FORENSIC EXHIBIT.

Shining a spotlight on the work of the Australia New Zealand forensic science community

Message from the Director



Dr Grant Liddy Director, ANZPAA NIFS

Welcome to the first edition of *The Forensic Exhibit* newsletter for 2023. We are proud to present you with an overview of the exciting work of the Australia New Zealand forensic sciences community.

ANZPAA NIFS Work Program

We are focused on progressing our current ANZPAA NIFS Business Plan 2022/23 and planning proposed work program activities for the 2023/24 plan for ANZFEC approval.

Key work items underway include:

- Forensic Fundamentals project aimed at identifying the underpinning science and validation requirements for the different areas of forensic science. ANZPAA NIFS recently completed the disciplines of Forensic Odontology, Shoe and Tyre Mark Comparison and Fire Investigation – Ignitable liquids with the help of our working group members (see page 2). Next we will review the Digital Forensics capability;
- Forensic Capability Mapping project

 aimed to identify current and emerging capability risks for our ANZFEC stakeholders, recently completed for the Firearm discipline and currently underway for the Document discipline.
- Enhancing Practice project through an ANZFEC sub-committee, ANZPAA NIFS have also commenced work to review the recommendations from the Queensland DNA inquiry;
- Workflow Mapping Biology project aimed to identify opportunities for process improvements, cost savings and improved turn-around times for our ANZFEC agencies. A key update was provided at our February ANZFEC meeting with additional metrics sought for the completion of the program in July.

ANZPAA NIFS Groups Workshops

It has been great to see ANZPAA NIFS Group members starting to come back together, where possible in a face-to-face environment. The Quality SAG hosted a two-day workshop in March which included two presentations from the Houston Forensic Science Center open to the greater forensics community. With over 150 attendees these presentations were our most attended events to date (see page 3). The Firearm SAG, Face SAG and Clandestine Laboratory Project Working Group have also all held workshops with great success (see pages 4-5).

Conferences

- IAFS we are looking forward to the IAFS/ANZFSS Symposium running in Sydney in November and encourage the forensic science community to support attendance at these important events to share and discuss new research and thinking in the forensic sciences. ANZPAA NIFS are sponsoring the notebooks so be sure to grab one!
- PC23 ANZPAA recently announced the ANZPAA Police Conference 2023 (PC23) which will be held in Melbourne on 9-10 November. The conference will focus on 'The Power of Partnerships', and I'm pleased to advise that Forensics again will have an opportunity to present at the conference.

Welcome and Farewells

I would like to acknowledge the work of Hannah Jarman and Amy Sutton who have returned to Queensland Health and ACT Government Analytical Laboratory, respectively. Hannah was instrumental in delivering a number of the Forensic Fundamental reports and the Engender Change *Leading Through A Crisis* Symposium. Although Amy's time was only short with NIFS she made a great start on our addressing Forensic Fundamentals program. We wish both Hannah and Amy continued success.

Lecinda Collins-Brown, on secondment with ANZPAA NIFS from ChemCentre, has extended her stay with us until the end of 2023. Thanks to ChemCentre for supporting Lecinda's extension, where she will continue her great work on the workflow mapping program and forensic fundamentals. We also welcomed back Karina Muharam from maternity leave. It's great to have Karina back and she has been assisting with the Enhancing Practice program of work.

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NIFS would also like to thank Dr Gavin Turbett (PathWest) who has been the Chair of the ANZFEC Board since 2019. Dr Turbett recently completed his second term as Chair and has been of great assistance to NIFS in this role. We now look forward to working with Detective Superintendent Damian Powell (SAPOL) as Chair and Michael Symonds (NSW Forensic & Analytical Science Service) as Deputy Chair.

ANZFEC has had a change at Board level with a number of members changing since our last newsletter; we farewelled Colin Priddis, Dr Sarah Benson and Lara Keller; and welcomed Bianca Douglas, Dr Simon Walsh and Dr Claire Heney. Professor Linzi Wilson-Wilde also has moved to Forensic Science Queensland as Chief Executive Officer, with Andrew Camilleri taking on the role of Acting Director at Forensic Science SA. We thank all ANZFEC members for their continued support.

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ANZPAA Australia New Zealand Policing Advisory Agency



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Research and Innovation Roadmap

The purpose of the ANZPAA NIFS Research and Innovation Roadmap 2020-2025 is to promote the investment of funding and resources in research that is operationally relevant and of vital importance to forensic science service provision in Australia and New Zealand. ANZPAA NIFS developed the Roadmap through extensive engagement with the forensic community. It defines research areas that are important to strengthening current forensic science processes and building future capability. The figure below summarises the Roadmap research areas aligned to the ANZPAA Strategic Priorities.

Promoting Research in Forensic Science

ANZPAA Strategic Priority	Research Area	
Address Risk $ ightarrow$	Forensic FundamentalsStHuman FactorsImData SetsDeNew ToolsAuForensic IntelligenceUs	Strengthening underpinning science Improving objectivity & practice Developing activity level reporting Automating processes & creating new cap Using forensic data for broader purposes
Enhancing Practice \rightarrow		
Shaping Stronger Connections \rightarrow		

You can find more information on the Roadmap via the following link: https://www.anzpaa.org.au/forensic-science/services/research-and-innovation

Forensic Fundamentals



The multi-year ANZPAA NIFS Forensic Fundamentals project aims to assess the foundational validity of each forensic discipline.

The Forensic Fundamental Gap Analysis Reports provide ANZFEC and ANZPAA NIFS Groups with greater visibility and awareness of the reliability of forensic science disciplines.

The Reports also proactively identify forensic science areas for further research and empirical testing. At the ANZFEC meeting 24 held in February, the latest Forensic Fundamentals Gap Analysis 2023 was approved for distribution within ANZFEC agencies. This latest Gap Analysis examines the disciplines of Forensic Odontology, Shoe and Tyre Mark Comparison and Fire Investigation – Ignitable liquids.

capabilities

The foundational validity of these disciplines were found to have strong empirical support. Many of the research priorities identified by the working groups were discipline-specific gaps regarding 'expert ability' and investigations to strengthen expert decisions making and improve consensus among experts. Examples include investigations into the expert's ability to accurately identify a human bite mark on human skin and give a weighting to the opinion for forensic odontology; realistic scenario testing of detecting ignitable liquids from hands to establish more accurate persistence time frames for fire investigations; and calibration of expert ability to select opinion levels for association/nonassociation between shoe and tyre mark impressions and exemplars.

ANZPAA NIFS would like to thank the working group members for their participation in the project, and contribution to producing the latest gap analysis report.

