

What qualities make a good
haematological morphologist?

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Purpose of M Ed study

- **What skills make a good haematological microscopist?**
- *How do consultant haematologists actually practise currently?*
- *How do they keep up to date?*

Background

- Trainees enter Haematology without any assessment of their competency in microscope skills
- They are trained and then sit exit-examinations to assess their diagnostic competencies with microscopes, data analysis and patients
- What are the qualities that produce good microscopists? Could these be used for recruitment or appraisal purposes?
- Following training, peer review has been patchy until the 'Improving Outcomes Guidance' initiative

Background

- Crowley showed that the processes for making a microscopic diagnosis include: search strategies, feature recognition and diagnostic reasoning
- Field-dependency as described by Wittken will contribute towards competency in search strategies and feature recognition
- Diagnostic reasoning evolves from hypothetical-deductive (backward reasoning) to scheme-inductive (forward reasoning) during acquisition of competency

Research Strategy

- An ethnomethodological qualitative approach was employed as this treats practical activities as topics for empirical study
- By focusing closely upon the regular activities of haematologists when they are performing microscopy, I gained understanding of these phenomena in their own right

Research Method

- Ethical approval
- Written consent from volunteers
- 20 consultant haematologists were interviewed using a semi-structured technique
- This method allowed honesty and an opportunity to clarify and expand on answers – written questionnaires have limitations

Research Method

- **who do you admire most as a morphologist and why?**
- **what are the qualities of a good microscopist?**
- **do you seek to fit findings to a hypothesis or generate a hypothesis from your findings?**

- *what qualities make for a good report?*
- *how should a bone marrow be reviewed?*
- *what is the optimal time to complete a report*
- *have you been on any refresher courses?*
- *do you review cases with your peers?*
- *do you participate in training?*
- *does pressure of time lead to cutting corners ?*

Research Method

- Interviews were taped and transcribed
- Checked for accuracy and sent to interviewees for verification
- Interviews then analysed using the N-vivo software package for important words and phrases. These were then grouped into common themes for the 20 interviewees

Results – ‘qualities of heroes’

- The 20 interviewees identified 17 different ‘heroes’ (“most admired”)
- Usually their formative trainers but some national figures too
- 2 heroes were ‘talented’ but this was difficult to define
- 2 regularly used past cases to illuminate teaching

Results – ‘qualities of heroes’

- The commonest qualities identified were:
 - experience (11/17)
 - thoroughness (6/17)
 - interest (6/17)
 - methodical (5/17)
 - enthusiasm (4/17)
 - knowledge (4/17)
 - analytical (1/17)
 - communications (1/17)

Results – qualities of a good microscopist

- Answers were similar to that for heroes:
 - experience (9/20)
 - methodical (9/20)
 - interest (5/20)
 - thorough (4/20)
 - talent (3/20)
 - appreciate what is important (3/20)
 - others – admit ignorance, focus, descriptive, don't know, open-minded

Results – qualities of a good microscopist

- It transpired that although ‘thorough’ and ‘methodical’ were amongst the top 2 qualities for both these questions, only 75% of interviewees followed a methodical template or format when examining slides. 25% relied on ‘eyeballing’
- This was NOT due to time pressures or cutting corners

Results – diagnostic skills

- 18 of 20 interviewees agreed that during training they would fit findings to a quick hypothesis ie they employed 'backward reasoning'
- Sorting 'normal' from 'abnormal' is difficult when starting
- Experience of index-cases with time brought wisdom and they progressed onto 'forward reasoning'
- Clinical information can be helpful but also distracting

Discussion

- Experience comes with extended apprenticeship – shortening training leads to reduced exposure to unusual cases.
- Competencies are now achieved by the end of training, but breadth of experience is reduced
- Changes in Lab practice have reduced the numbers of samples chosen for viewing

Discussion

- 'Thoroughness' has always been the mark of a 'good doctor'. A quarter of interviewees have abandoned a format for marrow review. This can potentially result in missing other features.
- Revalidating consultants will eventually lead to quality assurance schemes retesting skills acquired during training – similar to driving tests for the elderly
- Only 20% of interviewees had been on 'refresher courses'
- Assessing applicants to Haematology trainee programmes for 'thoroughness' may also be of value

Discussion

- Medical training often pressurises the doctor to make a rapid 'spot diagnosis' – this can lead to mistakes and should be resisted in the pathology setting where misdiagnosis can have disastrous consequences
- The interviewees were aware of these pitfalls and hopefully pass this on to their trainees

Discussion

- The concept of field-dependence is an interesting way to define individuals. However, medical graduates must be reasonably field-independent to have survived final exams
- Future research will involve comparing such scores with obtaining correct morphology diagnosis
- Diagnostic reasoning ability will confound field-dependency in such comparisons. Although diagnostic reasoning is not formally taught during training, nearly all interviewees recognised the importance of it

Conclusions

- Experience and thoroughness make a good morphologist
- Experience is reduced by shorter training
- Not all consultants employ a 'thorough' format when reporting
- The development of diagnostic reasoning occurs 'naturally' but field-independence remains to be tested and correlated with accuracy of diagnosis