Introducing an Interpretative EQA scheme in Microbiology

Jane Stockley

Scheme Organiser 2010-11

December 2011

Quality and the Pathology laboratory

- Integral to all laboratory working
- Internal quality control and assurance
- Commercial media and reagents
- Staff training, skill-mix, CPD
- Pre-analytical, analytical and post-analytical phases
- Accurate, timely results for optimal patient care
- EQA and CPA (UK Clinical Pathology Accreditation – external peer review)
- **Interpretative EQA**

Interpretative EQA in Pathology

- Everyday integration of diagnostic analysis and clinical patient management
- End-to-end pathology service: recognition that problems more likely at clinical 'front' end, and interpretation & clinical management
- Role of the clinical pathologist is critical in patient care
- Clinical pathologists need to be supported in this role through appropriate EQA – benefits of sharing clinical lessons

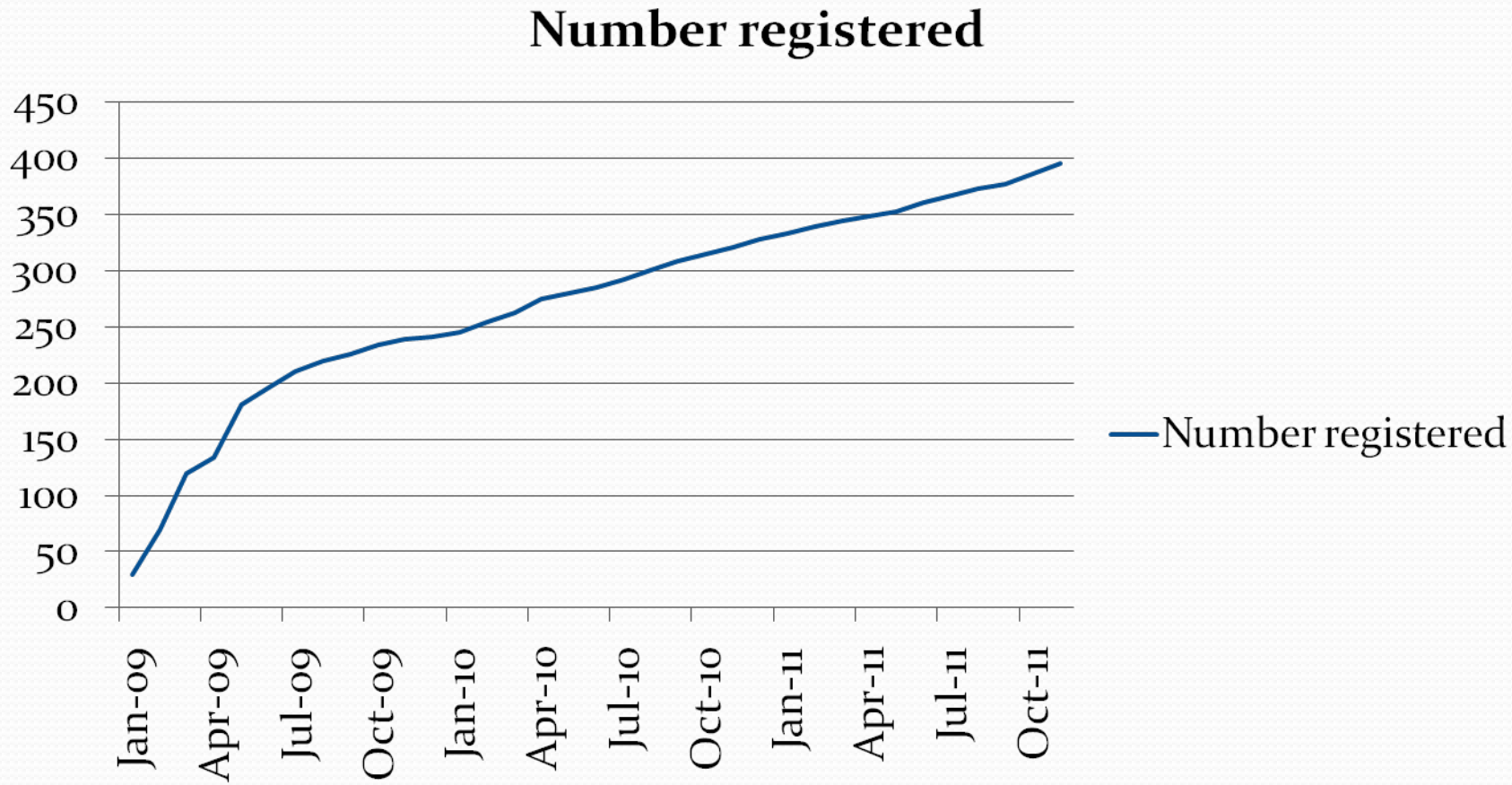
Introducing a microbiology EQA

- Already established in other disciplines
- Able to build on lessons learnt from others – especially grateful to Prof Goura Kudesia, and her experience within Clinical Virology Network (CVN) scheme
- Clinical scenario writing group, 10 Consultant Microbiologists, set up in 2008
- Led by Dr Erwin Brown
- Supported by the UKNEQAS Microbiology Steering Group

