

HITCHHIKER'S GUIDE TO LABORATORY QUALITY

May 25, 2022

Key Presenters:



Neil Shepherd – NATA

Neil Shepherd has worked for NATA for the past 26 years in various technical roles and was appointed to his current position of Sector Manager, Life Sciences in 2011. In this role Neil is responsible for review of accreditation criteria, recruitment of Technical Assessors and stakeholder engagement.

NATA and the value of Accreditation

Neil Shepherd

Sector Manager Life Sciences at National Association of Testing Authorities, Australia

As NATA celebrates delivering confidence for 75 years it is appropriate to look at the history of the Association and future direction. In addition, this presentation will cover the process and value of accreditation, discuss how to become a Technical Assessor and NATA's review stakeholder engagement and continuous improvement activities.



Danny Wong – Macquarie University

Danny Wong completed his PhD at Monash University, followed by a postdoctoral position at Pennsylvania State University in USA. He was then recruited by Macquarie University to begin a formal teaching program in analytical chemistry. Many undergraduate students from the program were immediately employed by commercial laboratories upon graduation. He took up the program director position when Macquarie University collaborated with both the National Measurement Institute and the National Association of Testing Authorities, Australia, in delivering the coursework-only Masters program in Laboratory Analysis, Quality and Management. Researchwise, Danny's research areas cover electroanalytical chemistry and electrochemical sensors, particularly structurally small probes for detection of neurochemicals *in vivo*. Apart from delivering invited presentations at major analytical chemistry conferences in many countries, Danny is also an active reviewer for a number of international journals in analytical chemistry. Danny is an invited speaker for in the Division of Analytical and Environmental Chemistry at the upcoming RACI Congress in Brisbane in July this year.

Danny has been a member of RACI for more than 25 years, serving as the Secretary for the Division of Analytical and Environmental Chemistry for 11 years, the Chair of the NSW Analytical and Environmental Chemistry Group for 5 years, and, more recently, the President of the NSW Branch for 3 years. Owing to his contributions to RACI, Danny received a Citation Award from the Division and the Branch, respectively. Danny continues to be an active committee member of both the NSW Branch and the NSW Group.

Calibration – A First Step Towards Laboratory Quality

Danny Wong

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In this presentation, we will focus on calibration procedures commonly adopted in many laboratory analyses to estimate the concentration of a sample of interest. We will particularly pay attention to the verification steps for supporting, or otherwise, the chosen model as adequately describing the relationship between the calibration parameter and concentration of the analyte. If not, the analytical results for the sample being examined are simply false and unacceptable. Accordingly, we will initially revise the procedures involved in both the external calibration method and the standard addition calibration method, followed by evaluation of the linearity of the corresponding calibration plot obtained and the uncertainty of parameters characterising the calibration expression. This information will aid in deciding on the need for re-calibration, if appropriate. Using an acceptable calibration model, the concentration of the sample, together with its associated uncertainty, can then be estimated. Notably, all these will affect the accuracy of results obtained and have a direct bearing on laboratory quality. Examples will be provided throughout this presentation to illustrate the evaluation steps.



Maree Stuart – MAS

Maree is currently Principal Consultant, MAS Management Systems Pty Ltd, a boutique consultancy practice. Maree and her colleagues help laboratories with management of their NATA accreditation and their management systems and processes, developing and refining them to meet their needs and make their business better and smarter. MAS Management Systems is staffed by scientists and the firm also helps laboratories with analytical testing projects, assisting them to develop and improve their methods across a range of scientific disciplines.

Maree holds qualifications in Science, Management and Business Administration, Law and Political Science. Prior to establishing her consultancy practice 14 years ago, she worked for the national laboratory accreditation body, NATA, where she held a variety of managerial positions. Maree's practical laboratory experience was gained in medical and pharmaceutical laboratories. In these laboratories, Maree performed testing using a variety of chemical and microbiological techniques. She is an active member of three professional societies for scientists, RACI, Australian Organisation for Quality, where she is the current President, and the Metrology Society of Australia. She is also a practicing solicitor with her own legal practice, Lab Law Pty Ltd.

Marvin's Guide to Quality

Maree Stuart

MAS Management Systems Pty Ltd

Do you dream of having a Quality System that virtually runs by itself? No more chasing up people to investigate and implement actions to solve problems, no more tedious review and updates to documents, audits that are done without people. You know the drill.

Well, what if we could have our own Marvin from the Hitchhikers Guide to the Galaxy? In the great novel, Marvin simultaneously manages to plan the entire planet's military strategy, solve "all of the major mathematical, physical, chemical, biological, sociological, philosophical, etymological, meteorological and psychological problems of the Universe, except his own, three times over", and compose a number of lullabies. While this may be a little beyond your needs, in this presentation, we will explore just what can be done in terms of automation and digitization in Quality Management Systems to make life easier and help drive real and powerful improvement in your lab.