



LUTON &
DUNSTABLE
UNIVERSITY
HOSPITAL

An Elective in External Quality Assessment

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3rd year STP

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My initial elective ideas



- My base hospital is a district general hospital
- Initial idea was an elective in quality management of networked laboratories, for example to conduct an audit
- Through a mutual contact, a networked laboratory expressed willingness to accommodate me (late 2017)
- Unfortunately, the planning did not progress



What next?

- I had attended the STP Elective Day in Dec 2017
- A previous trainee had done an elective at Birmingham Quality (part of UK NEQAS)
- Liked the sound of this- would be really useful!
- Discussed the idea with my training officer, who suggested trying to organise a placement at Weqas as well



Why did I choose EQA?

- I had not spent much time looking at EQA reports before
- Further understanding of EQA would be directly relevant to my role in the future
- Unique opportunity to see EQA from a different perspective
- Hopefully the placement would be useful for my host laboratory - could bring back some resources and learning to share



Organising my elective

- Sent emails to Birmingham Quality and Weqas (May 2018)
- Both were willing to have me for two weeks and asked me to suggest dates
- Honorary contracts were required for both placements
- By July 2018 dates were confirmed for both placements (Nov 2018 for Birmingham Quality and December 2018 for Weqas).



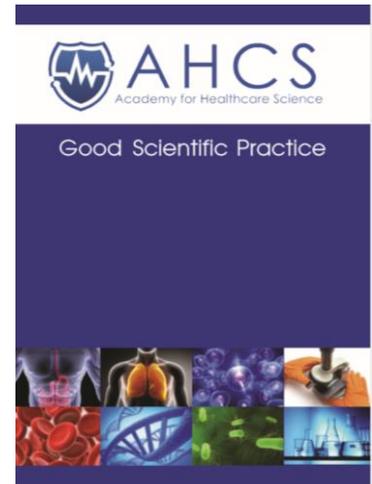
Considerations

- Time of year
 - No other external placements arranged for Nov/Dec
 - Was not too close to any other MSc deadlines/exams.
- Accommodation
 - Could stay with my parents and travel by train to Birmingham
 - Arranged accommodation for Cardiff
- Expenses
 - Discussed with my training officer and Pathology Manager
 - Agreed to cover travel and accommodation expenses



Learning outcomes

1. To gain an understanding of how EQA schemes are organised.
2. To understand how the scores and statistics used to assess laboratory performance are generated and used.
3. To learn about the quality requirements for EQA providers (ISO17043: 2010 'General requirements for proficiency testing' and ISO13528: 2015 'Statistical methods for use in proficiency testing by interlaboratory comparison').
4. To learn about the reference methods used in the Weqas reference laboratory and the use of reference values in Weqas schemes.



Linked each to
Good Scientific
Practice sections



Birmingham Quality and Weqas

- The EQA process
 - EQA scheme design
 - Pool preparation
 - Aliquoting of samples to send out for each pool
 - Responding to participant queries
 - Opening/closing the distribution online
 - Making any amendments to results, such as changing participant method group
 - Report generation and distribution
 - Notification of poor performance if required



Preparation of samples

- Donated material
 - Whole blood for HbA1c
 - Faeces
 - Urine
- Serum from NHS Blood and Transplant Service
- Synthetic faeces!
 - Faecal Immunochemical Testing & Faecal Occult Blood schemes
- For many schemes, pool many samples and then spike in known concentration/mass of analyte of interest
- Wherever possible, use samples with endogenous rather than spiked in analyte
 - Commutability: EQA samples should be as similar as possible to patient samples



How are EQA schemes designed?

- Large pools usually consisting of many samples are made
- Scheme distributions usually planned for a year
- Aim to span concentration range
- Focus on concentrations near to clinically relevant cut-offs
- Dilutions of pools – tests linearity
- Investigate interferences
- Repeat samples over different distributions to assess imprecision and stability of EQA material



Mini project

UK NEQAS



- Produced Frequently Asked Questions and Answers
 - Useful for Birmingham Quality
 - Encouraged me to ask questions
 - I had to make sure I understood the answers!



UK NEQAS Annual Consortium



- 2 day meeting in Birmingham for UK NEQAS staff
- Gained an insight into some of the new EQA developments across multiple disciplines
- Presentations from the different working groups
- New schemes were discussed, for example the recently set up sample exchange scheme at Birmingham Quality



Weqas placement

- Sample preparation for porphyrin scheme - multi-day process. Got to scrub up for the sterile room!
- Labelling!
- Interpretation of EQA and troubleshooting training session
- Traceability training session
- Spent time in automated laboratory where all donations are analysed for panel of tests
 - Useful when deciding which samples to use for the different schemes





Weqas reference laboratory

- What is a reference method?
Highly accurate, and often technically complex and resource intensive, procedure used by a specialised laboratory to assign a value to a reference material e.g. ID-MS

(Source: Traceability presentation by David, Ducroq, Weqas)

- Joint Committee for Traceability in Laboratory Medicine (JCTLM) website is a useful resource



- Accredited against ISO17025 (Calibration and Testing Laboratories) and ISO15195 (Reference Measurement Laboratories)



Reference laboratory methods

- Isotope dilution GC-MS
 - Uric acid (observed preparation of samples for)
 - Creatinine
- Isotope dilution LC-MS/MS
 - Testosterone, cortisol
- Flame atomic absorption/ Emission spectrometry
 - Sodium, potassium
- UV-Vis spectrometry
 - Enzymes: ALT, AST, LDH, GGT
- On Weqas reports, results are compared to the reference value when a reference method is available.
- Takes a lot of work to calculate a reference value: for example, for an analyte in the general chemistry scheme there must be 18 data points



What did I gain from the elective?

- EQA from the other perspective – scheme design, preparation of samples, report generation
- Better understanding of EQA reports
- Reference laboratory experience
- An appreciation for the hard work that goes into each participant receiving their EQA samples
- Met new people and made new contacts



Thank you!

- Any questions?