Research Congratulations

In *The Forensic Exhibit*, Volume 4, Issue 3 (October 2021), we featured an update on an ANZPAA NIFS sponsored research project **A unifying approach for evaluating transfer and persistence trace evidence**. A condensed version of the report findings was published in the Journal of Forensic Sciences: https://onlinelibrary. wiley.com/doi/abs/10.1111/1556-4029.14833.

Subsequently, the article was chosen as a 2022 JFS Noteworthy Article.

Congratulations to PhD student Michael Aberle and the rest of the Canberra team: Prof James Robertson (University of Canberra (UC)), Dr Brenda Woods (AFP), Prof Hilton Kobus (UC) and Associate Professor Jurian Hoogewerff (UC) on the thought-provoking report.

Forensic Biology Workflow Mapping Project

In July 2022, ANZPAA NIFS commenced the Forensic Biology Workflow Mapping project, with the aim to review and compare the different jurisdictional workflows for forensic biology to identify opportunities for process improvement, cost savings, and a reduction in turn around times.

Between September and November 2022, an ANZPAA NIFS project officer completed the one-day agency visits to observe the forensic biology workflow and collect critical data and information. From these agency visits, a crossjurisdictional framework with associated metric options were provided to ANZFEC for consideration and approval at the February meeting.

The next phase of the project will include the completion of the strategic level reports, detailing observations from the one-day agency visits, process maps and comparative metadata.

ANZPAA NIFS would like to acknowledge the agency contacts working closely with the NIFS project officer to provide ongoing consultation and data, to ensure the project can provide maximum value across the forensic biology discipline.

Quality SAG Workshop - Transparency in Forensic Quality Management

Jaylan Platt

Forensic & Analytical Science Service Quality Specialist Advisory Group Member



The Quality Specialist Advisory Group (QSAG) was fortunate enough to meet in-person for the first time since the COVID-19 pandemic in a 2-day workshop at the ANZPAA NIFS offices on the 16-17 March. The workshop titled: Transparency in forensic quality management: perspectives from the Houston Forensic Science Center, consisted of presentations from guest speakers, along with subsequent discussions on several key areas, including NATA accreditation and the Commission of Inquiry into DNA testing in Queensland.

Dr Peter Stout (CEO), Jackeline Moral (Interim Quality Director) and Erika Ziemak (former Quality Director) of the Houston Forensic Science Center (HFSC) graciously offered their time to the members of the QSAG and wider forensic community to provide insight to their organisation and its transparent approach to quality management in forensic science. The virtual sessions were opened to staff from all ANZFEC agencies and were very well attended with over 150 participants joining each day for the presentations.

The HFSC took over forensic services for the City of Houston, Texas, in 2014 on the back of a series of issues from the previous caretakers of these services. Since then, the HFSC has pushed to become leaders in the field of forensic science service provision with its commitment to creating a positive quality culture and fostering continual improvement. The transparency of the organisation is inspiring and has gone a long way to rebuilding the public trust in the services they provide.

The passion for the HFSC and the work that the organisation undertakes was clear in the presentations. The drive to continually learn from mistakes and seeing everything as an opportunity to improve practice was a refreshing take on the often-stifled perspective associated with performance indicators.

Dr Stout and his colleagues detailed how transparency is held in the highest regard at the HFSC, with their organisational documentation, including records of quality issues and accreditation findings, freely available to the public on their website. The quality informed approach that they employ is evident in their celebration of 'mistakes' and their viewing of them as learning opportunities rather than things to be shameful of. The program of blind system testing which has been implemented at HFSC across almost every discipline represents around 5% of samples tested by the facility and demonstrates the importance and benefits of continually pushing lab systems to their limits to identify weaknesses. In addition, the HFSC has adopted an aggressive program of OSAC standards implementation to ensure currency with best practice. The organisational culture of viewing quality as a continual improvement opportunity, rather than purely compliance-based activity, has ensured that the delivery of high-quality scientific services continues to advance.

The HFSC showed everyone in attendance that entrenching quality-based approaches to service delivery allows an organisation to openly learn from its mistakes, embrace change and create their own standard of practice to improve service delivery to the wider community. Further, the experience of the HFSC highlighted how critical the overarching governance and resourcing structures surrounding the forensic service are to ensuring that a positive quality culture is created and sustained.

All three presenters from the HFSC were extremely engaging in their Q&A and generous in the information they provided to our agencies and we look forward to future opportunities to collaborate with them.

Following the HFSC presentations, the QSAG met for a regular meeting to further the workshop discussions on transparency in forensic quality management. With the report from the Commission of Inquiry into DNA testing in Queensland having been handed down in December 2022, and with input from QSAG mentor Linzi Wilson-Wilde, the recommendations made in the report were discussed at length along with the direction that the newly formed Forensic Science Queensland is taking as a result. From the recommendations made around validation and verification of methods within the laboratory, the QSAG has commenced a project under direction of ANZFEC and ANZPAA NIFS, into an improved approach to the validation and verification in forensic science. The findings of the initial stages of this project will assist in guiding improved practice for all forensic laboratories in validation and verification processes.

The role of accreditation in laboratories was also heavily discussed, including an invited presentation from NATA. Linzi Wilson-Wilde also provided an update on the progress of ISO 21043, which is expected to be published in full within the next 12 months. Whilst compliance with accreditation standards such as ISO/IEC 17025 should be the mandatory minimum requirement, we must ensure that we are aware of and develop field-relevant best practice standards and guidance, and resource programs to implement these as a means to further strengthen and standardise quality practices across our agencies.

The Commission of Inquiry in Queensland has sparked comprehensive discussions around the provision of scientifically sound forensic services across all forensic organisations. The wider implications of the findings have not gone unnoticed by the QSAG, who will be working on creating a best practice quality framework that focuses on the critical application of quality and continual improvement in forensic science.

The QSAG extends our sincerest thanks to the guest speakers from HFSC for their wonderful insights into transparent quality management in forensic laboratories, and to the ANZPAA NIFS team for their effort in coordinating the workshop. The presentations from the HFSC have been recorded and are available to all ANZFEC member agencies upon request to secretariat.nifs@anzpaa.org.au.

The Forensic Exhibit. Workshops and Meetings

Face SAG Annual Meeting

Aniela Pieterse

Australian Federal Police Face Specialist Advisory Group Chair



The first Face Specialist Advisory Group (SAG) meeting for 2023 was held in sunny Brisbane from the 28 February through to 2 March. Hosted by Queensland Police, the meeting was represented by The Australian Federal Police, New South Wales Police Force, South Australia Police, Victoria Police, New Zealand Police, Western Australia Police Force and guests from the Australian Passports Office (APO) and The Department of Home Affairs. The group was thrilled to have our mentor Superintendent Bruce McNab from Queensland Police back with us again.

