Morphology and more: the EQATE digital platform

John Burthem & Jon Sims

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EQATE

UK NEQAS Haematology Online

EQA, Training and Education

First case released in December 2018

6 cases completed to date

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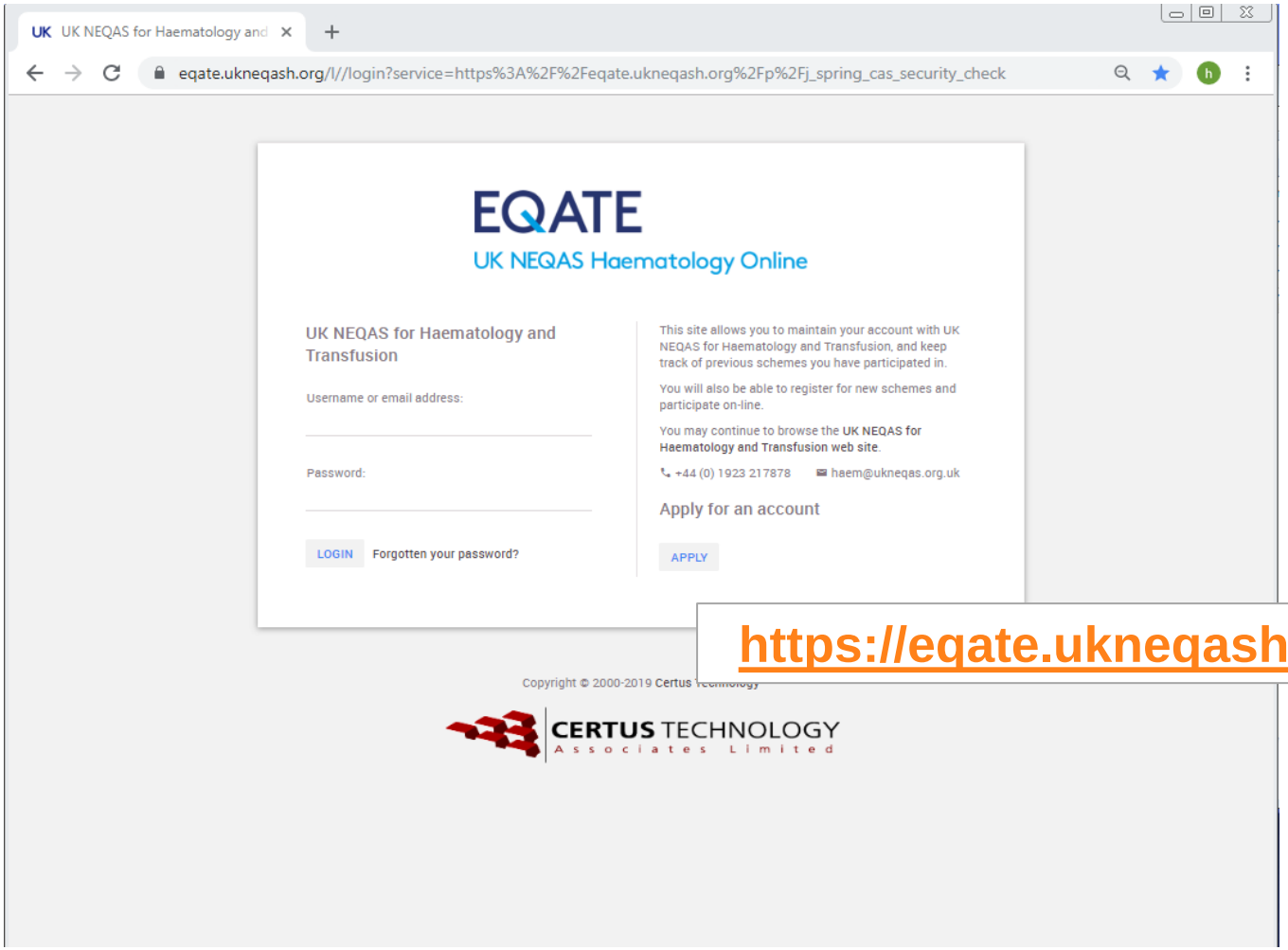

https://eqate.ukneqash.org

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Major updates since launch:

- Wiki links
- Questionnaire visibility
- Lab Managers' dashboard
- User Manual
- CPD certificate generation
- PayPal – soon….

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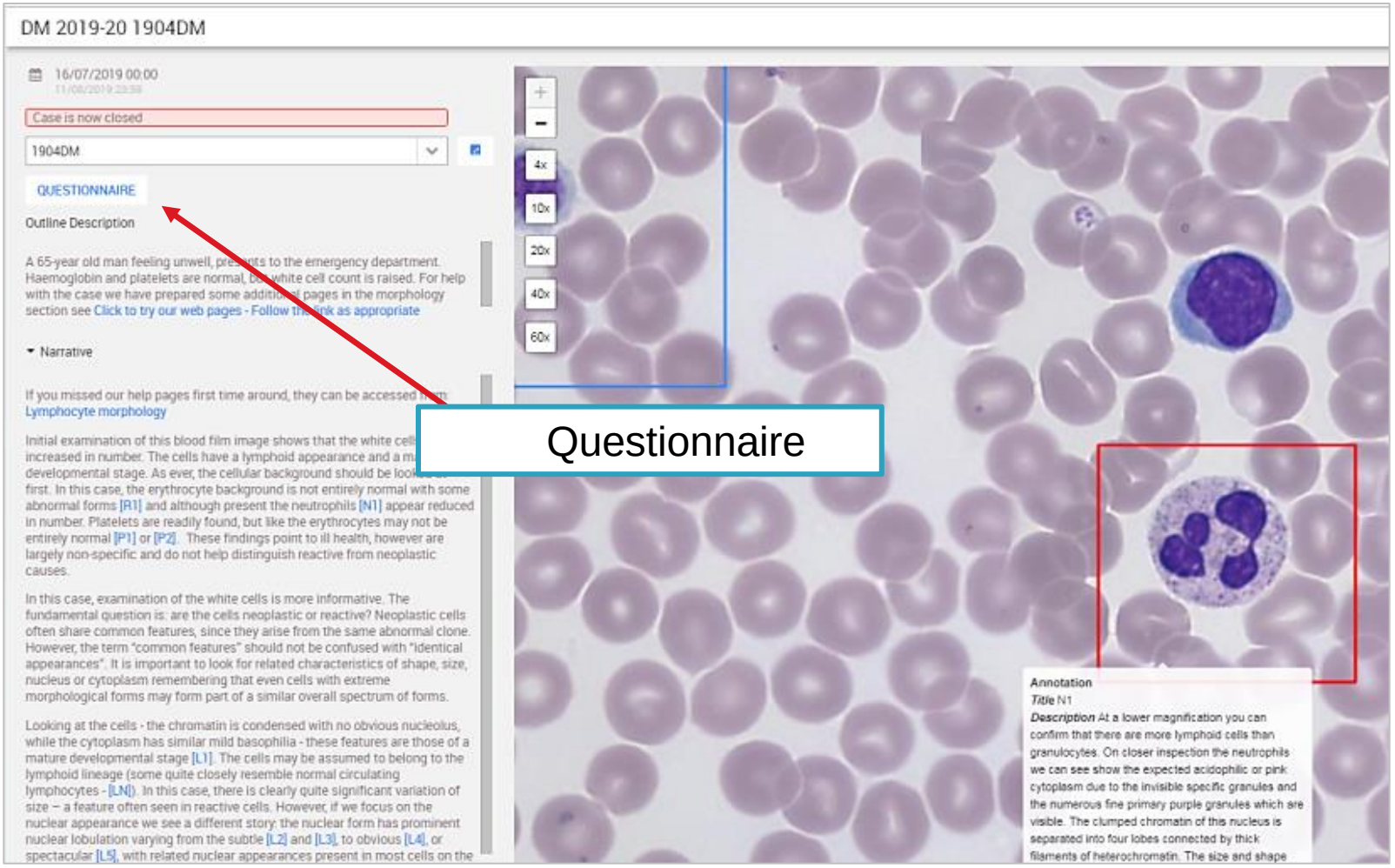

