

Mind the (EQA) Gap

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UK NEQAS Haematology developments

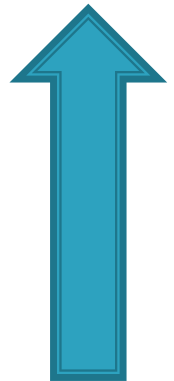
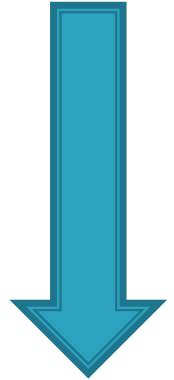
(with apologies to Ian Mellors)



Finding the gaps

- ▶ UKAS assessors
 - ISO15189 (Laboratories)
 - ISO17043 (Scheme)
- ▶ Oversight bodies (NQAAP)
- ▶ Strategic initiatives (e.g. PQAR)

- ▶ Steering committee and SAG members
- ▶ Participants



Automated counting provision

Participation December 2015 (#labs)

Scheme	UK	Non-UK	Total
FBC	691	366	1057
ADLC	647	280	927
Retics	281	168	449
Hb only	110	24	134
ESR	229	26	255
Plasma viscosity	49	5	54

UK NEQAS

International Quality Expertise

Automated counting provision

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Special Haematology provision

Participation December 2015 (# labs)

Scheme	UK	Non-UK	Total
Abnormal Hbs (Full)	147	170	317
Sickle screen only	128	29	157
Newborn screening (DBS)	22	6	28
Liquid newborn	30	6	36
DNA Hbopathies	10	38	48
G6PD	136	100	236

UK NEQAS

International Quality Expertise

Special Haematology provision

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UK NEQAS

International Quality Expertise

Morphology provision

Participation December 2015 (# labs)

Scheme	UK	Non-UK	Total
Morphology/ Parasites	336	192	528
Haemosiderin	150	21	171
SBB/MPO	23	11	34
Malaria RDT	251	48	299