This was the first face-to-face meeting post COVID-19, the group have been really dedicated in meeting virtually throughout the pandemic at least twice a year.

The Facial Identification and Facial Recognition (FR) disciplines are in a rapid area of growth and challenge where the policy and legislative frameworks aren't able to keep up with the use both through government and law enforcement, as well as private usage. This is an issue seen internationally where opportunities exist for legislation to regulate the use of technology to ensure its ethical and proportionate use. The public perception and trust of the technology is relatively low; most will remember the media reporting of Bunnings use of FR technology in store and the public reaction through media reporting, there is still a lot of work that can be done to present information on how the technology is used within law enforcement and government and the positive impacts for the community.

The Face SAG had presentations from Queensland Roads and Transport, Home Affairs and the APO on their current use of FR technology and the use of digital identities and the opportunities and challenges that has come from the uplift of the capability. Queensland Police Media also briefed the group on media strategy and possible pathways to educating the public on the accurate use of technology through positive case use.

Facial Identification Teams across Australian Law Enforcement teams vary in team size, and are at various stages of development and expertise. There is an equal balance of teams placed in intelligence and forensic commands, and also sworn police versus professional staff. With these parameters in place, the group has set priorities in developing resources to assist teams and their management into developing their capability and quality frameworks.

As part of the meeting, the members workshopped developing resources for teams into the recommended competencies needed for the role of a Facial Reviewer and a Facial Examiner. It was a huge achievement to complete the drafts of both documents during the meeting.

Current research supports the importance of trained human examiners in the FR process, so moving forward, the group aims to build on our quality frameworks through the development of shared competency testing and also resources to provide factual information about FR technology and the human based comparison processes that work alongside it.

Even more ambitiously, the group identified a current gap in the formal learning and development space with Facial Identification Conferences and Workshops. Members of the group have decided to explore this offline outside of the SAG, so watch this space!!



The Forensic Exhibit. Workshops and Meetings

Clandestine Laboratory Project Working Group – Evaluative Reporting Workshop

Oliver Locos Northern Territory Police, Fire & Emergency Services Clandestine Laboratory Project Working Group Member



The Clandestine Laboratory Project Working Group is a group of representatives from forensic laboratories across Australia and New Zealand. The group's role is to identify and discuss contemporary Trans-Tasman issues, provide solutions and feed information to the Drug Specialist Advisory Group. This working group facilitated a two-session workshop on the 14-15 March to introduce the concept of evaluative reporting into opinion-based reports involving the manufacture of prohibited substances.

Drug analyses in forensic science have been, and still are, predominantly factbased in reporting to the judicial system. When an interpretation of the evidence is required to give an opinion, it is focused on high-level questions such as 'Did a manufacture of a drug take place at a specific location?' Until recently, the statement given at this level has been heavily dependent on the skill of the expert answering the question, making the answer subject to cognitive bias and about as variable between experts as their experience. Evaluative reporting is a formalised thought process that assesses the weight of evidence in light of competing hypotheses established for a case. It is a means of applying rigour, transparency, logical structure, and consistency to thought processes. Further information about evaluative reporting can be found in 'An introductory guide to Evaluative Reporting', published by ANZPAA NIFS (which can be located on the ANZPAA NIFS Website: Evaluative Reporting).

The Institute of Environmental Science and Research (ESR) has succeeded in conducting and publishing the necessary research to develop ground truths in numerical and non-numerical based conclusions on the manufacture of methamphetamine using evaluative reporting. With this innovation in analysis and interpretation processes, ESR led a workshop for Clandestine Laboratory practitioners with assistance from members of other laboratories, including ChemCentre, Victoria Police Forensic Services Department, Forensic Science SA and Queensland Health Forensic and Scientific Services.

The first session introduced the concept of the evaluative reporting framework and its sequence of setting the propositions, developing the expectations, conducting the analyses, evaluating the findings and reporting the results. The review process and validating the model by opinion calibration testing were also discussed. Victoria Police gave numerous examples from other disciplines, including document examination and ballistics. Further examples of numerical and non-numerical evaluations performed in ESR's pioneering work were also provided. The second session was a discussion exercise set by ESR where each jurisdiction was given a scenario to process through the introduced framework, develop their competing hypotheses, evaluate the evidence and conclude with the strength of a particular hypothesis. The findings were compared across each jurisdiction with the same scenario.

The attendees from the Northern Territory were impressed with the results as, quite pleasingly, they were similar in almost all cases (including ours). The few differences, attributed to the different weighting of evidence, highlighted the importance of validation before introducing this reporting as part of the core for clandestine laboratory reporting. The NT was also impressed with the considerable attention and practise towards setting propositions as the amount of data needed and the likelihood ratio changes depending on where the proposition is in the hierarchy of proposition levels.

Over 30 clandestine laboratory practitioners from Australia and New Zealand attended this virtual twosession workshop. Feedback from other jurisdictions was that it was a great initiative that promoted several robust and enthusiastic discussions by participants in their respective agencies.

Police Dog Visits - A Staff Wellbeing Initiative

Forensic & Analytical Science Service

Staff at the Forensic & Analytical Science Service (FASS) in Sydney recently welcomed a number of very special guests who have expertise that is extremely valuable to NSW Police but who will only accept food, pats and toys as rewards.

Tilly and Chee are cadaver and explosive detecting dogs, and their visit was part of a FASS staff wellbeing initiative. They were the first in what will be a series of police dog visits across all five FASS sites in NSW.

Accompanied by their handler Senior Constable Adam Aitken, the playful dogs willingly accepted many pats and belly rubs and were happy to show off their extraordinary odour detecting skills.

Dogs like Tilly and Chee receive extensive training from the age of 18 months after they have been through the NSW Police Dog Development Program which involves living with approved foster carers while they undergo basic obedience and socialisation training together with suitability assessments.

Training involves aids such as synthetic odours and takes place five days a week over three months. "The dogs need to be driven to please their handler and have a high game drive which means they are keen to succeed and be rewarded," says Adam.

Tilly will bark if she locates something whereas Chee has been trained to stare. Neither dog will stop that behaviour until Adam reaches them.



Chee receives food as her reward because as a drug detecting dog she works in busy, crowded environments whereas Tilly receives 'article' rewards in the form of a special toy or ball that she only gets to play with at work. Tilly is known to parade her special toy in front of other dogs.