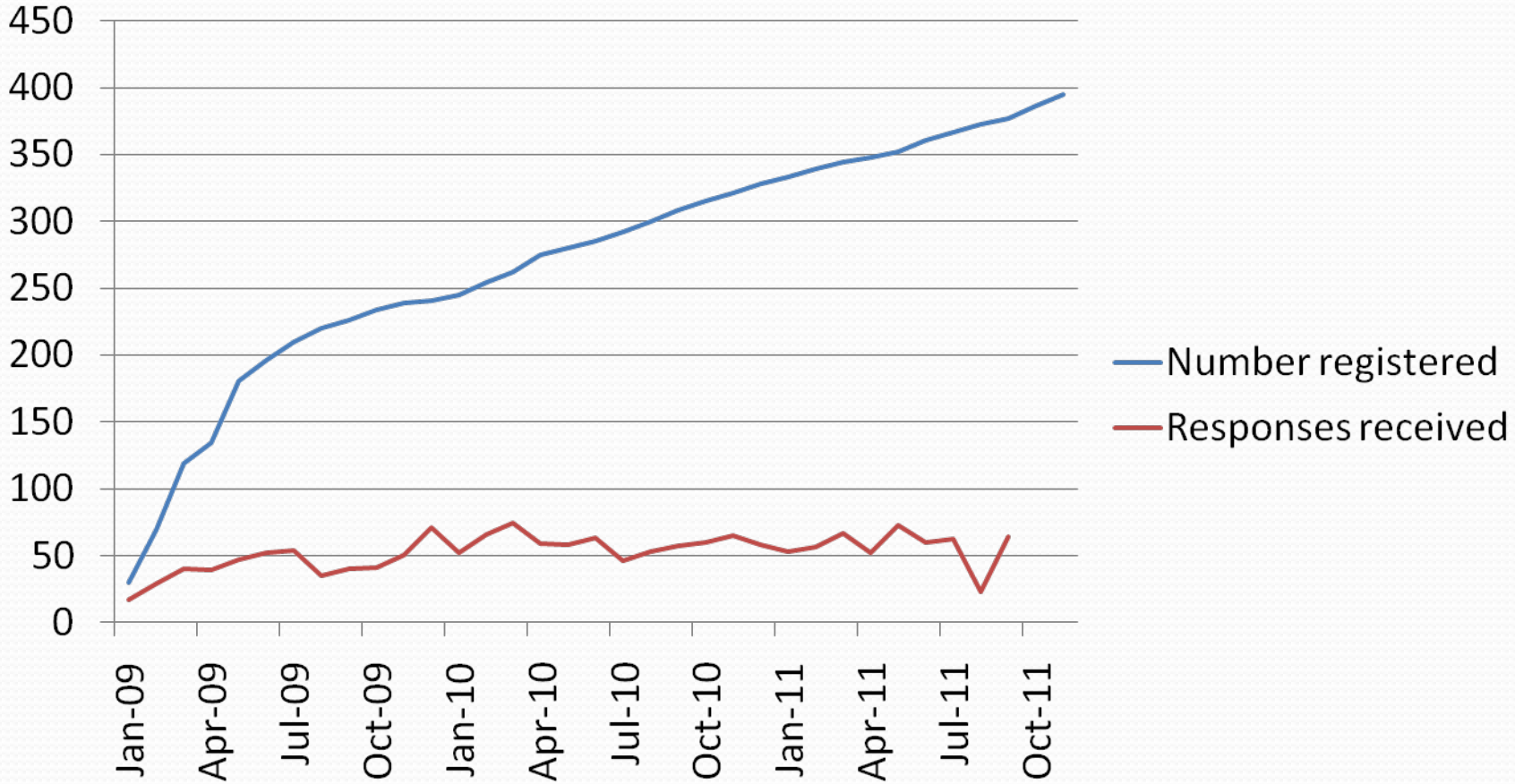
Getting started

- Stimulating educational material, based on everyday clinical encounters
- Set out on an agreed template – scenario, investigations, results, and a series of questions
- Each scenario passed around group to achieve consensus 'model answer'
- Commentary and references
- Promoted at FIS 2008, through AMM, UKNEQAS and word of mouth
- Launched in January 2009

Participants registered in Microbiology interpretative EQA scheme



Participants registered… & responses received



Progress of scheme

- Encouraging steady increase in numbers of participants – although not all are providing a response
- Wide variety of clinical scenarios
- Invited experts to provide commentary, references and to provide specific educational scenarios
- Questionnaire to participants – results collated and feedback September 2010
- Feedback positive – some logistical issues regarding limitations of space for response, and some early website issues; Over 97% found the scenarios clinically relevant, and the model answers and references helpful and educational

Scenario example

CLINICAL INFORMATION : A 73 year old lady was bitten on the wrist by a feral cat she was feeding . Her daughter bathed the wound and covered it with a dry dressing, but the following morning the wound became increasingly painful, red and swollen. She attended the GP practice where a swab was taken. The wound was obviously infected, and because she was reported to be allergic to penicillin (vomiting and diarrhoea) she was prescribed 500 mg qds erythromycin orally. The following day she became increasingly unwell with rigors, a spreading cellulitis and a temperature of 38.5 C. The wound was discharging pus and her wrist was stiff, swollen and very painful. She was admitted to hospital, where she underwent aspiration and washout of the wrist joint under GA. Pus was sent to the microbiology laboratory.