UK NEQAS

International Quality Expertise

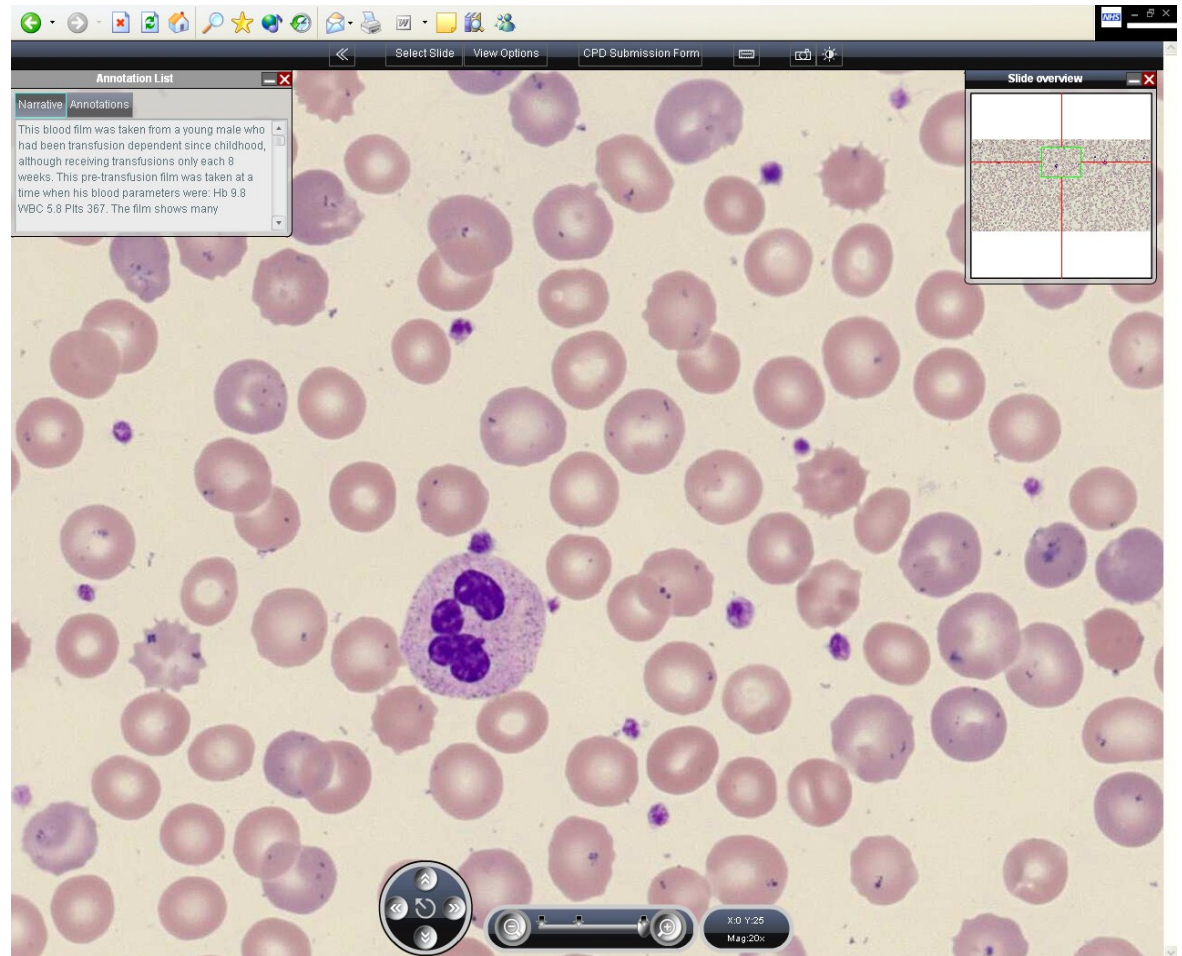
Morphology provision

Participation December 2015 (# labs)

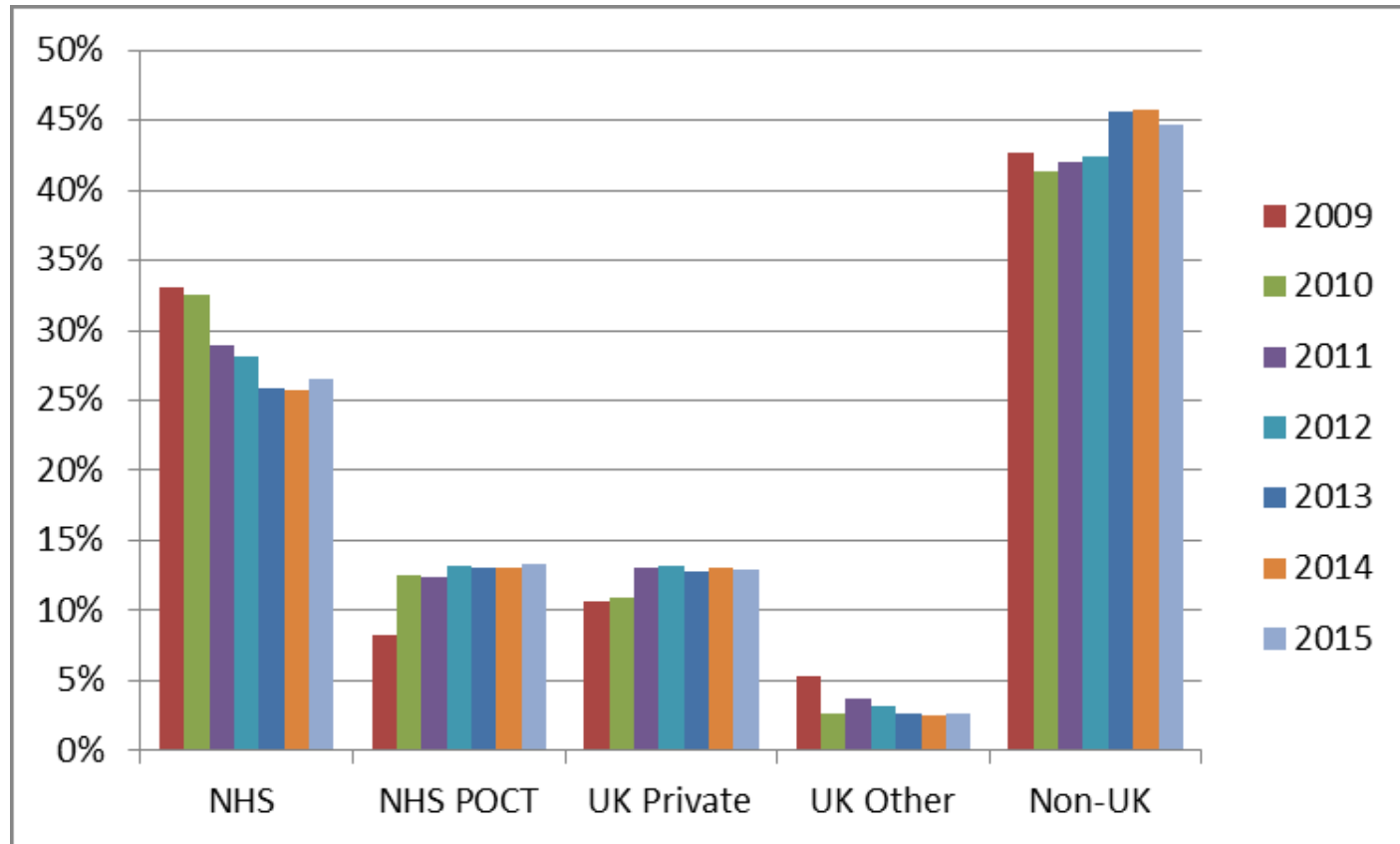
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Plus another
3000
individual
registrants
in **Digital
Morphology
for CPD**
programme
(2015)