There are only a small number of cadaver dogs and handlers in NSW, and so Adam and Tilly travel a lot. Recently Tilly was involved in the search for missing boy William Tyrell in northern NSW. Adam has been a dog trainer and handler for 13 years and both Tilly and Chee live with him. Adam says although "they are pets at home" he keeps his backyard free of stimulation so that the dogs are excited to go to work.

And yes the work is as good as it sounds with Adam declaring "it's the best job in Police!"

Evaluation of STK[®] Sperm Tracker Lab for the detection of semen stains at Forensic Science SA

Forensic Science SA

Operational forensic laboratories use a variety of screening tests to localise and presumptively identify biological stains on exhibits. Many laboratories, including Forensic Science SA (FSSA), use the acid phosphatase (AP) test to presumptively identify semen. This test relies on a colorimetric reaction catalysed by the AP enzyme (present at high levels in semen) which produces a purple diazo dye precipitate.

Despite being easy to perform and inexpensive, there are several disadvantages to the AP test. To preserve exhibit integrity and prevent adverse effects on downstream DNA profiling, AP reagent cannot be applied directly to the exhibit. Instead, moistened filter paper is pressed onto the area of interest, removed, and placed into AP reagent. This can lead to dilution or dispersion of the stain on the exhibit. It may also lead to inaccurate localisation of the stain on the exhibit if the original orientation of the filter paper is not properly marked. The filter paper is not forensic DNA grade which may lead to inadvertent DNA contamination of the exhibit. The AP reagent is also carcinogenic.

STK[®] Sperm Tracker Lab (STL) (AXO Science) is a commercial forensic DNA grade (ISO 18385) alternative to the AP test. It is supplied as ready to use, nontoxic, impregnated paper sheets or rolls. Moistened STL paper is pressed onto the area of interest for up to 10 minutes and, in the presence of AP, stains will glow blue under 365 nm UV light. It enables stains to be visualised directly on the exhibit and the manufacturer claims that it is highly specific and sensitive for semen.

We evaluated the performance of STL as a possible replacement for the AP test. Firstly, we tested the sensitivity of STL for semen dilutions on a variety of fabrics and swabs; 100% cotton, 100% polyester fleece, 80/20% cotton/polyester blend, denim, bamboo, Copan cotton swabs and Sarstedt Forensic XL viscose swabs. Depending on either the colour or composition of the substrate, the sensitivity of STL was determined to be 2 to 50-fold higher than for the AP test. The ability to detect the STL fluorescence signal was better on darker coloured fabrics. STL successfully detected semen in neat mixed semen/blood and semen/ saliva stains

We also examined the specificity of STL for semen stains. Some reactivity of STL to vaginal secretions and faecal stains was observed but this was not unexpected due to the known presence of AP in these body fluids. Positive reactions to faeces and vaginal secretions also occur with the AP test. We also observed false positive reactions to a small number of non-biological substances, such as pear, potato, and avocado. These are also known to react with the AP test.

As the reagents in the STL paper come into direct contact with the putative semen stain, we investigated whether they had any impact on downstream DNA yield and profiling outcome. The DNA yield, degradation index, average profile strength, and profile balance for STL treated and untreated semen stains was compared. No significant differences were identified in any of these four metrics between the treated and untreated samples which indicated that STL was compatible with downstream DNA profiling techniques.

One limitation of the STL paper was that it curled up once moistened. This made it difficult to place the paper onto the exhibit, especially when small pieces of STL paper were used. The issue was less problematic for larger pieces of STL paper. This issue was considered relatively minor and was overcome by pinning the paper to keep it in place.

Our results confirmed that STL is a superior and more sensitive alternative to the AP test for the routine detection of semen stains in operational casework. We aim to implement this product into our Evidence Recovery workflow.



▲ Neat semen stain detected on black cotton fabric using (A) STK[®] Sperm Tracker Lab (STL) paper and (B) conventional AP test. The semen stain was visualised with the STL paper left in place whereas the AP test required the filter paper to be removed from the stain and then placed into AP reagent

Replacing HFE7100: Utilising industry and university collaboration through research internships to solve a wicked problem

Nick Harvey-Walker

New South Wales Police Force

HFE7100 is a commonly used non-toxic non-flammable carrier solvent in latent fingerprint development chemicals, including indanedione and ninhydrin for porous surfaces. However, its continued use is becoming challenging, with an EU directive starting a phase down of the chemical, and major suppliers such as 3M announcing they are ceasing production of the chemical in 2025. This is due to environmental concerns around its use, such as global warming potential, ozone depletion, and that it belongs to a class of 'forever chemicals' that do not break down naturally. There is an urgent need to find a suitable alternative with equal or better fingerprint development quality. This is where a ground-breaking research study conducted at the NSW Police Force in conjunction with the Western Sydney University (WSU) and University of Technology, Sydney (UTS) comes into play.

The first part of the study saw two Masters of Research students from WSU complete a 6-month internship at the NSW Police Force Crime Scene Services Branch fingerprint laboratory. The two students focused on identifying a variety of suitable solvent alternatives, balancing cost, availability, safety, and the impact on the environment. Petroleum spirits was a clear leader based on previous research, and its potential to save up to \$50,000 a year in chemical costs. The students evaluated the quality of fingerprints developed using the petroleum spirits formulation of indandione and ninhydrin and compared it to the existing HFE7100 formulation.

The study was extensive, covering 972 fingerprints and several parameters such as donors, depletions, substrates, and time since deposition. To compare the effectiveness of HFE7100 and petroleum spirits, the study used split prints for direct comparison. The University of Canberra scale was used to grade the results, and an AFSAB fingerprint expert assessed the fingerprint quality. The results of this study demonstrated that transitioning to petroleum spirits would give comparable fingerprint quality to the existing HFE7100 formulation, providing a cost-effective and readily available option without sacrificing the quality of fingerprint development.

Building upon these findings, a third year Bachelor of Forensic Science student from UTS analysed the effects of these new formulations on downstream development techniques as part of a summer session internship. The student explored the impact petroleum spirits had on physical developer and document examination subsequent to chemical treatment. There was a concern based on some literature that the solvent could cause migration of the lipid component of sebaceous secretions that physical developer targets, or it may cause chromatographic diffusion of ink compromising handwriting analysis. This secondary study included 648 fingerprints and covered parameters such as donor, depletion, substrate, and age since deposition. The impact on ink diffusion, signature comparison, and ink evaluation were structurally assessed between the two formulations, including assessment by a document examination expert. This secondary study included 108 samples of handwriting, and covered parameters including ink

type, multiple ink samples from different manufacturers within each ink type, ink colour, and substrate. Fortunately, the results showed that the petroleum spiritsbased formulation did not negatively impact subsequent document examination methods and there was also no significant difference in physical developer performance on substrates treated with either of the two carrier solvents. These findings suggest that petroleum spirits is an excellent alternative to HFE7100.

