Venue: ISIS
22nd August 2007
1515-1630 hr

**Symposium 4E: Quality Assurance Symposium**

**S4E-1. Developments in Quality Assurance – meeting new challenges**

Gardner I

*RCPA Quality Assurance Programs Pty Ltd, New South Wales, Australia*

Participation in External Quality Assurance (EQA) Programs is an important and necessary component of the Quality System of a laboratory. It is also a requirement for most laboratory accreditation systems, and is mandated under ISO 15189, the standard used internationally for laboratories. Conventional EQA programs are discipline-based, and involve sending out unknown samples to participating laboratories, receiving their results, and analysing them against the performance of all other participating laboratories. This approach has served us well in the past, but the concept of EQA has now expanded to utilise new technology as well as to meet increased expectations of participants. A number of these developments will be discussed in the context of the EQA Programs offered by the RCPA QAP. There are new and more sophisticated forms of data analysis and reporting, allowing participants to not only look at their results but to analyse the performance of other methods and equipment, and to monitor the precision and bias of their assays. There is an increasing demand for educational components of EQA Programs, expanding their roles to quality improvement not just monitoring of performance. New technology in digital imaging is allowing virtual images to be used in anatomical and cellular pathology, overcoming problems with specimen size and heterogeneity. There is also a move in some areas to quality assure the performance of individual pathologists or scientists, rather than the performance of the laboratory as a whole. Much attention has been paid to EQA of the analytical part of the laboratory process, although many errors (probably the great majority) occur in the pre-analytical or post-analytical phases. Some EQA Programs have been established to analyse these non-analytical error rates, and to allow laboratories to benchmark these rates against their peers.

**S4E-2. Quality assurance in microbiology**

Morris A

*Diagnostic Medlab, Auckland, New Zealand & RCPA Microbiology Quality Assurance Programs Pty Ltd, Australia*

The first external proficiency program was setup in the 1940's and the first microbiology proficiency programme was setup in 1959. The Royal College of Pathologists of Australasia (RCPA) Microbiology Quality Assurance Programme (QAP) was established in 1967 with 70 laboratories participating. By 1979 there were 90 participants; in 2006 there were more than 400. The most popular programmes are: bacteriology mycology, parasitology and urine dipstick. The programme also supplies individual models for urine, skin/throat, faecal, respiratory, and difficult isolates. The results of QAP dispatches for 2006 will be presented. The programme has introduced an increasing selection of modules for nucleic acid detection (NAD), including: *Chlamydia*, CMV, HSV, VZV, *M. tuberculosis*, and *mec* A. The results of recent QAP dispatches will be presented and the recent change in assessment for NAD modules will be discussed. Most participants perform well but there is a persistent minority which fails to detect the clerical errors and performs transposing errors when entering QAP results. Direct result entering is now used by 80% of participants and this has been helpful in reducing Final Report turn around time to 3 weeks, from around 10 weeks in 2003.

**S4E-3. Virtual microscopy – Its use in diagnostic proficiency testing in Anatomical Pathology and its potential in other disciplines**

Davies DJ

*Chair, Anatomical Pathology Program (RCPA Quality Assurance Programs P/L) and Joint Area Director, Sydney South West Pathology Service, Liverpool, New South Wales, Australia*

The Diagnostic Modules of the Anatomical Pathology Program of RCPA Quality Assurance Programs P/L comprise a General Diagnostic module and specialised modules in Breast, Paediatric, Forensic, Skin and Oral pathology with Gynaecological Pathology and Uropathology to be added in 2007. To be valid each participant must receive identical material. Current diagnostic modules have some difficulty in reflecting contemporary practice. It is difficult to provide up to 290 provided with identical original sections of needle or endoscopic biopsies or where the lesion is limited to a few levels in one area of one tissue block e.g. tubular carcinoma of the breast. An audit of over 21,000 accessions in a diverse surgical pathology practice found 50% of the work was accounted for by seven classes of specimen and over 80% of the work was produced by 24 specimen types each with a frequency over 1%. However of these 24, only 29% could be provided as reproducible paraffin sections for external quality assurance. "Virtual microscopy" changes this state of affairs. This technology scans a section on a glass microscope slide with high power `microscope objective (x40 preferred) to produce a digital image file. The resulting "virtual microscope slide" displays on a computer screen the original section in its entirety from magnifications equivalent to 1:1 to 1:40 objectives with a resolution comparable to that obtained optically. RCPA QAP Pty introduced this for proficiency testing in all diagnostic modules in 2006 and for two new modules in 2007. There has been substantial acceptance of this new technology. Dissatisfaction has usually been due to technical problems with computer infrastructure. To date performance both of cases and of participants seems to be comparable to using conventional paraffin sections. More data is being collected throughout 2007. The use of this technology is being explored in other disciplines including Haematology for blood films and Cytopathology for both gynaecological and non-gynaecological specimens.