30%↑ since
2013



Participants at December 2015 (# labs)



Total participations

Total
participations
Dec 2015

UK	Non-UK	Total
3381	1518	4899

Total
participations
Dec 2014

UK	Non-UK	Total
3301	1465	4766

Total
participations
Dec 2013

UK	Non-UK	Total
3168	1482	4650

ESR scheme

- ▶ Full scheme from April 2016, submitted for ISO17043 accreditation August 2016
- ▶ On-line operation
- ▶ 4 distributions / year
- ▶ 2 modules:
 - ES – all methods except Alifax (2 specimens/survey)
 - ESX – Alifax methods (3 specimens/survey)
- ▶ Able to register as many instruments as required from 2017
- ▶ 350 labs registered (October 2016) – *note the jump from December 2015*

SAG Proposals for Development

Automated counting

- ▶ nRBC pilot scheme – currently a pilot
- ▶ RDW (MPV)
- ▶ Optical platelet counts
- ▶ Monocyte counts in ADLC
- ▶ Reticulocyte Haemoglobin
- ▶ Automated body fluid counting
- ▶ Glandular Fever screening

“Laboratory Diagnosis of Anaemia” questionnaire

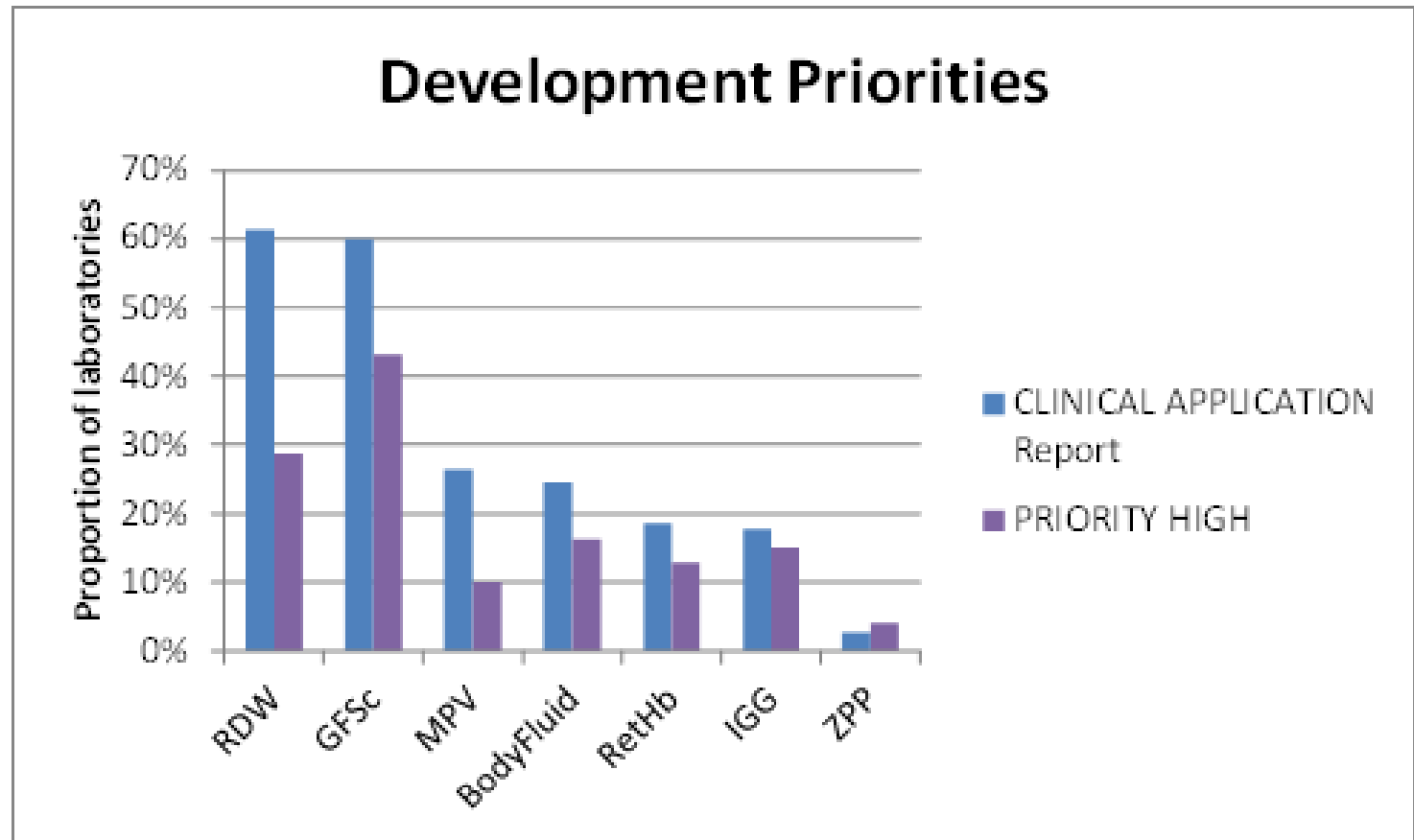
- ▶ In collaboration with NHSBT – the ‘anaemia’ part will be distributed more widely and reported separately
- ▶ Questionnaire also included a section on new developments in automated counting EQA