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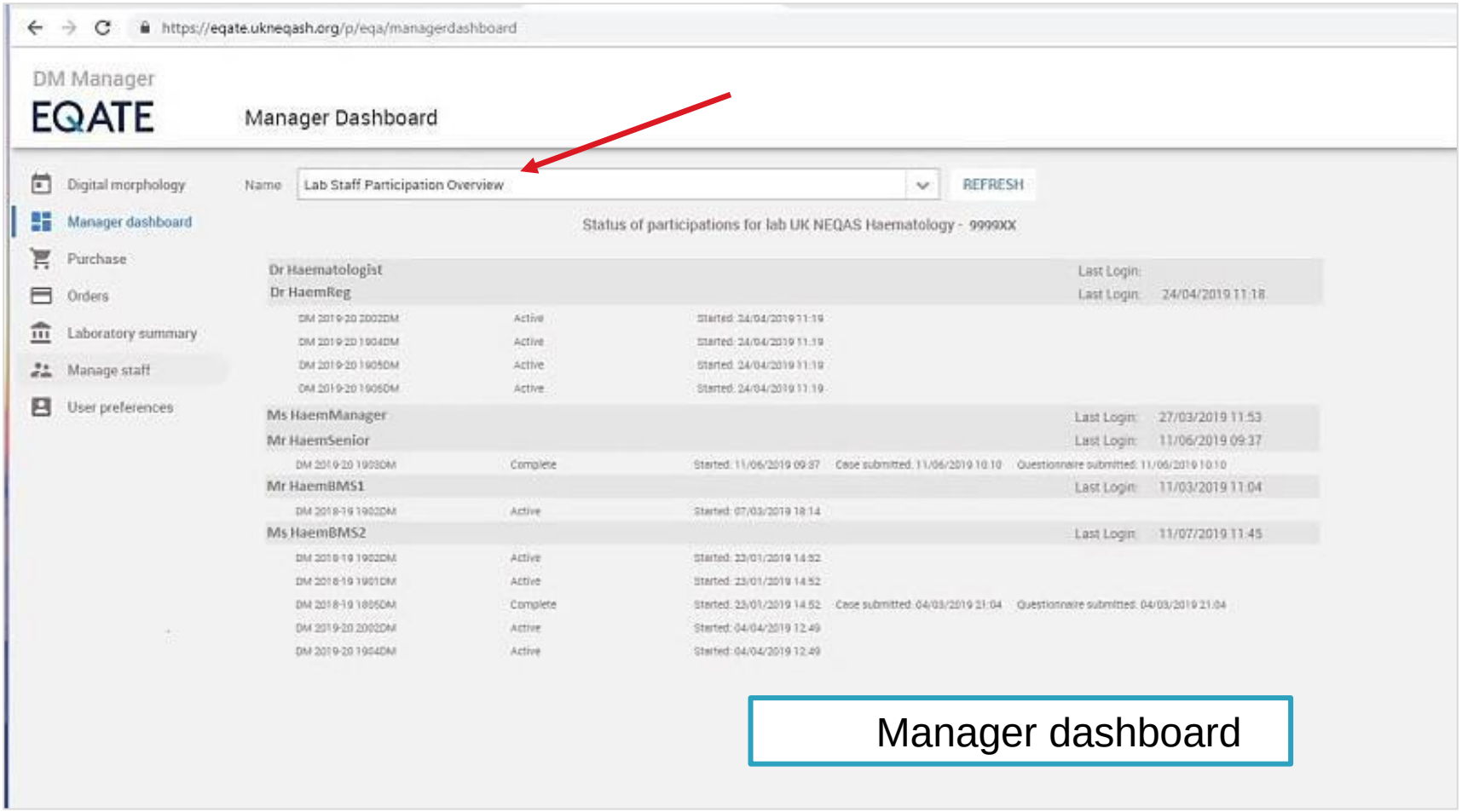

Manager dashboard

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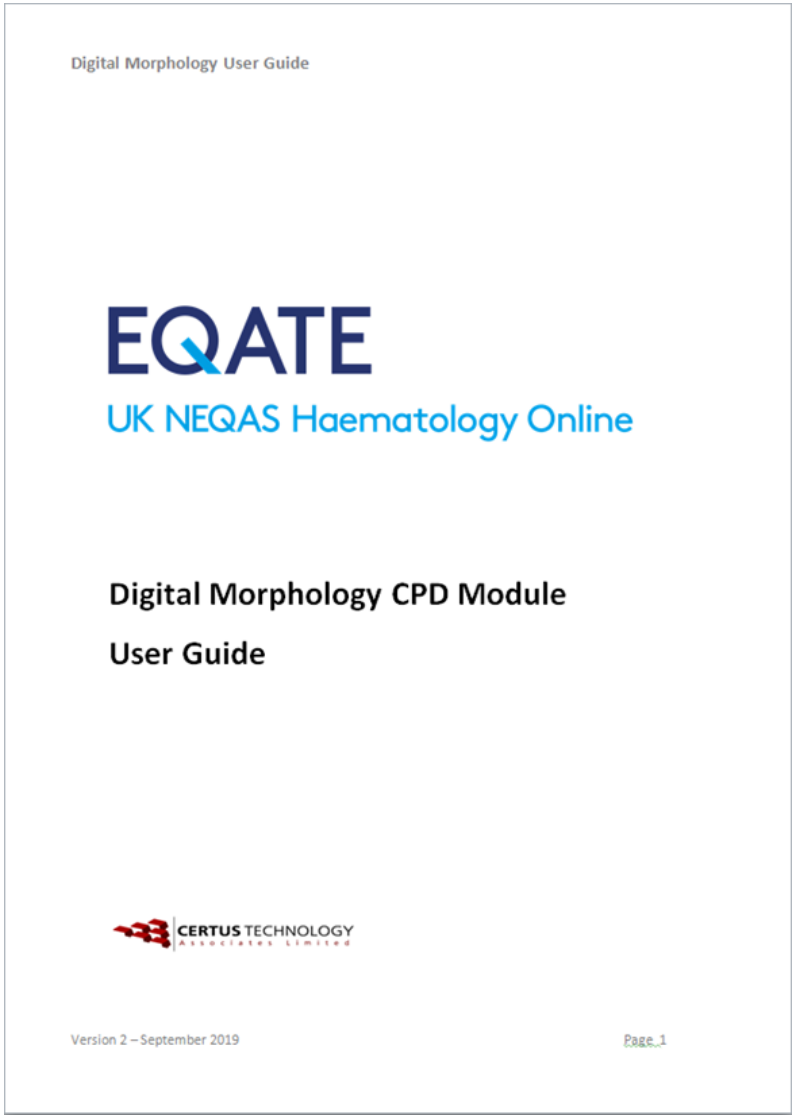

User guide available to download……

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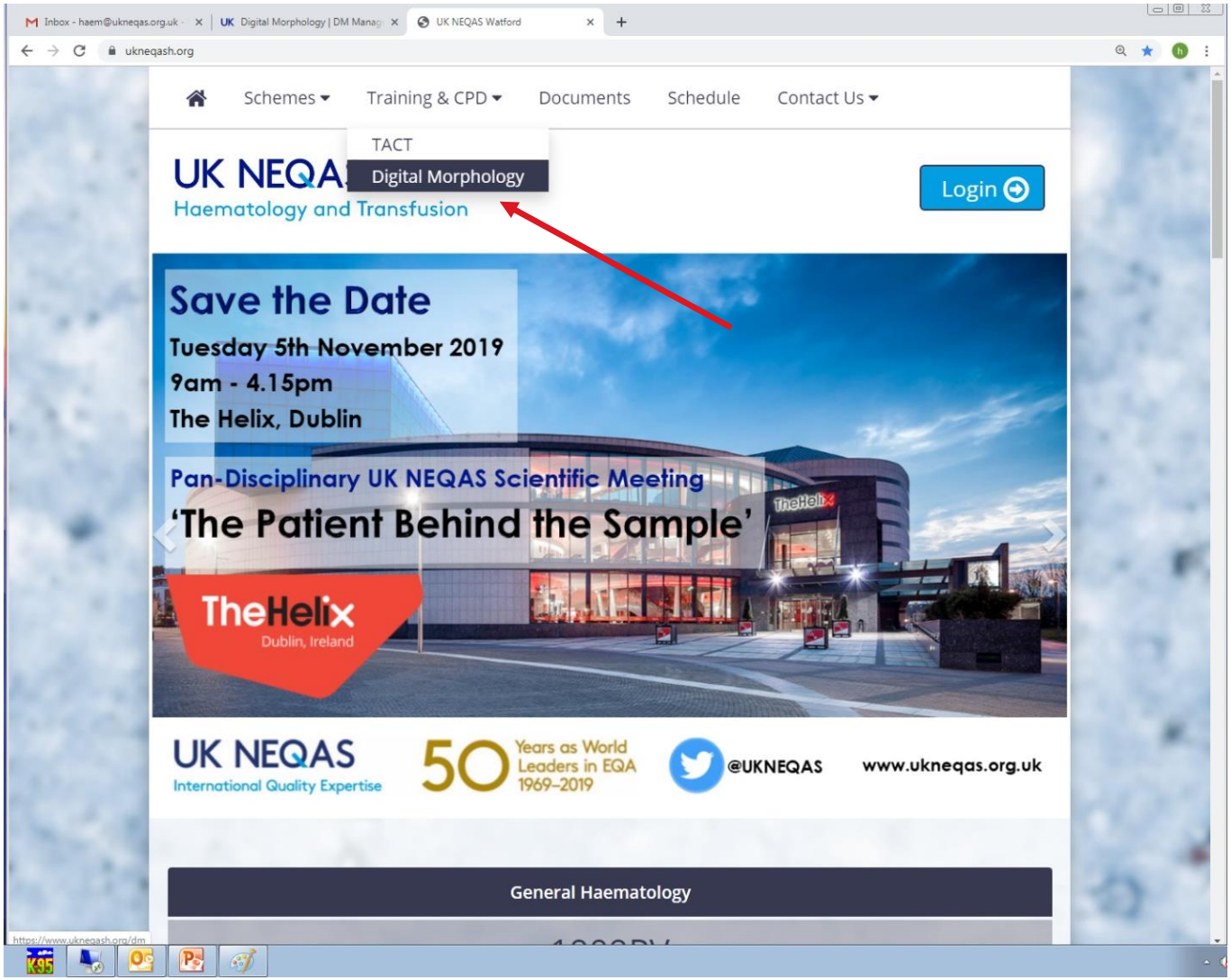

