two scientists, and LAMP analyser time were recorded. Consumables, equipment and labour cost were calculated.

Results: The median time to result for microscopy and ICT was 49 min (including 14 min microscopy review). The cost per sample was AU\$19.45 or AU\$42.95 for 3 samples. The median time to result for the LAMP assay was 53 min (13 min sample preparation, 40 min analyser time) with a cost of AU\$21.50 per sample.

Conclusion: The LAMP assay is a time and cost effective malaria diagnostic screening tool and should be considered for implementation in the laboratory.

References

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2. Rypien C, Chow B, Chan WW, *et al.* Detection of Plasmodium infection by the Illumigene Malaria Assay compared to reference microscopy and real-time PCR. *J Clin Microbiol* 2017; 55: 3037–45.

EVALUATION OF A T-CELL PROLYMPHOCYTIC LEUKAEMIA (T-PLL) EQA CASE STUDY

Fernando Estepa, Peter Graham, Gabriella Pena
The Royal College of Pathologists of Australasia Quality Assurance Programs (RCPAQAP), St Leonards, Sydney, Australia

Morphology continues to be a key diagnostic tool in identifying haematological disorders. The Royal College of Pathologists of Australasia Quality Assurance Program (RCPAQAP) offers an external proficiency program (EQA) in diagnostic morphology. The aim of the program is to assess the ability of participants to diagnose a case study through recognition of key morphological diagnostic features. Findings on a T-cell prolymphocytic leukaemia (T-PLL) case study were reviewed as a potential indicator of diagnostic capability among participating laboratories.

Method: The morphology program consists of 4 runs per year and three case studies per run. This case study featured a T-PLL. Participants were assessed using a predetermined scoring system for both the morphological and diagnostic component.

Results: The expected key morphological diagnostic features were a marked lymphocytosis with a predominance of small abnormal lymphoid cells containing prominent cytoplasmic blebbing. In addition, mature nuclear chromatin with a high magnification comment indicating highly convoluted nuclei with most containing a single small nucleolus.¹ Of the 499 participants, 76% (379) indicated the presence of the abnormal lymphocytes (T-cell prolymphocytes). However, only 45% (223) submitted a diagnosis of T-PLL.

Conclusion: This case study highlights an ongoing need for EQA programs to provide challenges to improve education and training in morphology.

Reference

1. Swerdlow SH, Campo E, Harris NL, *et al.* *WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues*. Revised 4th ed. Lyon: IARC, 2017; 346–8.

GUIDELINES FOR REPORTING BLOOD CELL MORPHOLOGY – ARE LABORATORIES FOLLOWING?

Fernando Estepa, Peter Graham, Gabriella Pena

The Royal College of Pathologists of Australasia Quality Assurance Programs (RCPAQAP), St Leonards, Sydney, Australia

In 2015, the International Council for Standardization in Haematology (ICSH) released a report outlining recommendations for the standardisation of nomenclature and grading of peripheral blood cell morphological features. Based on these, lymphoid cells with a suspected malignant or clonal aetiology should be classified as abnormal lymphocytes with an accompanying description of the cells.¹ We sought to evaluate if laboratories were following the ICSH reporting recommendations.

Method: Laboratories enrolled in the 2019 RCPAQAP Manual Differential program were provided with clinical notes, a stained blood film (which featured a T-cell prolymphocytic leukaemia case) and asked to categorise the different white blood cells. Assessment was based on robust statistical analysis and the clinical scenario.

Results: 79% (378/480) of labs reported the presence of abnormal lymphocytes, however, only 10% (41) provided a description of the abnormal cells. 23 participants included the abnormal cells as part of the lymphocyte count, while 15 participants counted the abnormal cells as ‘others’ without a description.

Discussion and conclusion: The main morphological features that were expected to be reported were the presence of abnormal lymphocytes and an associated description (T-cell prolymphocytes). Based on the results for this survey, either laboratories have a low uptake on the ICSH guidelines or they are missing important morphological features indicating the need for standardisation in blood film morphology reporting.

Reference

1. Palmer L, Briggs C, McFadden S, *et al.* ICSH recommendations for the standardization of nomenclature and grading of peripheral blood cell morphological features. *Int J Lab Haematol* 2015; 37: 287–303.

DROPLET DIGITAL PCR FOR FETAL HPA-1A TYPING – NIPT PROOF OF PRINCIPLE STUDY

Robert Flower, David Mahon, Helen O’Brien, Gail Pahn, Rhonda Holdsworth, James Daley, Catherine Hyland
Australian Red Cross Lifeblood, Kelvin Grove, Qld, Australia

Background: There is a clinical need for a non-invasive prenatal test (NIPT) that accurately assesses fetal HPA-1a status in fetoneonatal alloimmune thrombocytopenia (FNAIT) investigations. This is relevant for HPA-1bb women who have developed HPA-1a antibodies.

Aims: To establish proof of principle that droplet digital (dd) PCR is a suitable platform for NIPT, to detect fetal HPA-1 status.

Methods: Maternal blood samples were collected from four subjects, gestation ages ranges from 12⁺₄, 13, 22 and 39 weeks. Cell-free fetal (cff)DNA was extracted from maternal plasma for ddPCR. Cultured amniocytes or infant cord serology were used to confirm the findings.

Results: Optimisation demonstrated that the ddPCR assay could be performed using the same reaction and cycling conditions as NIPT assays developed for fetal red cell antigen predictions. Fetal specific signals were detected for HPA1a sequences for three of the four cases: only the 13-week case lacked signals, predicting that the baby was negative. Genotyping outcomes correlated with cultured amniocyte genotype.