOGICAL THREATS

HSA maintains an operational readiness programme in training staff to work safely in a Biosafety Level 4 (BSL4) environment. It successfully carried out Exercise Andromeda V, which saw the field deployment of the mobile BSL4 containerised autopsy facility offsite in Yio Chu Kang as part of ensuring operational readiness to conduct autopsies of suspected highly infectious cases.

The exercise was carried out in collaboration with the Singapore Civil Defence Force (SCDF) to enhance response to emergencies at the facility. Going forward, we will work on developing capabilities to meet challenges in responding to Chemical, Biological, Radiation, Nuclear and Explosive scenarios.

SHARING OUR KNOWLEDGE
SPECIALIST TRAINING BY OVERSEAS EXPERTS

In September 2016, HSA staff attended the Technical Crash Investigation and Reconstruction Advanced Course by Dr Shane Richardson from the Society of Automotive Engineers Australasia. The course introduced new technologies and gave more in-depth insights into analysis methods such as the use and analysis of the event data recorder and modelling and simulation.

In October 2016, two experts from the Major Incidents Forensics Group in the Transport Research Laboratory in UK, Dr Richard Lambourn and Mr James Manning, conducted a five-day customised training and consultancy on traffic reconstruction for HSA staff. Participants gained valuable insights, especially in incorporating new technologies.

Also in October 2016, HSA staff attended the Forensic Knot Analysis Review by expert and author Mr Robert Chisnall, who shared with them knowledge from his 40 years of experience in the area of forensic knots analysis.

BUILDING CAPACITY FOR PROVIDING EXPERT OPINION ON ALCOHOL-BREATHALYSERS TEST RESULTS

We engaged Professor Edmund Lee Jon Deoon, Professor of the Department of Pharmacology, National University of Singapore to provide training for the scientists to build up their capability in providing expert opinion in alcohol interpretation. Furthermore, two scientists also attended the Robert Borkenstein Course on Alcohol and Highway Safety: Testing, Research and Litigation at the Indiana University, Center for Studies of Law in Action, USA in May 2016.

BOOSTING KNOWLEDGE IN TOXICOLOGY

HSA invited Professor Dr Hans H. Maurer, leading expert in analytical toxicology and in-vitro / in-vivo toxicokinetics studies, to conduct a training session for its staff in August 2016. Aimed at strengthening staff knowledge in drugs metabolism, the training comprised nine lectures, and included topics such as sewage epidemiology and the applications of high-resolution mass spectrometry and ion trap mass spectrometry.

ANALYSING COMPLEMENTARY HEALTH PRODUCTS

Our scientist was attached to the Hong Kong Government Laboratory for a benchmark study on the process, scope and methodologies used in the analysis of complementary health products. The study took place from February to March 2016 and provided opportunities for technical exchange, sharing of good laboratory practices as well as strengthening work processes in the analysis of complementary health products. Through the study, we were also able to enhance our analytical capabilities in investigating adverse drug reactions associated with consumption of herbal health products.

JOINING HANDS IN MANAGING CLANDESTINE LABORATORY INVESTIGATIONS

With support from the Drug Enforcement Agency (DEA), United States Department of Justice, we conducted a seven-day training course and exercise on clandestine laboratory investigation in May 2016.

Conducted by three DEA instructors and two DEA agents, the course attracted 32 participants including officers from Central Narcotics Bureau and SCDF. The course enabled participants to acquire the necessary knowledge and skills in handling clandestine laboratory investigation and helped built inter-agency rapport. Following the positive feedback, the three agencies will take turns to organise a joint exercise biennially to maintain the competencies of officers and coordination between agencies.

ENHANCING OUR KNOWLEDGE IN ANALYSING ANABOLIC STEROIDS

In recent years, bodybuilding and performance-enhancing supplements have been gaining popularity. To stay abreast with technological advancements in testing for such products, in March 2017, a scientist went on a week-long attachment to the Forensic Chemistry Center of the U.S. Food and Drug Administration to gain insights on methodologies used in the analysis of anabolic steroids in bodybuilding supplements.
Training Our Counterparts

We also worked with our partners to accelerate progress in forensic and analytical sciences across the world.

**ENHANCING FOOD SAFETY STANDARDS**

We provided technical training to an Assistant Government Analyst from the Department of Agriculture, Sri Lanka in November and December 2016. Training areas included analytes such as ochratoxin A, deoxynivalenol, aflatoxins B & G and artificial sweeteners.

**SINGAPORE ACADEMY OF LAW FORENSIC CRIMINOLOGY COURSE**

We ran a course in October 2016 to help criminal lawyers understand the basics of the science and the application of forensic science in crime investigations. During the course, participants also visited the forensic laboratories to gain first-hand insights into many state-of-the-art equipment and instrumentation used in the analysis of evidence. In addition, participants had the opportunity to experience hands-on microscopic work and test their understanding of bloodstain pattern analysis.