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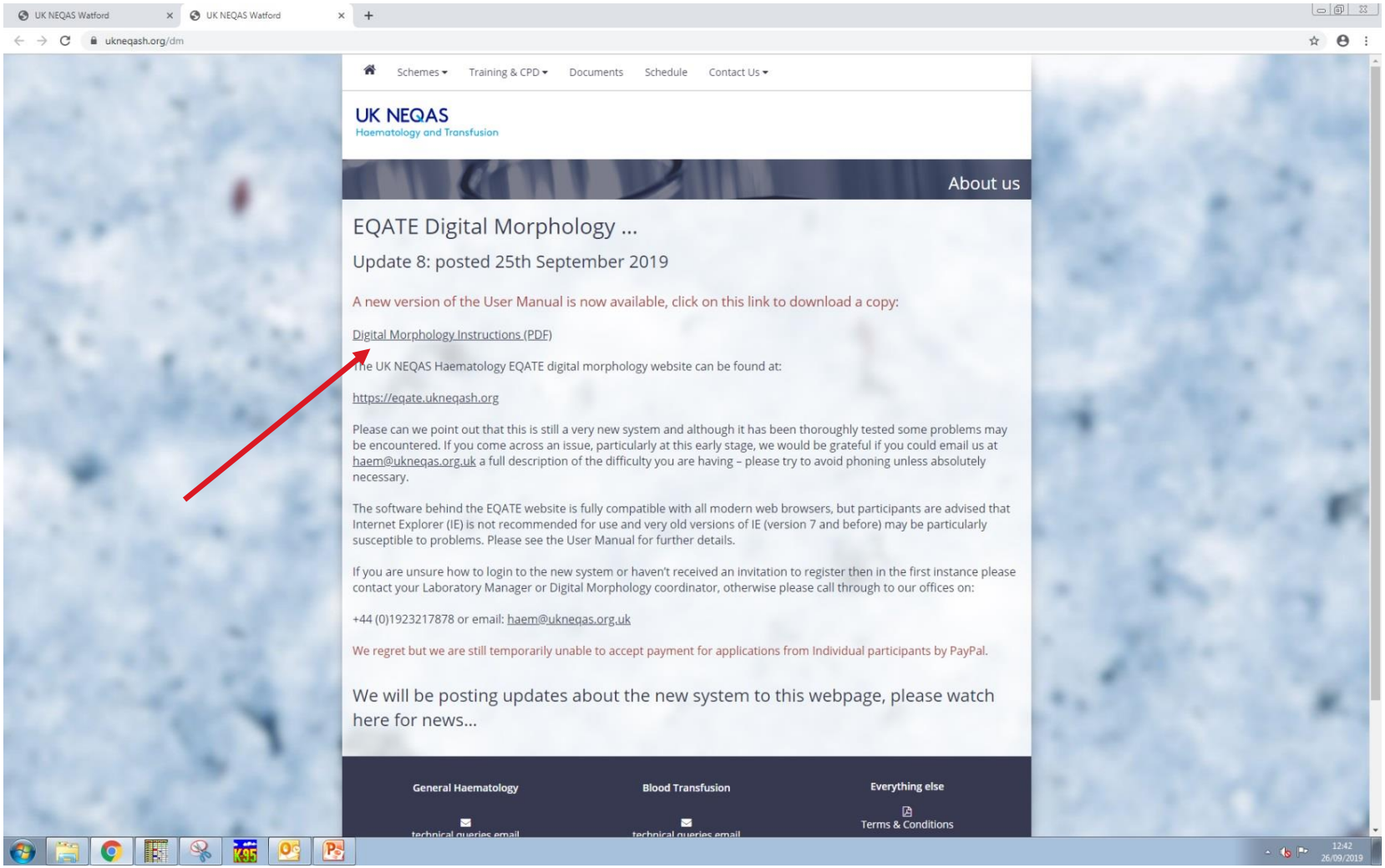

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User survey – UK NEQAS Haematology EQATE

- April 2019 ~ ‘surveymonkey’
  - 314 Total Responses

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User survey - April 2019

Q1: Are you based in the UK?

80%

Q2: Are you a Laboratory scientist, Haematology clinician, Academic, or Other?

87% Lab scientist, 10% Clinician

Q3: How long have you been participating in the UK NEQAS Haematology Digital Morphology scheme?

33% > 5 years, 22% < 1 year

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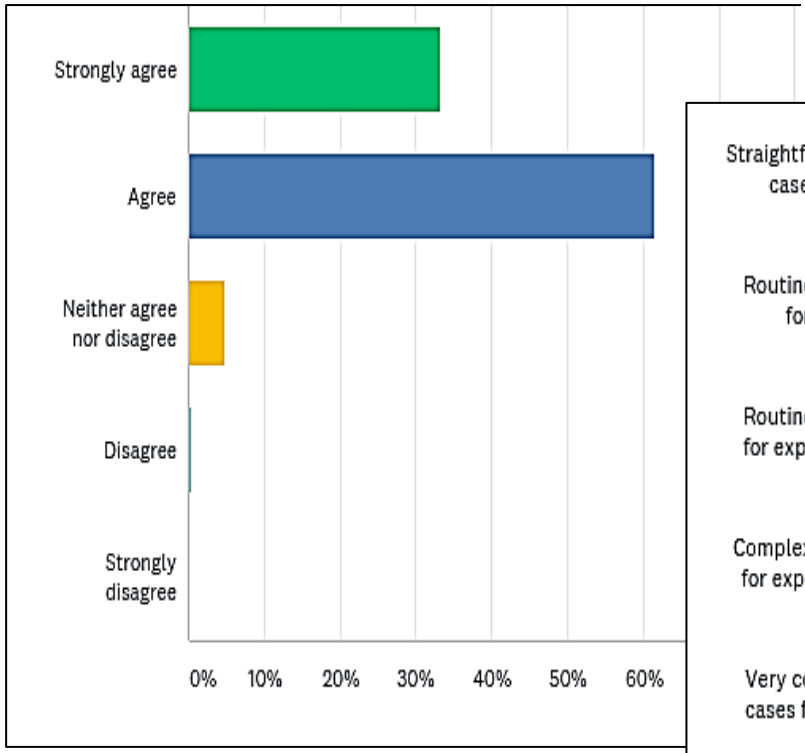
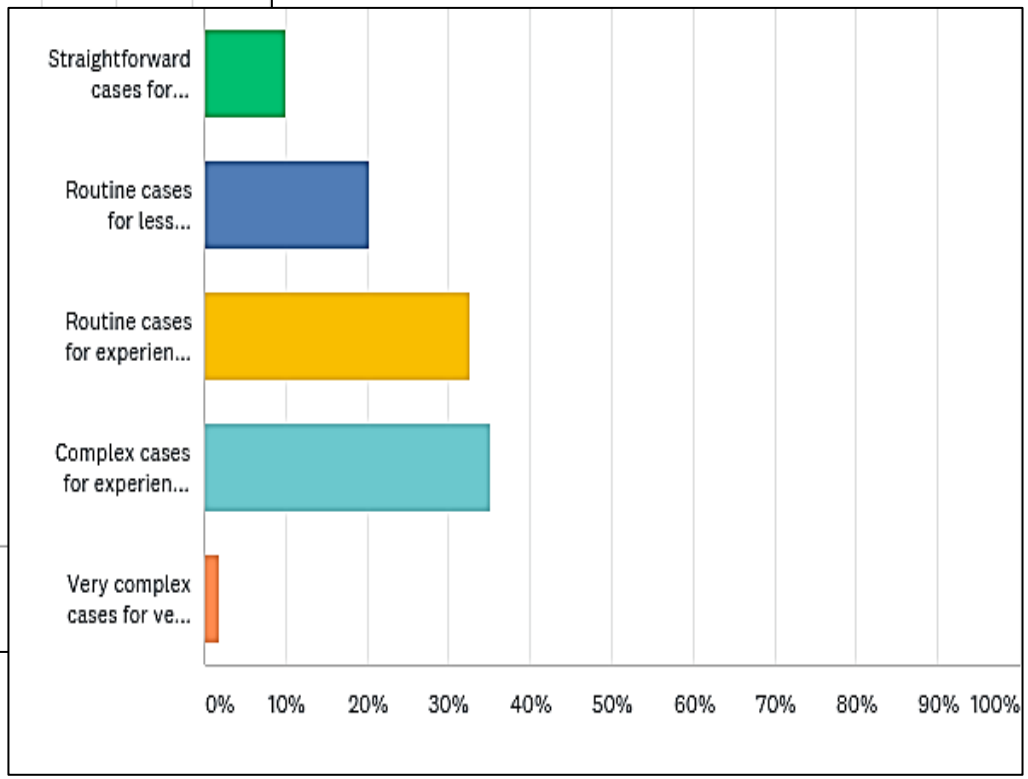
Q12: Did you find the content of the cases published so far, interesting and educational?



Q13: Would you like to see more examples of straightforward haematological conditions or would you like to see more complex cases?