This valuable research that could potentially shape the future of fingerprint enhancement and the success of these research projects can be attributed to the mutually beneficial internship program. Students had a unique opportunity to gain hands-on experience in the forensic science field while contributing to important research, working closely with experienced researchers and professionals in the NSW Police Force Crime Scene Services Branch and the Science and Research Unit. Similarly, this collaboration allowed the NSW Police Force to draw on the knowledge and experience from academics at UTS and WSU, ensuring the research meets high scientific standards, potentially allowing the students to publish the work in forensic journals.

NSW Police Force would like to acknowledge the invaluable contributions of the student interns towards this project: Charlotte Britton, Nicholas Matthews, Kerrie Simmons and Morgaine Sharp.

Decay Down Under: A retrospective Study of Post-mortem Interval Estimation in New South Wales

Janelle Dews¹, Maiken Ueland² and Annemarie Nadort¹

- ¹ New South Wales Police Force
- ² University of Technology Sydney

Criminal death investigations rely on estimating post-mortem interval (PMI) to identify victims, aid investigations, and provide answers to families. Accurately predicting time of death requires models that relate time to decomposition phase. Existing PMI estimation methods and scoring systems based on visual observations have been developed but haven't been tested in Australia.

A lack of available data makes it difficult to create accurate models. Since 2016, the Australian Facility for Taphonomic Experimental Research (AFTER) has enabled researchers to study human decomposition in controlled local environments. Although this advancement has been a significant step forward, there are also limitations in sample size, physiological and clinical parameters of the donated bodies, and the multitude of possible circumstances as seen in (alleged) crime scenes which may alter PMI estimation. Alternatively, largescale retrospective studies on available databases from law enforcement do exist for overseas climates, however, this has never been done using case data from New South Wales (NSW), Australia.

A retrospective study of NSW casework We evaluated real-world historical data from deceased cases from the NSW Police Force (NSWPF) for which the time of death could be determined with reasonable certainty. We used the Total Body Score (TBS) method, which was originally developed by Megyesi et al. in 2005, to score the level of decomposition using photographs. The quantitative framework follows the concept that the rate of decomposition increases as the temperature of the environment increases, leading to the prediction of PMI using the TBS scores and temperature data from local weather stations. Time and temperature are included by adding up the average temperature of each day since death, expressed as accumulated degree days (ADD).



The dataset consisted of 63 cases (59 indoor, 4 outdoor) involving decomposed human remains from NSW, Australia, from the period between 2013 and 2022. The estimated PMI ranged from 4 hrs to 209 days, and the ADD ranged from 4.4 to 3300 °C. Other parameters such as certainty of PMI, location inside/outside, position, cause of death, medication/ drugs/alcohol (if known), injuries and body size were also recorded. To create a predictive model, we adapted the improved and corrected linear regression method described in Smith et al. (2022).

The correlation coefficients in the NSWPF data showed a similar trend as Megyesi's model, but with wider confidence intervals, suggesting weaker predictive value in the NSW climate. Limitations included a small number of outdoor cases, indoor temperature variations from the Bureau of Metrology data, and mummification of bodies halting decomposition. Also, body coverings like pants, jumpers and blankets prevented accurate TBS calculation from casework photographs.

How can this be applied to casework? When investigators encounter a decomposed body, they can estimate the TBS by evaluating the decomposition of various body parts. Using a lookup table, the TBS is linked to the most likely ADD, and the upper and lower ADD that delineate the 95% confidence interval. To convert the ADD to PMI, the average daily temperature data from the local weather station must be obtained and summed in reverse order from the discovery date until the total equals the estimated ADD. The number of days required to reach this value will provide an approximate PMI, including the upper and lower boundaries. Can we improve the prediction intervals? A more detailed analysis of the data to identify additional factors that may contribute to the variation in the results. such as body weight, clothing, and other information available in the case files could lead to better predictions. In addition, modification of the scoring system to better suit Australian climate will be investigated. We also plan to expand our dataset by covering a broader range of geographical locations and including more cases involving outdoor decomposition. Leveraging the abundance of retrospective data available will refine our ability to predict PMI, which ultimately will help investigators in their investigative efforts.

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Analytical and Digital Transformation at the Drug Toxicology Unit

Forensic & Analytical Science Service

The Drug Toxicology Unit (DTU) is part of the Forensic & Analytical Science Service (FASS) within NSW Health Pathology and is located at North Ryde. The laboratory is accredited to ISO/IEC 17025:2018 and AS/NZS 4308:2008 and provides highly specialised analytical testing of urine and oral fluid for the presence of therapeutic and illicit drugs to support a wide range of clients in clinical and government agencies across NSW. It employs seventeen staff and analyses more than 75,000 specimens per annum, or approximately 300 specimens daily.

Prior to 2020, the stable of analytical instrumentation at the DTU, consisted of twelve Gas Chromatography Mass spectrometry (GC/MS) instruments. The pre-analytical sample preparation procedures necessary for these instruments were predominantly manual processes and required staff to handle hazardous chemicals and solvents.

Many of these instruments were also becoming increasingly unreliable and often interrupted service delivery. Information management within the laboratory was performed by a core laboratory information management system (LIMS), Genero (circa 1988). This LIMS only provided basic sample registration and reporting functions and could not interface with analytical instrumentation or adequately support the flow of information and data throughout the laboratory. Consequently, the LIMS relied very heavily on staff performing manual transcription and information transfers (using paper-based processes) to augment the deficits. All transcriptions required double-checking to minimise the possibility of errors creating significant operational inefficiencies and staffing challenges. The prevailing risks associated with the continued use of these



A Drug Toxicology Unit, Forensic & Analytical Science Service, NSW

outmoded analytical instruments and LIMS were: injury due to chemical exposure, occupational overuse syndrome (OOS) and higher than acceptable error rates.

A Business Process Redesign (BPR) End-to-End Review was conducted at DTU. The project mapped the operational workflow process throughout the laboratory and provided recommendations to inform redesign, future business decisions and work reforms. Following the BPR, an improvement implementation plan was formulated. The two core elements of the plan were: replacement of all GC/MS instruments with four modern liquid chromatography tandem mass spectrometers (LC-MS/MS) and an automated fluid handling platform (FHP); and replacement of the existing LIMS (Genero) with a contemporary LIMS.

Replacement of analytical platforms began with the procurement of LC-MS/ MS instruments. Associated methods were then developed and validated which allowed for the confirmation of over eighty drugs of abuse in urine and oral fluid, these included common illicit drugs of abuse plus some therapeutics. The development of a combined urine drug confirmation method alone replaced the majority of outmoded GC/MS methods resulting in substantial reduction of the number of pre-analytical sample preparation steps necessary, thus reducing staff workloads.