Questionnaire 2016 feedback

- ▶ 220 responses
- ▶ Rank proposed developments by priority

	HIGH	MEDIUM	LOW	N/A
BodyFluid	16%	11%	14%	59%
GF Sc	43%	8%	8%	41%
IG	15%	25%	5%	55%
MPV	10%	30%	5%	54%
RDW	29%	24%	3%	45%
Ret Hb	13%	26%	6%	55%
ZPP	4%	5%	20%	70%

Also asked to identify reportable parameters



Other work

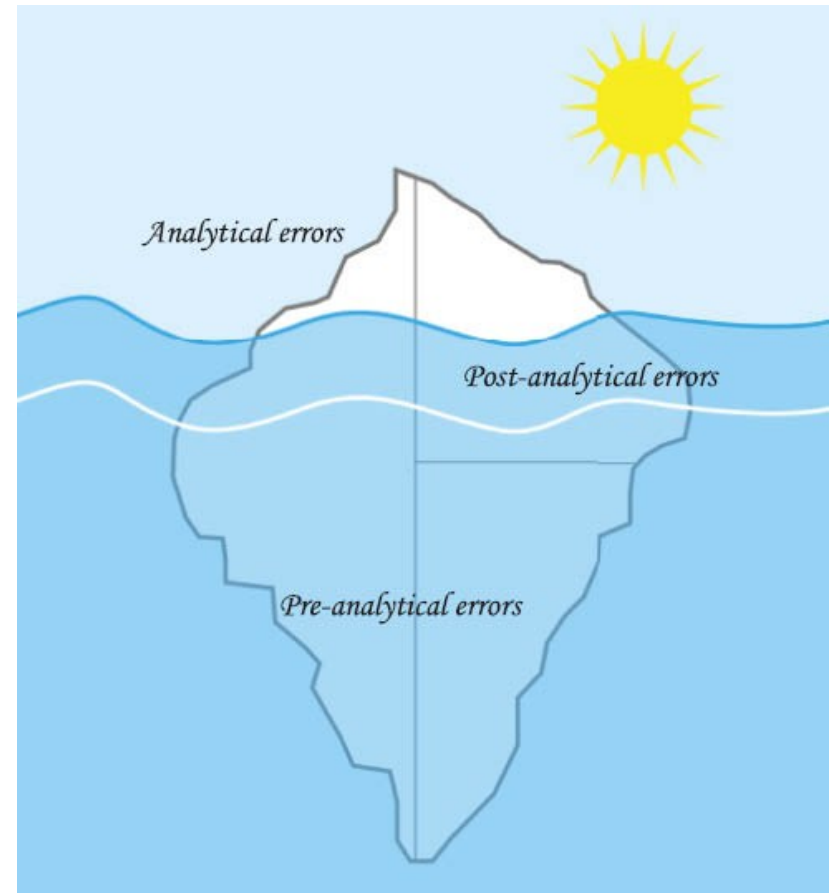
- ▶ Performance assessment in development
 - Blood Film Morphology
 - Interpretive comments in haemoglobinopathies
 - Liquid newborn haemoglobinopathy screening
 - Malaria RDTs
- ▶ Corrective & Preventative Action forms
- ▶ EQA for specialist testing
 - Pyruvate kinase activity