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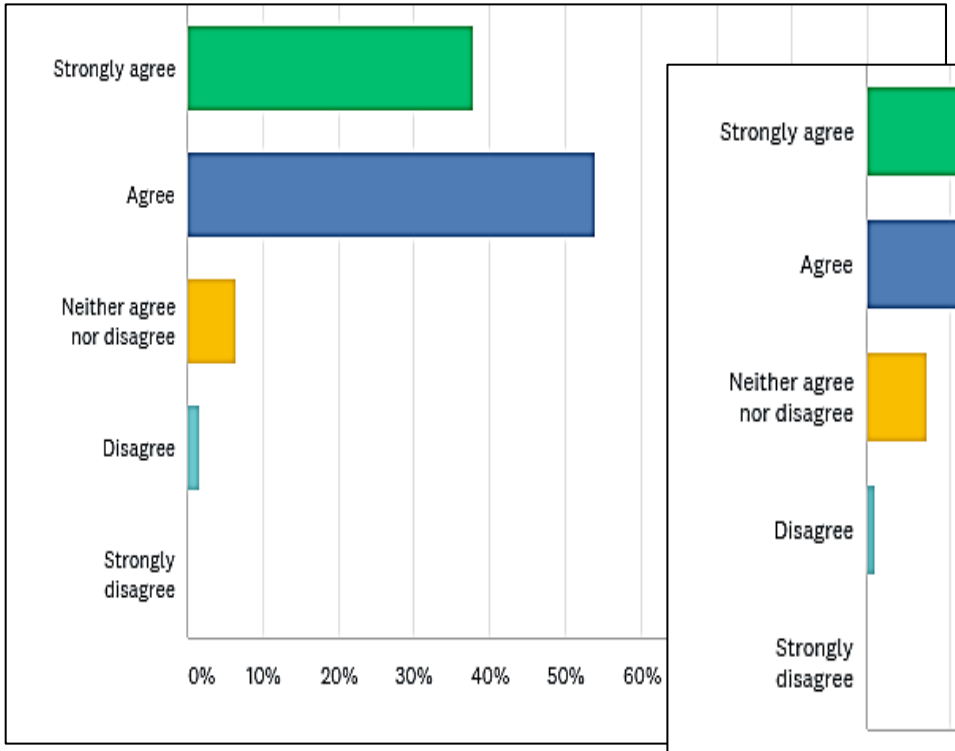
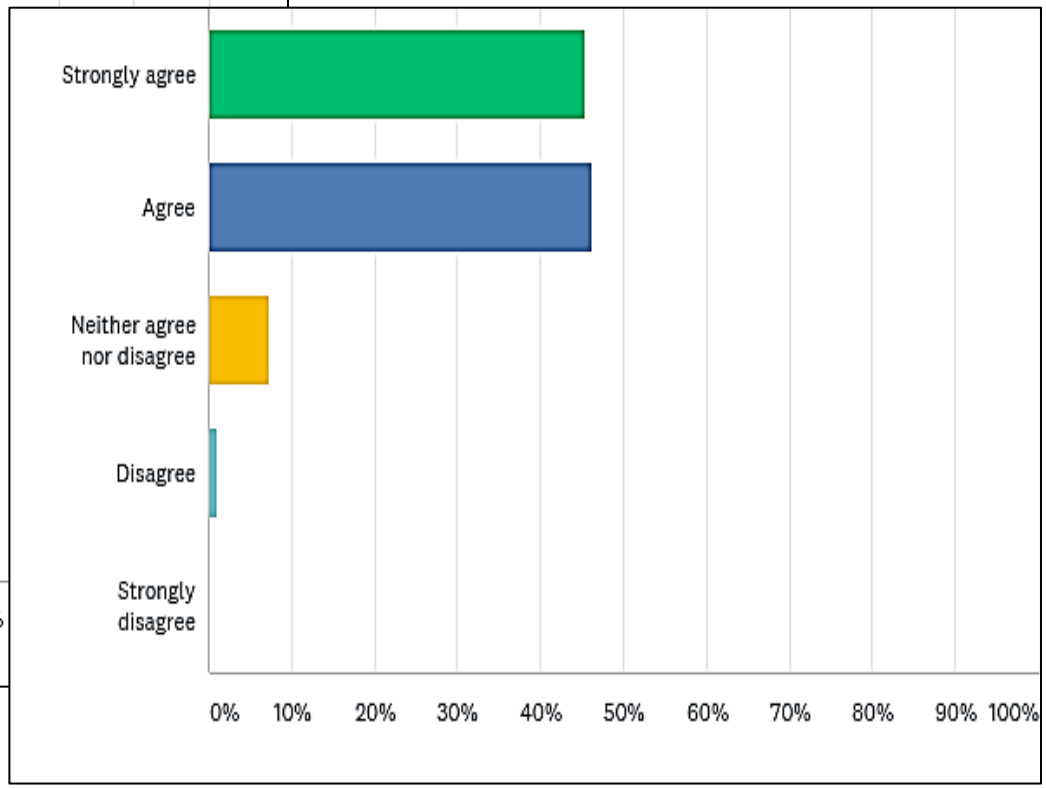
Q14: If a module for Interpretive Cases was included for general haematology, that might be used for CPD or competency, would you find it useful?



Q15: Would you like modules for on-line learning included in the EQATE platform?



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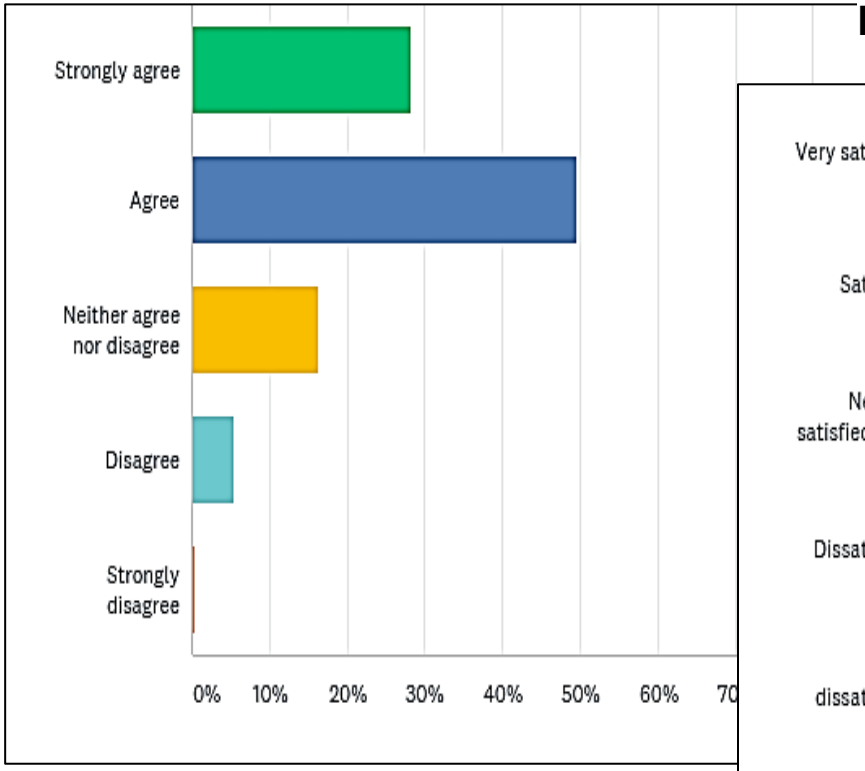
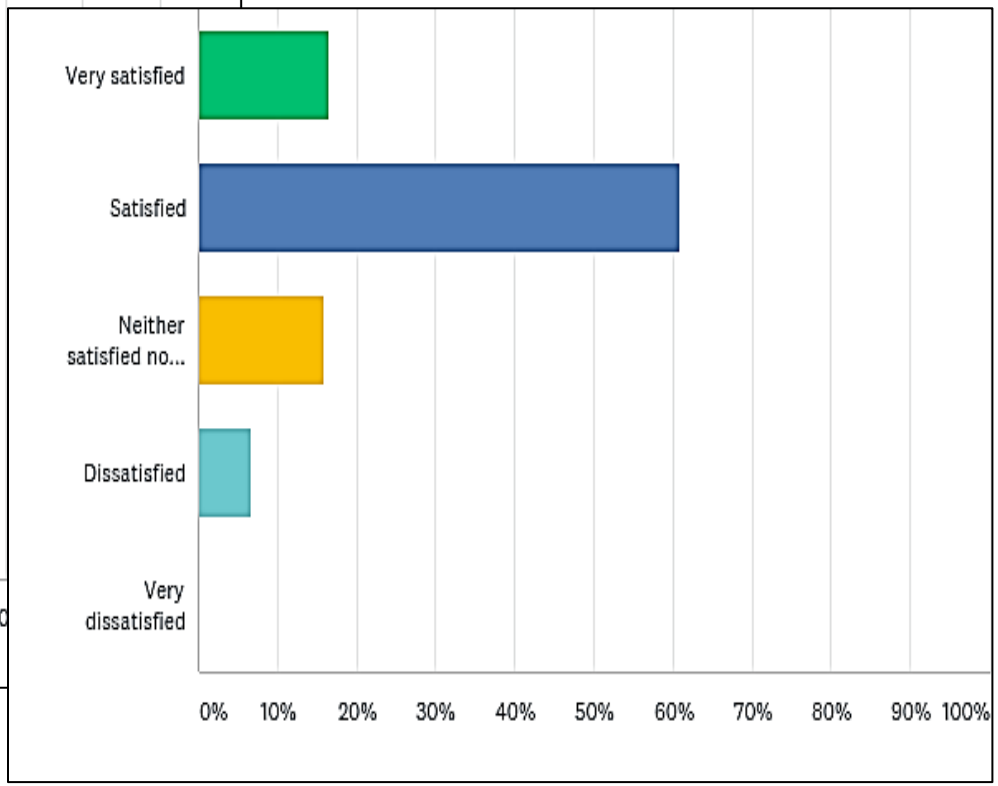
Q16: Would you be prepared to view analyser plots, film images and other material for the UK NEQAS EQA surveys on the EQATE platform?