Manual handling workloads were further reduced through the automation of all preanalytical sample preparation steps using the newly acquired FHP. Methods were developed for the FHP which enabled the dual capabilities of aliquoting samples for immunoassay-based drug screening as well as performing pre-analytical sample extraction prior to LC-MS/MS analysis. These methods were further enhanced



through interfacing to the new LIMS and implementation of an in-house developed sample identifier cross matching script. These improvements allowed for effective sample tracking throughout analytical processes, significantly reducing the possibility of sampling ('wrong tube') errors.

The other element of the improvement plan focused on replacement of the existing LIMS with a contemporary LIMS. The requirements for implementing a new LIMS were established with a Discovery Scoping Project (DSP) carried out during 2020 and in collaboration with IT colleagues across NSW Health Pathology. The DSP team recommended integration of the DTU workflow into Cerner Millennium PathNet. The implementation of Cerner, PathNet was successfully achieved by the team on 6 June 2022. Its implementation enabled: instrument interfacing and electronic data transfer for all methods, automated billing, electronic scanning of documents, electronic sample management including storage tracking, upgrading of all IT hardware, and enhanced network connectivity.

Overall, the analytical capability enhancement and digital transformation of the DTU has enabled a seamless highly efficient end-to-end workflow, less reliant on staff-centric manual inputs, allowing staff to focus on value-added scientific tasks. Reporting turnaround times have fallen, while service robustness, quality and workload capacity have all significantly improved.

We are enduringly appreciative and thankful to all staff involved in this successful transformation which have all demonstrated high levels of professionalism, expertise and commitment.



DNA Profile Interpretation Workshop

Kylie Rika

Forensic Science Queensland



▲ From left to right; Lisa Federle, Julie Murakami, Dr Duncan Taylor, and Professor Linzi Wilson-Wilde

A Commission of Inquiry (COI) into Forensic DNA Testing in Queensland in 2022 highlighted various issues encountered in the subjective task of DNA Profile Interpretation. It also highlighted the need for increased scientific consensus in interpretation between scientists, whilst also acknowledging that two scientists may well have a difference of opinion (neither one necessarily wrong). The COI raised the idea that it is OK for scientists to differ in their opinion and those differences should be brought to court. This is a bit of a mind-shift for the Queensland laboratory and suggest possibly for other laboratories also. Forensic laboratories have always sought to resolve any issues around difference in opinion or interpretation during the peer review process and finding the balance between scientific consensus and discretion in opinions has always been a tricky task. In an attempt to address this issue, the Forensic Biology laboratory within Forensic Science Queensland recently hosted a DNA Interpretation workshop that was attended by all of the laboratory's court reporting scientists, and was presented by Dr Duncan Taylor, Julie Murakami and Lisa Federle from Forensic Science SA, PathWest Laboratory Medicine WA and Victoria Police Forensic Services Department respectively.

The workshop format consisted of presentations from each of the external guests, followed by a Q&A session and further discussions. The Queensland laboratory is now in the process of reviewing and updating the DNA profile interpretation guidelines in light of the workshop. It is anticipated that these guidelines, along with regular DNA profile interpretation meetings (to discuss tricky DNA profiles), will help reporting scientists to interpret DNA profiles in an approach consistent with reporting the best possible evidence. This in turn will meet the relevant COI recommendations to ensure the best possible evidence is provided to the community and all stakeholders.

In preparation for the workshop, the reporting scientists were asked to collate the various interpretation issues that had been causing them some difficulty both historically and more recently. Some of the areas pertaining to issues included:

- Assignment of Number of Contributors (NOC)
- High stutter peaks and stutter thresholds
- Sub threshold peaks
- · When to adjust STRmix settings
- · Low template samples
- · Pull-up affected peaks
- · Combined stutter
- When to drop a peak or locus in STRmix[™]
- Contextual bias
- Conditioning

During discussion of these issues at the workshop, it was noted that for some of the items such as combined stutter and contextual bias, there was a consistent approach from the three interstate laboratories. For some of the other issues however such as sub threshold peaks and low template and partial profiles, it was noted that there were differences in the way these aspects were handled. This then means that for the Queensland laboratory, some decisions are needed on which approach will form laboratory policy.

Additional tools such as FaSTR[™] and VarNOC to assist in DNA profile interpretation were also discussed in the workshop. It is the intention of the Queensland laboratory to validate and implement these in the coming year. Another item that can assist in DNA profile interpretation included the suggestion that each laboratory calculate its own drop in and contamination rates. Since the workshop, there has been an overall increase in clarity and confidence in the Queensland laboratory's reporting scientists' DNA profile interpretations. This is expected to increase even more once the guidelines for standard operating procedure are finalised and more DNA profile interpretation meetings are held. The single biggest improvement seen has been in the assignment of NOC and the removal of overestimation of NOC, particularly in relation to sexual assault cases.

 Example Slides from Dr Duncan Taylor's presentation

1	vietnous for assigning NoC
	Several methods have been described:
	Maximum Allele Court (MAC)
	 Maximum Likelihood Estimation (MLE)
	 Bayesian methods (e.g. NOClt, STRmix)
	 Machine learning methods (e.g. PACE, FaSTR)
	Most analysts use MAC whilst also taking peak height information into consideration

Summary

- True ${\cal N}$ for an evidential sample is always unknown and unknowable
- Mis-assignment of N has little impact on the 'big' contributors to a mixture
- Mis-assignment of ${\mathcal N}$ can have a larger impact on weak/trace contributors
- Over-assignment will lead to low level inclusions of non-contributors
- Sub-threshold peaks should be considered when assessing NoC, but the effect they have on assignment will depend on the profile

Summary

Using varNOC allows a range of N to be considered
 Three options – default 'Stratified'
 Associated runtime cost

There will remain instances where it's just too complicated to progress an



This workshop has demonstrated the importance of information sharing between forensic laboratories as evidenced by the improvements already seen in the DNA profile interpretations being conducted in the Queensland laboratory. The laboratory would like to thank Dr Duncan Taylor, Lisa Federle and Julie Murakami and their affiliated organisations for allowing this to happen.

NAFIS NextGen

Australian Criminal Intelligence Commission

The National Automated Fingerprint Identification System (NAFIS) has been in operation since April 2001. It is the only national fingerprint and palmprint capability in Australia. NAFIS is a nationwide critical police system that helps to solve crimes by matching crime scene evidence to persons of interest. NAFIS is being replaced in May 2023 with a modern, future-proof software platform called NAFIS NextGen.