**SPEAKING AT THE UNITED NATIONS OFFICE ON DRUGS AND CRIME’S (UNODC) WORKSHOP**

In August 2016, the UNODC South Asia office invited HSA to conduct a workshop held in New Delhi, India. The workshop aimed to help law enforcement officers and forensic experts understand New Psychoactive Substances (NPS) and their analytical methods.

**SPEAKING AT THE NATIONAL POLICE UNIVERSITY OF CHINA’S (NPUC) FORUM**

HSA spoke on drug control strategies and techniques at a three-day forum on “International Forum on Drug Control Strategy and Techniques” held in Shenyang, China. The event took place in September 2016 and saw forensic experts from China as well as international speakers exchange views on issues concerning drug control strategies and techniques in their provinces/countries.

**GOING BEYOND OUR SHORES**

We participate in global and regional events, workgroups and meetings so that we can share and gain new knowledge from our partners around the world.

**ASEAN INVOLVEMENT IN ASEAN ACTIVITIES**

HSA participated in the Inaugural Meeting of the ASEAN Reference Material Network in July 2016 as one of its founding members together with the National Institute of Metrology, Thailand and the Department of Chemistry, Malaysia with support from the National Metrology Institute of Malaysia.

The Cosmetics Laboratory, as Chair to ASEAN Cosmetics Testing Laboratory Committee, attended meetings in Vietnam and Brunei Darussalam. In 2016, the laboratories embarked on inter-laboratory comparison studies on cosmetic methods to establish and strengthen the competencies of national laboratories in ASEAN.

We also participated in two ASEAN inter-laboratory comparison studies. This included determination of diethylene glycol, a residual contaminant and alpha hydroxyl acids (AHAs) compounds. AHA is a popular ingredient permitted for use by up to 10% in skincare products. When used in excess, it can cause skin irritation and hyperpigmentation.

**CENTRAL INSTITUTE OF FORENSIC SCIENCE (CIFS)**

In September 2016, we were invited by the CIFS, Thailand to conduct a pre-assessment on the management and technical operations of the laboratory for conformance with the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB)-International accreditation programme.

**PARTICIPATING IN THE ASEAN REFERENCE SUBSTANCES PROJECT**

We continued our active involvement in the ASEAN Reference Substance Project – a project that establishes ASEAN secondary drug reference standards by providing an important source of reliable drug reference substances for use in ASEAN member countries. In 2016, HSA led the establishment of an ASEAN Reference Substance (PARS), trimethoprim with Indonesia, Malaysia, Myanmar and Philippines, and participated in the inter-laboratory collaborative study of PARS. It also participated in the inter-laboratory study of amiodipine besilate led by Thailand.

**ORGANISING THE ASEAN PROFICIENCY PROGRAMME**

We organised the annual ASEAN Proficiency Programme on aflatoxins B & G in rice to enhance capacity-building of the ASEAN government laboratories. Twenty-four official laboratories participated in the programme.

**WORKING WITH THE FOOD AND DRUG ADMINISTRATION (FDA) MYANMAR**

We provided technical assistance to FDA Myanmar in the investigation of aflatoxins B & G in cooking oils at their local retail market. This move was intended to support FDA Myanmar in building their capability in the analysis of aflatoxins B & G.
I BEYOND ASEAN

REVIEWING BEST PRACTICES

HSA reviewed three best practices on the subjects of Alterations, Stamps and Stamp Impressions and Examination of Inkjet Printed Documents for the European Document Experts Working Group of European Network of Forensic Science Institutes.

More than 10 best practices have been developed by the workgroup, and they are mainly used by various forensic science institutes in Europe.

INTERNATIONAL FORENSIC STRATEGIC ALLIANCE (IFSA) ANNUAL MEETING

HSA represented the Asian Forensic Sciences Network as a Board Member of the IFSA and participated at the IFSA Annual Meeting which was held at Lyon, France in conjunction with the INTERPOL International Forensic Science Managers Symposium in October 2016.

UNODC EXPERT CONSULTATION ON FORENSIC TOXICOLOGY AND DRUG CONTROL

We participated in the UNODC Expert Consultation on Forensic Toxicology and Drug Control meeting in Vienna in June 2016. Participants discussed the development of a platform for sharing NPS-related toxicological data amongst the forensic toxicology community and other relevant stakeholders, as well as improving the prioritisation of NPS for national/international action.