Q18: How satisfied are you with the new EQATE platform overall?



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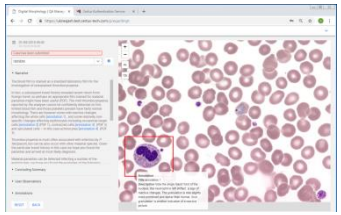
EQATE Workshop – April 2019

Morphology module:



EQA module:

Electronic EQA cases
'Dry'cases

Interpretive EQA module:

Case studies
Individual assessment

Competency assessment

Education module:

Galleries
Self-assessment tools

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Contents lists available at ScienceDirect

EBioMedicine

journal homepage: www.ebiomedicine.com

Research Paper

Do We Know Why We Make Errors in Morphological Diagnosis? An Analysis of Approach and Decision-Making in Haematological Morphology

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[b] UK NEQAS(H), PO Box 14, Watford WD18 OFJ, UK
[c] School of Healthcare Sciences, Manchester Metropolitan University, John Dalton Building, M1 5GD, UK
[d] Institute of Cancer Sciences, 5th Floor St Marys Hospital, University of Manchester, M13 9WL, UK

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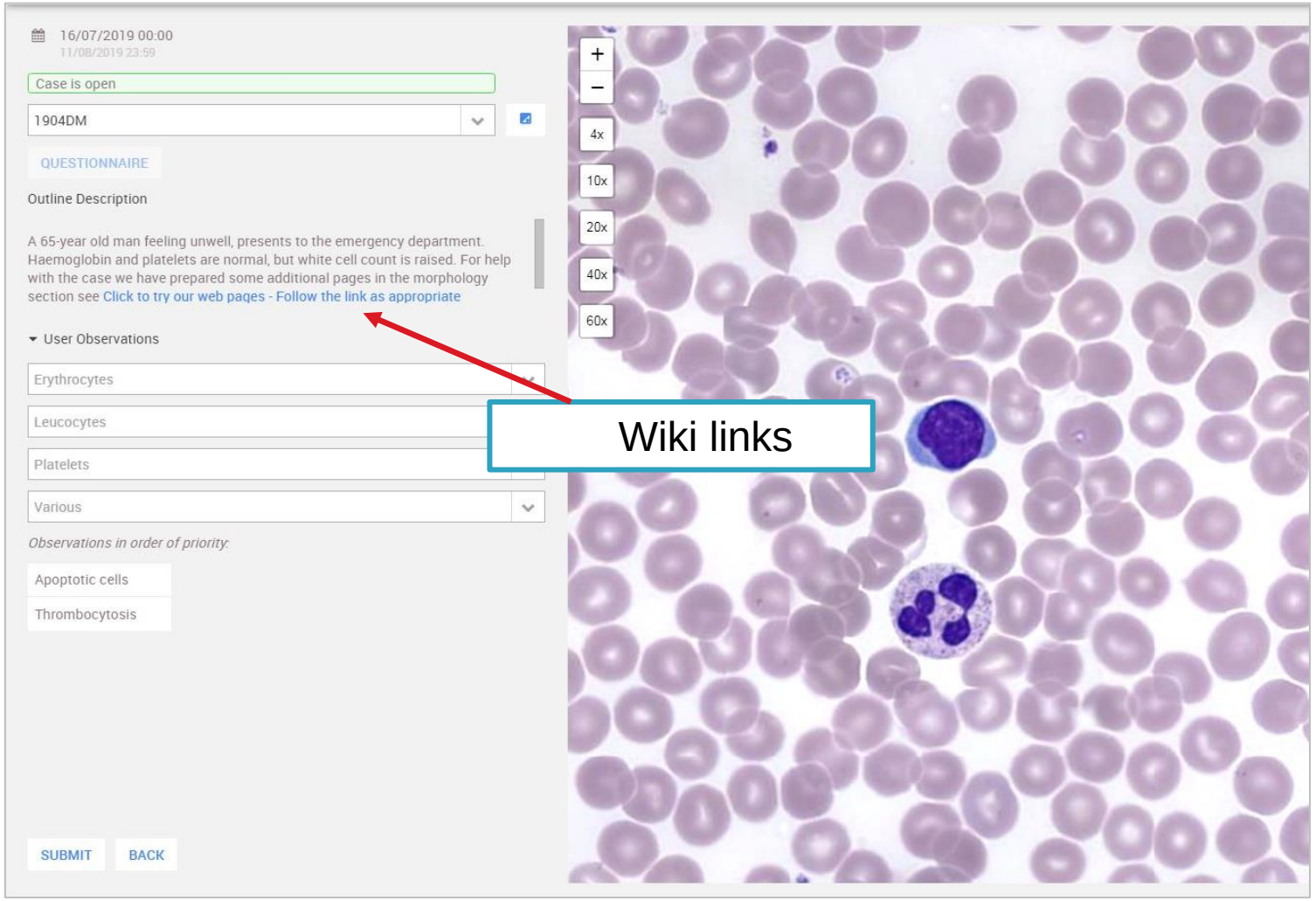

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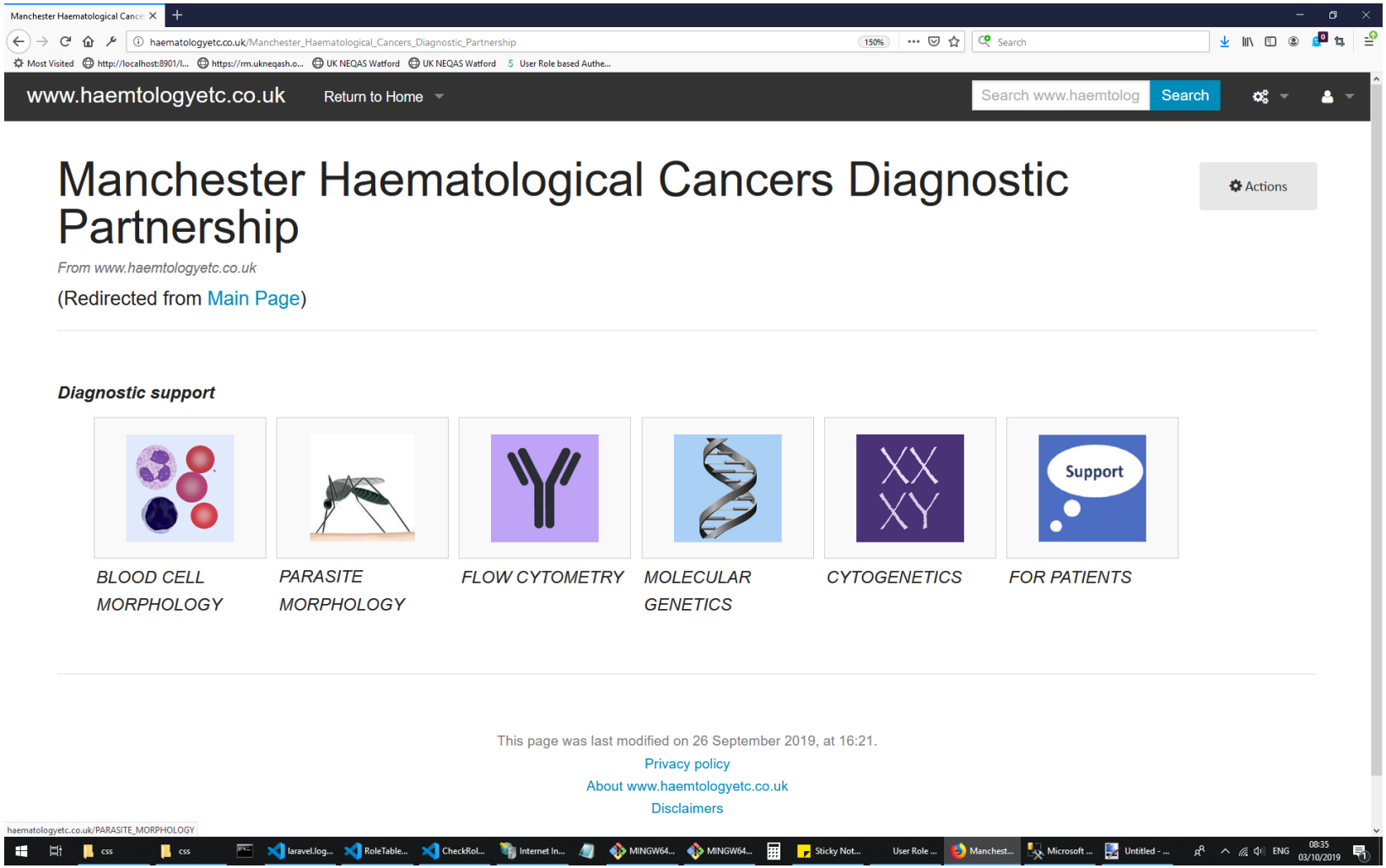
http://haematologyetc.co.uk