SAG proposal

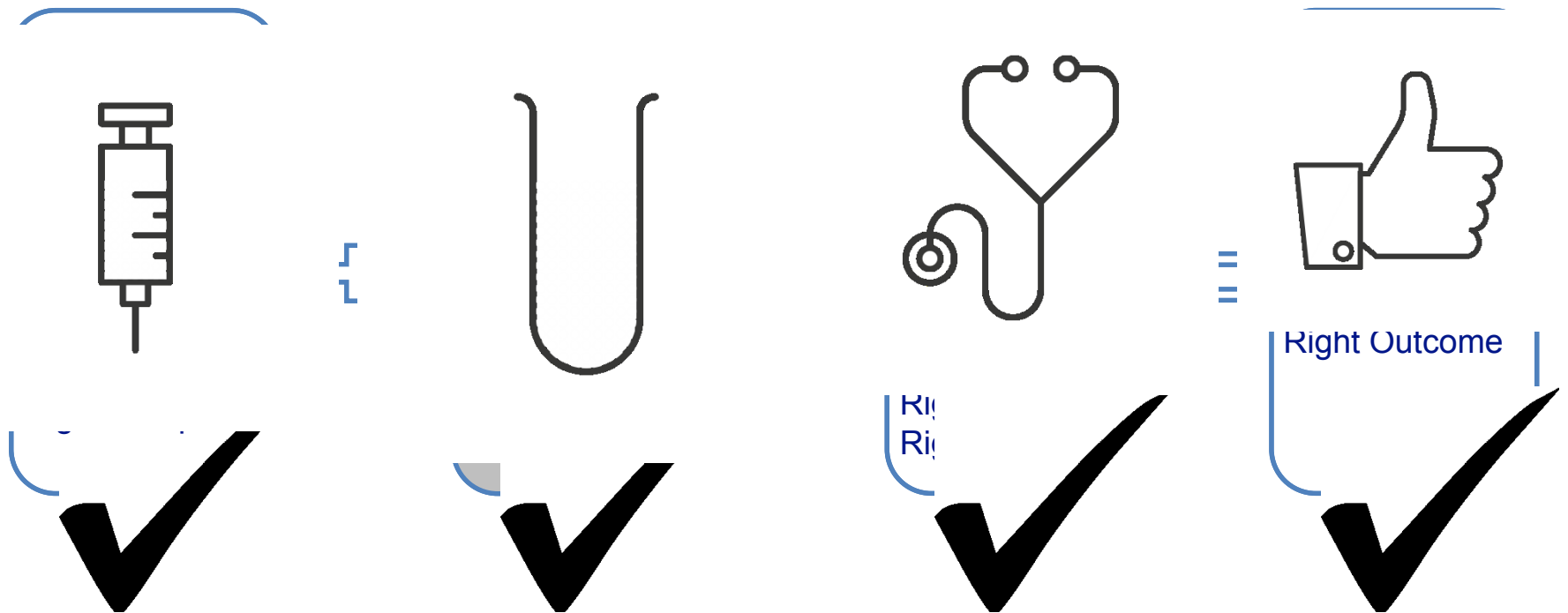
Most errors are not in the analytical phase

The Iceberg of Laboratory Errors

Clinical Chemistry and Laboratory Medicine (CCLM). Volume 53, Issue 3, Pages 357–370, ISSN (Online) 1437-4331, ISSN (Print) 1434-6621, DOI: [10.1515/cclm-2014-1051](https://doi.org/10.1515/cclm-2014-1051), December 2014



It's not just about the Quality of the test



A UK NEQAS Pre & Post Analytical Quality Monitoring Service

Minding the gaps

- ▶ Expectations
- ▶ Limitations



Confounding factors – understanding the limitations

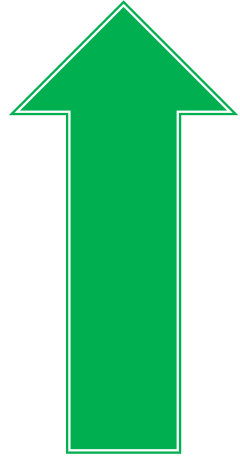
- ▶ Survey material
 - Availability
 - Commutability
 - Stability
- ▶ Statistical robustness
 - Sufficient participant numbers
- ▶ Instrument grouping
 - Re-badged instruments
 - Different software versions
- ▶ ‘Special’ attention to EQA samples



UK NEQAS (H) Participants

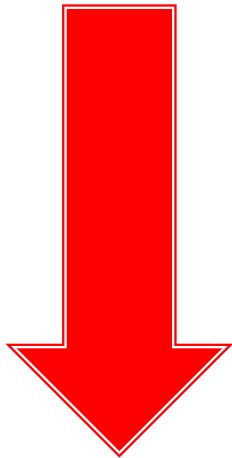


EDTA blood (clinical material)



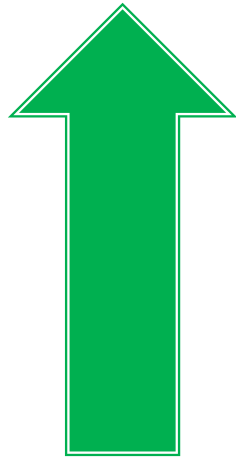
Clinically relevant
Commutable
Affordable

Local interlaboratory
specimen exchange
Networks



Impractical
Unsustainable
Insufficient volume
Very limited stability

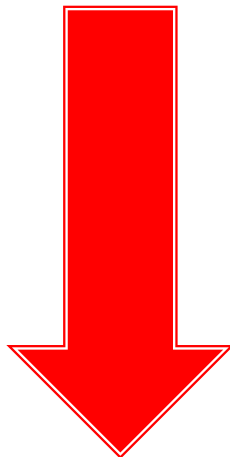
Extended life material



Sufficient volume
Sustainable
Reasonably affordable
Practical, adaptable
Clinically relevant if manipulated
Reasonably stable