UNITED STATES PHARMACOPOEIA

United States Pharmacopeia (USP) continued to collaborate with HSA to establish the dissolution reference range for the new lot of USP Prednisone tablets, which would be used as the calibrator for performance qualification of Dissolution Apparatus. In 2016, our results were used by USP in establishing the reference range on Prednisone Tablets.

ISO STANDARDS ON FORENSIC SCIENCE

HSA staff were accepted as members of the National Mirror Working Group (NMWG) for ISO/TC 272 Forensic Sciences, a multi-agency workgroup looking after the development of international standards for forensic science. One of them was also appointed as the deputy convenor of the NMWG, where he represented Singapore in the ISO/TC 272 meetings.

OFFICIAL MEDICINES CONTROL LABORATORIES (OMCL) ACTIVITIES

HSA was invited to join the 21st Annual Meeting of the OMCL Network held in May 2016, in Paris, France. Representatives from 61 OMCLs across 38 countries exchanged latest technical information and discussed emerging pharmacological analysis on issues relating to health and dietary supplements.

OFFICIAL COSMETICS CONTROL LABORATORIES OF EDMQ

HSA was invited to speak at the 1st Symposium of the Network of Official Cosmetics Control Laboratories (OCCLO), which took place in June 2016 at the headquarters of European Directorate for the Quality of Medicines and Healthcare (EDQM), Strasbourg, France.

INTERPOL FORENSIC MEETINGS

Over the year, we participated in meetings with INTERPOL:

INTERPOL forensics meeting on Assessing the Forensic Capabilities in Southeast Asia and the Pacific, INTERPOL Global Complex for Innovation, Singapore. WHEN: 19 – 20 APRIL 2016

INTERPOL Training to Enhance the Forensic Capabilities in ASEAN Member States, where we hosted the ASEAN participants to a laboratory tour. WHEN: 28 NOVEMBER TO 2 DECEMBER 2016

PREVENTING FOOD FRAUD

In April 2016, we participated in the International Atomic Energy Agency (IAEA) Rice Project, with a meeting held in Beijing. The project aimed to prevent food fraud as a result of false declaration of rice geographic origin for economic gains. It also served to build technological capacity for food traceability and food safety control systems through the use of nuclear analytical techniques.

IMPROVING FOOD SAFETY STANDARDS

The current term held by HSA as the WHO Collaborating Centre has been renewed for another four years. This exemplifies HSA’s contribution in providing valuable and continual input in health matters and food security on the global stage.

We continued to support meetings organised by WHO. These meetings seek to address some of the gaps identified in the strategic plan from 2013 to 2022 and help to improve communication between WHO, its partners and stakeholders. "First Meeting of WHO Collaborating Centres in Food Safety and Other Stakeholders” was held in Geneva, Switzerland in May 2016.

In November 2016, a poster titled “Collaborating Centre for Food Contamination Monitoring” was presented at the Second Regional Forum of WHO Collaborating Centres held in Manila, Philippines.

WHEN: 28 NOVEMBER TO 2 DECEMBER 2016

WHO COLLABORATING CENTRE FOR DRUG QUALITY ASSURANCE

HSA continues to actively support WHO activities under its Terms of Reference as its Collaborating Centre. Activities conducted during the year include:

1. MONOGRAPH DEVELOPMENT WORK

The Pharmaceutical Laboratory has successfully completed the development of two draft monographs on Pyrimethamine and Pyrimethamine tablets for inclusion to the International Pharmacopoeia. The laboratory has also developed an additional TLC Identity Test for the draft monographs on Ceftriaxone sodium and Ceftriaxone for Injection.

2. CONSULTATION WORK AND TECHNICAL CONTRIBUTIONS

WHEN: WHO Headquarters in Geneva, Switzerland

WHEN: May 2016

HSA attended the Consultation Meet on Quality Control Laboratory Tools and Specifications for Medicines Screening Technology, Sampling and Specifications for Medicines as a WHO Temporary Advisor.

3. SECOND REGIONAL FORUM OF WHO COLLABORATING CENTRES (WHOCC) IN THE WESTERN PACIFIC

When: Western Pacific in Manila, Philippines

We attended the Second Regional Forum of WHO Collaborating Centres, together with other WHOCC representatives from the Health Promotion Board, National University of Singapore, Ministry of Health as well as NIA. We presented on the activities conducted by the Pharmaceutical and Cigarette Testing Laboratories.

Maintaining Ties with WHO

During the year, we continued to actively participate in World Health Organization (WHO) activities.
Participating in International Events

During the year, our staff took part in international events where we visited and hosted partners with the aim of exchanging expertise. Through these efforts, we strengthened our global ties as well as improved our technical knowledge.