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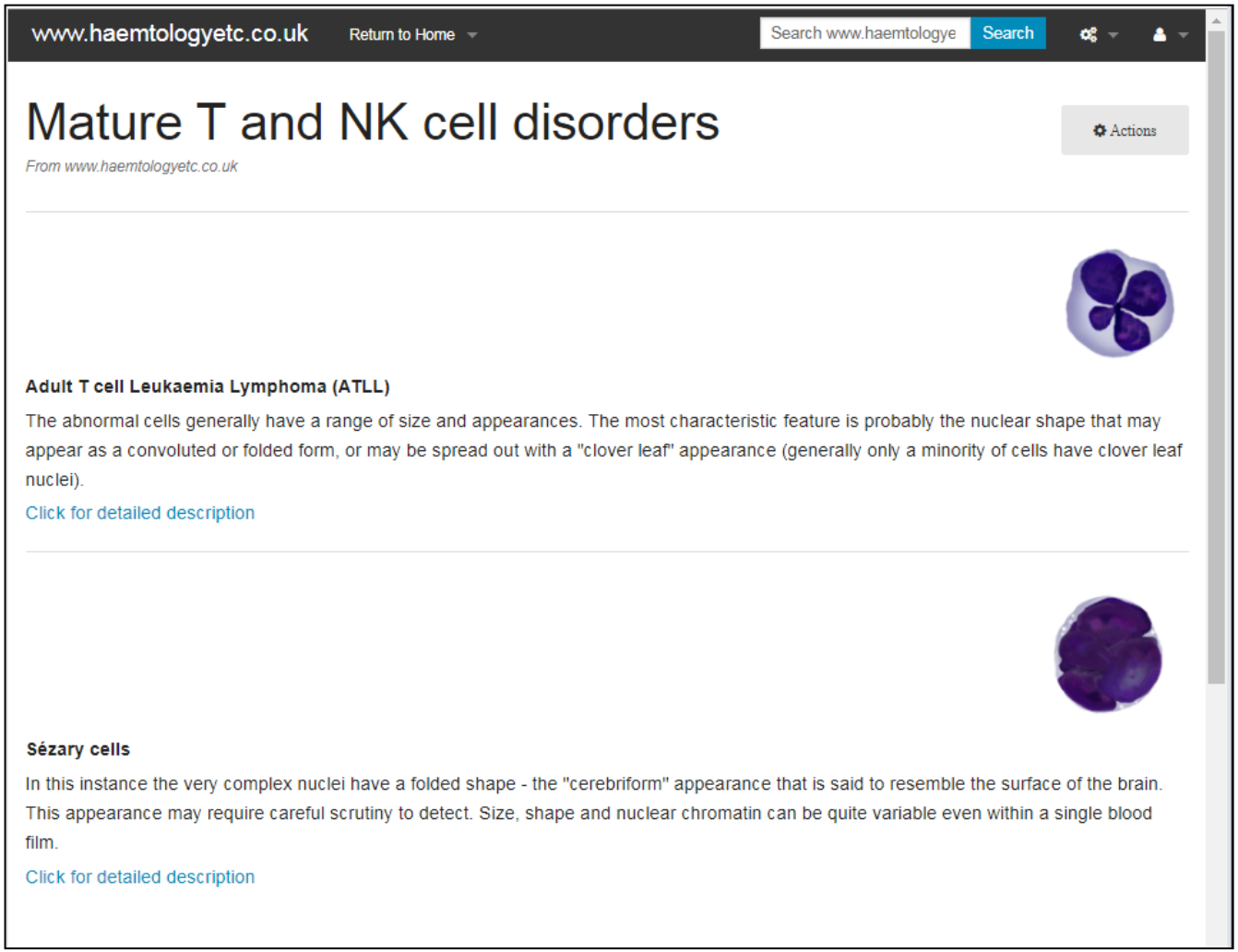

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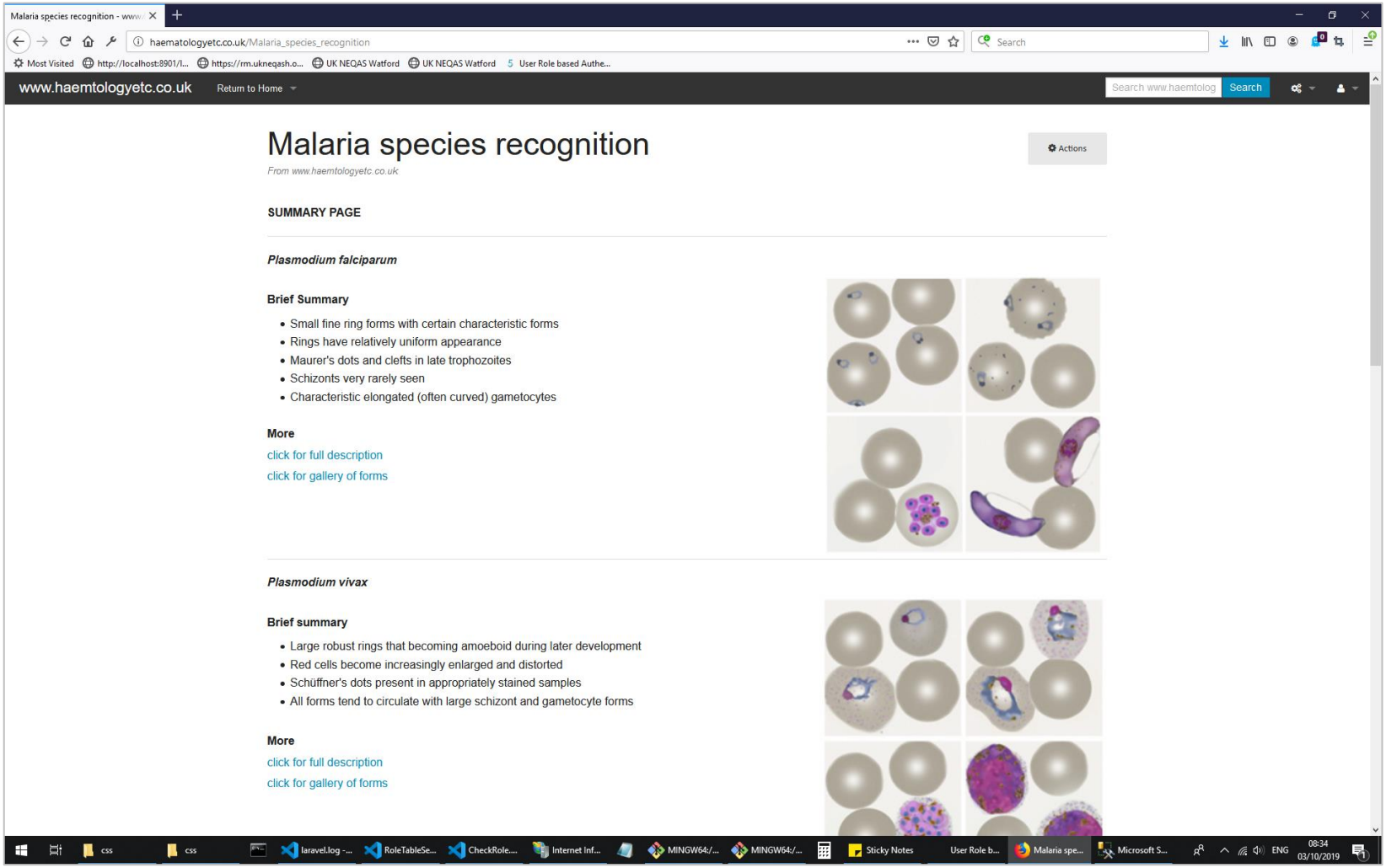

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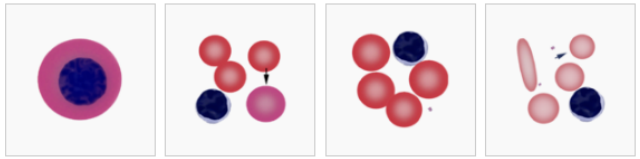
Red Cell Morphology

Actions

From www.haemtologyetc.co.uk

(Click the image to link to the page)

Abnormal erythrocyte maturation, size or haemoglobin content



Nucleated erythrocytes | *Polychromatic cells* | *Macrocytes* | *Hypochromic microcytes*

Abnormal shapes with irregular or sharp-ended form

Sickle cells (drepanocytes) | *Tear drop cells (dacrocytes)* | *SC poikilocytes* | *Irregularly contracted cells* | *Boat-shaped cell*