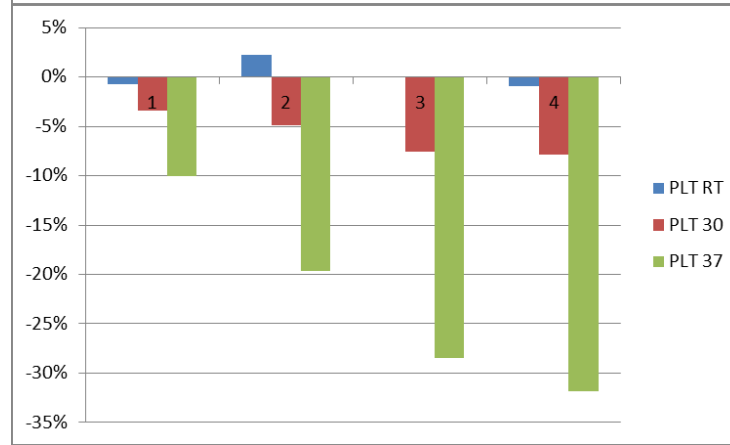
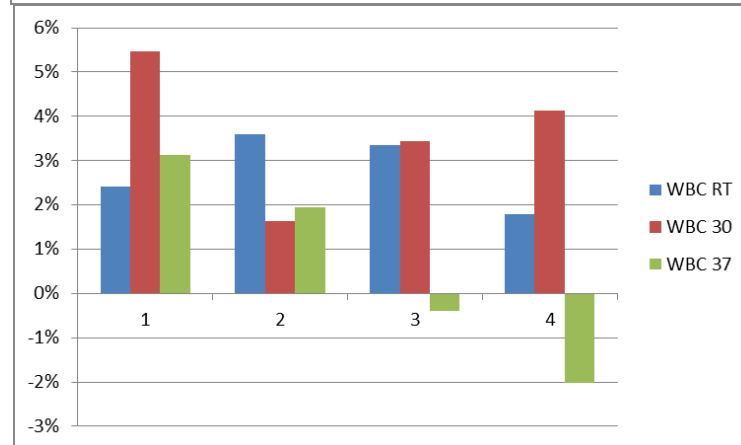
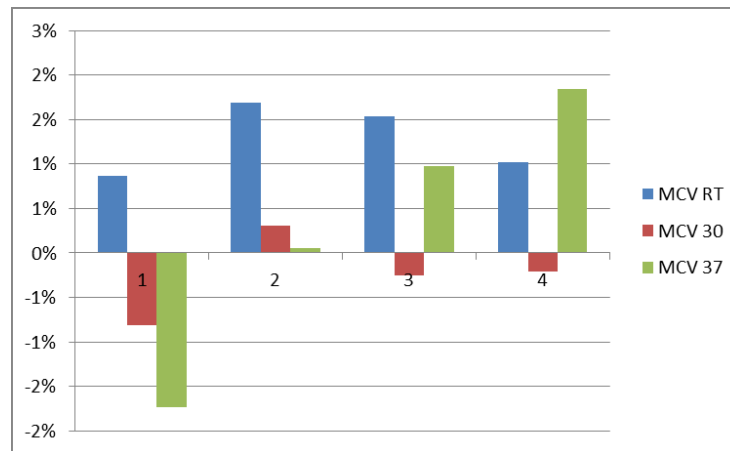
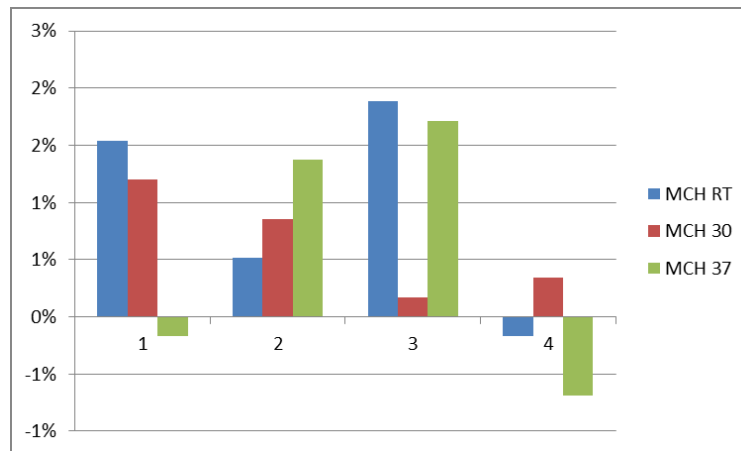
Major national and international EQA providers, e.g. UK NEQAS, Spain

EQA providers in resource poor regions



Limited commutability
Requires skill
Stability may limit distribution range and methods
Clinical relevance requires access to a range of blood products