SAMPLE SUBMITTED: Wound swab and pus
INVESTIGATION REQUESTED: Microscopy & culture

RESULT:
Pus microscopy: Gram negative rods seen.
24 hour culture result from swab taken the day before by GP: a lactose fermenting coliform

CLINICAL COMMENTS / ADVICE:
Questions
1) What is the likely organism?
2) What further tests may be indicated?
3) Which antimicrobials and for how long should they be used?

UK NEQAS for Microbiology PO Box 63003, NW9 1GH
Tel: + 44 (0)20 8905 9890 Fax: + 44 (0)20 8205 1488 E-mail: organiser@ukneqasmicro.org.uk web:http://www.ukneqasmicro.org.uk

Intended Results

Distribution No. 2809 – Interpretative comments

Distribution date 1 September 2011

The following clinical comment/advice represents a consensus response from a panel of consultant microbiologists:

Questions
1) What is the likely organism?
2) What further tests may be indicated?
3) Which antimicrobials and for how long should they be used?

Answers
1) The presentation is consistent with *Pasteurella multocida* infection.
2) The McConkey plate should be examined for growth, and any organism isolated fully identified.
3).Penicillin and ciprofloxacin are recommended for established *P multocida* infection, ciprofloxacin being the antimicrobial of choice in penicillin allergy. However anaerobic cover is essential in cat bites so addition of metronidazole would be prudent, pending anaerobic culture results.

Comment
Failure to debride adequately and incorrect antibiotic therapy are the major causes of mortality and morbidity in pasteurella infected bites
Co-amoxiclav is generally regarded as the treatment of choice as it covers almost all indigenous British animal bite–related pathogens apart from Flavobacterium 2 b, which may be associated with domestic pig bites. In this scenario ciprofloxacin should be added.

A common mistake is to prescribe flucloxacillin or erythromycin for animal bite related infections, the latter particularly in the case of penicllin allergic patients. *P multocida* causes infections in bites from many animal species, but particularly cats, and 80% are resistant to erythromycin. All are resistant to flucloxacillin and clindamycin. The only macrolide that has any activity is azithromycin. For penicillin allergic patients, doxycycline or ciprofloxacin, plus metronidazole or clindamycin are likely to be effective. Ciprofloxacin may also be used in children if high risk of pasteurella, although azithromycin, or a cephalosporin (in non-anaphylactic penicillin allergic reactions) are other possibilities.

Treatment of serious sepsis due to *P multocida* must be very aggressive; parenteral antibiotics such as co-amoxiclav plus ciprofloxacin, or imipenem plus clindamycin are necessary when rapidly spreading cellulitis, signs of sepsis, or involvement of bone or joint is likely. In this case intravenous ciprofloxacin and penicillin would have been one option, penicillin allergy not being confirmed by history. (Vomiting and diarrhoea are not true allergies but intolerances). Step down therapy to oral ciprofloxacin alone would be reasonable, total therapy continued for 4 weeks. Empirical metronidazole until anaerobes are excluded would be a prudent addition. For infections complicated by osteomyelitis, longer courses of treatment (eg 6 weeks) would be required.

References:
Morgan M & Palmer J. Dog Bites. *British Medical Journal* 2007; 334:413-417.

Morgan M. Hospital management of animal and human bites *Journal Hosp Infection* 2005, 61:1-10

NHS Clinical Knowledge Summaries http://www.cks.nhs.uk/bites_human_and_animal

Animal Bites and Pasteurella infections: Information for Healthcare Staff. HPA website

Where do we go from here?

- Participants receive feedback with their own responses, 'model' answer, commentary and references
- Also able to see collated responses from other participants
- Not mandatory & not scored at present
- Participation initially free of charge, but a fee now necessary to cover costs of hosting scheme
- Interpretative EQA now appearing in RCPath KPIs
- Tool for revalidation

Acknowledgements and grateful thanks

- **Founder scenario writing group**: Erwin Brown, Karen Allen, Kathy Bamford, Paul Chadwick, Matthew Dryden, Tony Elston, Mark Farrington, Sarah Maxwell, Beryl Oppenheim & Jane Stockley
- **Other contributors**: Bridget Atkins, Peter Chiodini, David Dance, Andrea Guyot, Alison Johnson, Liz Johnson, Goura Kudesia, Andy Lovering, Cliodna McNulty, Marina Morgan, Sue O'Connell & Mark Zuckerman
- **Microbiology UKNEQAS**: Christine Walton & Vivienne James