Abnormal shapes with regular form

Elliptocytes | *Spherocytes* | *Microspherocytes* | *Ovalocytes* | *Pencil cell*

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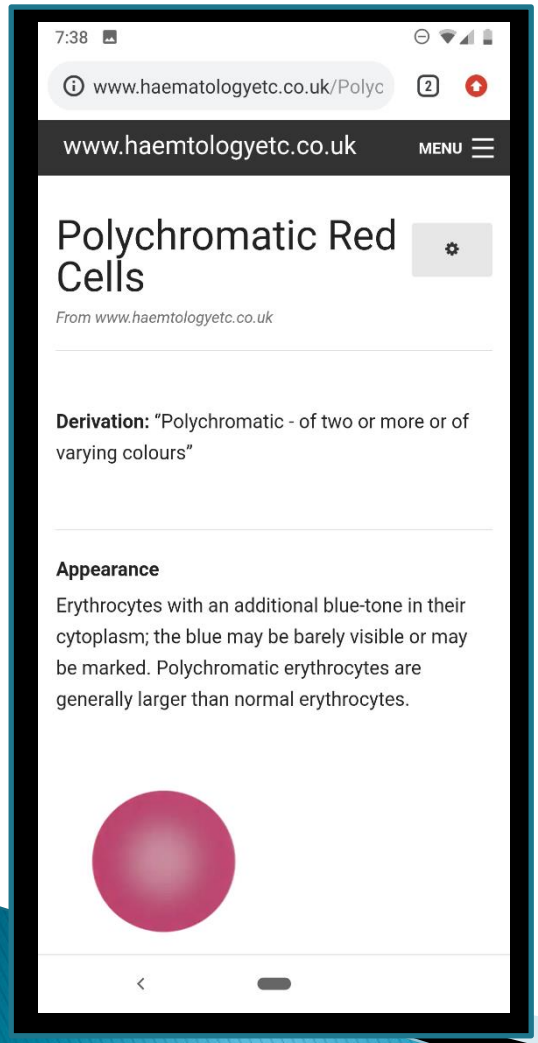
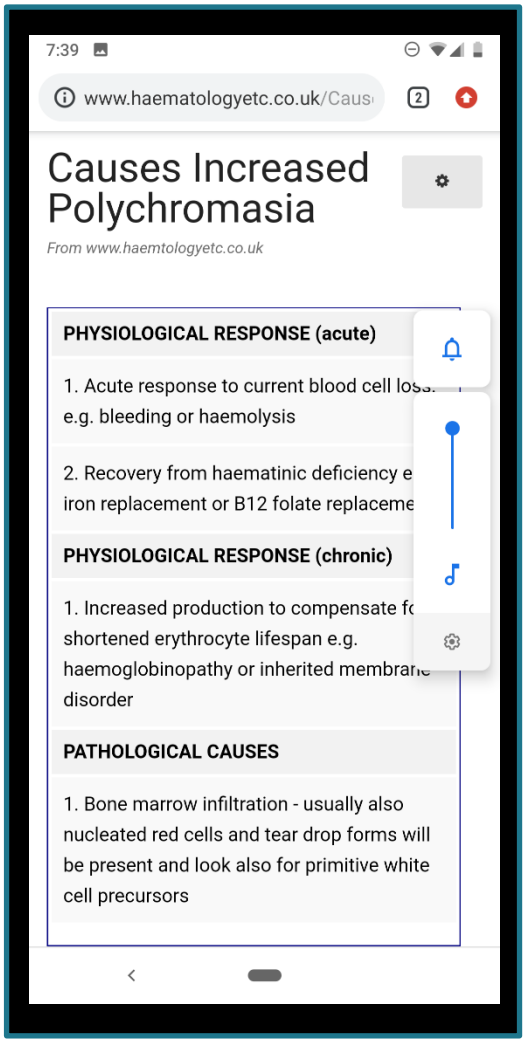
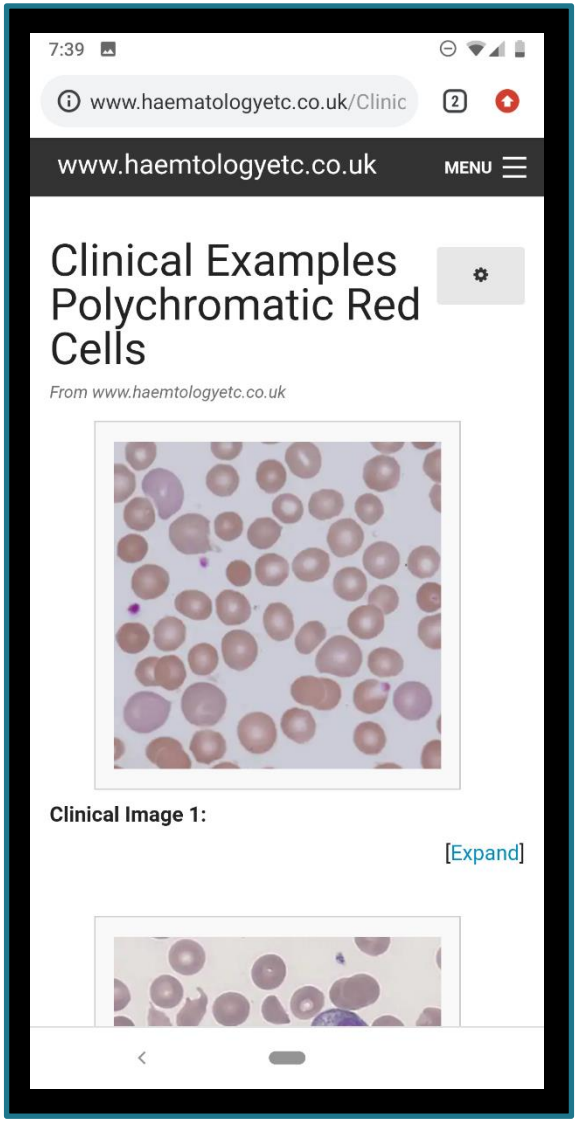
Device agnostic ……. (1)







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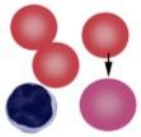
Device agnostic ……. (2)

Cells with altered maturation, size or haemoglobin content

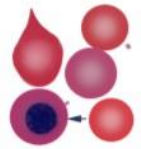
Red cells with these characteristics are frequently encountered in the laboratory. None indicates a single specific diagnosis and diagnosis often requires consideration of additional features:

Polychromatic cells: look for the blue tinge of the cytoplasm, often also increased size



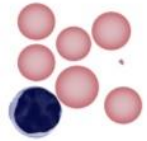
These are cells released into blood at early stages of maturation and are normal blood constituents. When numbers are increased a cause should be sought. Consider causes such as a reaction to red cell destruction or bone marrow infiltration: other features of the blood film are important.

Nucleated red cells: nucleated cells cytoplasm resembles red cells (with variable blue tinge)



These may sometimes circulate in reactive states, but their presence in blood is significant. Context is very important - look particularly for signs of reduced red cell survival or of bone marrow infiltration. Very early forms with basophilic cytoplasm may be a challenge to recognise.

Microcytes: Recognised by their reduced size (smaller than the nucleus of a small lymphocyte)



Microcytic cells are generally also hypochromic and in clinical practice they almost always indicate either iron deficiency or thalassaemia (although rare causes are recognised). It is often not possible to distinguish between these causes in mild cases although there are morphological clues.

Macrocytes: Recognised by their increased size (larger than the nucleus of a small lymphocyte)

Macrocytes are a diagnostically challenging group - arising in a range of conditions (including nutritional, metabolic, inherited or neoplastic causes). The degree of macrocytosis can be a valuable indicator as very large forms have a limited range of causes - consider also the context.

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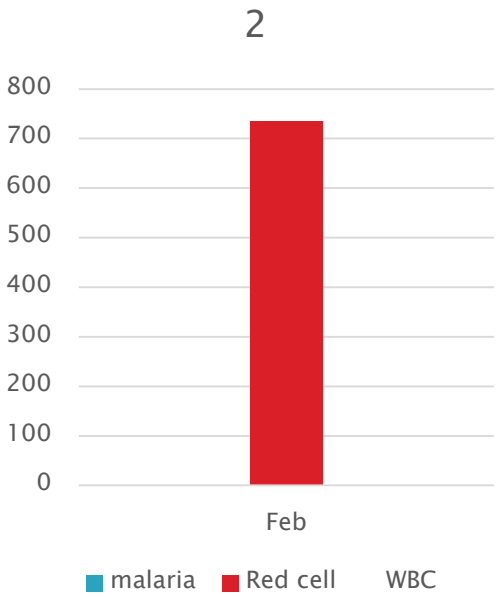
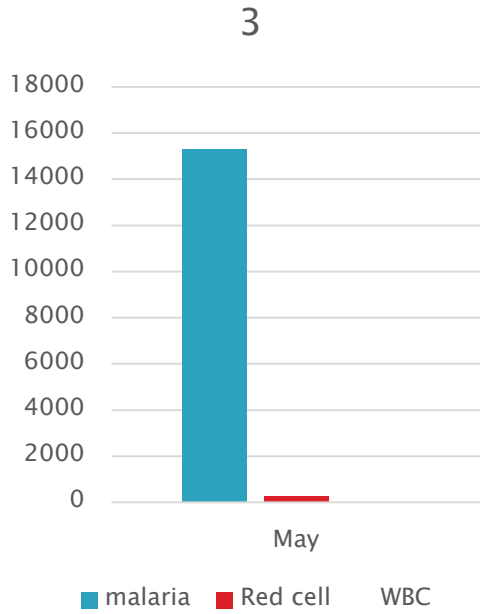
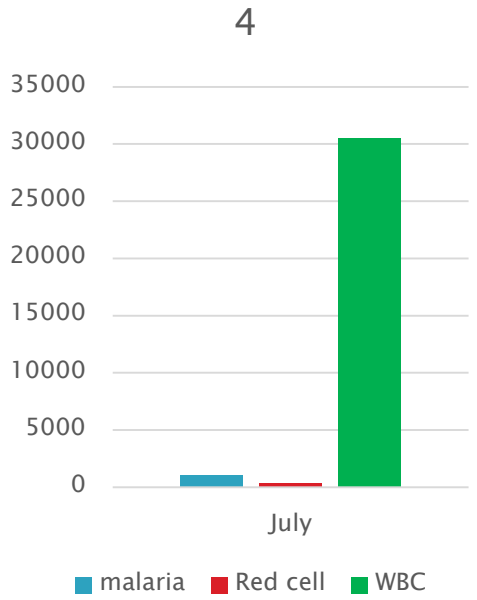
Is the system used?