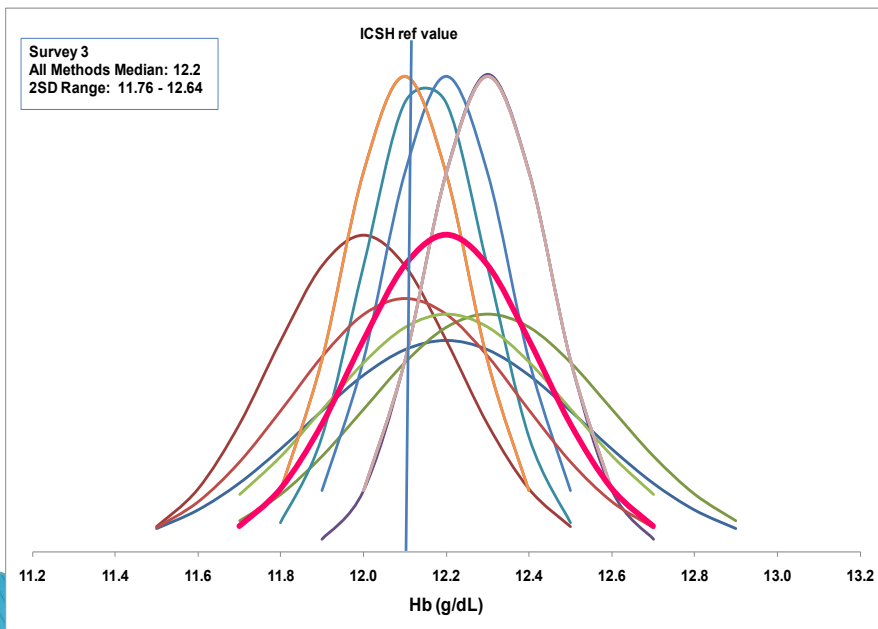
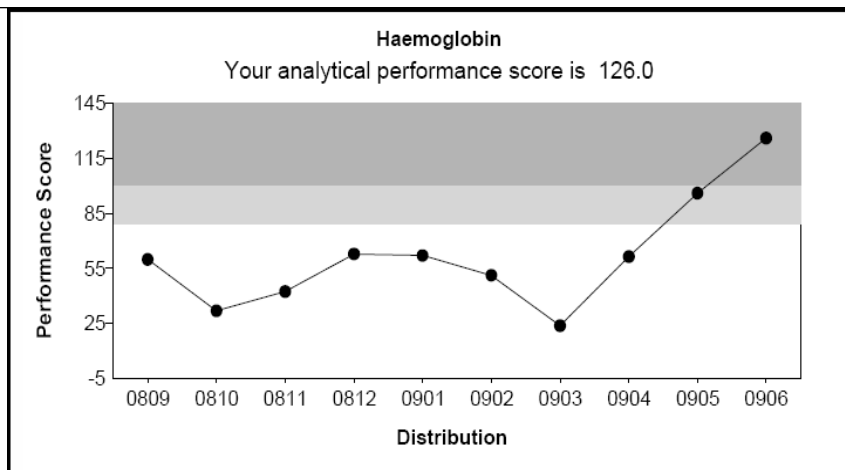
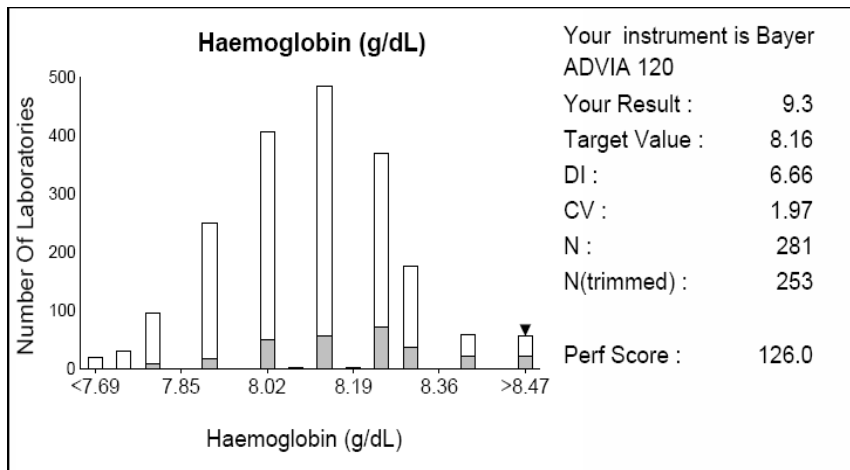
UK NEQAS Extended Life Material: Stability in transit



