50 YEARS OF MONITORING QUALITY

To mark the half a century of UK NEQAS, three members of its consortium outline its growth from a short-term, UK-focused project in 1969 to the internationally-recognised organisation it is today.

Dr Mitchell Lewis

At a recent UK NEQAS Haematology annual meeting, approximately three-quarters of the audience of 300 admitted that they had bought, borrowed or used a copy of *Dacie and Lewis Practical Haematology*. This book, now in its 12th edition, has been a mainstay in the haematology library and it is difficult to imagine working life without its clear instruction. Dr Mitchell Lewis was a clinical haematologist at the Hammersmith Hospital in London, who remained firmly rooted in the laboratory and understood the importance of reliable and accurate laboratory results in treating patients. His original work in the 1960s focused on the measurement of haemoglobin – possibly the most frequently requested test in pathology, but one that we did not always get right.

The award in 1968 of £3,000 a year from the Nuffield Provincial Hospitals Trust for a three-year project, intended to harmonise haematology laboratory performance throughout the UK, led to the foundation of UK NEQAS Haematology in 1969.

Dr Lewis also co-founded the International Council for Standardisation in Haematology (ICSH) and was committed to the improvement in laboratory standards in resource-challenged regions of the world, working in collaboration with the World Health Organization (WHO) on guidelines for the operation of EQA programmes.

Professor Tom Whitehead, CBE

Having delineated a rigorous approach to quality control in a period when manual assays for clinical chemistry analytes gave way to highly automated processing for large panels of tests, Professor Tom Whitehead turned his attention to between-laboratory agreement. Initial comparisons between laboratories at the Queen Elizabeth and General hospitals in Birmingham led to wider reviews across the West Midlands. A grant of just £500 from the then Ministry of Health enabled inception of the National Quality Control Scheme for Clinical Chemistry, with its first distribution in July 1969. This two-year project (somewhat optimistically intended to "resolve all issues, so it could then be stopped") established the basic principles of EQA, including scoring of performance.

Development of the UK NEQAS network of programmes was then overseen under Tom's chairmanship of the Department of Health's Advisory Committee on Assessment of Laboratory Standards (ACALS), including WHO's adoption of the term external quality assessment rather than "control" for the activity. Tom travelled extensively to promote the establishment of internal and external schemes internationally, including schemes in Myanmar (Burma), Korea, Mexico, the Middle East, Thailand and Zimbabwe. He encapsulated his ideas and philosophy in his widely acclaimed book, *Quality Control in Clinical Chemistry*.

The UK NEQAS organisation today

UK NEQAS now offers more than 140 schemes from 24 specialist UK centres across all pathology disciplines, hosted primarily by NHS trusts but also including Public Health England, universities and other "not-for-profit" institutions. The central UK NEQAS charity designates UK NEQAS members, subject to the UK NEQAS Code of Practice, but the charity neither directs the operation of the schemes nor employs their specialist staff. All UK NEQAS schemes are self-funding, operated on a strict not-for-profit basis and independent of external bias or commercial interests in laboratory equipment, reagents and services. The core UK NEQAS principle remains the improvement of laboratory performance through education. Data from UK NEQAS schemes provide 'state of the art' assessments of equipment and reagent performance, contribute to the evaluation and standardisation of methodologies and the development of high-quality, evidence-based guidelines in laboratory medicine.

Innovation in EQA is an area in which UK NEQAS has always led. Our EQA services include quality assessment of the "end-to-end" process of patient investigation, including interpretation of results either in standalone programmes or integrated into standard exercises.

Through PrepQ, UK NEQAS has established a true end-to-end quality

monitoring service, allowing laboratories to monitor pre- and post-analytical issues and supporting the requirements of ISO 15189. In point-of-care testing (POCT), UK NEQAS is at the forefront in establishing EQA for the myriad of near-patient devices available globally and this will form a key part of EQA programmes in the future. A final major area of work is the development of genomic testing EQA to support the 100,000 Genomes Project and the NHS England National Genetics Testing Catalogue, where UK NEQAS was selected as the sole EQA organisation able to provide the robust, high-quality EQA necessary to support these initiatives. This led to the rapid development and implementation of bespoke EQA programmes for specific aspects of genetic testing, from DNA extraction to the detection of translocations and point mutations – ensuring that the data produced from genomics testing are fit for purpose.

Evolving diagnostic pathways mean that a single patient journey will involve multiple healthcare scientists across a variety of specialties. As a result, the first Pan-UK NEQAS International meeting will be held in Dublin in November 2019, featuring a multi-disciplinary programme, in addition to our specialty-based participants' meetings. We are also attending EuroMedLab 2019 in Barcelona in May, allowing more international scientists to interact with the UK NEQAS team. Finally, we have several dedicated UK NEQAS sessions at this year's IBMS Congress to discuss the role of EQA in laboratory diagnostics.

A day in the life

UK NEQAS packages are a familiar feature of laboratory life, regarded either as a nuisance, an exercise to comply with ISO 15189, something "only senior staff do", or an interesting challenge and educational opportunity. The packages arrive from a disembodied Post Office box address, results are entered and reports downloaded electronically, thus reducing the need for human interaction. Common factors are that specimens may turn up the day after you have done the assay or when staff are scarce, specimens are too small or the closing date too short for your regular processing. However, the vast majority of laboratories experience no such problems and greatly value the personalised assistance they receive if they do have to contact the schemes. The sheer scale of the operation behind your individual package may not be apparent to most. A single UK NEQAS Haematology distribution, for example, uses over five litres of whole blood, takes up to three months' planning and results in more than 1,000 packages for distribution, with 120 different combinations of specimens; practices that are reflected across each UK NEQAS centre.

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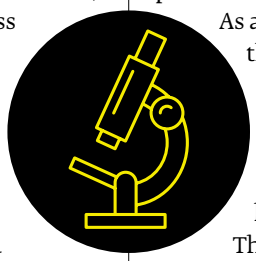
The future

In common with our participants, we face challenging times. The pathology landscape in England is changing with the advent of pathology networking and consolidation; practices that are repeated in many other health economies. Currently, the proposed hub and spoke networks are in development and NHS Improvement intends to meet with UK NEQAS to discuss the potential for new or modified EQA systems that will be required by the new networks.

UK NEQAS remains an essential component of laboratory medicine clinical governance, providing education, facilitating clinical audit, monitoring clinical effectiveness, assisting in the management of risk, and generating information used for research and development. Oversight of individual laboratory performance is supported by the Joint Working Group on Quality Assurance and its associated National Quality Assurance Advisory Panels, directly influencing patient care. Participation in EQA is a requirement for laboratory accreditation to ISO 15189 and for many investigations UK NEQAS is the sole or preferred EQA provider. UK NEQAS also works to develop services to support NHS objectives (for example through the National Screening Programmes) and is represented on committees, such as the Serious Hazards of Transfusion committee, that contribute significantly to national clinical governance.

At UK NEQAS we continue to be astonished at how far the organisation has developed and new staff are enthusiastic about how far they can take us in the future. However, we all work for the benefit of the patient and are proud to be a part of effective, high-quality healthcare provision in the UK and internationally.



As an organisation, we realise that there is much to be done to maintain and develop EQA systems in partnership with our participants and we welcome your contribution on how we can meet your needs. Thank you to all our participants and we hope that we can rely on your continued support for the next 50 years.

Barbara De la Salle, **David Bullock** and **Liam Whitby**, writing on behalf of the UK NEQAS Consortium.