

## Challenges and solutions for implementing IQC measures in *ad-hoc* or non-routine analysis in universities

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### Abstract

Quality and safety in the laboratory have two things in common: both need to be embedded in an organisation's culture in order to be effective. This means that they should be taught and demonstrated early at the undergraduate and postgraduate level in universities.

However, whilst the importance of personal safety is recognised by legislation, the need for quality in the research process is not always given equal importance despite the fact that the resulting data may be just as important (e.g. data that underpin government policies on health or environment). Universities already place great emphasis on the *quality of their teaching* to ensure that no part of this process is left to chance. *Research quality* is similarly important and is assured through the external peer-review of grant applications and research outputs and papers.

This presentation will describe how the quality of the *research process* can be achieved through a system for internal Quality Assurance in Research (QAR). It will highlight some challenges and illustrate solutions for the practical implementation of effective Internal Quality Control (IQC) measures for non-routine analysis and analysis within research projects.

It will illustrate how the UK Code of Practice for Research applies the main features of the ISO 17025 standard to research in general and to non-routine analysis in particular. It will make the case that IQC for non-routine analysis needs to encompass the whole process (responsibilities, project plan, competence, facilities and equipment, documentation of procedures and methods, research and data records, sample handling plus quality control). This will include practical examples, i.e. what can go wrong without effective IQC measures, what to do in the absence of a large enough dataset for the usual statistical QC approaches and what IQC measures can be implemented in a non-routine, research setting.