UK NEQAS Extended Life Material: Communitability

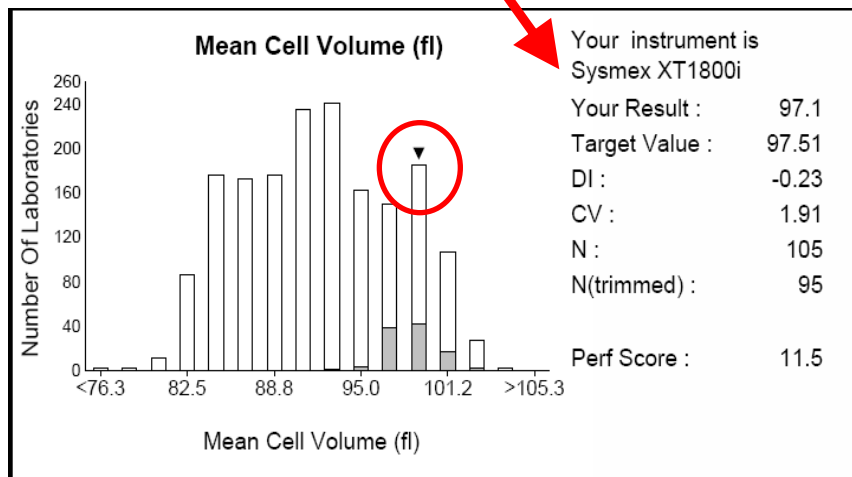
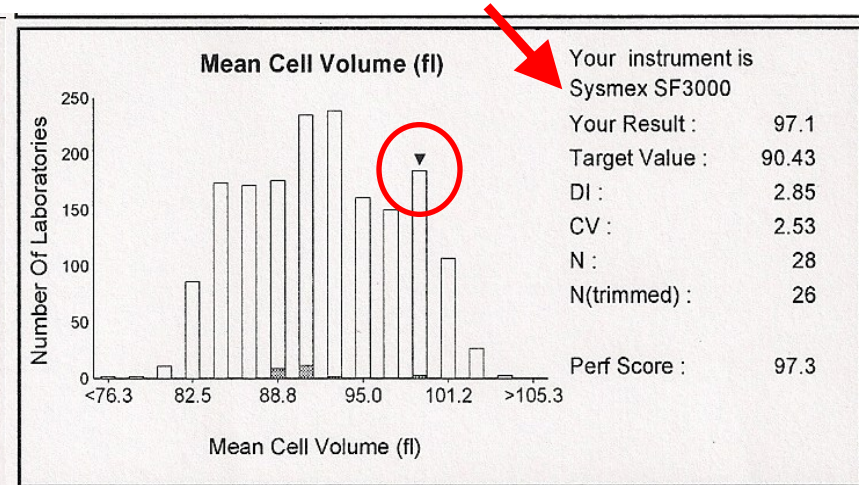
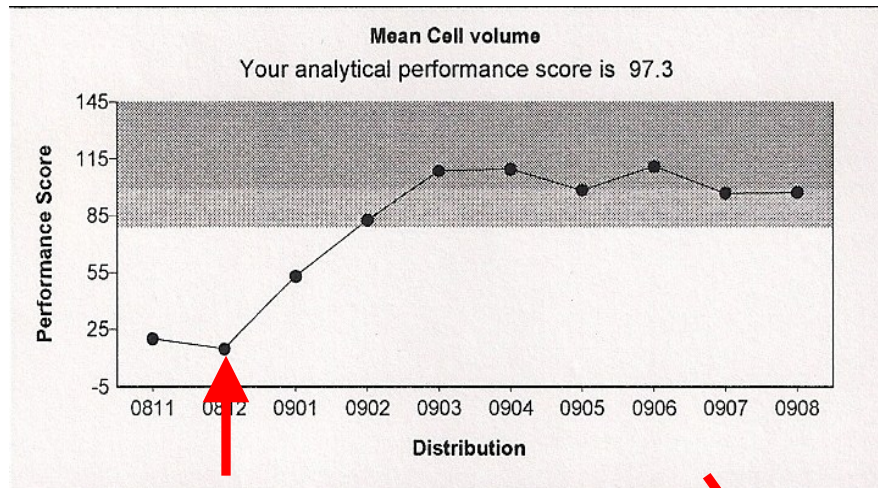
- ▶ Same material used across all instrument groups
- ▶ Hb comparable across all groups
- ▶ MCV – affected by stabilisation
- ▶ WBC
 - Affected by stabilisation
 - Not suitable for differential WBC
- ▶ Platelet count
 - Affected by stabilisation
 - Suitable for impedance and immunological methods

Commutability: Hb



REFERENCE
STANDARD AND
METHOD
AVAILABLE

Commutability: MCV



ISO Accreditation

- ▶ EQA participation for every analyte, where available
 - ISO15189
 - Alternative procedures if no EQA available
- ▶ Every method to be registered?
 - Conflict with scheme design
- ▶ Every member of staff responsible for reporting?
 - EQA as competency assessment, e.g. individual consultant registration in Blood Films

Steering Committee / SAG members

- **Advise & Guide**
 - . Design/Fit for purpose /Relevancy /Scope
 - . Format/Performance Scoring
 - . Initiatives
 - . Trends-Analytical and groups



- **Where Poor performance indicates scheme operational failure**
- **Mechanics of operation**
- **Horizon scanning**



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Summary

- ▶ UK NEQAS Haematology continues to develop and diversify to support participants' needs
- ▶ ISO accreditation has proved a stimulus and a challenge to UK NEQAS Haematology as well as laboratories
- ▶ We couldn't do it without your input!