The World Association of Veterinary Laboratory Diagnosticians (WAVLD) was established in 1977 to promote high quality laboratory testing and forge collaborations between veterinary diagnosticians around the world. Its biennial international symposium, which provides a key forum for networking and exchanging ideas and information, has long received strong support from its member countries and the World Organisation for Animal Health (OIE).

The 17th International Symposium of WAVLD was held in Saskatoon, Canada, on 15–18 June 2015. The program featured five scientific themes:

- new technologies
- control and management of endemic diseases
- detection, management and control of new and emerging diseases
- turning laboratory data into intelligence
- wildlife and one health.

The symposium included the 11th OIE seminar, New diagnostic technologies and international standard setting, and the Canadian Association of Veterinary Pathologists organised a special pre-symposium workshop about forensic veterinary pathology to assist veterinary diagnosticians—particularly anatomical pathologists—who are becoming more involved in various animal litigation cases.

Without doubt the importance of new sequencing technologies, nanotechnologies and bioinformatics for disease detection, diagnosis and characterisation was a key take-home message from the symposium. Clinical and research applications were demonstrated directly or indirectly through various presentations on specific endemic or emerging diseases and their pathogens (e.g. avian influenza, infectious bursal disease, classical swine fever, porcine enteric coronaviruses, antimicrobial-resistant bacteria).

Technologies that enable or enhance high-throughput, rapid and portable testing capability for diseases with known and unknown aetiology will inevitably transform our current surveillance and laboratory response strategies in the near future. In particular, several keynote speakers highlighted the benefits of increased adoption of technologies, such as:

- next-generation sequencing for identification and functional information in one assay
- microfluidics for field testing through ‘lab-on-a-chip’
- metagenomics for a holistic picture and interplay of microorganisms involved.

Like many other new technologies, future applications will be driven at least by their suitability, quality and cost. In this regard, the OIE seminar provided useful updates on some projects specific to developing international standards and guidelines for the validation and management of high-throughput sequencing, bioinformatics and computational genomics. This included an ongoing interest in building suitable platforms to collect and analyse genomic sequences for integration into the OIE World Animal Health Information System (WAHIS).

More broadly, it was also recognised that maximum benefits for animal health purposes, including early detection of emerging diseases, would be achieved by developing platforms that allow disparate data and information from multiple sources or systems (e.g. laboratory, clinical or field, animal movement, production, phylogenetic) to be integrated and used more effectively. However, this would bring about additional technical challenges in terms of harmonisation, standardisation, analysis and evaluation.

For the interest in ‘turning laboratory data into intelligence’, the use of an ontology-based knowledge management platform in the context of disease surveillance was innovatively introduced. Such a management platform provides machine-readable methods for the representation of and inference from data and information through recent computer technologies, such as ‘semantic web’ (context-understanding programs through standards for common data formats and exchange protocols) and ‘deep learning’ (algorithm-based machine learning).

Evidently, harnessing rapidly evolving technologies in a quality-assured manner has become more important than ever. We need to adopt holistic approaches for surveillance and laboratory strategies, for example, by fostering closer working relationships between stakeholders across all relevant sectors and embracing new allied expertise, such as bioinformatics and computer and bioengineering sciences.