G6PD



P.malariae



Sézary syndrome

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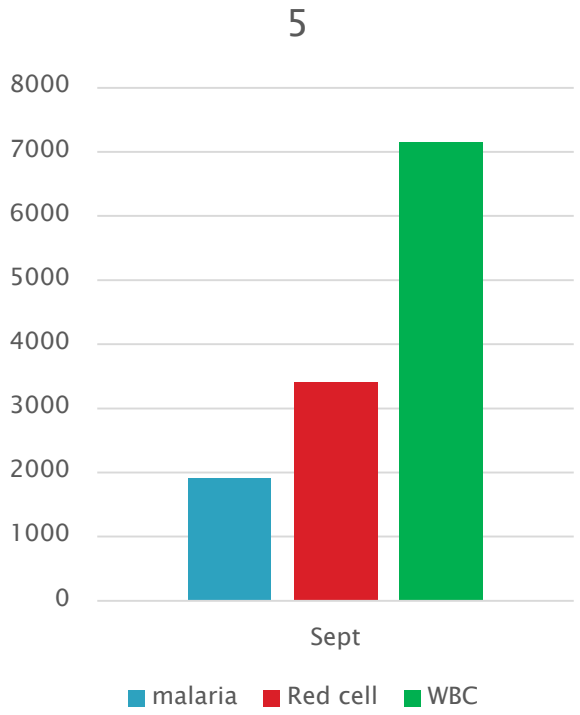
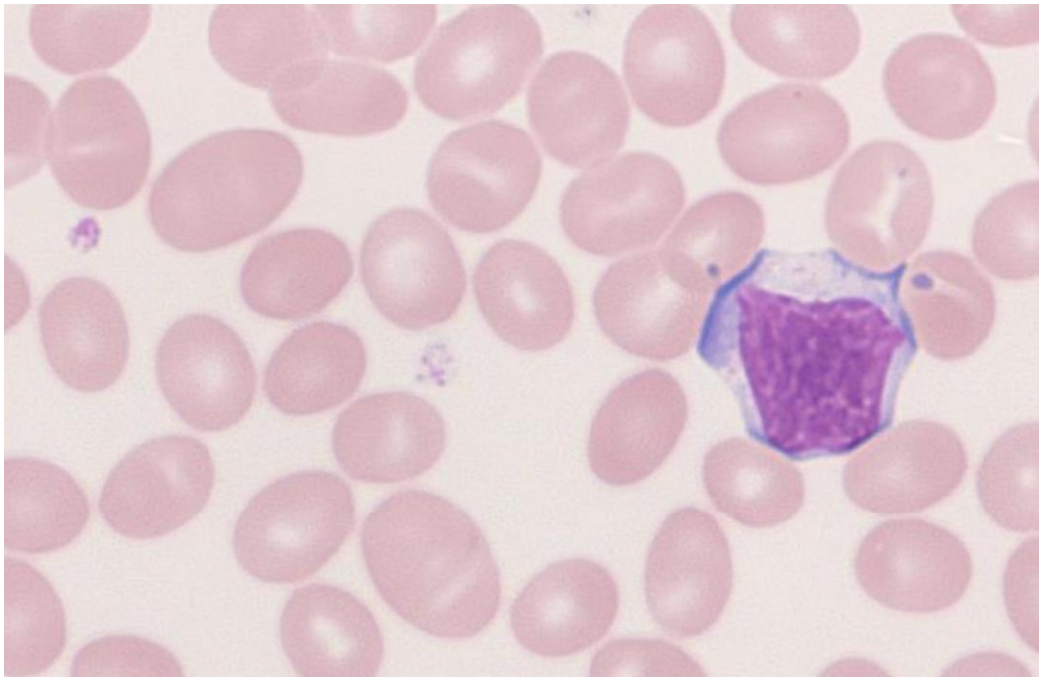
Does the system help?

Most recent case EBV infection & SEAO





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Does the system help?

Most recent case EBV infection & SEAO

Correct white cells – 87%

Correct – red cells 18%

SEAO	244
liver	178
Hstom	79
HE	39
B12	26
desc	559
nil	201

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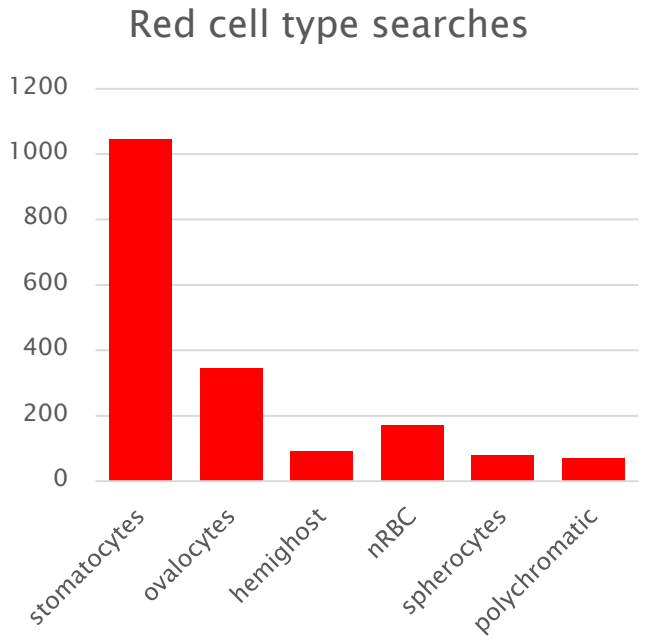
Does the system help?

	2019	2014	
Correct white cells	87%	89%	
Correct – red cells	18%	7%	P<0.001



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Morphology Champions 2019

King's Mill Hospital, Nottingham
Charing Cross Hospital, London
Northwick Park Hospital, Harrow
Queen Elizabeth Hospital, Woolwich
Poole Hospital, Dorset
Queen's Hospital, Romford
Whittington Hospital, London
Royal Marsden, Sutton
Royal Berkshire Hospital, Reading

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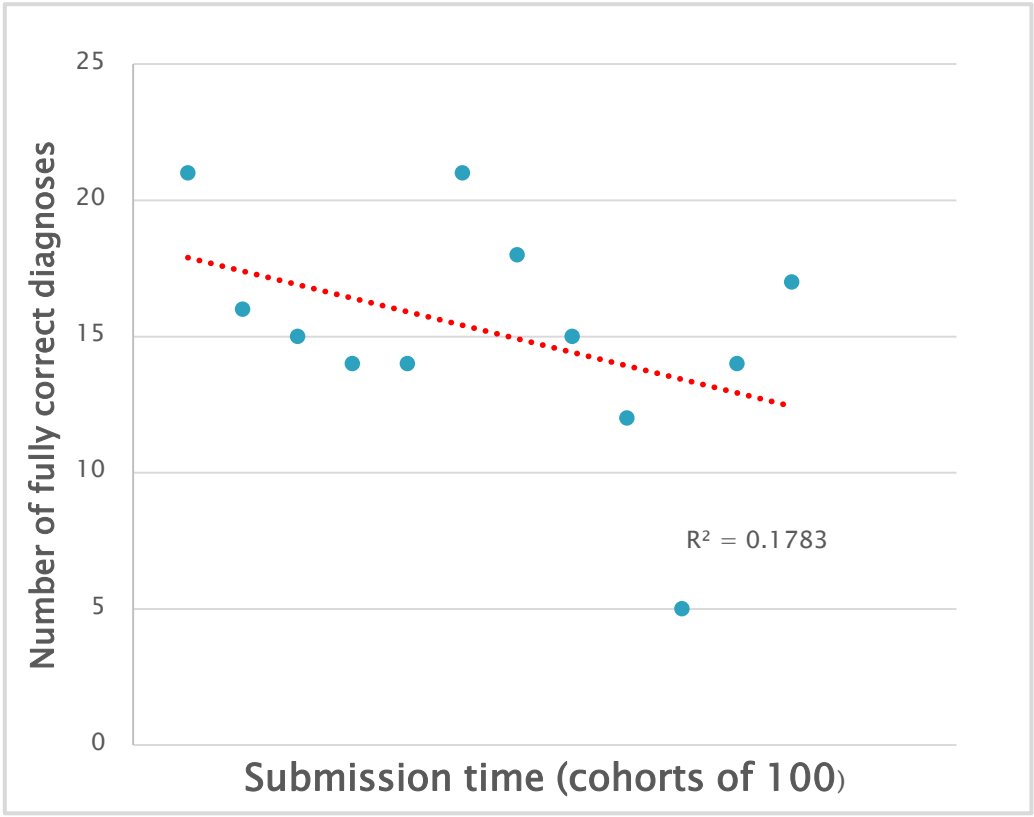
Thanks for your honesty!



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