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Abstract (oral session)

Rapid diagnostic tests for malaria: early results from a European Quality Assurance Scheme

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Objectives: Approximately 2,000 cases of malaria are reported in the UK each year so any haematologist nationwide can be called upon to diagnose malaria in their laboratory. Although microscopy is still the most routinely used method for malaria diagnosis in clinical laboratories, Rapid Diagnostic Tests (RDTs) have become increasingly popular. UK NEQAS Parasitology established a pilot Scheme for RDTs for malaria in 2009 and which became a fully registered UKNEQAS Scheme in 2011. Methods: Two distributions each containing two lysed blood specimens are dispatched annually to 92 UK and overseas laboratories. Participants are requested to report the presence or absence of malaria antigens in lysed blood specimens containing either recombinant malaria antigens to mimic P. falciparum or non-falciparum infections or different parasitaemias of Plasmodium falciparum obtained from lysed infected whole blood. Performance since the start of the scheme was analysed. Results: An analysis of results of participants' performances for detecting malaria antigen since the start of the scheme showed an average of 5.5% of participants (0%-17%) reporting false negative results for specimens containing Plasmodium antigens and 2.3% (0%-4.2%) reporting false positive results for specimens containing no malaria antigens. More false negative results were reported when non-P. falciparum antigens (17.8%) were present than when P. falciparum antigens (1.6%) were present. When comparing these results with those of thick blood films distributed by UK NEQAS, an average of 6.5% (0% - 24%) of participants failed to report malaria parasites on a positive film and 9.2% (7.4% - 11.6%) reported malaria parasites on a negative film. Conclusion: The scheme has highlighted problems with the reporting of false positive and false negative results particularly in the detection of non-P. falciparum species. These problems could be either kit related or operator related. However, less false positive results were reported when participants used RDTs than when they examined thick blood films microscopically. This shows that less technical expertise is required to perform the RDT. UK NEQAS Parasitology intends to distribute more challenging specimens containing a wider variety of antigen concentrations to encourage efficient and well controlled RDT operation.