

Proficiency Testing Australia - Forensic Science Survey

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ABSTRACT

Proficiency Testing Australia (PTA) is continuously expanding and developing its range of proficiency testing programs. The Forensic Proficiency Testing Survey, conducted by PTA in March 2013, was our first survey related to forensic science disciplines. The survey was sent to over 100 contacts representing 30 Australian Forensic Science Institutions and asked about their experience with proficiency testing programs and associated quality control approaches. The primary aim of the survey was to assess the availability of proficiency testing programs for Australian forensic science laboratories and to identify areas where new programs are needed.

All laboratories invited were selected based on their accreditation in various fields of forensic science. Out of eleven respondents, nine reported that their laboratory was periodically involved in proficiency testing and that they would welcome new programs. Participants identified several forensic science domains where no proficiency testing was available or the existing programs were not adapted to the Australian environment. Additionally, the survey results indicate that there is insufficient awareness about the benefits of proficiency testing for forensic laboratories.

As a consequence of these survey results, PTA have partnered with Forensic Foundations to continue to plan for proficiency services in this field. The aim of the partnership is to develop a range of proficiency testing programs addressed to forensic laboratories in Australia and Asia-Pacific region to be available in 2014.

INTRODUCTION

Forensic science laboratories are typically scrutinised not only by the police, courts and lawyers but also by the scientific community, media and public. The efforts to ascertain and standardise the activity and competency of forensic laboratories and practitioners are proven by various initiatives taken by the institutions themselves, accreditation bodies, technical working groups and networks of scientific associations throughout the world. These efforts are materialised in standards, guidelines and best practice benchmarks, and Australia plays an active role in the development of international formal standardisation [1].

Proficiency testing is an important component of any laboratory quality assurance system. When the results produced are of public interest, there is an increased scrutiny of these results. The importance of proficiency testing in maintaining high standards of accuracy and precision in forensic analyses is recognised not only in quality assurance documents but also by the interest manifested by forensic laboratories and the high level of participation when programs are available and appropriate [2]. Thus, the 2009 Census of Publicly Funded Forensic Crime Laboratories in USA found that 97% of these laboratories performed proficiency testing [3].

PTA's survey aimed to find more about forensic proficiency testing in Australia, the needs and the approach of our forensic science laboratories to proficiency testing.

METHODOLOGY

To enable a fast and simple response and hoping for better participation rates, a short electronic questionnaire was sent to 103 contacts representing 30 accredited forensic institutions in Australia. The survey questions were the following:

1. Does your laboratory currently participate in a proficiency testing program to monitor quality for your forensic testing?
2. If so, how frequent is your participation?
3. Name the forensic tests which you need to be supported with regularly scheduled proficiency testing.
4. Would you be able to offer PTA support for the development of a forensic proficiency testing program for:
 - a. Sample supply, and/or
 - b. Technical support
5. If so, name of the proposed program
6. If PTA offered a Forensic Proficiency Testing program would you consider participation

ACKNOWLEDGMENTS

PTA would like to thank the respondents to the Forensic Proficiency Testing Survey for their participation, feed-back and commentaries. Also, we would like to acknowledge the contribution of the APLAC Proficiency Testing Committee Members, for assisting with data on their survey study.

RESULTS

Representatives of eleven forensic institutions responded to PTA's survey on proficiency testing and policies within forensic laboratories. These institutions were professionally accredited in various forensic science domains, including: controlled substances, crime scene, DNA testing, evidence recovery, fire arms, forensic biology, forensic chemistry, questioned documents, toxicology and trace evidence.

Nine survey participants indicated that their laboratory currently participates regularly in proficiency testing programs, while the remaining two participants considered that proficiency testing would not add notable benefits to their activity. However, it is noted that the NATA Technical Circular 20 - Proficiency Testing criteria - Forensic Science, states that "Where proficiency testing meets the needs of the facility, participation is mandatory and at least one test per discrete testing activity must be undertaken annually, where available" [4].

All of the nine laboratories already involved in proficiency testing programs responded that they would participate in new programs, if applicable and suitable to their fields. They specified biological testing, botanical identification, DNA testing, environmental forensic, identification of controlled substances, identification/fingerprinting of petroleum hydrocarbons, fingerprint/latent print examination, clandestine drug laboratory, crime scene, trace evidence, questioned documents, as few of the areas where proficiency testing could be improved in terms of programs availability, reliability of the samples and suitability of the samples to Australian conditions. Most mentioned fields were DNA testing and biological testing (five and four laboratories respectively).

When asked if they would be able to assist PTA with sample supply and technical support for developing new programs, it was very encouraging to report that five respondents expressed their interest to collaborate in areas of clandestine drug laboratory, unknown chemical identification/matching, biological and DNA testing and identification/fingerprinting of petroleum hydrocarbons.

CONCLUSIONS

PTA's survey found that forensic laboratories in Australia are regularly participating in proficiency testing programs and this is considered a valuable part of their quality assurance system. The surveyed laboratories expressed a great interest in new proficiency testing proposals, tailored to their specific activity. They identified numerous forensic disciplines with limited or no proficiency testing programs offered, while some of the existing programs may not meet their needs.

It is noted that the recent survey conducted by the Asia Pacific Laboratory Accreditation Cooperation (APLAC) Proficiency Testing Committee on the needs for proficiency testing also found that there was a demand for the provision of forensic proficiency testing services.

As a result of survey findings, PTA intends to commence a Forensic Science proficiency testing program in 2014, in partnership with Forensic Foundations and with the assistance of National Institute of Forensic Science. The first programs will involve Automotive Paint Analysis and DNA Typing and will be addressed to forensic laboratories in Australia and the Asia-Pacific region.

REFERENCES

1. J Robertson. Australian forensic science reaches new standards! Australian Journal of Forensic Sciences, 2013.Vol. 45, No. 4, 345-346.
2. J L Peterson, P N Markham. Crime laboratory proficiency testing results, 1978-1991, I: Identification and classification of physical evidence. Journal of Forensic Sciences, 12/1995; 40(6):994-1008.
3. M R Durose, K A Walsh, A M Burch. Census of Publicly Funded Forensic Crime Laboratories, 2009. Bureau of Justice Statistics Bulletin, August 2012.
4. Technical Circular 20 - Proficiency Testing criteria - Forensic Science: [<http://www.nata.com.au/nata/accreditation-publication/nata-field-and-program-accreditation-criteria/category/58-forensic-criteria>], September 2013