The upgrade will allow The Australian Criminal Intelligence Commission (ACIC), and partner agencies in national law enforcement to realise a multitude of benefits including improved search algorithms, new tools and capability plus the ability to work flexibly in the office or field.

"Upgrading to NAFIS NextGen will allow the ACIC, partner agencies in law enforcement both here and internationally to realise a multitude of benefits, including more flexible working and ease of information sharing." said Brenton Searle, Director, ACIC Biometrics & Forensics Business Hub.

"By mid-2024 NAFIS NextGen will allow us to deliver an upgraded, fully supported system, with protected Government cloud capability, advanced latent fingerprint processing and integration with partner agency systems", he continued.

The upgrade will also allow the ACIC to realise substantial benefits and deliver these benefits to our partner agencies in law enforcement both domestically and internationally.

Key benefits of the system upgrade include:

- Balance between automation/integration and delivery of modernised architecture;
- Improved and simplified NAFIS infrastructure with removal of some hardware components and the support effort associated with them;
- Increased matching effectiveness by implementing the latest technology developed by IDEMIA and improved

automation that will quickly return matches to investigators to identify latent fingerprints from a crime scene;

- Simplified data transfer via the implementation of Virtual Desktop Interface;
- Lights out Latent capability that will provide opportunities for increased efficiency with ongoing partner agencies productivity savings;
- Increased level of security compliance with the Australian Government Information Security Manual by addressing security vulnerabilities related to obsolete software; and
- Improved efficiency and flexibility of sharing information and interoperability within the ACIC and partner agencies.

As part of the system implementation, a comprehensive training curriculum has been developed to support both new and experienced fingerprint experts to use the full system capability. The training will be delivered via eLearning and face-to-face methods to more than 350 fingerprint experts in each police jurisdiction in Australia.

The ACIC has worked closely with system vendor, IDEMIA to deliver cutting edge, interactive training, which is setting a new global benchmark for fingerprint software training. Based on a modular approach to developing knowledge, the 24 eLearning courses are aligned to three core areas of knowledge – ten prints, latents and administration. Courses range from 15-minute overview and refresher courses on system changes and new tools, to multi-hour complete skill development courses for new trainees. It also includes videos and interactive elements as well as 'Show-Me' and 'Try-Me' functionalities utilising a system prototype for realtime practice aligned to course activity. Selected courses include multiple choice tests to assess knowledge on key skills and learning points.

Engagement with end users has been key to developing a user-centric design for NAFIS NextGen and incorporating more customised local requirements. Partner agencies from every jurisdiction in Australia have been participating in regular workshops with experts from the ACIC and IDEMIA in Canberra to facilitate the design and test system functionality using an agile approach.

The current NAFIS system is searched on average 4,245 times every day by Australian law enforcement agencies. While the majority of identifications are for volume crime, such as unlawful entries to homes and thefts of cars, the system also assists police identify suspects for more serious crimes such as murder, rape and armed robbery.



▲ Business Advisory Group (BAG) Members (L-R): Steve Potts (SAPOL), Tracy Tobin (TASPOL), Dan Somerville (NSWPF), Tim Fayle (IDEMIA), Glen Leeburch-Auwers (NSWPF), Jenni Scott (VICPOL), Jason McCarthy (WAPF), Phil Herd (AFP) and James Barnes (QPS). Not shown Brett Hackshaw (NTPFES).

STRmix[™] update, March 2023

Dr Jo-Anne Bright

Institute of Environmental Science and Research



It is hard to believe that STRmix[™] recently celebrated 10 years since it was first introduced to the world. In that time, use of STRmix[™] has grown quickly, becoming the accepted standard for DNA mixture interpretation in more than 100 forensic labs worldwide. At last count, STRmix[™] has been used to analyse DNA evidence in more than 380,000 cases in forensic labs throughout Australasia, Europe, the United Kingdom, Asia, the Middle East, Canada, the Caribbean, and the United States.

The popularity of STRmix[™] and its subsequent adoption throughout much of the world can be chalked up primarily to its innate ability to better distinguish true from non-donors in a complex forensic DNA profile. By using far more of the available DNA profile to determine whether a person of interest is a possible contributor to evidence in a criminal investigation, STRmix[™] is able to resolve previously uninterpretable or inconclusive low-level, degraded, or mixed DNA samples. This, in turn, has enabled it to produce usable, interpretable, and legally admissible DNA evidence, particularly with respect to violent crime and sexual assault cases, and in cold cases where evidence originally dismissed as inconclusive was able to be re examined.

STRmix[™] works by rapidly assessing how closely thousands of proposed DNA profiles can explain an observed DNA mixture. By applying the same statistical methods routinely used in computational biology, physics, engineering, and weather prediction, STRmix[™] calculates the probability of observed DNA evidence by assuming the DNA originated from either a person of interest or an unknown donor. These probabilities are then presented as a likelihood ratio (LR), inferring the value of the findings and level of support for one proposition over the other.

Since its launch, STRmix[™] has undergone incremental but significant changes designed to enhance its functionality, improve its user experience, and provide new features. The latest of these, STRmix[™] v2.10, contains a Visualize Weights module to help analysts investigate DNA interpretation results and improvements to dropout modelling. These changes will enable users to set a low, or even no, analytical threshold.

STRmix[™] v2.10 also further integrates with FaSTR™ DNA, a spin-off software application created by the STRmix team to rapidly analyse raw DNA data generated by genetic analysers and standard profiling kits. FaSTR™ DNA also assigns a number of contributors (NoC) estimate. The latest version, FaSTR™ DNA v1.1, features a sample-to-sample and sample to-database comparison module to facilitate quality checks across the analysis project, changes to the ILS review to improve workflow when alignment fails, improvements to the Artificial Neural Network (ANN) peak classification, display improvements, and inclusion of a Number of Contributors (NoC) decision tree for the PowerPlex® Fusion 6C kit.

The STRmix team also has developed DBLR™, an investigative application which allows forensic labs to undertake

superfast database searches, visualize the value of DNA mixture evidence, determine whether there is a common donor between samples, and calculate any kinship relationship conceivable. Together, STRmix[™], FaSTR[™] DNA, and DBLR[™] complete the full workflow from analysis to interpretation and database matching.

With a new version of DBLR[™] nearing completion, the current version has extended its capability by allowing improved modelling through the introduction of linkage, mutation, and consideration of relatedness (FST) to the Kinship module in a simple and streamlined solution. It is also able to assign LRs within the Kinship module for single source profiles containing both STR and SNP loci generated using Massively Parallel Sequencing (MPS)/Next Generation Sequencing (NGS) technology. Other improvements include the introduction of a Direct Matching module for database-to-database comparisons, and the inclusion of cluster graphs in the mixture-to-mixture match reporting, enabling better visualization of the results.