INTERNATIONAL LABORATORIES FORUM ON COUNTERFEIT MEDICINES (ILFCM)

We participated in the ILFCM annual meeting in Paris, France in May 2016. At the forum, participants exchanged technical information on new PDE-5 inhibitors analogues and synthetic stimulants detected in complementary health products. They also shared their experiences in testing illegal peptides and proteins, marijuana for medical use, medical devices and smart drugs as well as new technologies such as 3D printing and its application in the pharmaceutical industry.

HSA hosted a delegation of six visitors from China’s State Administration of Traditional Chinese Medicine in November 2016. The visit was aimed at facilitating mutual exchange of information and expertise on the teaching, practice, regulation and research of TCM between China and Singapore. The event provided the visitors with a good overview of HSA’s regulatory and testing framework of complementary health products in Singapore.

TECHNICAL SUPPORT TO WHO

We were invited as Temporary Advisor to WHO’s Prevention of Non-Communicable Disease Department to provide technical support to WHO at the 7th Session of the Framework Convention on Tobacco Control held in New Delhi, India in November 2016. During the session, we presented on the application of validated methods in monitoring toxicants in tobacco products for regulatory setting purposes.

ASCLD/LAB RE-ACCREDITATION

FORENSIC LABORATORIES

In January 2017, over a thousand documents were examined by a team of international assessors across various disciplines and categories of testing for the ASCLD-LAB re-accreditation. The accreditation reflects on the forensic laboratories’ excellence in complying with stringent standard operating procedures that will withstand legal challenges in court. We are proud to have done well and pleased to have earned accreditation in the “Crime Scene” discipline for the first time.

NAME ACCREDITATION

FORENSIC MEDICINE DIVISION

Reaccredited with the National Association of Medical Examiners (NAME) Accreditation programme for another five years.

ISO/IEC 17043 ASSESSMENT

CHEMICAL METROLOGY DIVISION

Chemical Metrology Laboratory (September 2016)

Successfully underwent the surveillance assessment by SAC-SINGLAS with the current accreditation scope.

CONTINUALLY SURPASSING STANDARDS

At HSA, we strive to uphold the highest certifications and accreditations. Our achievements in this area attest to the quality standards we set for ourselves.

PhARMACEUTICAL DIVISION

Three laboratories achieved full compliance to ISO/IEC17025 in the SAC-SINGLAS annual assessment:

1. Pharmaceutical Laboratory (April 2016)
   Successfully accredited two test methods:
   - Analysis of active pharmaceutical ingredients in cough mixture
   - Identification of cannabinoids in herbal products

2. Cigarette Testing Laboratory (April 2016)
   Successfully underwent the surveillance assessment with the current accreditation scope.

3. Cosmetic Laboratory (April 2016)
   Successfully accredited two test methods:
   - Determination of isothiazolinones in cosmetic product by HPLC-DAD
   - Identification of cannabinoids in cosmetic products

FOOD SAFETY DIVISION

Two laboratories achieved full compliance to ISO/IEC17025 in the SAC-SINGLAS annual assessment:

1. Food Safety Laboratory (April 2017)
   Successfully accredited four test methods:
   - Malachite Green, Leucomalachite Green, Crystal Violet and Leucocrystal Violet in seafood by LC-MS-MS
   - Pyrrolizidine alkaloids in honey by LC-MS-MS
   - Sulphur dioxide by iodine titration
   - 4-methylimidazole in sauces by LC-MS-MS

2. Water Testing Laboratory (April 2017)
   Successfully accredited one test method:
   - Acrylamide in water by LC-MS-MS

SHARING INFORMATION ON TRADITIONAL CHINESE MEDICINES (TCM)

We continue to actively support WHO activities under its Terms of Reference as its Collaborating Centre. Activities conducted during the year are as follows:

WHO TOBACCO LABORATORY NETWORK (WHO TOBLABNET)

HSA was named Chairman to WHO ToLabNet meeting at Maastricht, The Netherlands in May 2016. As the Chairperson to WHO ToLabNet, we were invited to the WHO Strategicizing Meeting on Tobacco Product Regulation held in September 2016 in Montreux, Switzerland. The meeting discussed the policy and global tobacco regulatory needs which will help shape WHO’s future tobacco product regulation activities.

During the year, our staff took part in international events where we visited and hosted partners with the aim of exchanging expertise. Through these efforts, we strengthened our global ties as well as improved our technical knowledge.

INTERNATIONAL LABORATORIES FORUM ON COUNTERFEIT MEDICINES (ILFCM)

We participated in the ILFCM annual meeting in Paris, France in May 2016. At the forum, participants exchanged technical information on new PDE-5 inhibitors analogues and synthetic stimulants detected in complementary health products. They also shared their experiences in testing illegal peptides and proteins, marijuana for medical use, medical devices and smart drugs as well as new technologies such as 3D printing and its application in the pharmaceutical industry.