The STRmix team isn't stopping there. Planning is in the works to formulate suitable models for interpreting data as the forensic community embraces new analytical techniques such as NGS. Probabilistic genotyping software for the interpretation of Y-STR (male specific) DNA profiles, routinely developed during sexual assault investigations, is also underway. With lots of exciting projects in the works, the STRmix team is looking forward to continued collaboration with our users and the wider forensic community.

IAFS 2023 - It's time to register!

Distinguished Professor Claude Roux President International Association

President, International Association of Forensic Sciences, University of Technology Sydney

The Organising Committee, in collaboration with the Advisory Committee, sponsors and stakeholders, are excited to work towards delivering a memorable event in Sydney, Australia, from 20-24 November 2023. The Scientific Program is being constructed with the support of 92 convenors across 22 disciplines, and we are very grateful for their efforts. This is especially true because we received over 1,200 abstracts, including 43 workshop proposals, from authors from over 70 countries. The notifications to authors will be sent by 3 May.

This success confirms the strong interest in large in-person conferences after the COVID-19 hiatus. For this reason, we are confident that IAFS 2023 will provide a unique opportunity to showcase Australian and New Zealand forensic science to the world whilst providing delegates with fantastic networking experiences. We aim to ensure that IAFS 2023 is the focal point for anyone involved or interested in making the world safer and fairer with science and medicine.

The plenary program is being firmed up, and more information will be circulated soon. At

this stage, we are pleased to announce four plenary sessions, respectively on:

- Forensic Science in a Post-Pandemic World;
- Forensic Intelligence;
- Global Strategies on Gender-Based Violence & Missing Persons; and
- Where to from Here.

A series of strategic mini-summits will also be organised in most disciplines. Discussion points will include challenges and opportunities related to integration, research and technology, quality management, education and training, etc. Delegates will be able to provide input before the panel sessions and for a short period after the meeting.

Further, while the need to remove siloes is constantly reminded, most conferences are entrenched in disciplinary streams. We are developing a series of trans-disciplinary lunch seminars with our sponsors to tackle this issue and align the conference with the philosophy we try to promote. Stay tuned for more information when available.

Finally, the scientific program will deliver approximately 560 oral presentations and more than 600 electronic posters, including many specialised keynotes.

As previously indicated, the social program

will showcase Sydney's hallmarks - with fantastic food, wine and entertainment for our international and local guests. While the Welcome Reception will showcase Australia, the highlight of the social program is the Gala Dinner at Luna Park, with uninterrupted views of the Sydney Harbour Bridge and the Sydney Opera House. The ANZFSS Social Night will be held at the beautiful Doltone House Darling Island Wharf, with additional views of the harbour and the bridge. The theme will be released soon.

Do you want to be part of the ultimate Forensic Science Meeting? Early bird registrations end on 21 June. Don't miss out, and save up to \$200! Register now.

As usual, we thank all our sponsors, exhibitors, speakers, delegates, suppliers and the Australian Government for their unwavering support. The IAFS Meeting in Australia will be bigger and better than ever.

Our (in)famous koalas are back travelling and have recently visited South Korea, South Africa, the USA and Rwanda. You may wish to contribute to their stories by sending a photo to iafs2023@arinex.com.au.

We look forward to welcoming you to IAFS 2023. In the meantime, please join our mailing list by visiting www.iafs2023.com.au and keep up with the latest news on Twitter, Facebook and LinkedIn.



Australian and New Z Correctional Association of Forensic Sciences 20-24 November 2023, Sydney, Australia in conjunction with the 26th ANZFSS Forensic Science Symposium Web: www.iafs2023.com.au Email: jafs2023@arinex.com.au



For any queries, please contact the IAFS 2023 Meeting Managers, Arinex, via www. iafs2023.com.au or email iafs2023@arinex. com.au.



THE FORENSIC EXHIBIT.

ANZPAA Police Conference 2023 - Registrations Open



THE FORENSIC EXHIBIT.

The Forensic Exhibit. Events Calendar

2023

APRIL/MAY

50th Annual ASCLD Symposium

30 April - 5 May 2023

Austin Texas, United States of

America

http://www.ascld.org/event/50th-annual-ascldsymposium/

NOVEMBER

X International Conference on Novel Psychoactive Substances

6 - 8 November 2023

Abu Dhabi, UAE

http://www.novelpsychoactivesubstances.org

JUNE

9th International Conference of Indo-Pacific Academy of Forensic Odontology

9 - 11 June 2023 Kathmandu, Nepal

AUGUST

60th International Congress of Forensic Toxicologists

27 – 31 August 2023

Rome, Italy

http://www.tiaft2023.org

ANZPAA National Police Conference 2023 (PC23)

9 - 10 November 2023

Melbourne, Australia

https://anzpaaconference.com.au/

Asia Pacific Coroners Society Conference

13 - 15 November 2023

Sydney, Australia

http://www.dcconferences.com.au/apcsc2023 apcsc2023@dcconferences.com.au

23rd Triennial Meeting of the International Association of Forensic Sciences (IAFS) in conjunction with the 26th Symposium of the Australian and New Zealand Forensic Science Society (ANZFSS)

20 - 24 November 2023

Sydney, Australia

http://iafs2023.com.au

#IAFS2023

The Forensic Exhibit. More information

Acknowledgement of Country

ANZPAA NIFS acknowledges Aboriginal and Torres Strait Islanders are Australia's first peoples and the traditional owners and custodians of the land on which we work. ANZPAA NIFS is committed to fulfilling the principles of New Zealand's founding document The Treaty of Waitangi (Te Tiriti o Waitangi). Central to the principles is a common understanding that all parties will relate and participate with each other in good faith with mutual respect, co-operation and trust.

The Forensic Exhibit is committed to fulfilling the intent of international treaties and human rights legislation applicable to the various jurisdictions in which we operate, our obligations to Aboriginal and Torres Strait Islander peoples, and the principles of the New Zealand (Aotearoa) Treaty of Waitangi (Te Tiriti o Waitangi).

Newsletter contributions

If you would like any further information on ANZPAA NIFS or would like to contribute to the next edition of *The Forensic Exhibit* please contact ANZPAA NIFS Secretariat: secretariat.nifs@anzpaa.org.au

Contact us

ANZPAA NIFS Victoria Police Centre GPO Box 913 MELBOURNE VIC 3001

secretariat.nifs@anzpaa.org.au www.nifs.org.au

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