

Adam Uldall Lecture 2023

Education: the Holy Grail of EQA?

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Adam Uldall Award

In 2008, the Adam Uldall Award was established in order to honor the founder of EQALM. The award is presented during the Annual Symposium to a person who has spent much of his/her career pursuing better quality across laboratory medicine and who is a well-known and respected international advocate on quality.



Adam Uldall Award

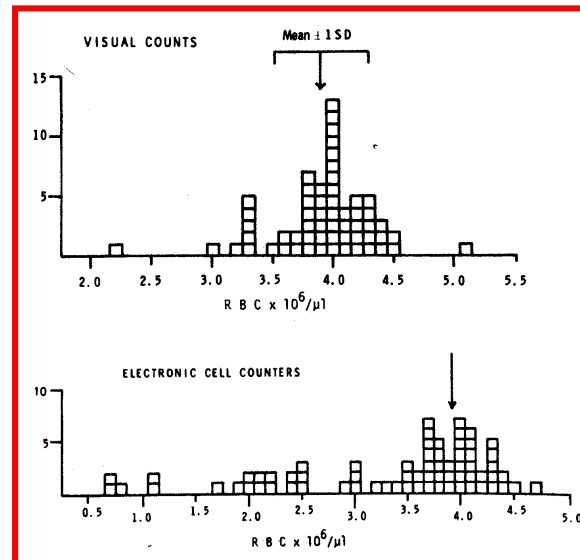
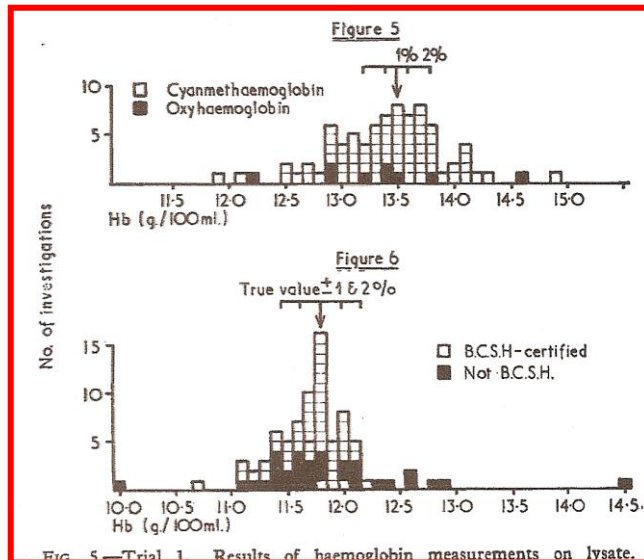
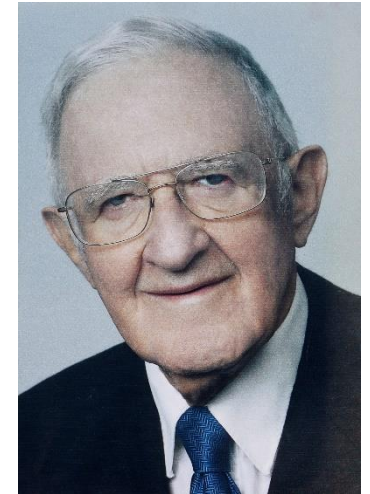


Previous awardees

Name of awarded	Year	Lecture
Piet Meijer	2022	EQA, is there a benefit for the patient?!
Annette Thomas	2019	EQA - Future challenges and opportunities
Greg Miller	2018	Future challenges in EQA, with special emphasis on harmonization and commutability
Mauro Panteghini	2017	The role of EQA in the verification of in-vitro medical diagnostics
Per Hyltoft Petersen	2016	Elements of analytical quality - a historical review
Sverre Sandberg	2015	Performance criteria of point-of-care testing in modern medicine
David G Bullock	2014	Post Market Surveillance of Manufacturers Assays and the Effects of the Revised IVDD
Linda Thienpont	2013	The role of EQA providers in the harmonization process: a plea for using native sera in external quality assurance
Dietmar Stöckl		Newer trends in EQAS continuous peer-group monitoring of laboratory data
Carmen Ricos	2012	Databases on Biological Variation. Establishment & uses
André Deom	2011	EQA in developing countries
Gunnar Nordin	2010	The Role of EQA in the Establishment of Analytical Quality Specifications
Jean-Claude Libeer	2009	External Quality Control in medical laboratories: differences with other PT testing programs
Jonathan Middle	2008	The role of EQA in quality improvement of medical laboratories



Dr S. Mitchell Lewis MD FRCPath



Reprinted from the BRITISH MEDICAL JOURNAL
1 November 1969, 4, 253-256

Quality Control in Haematology: Report of Interlaboratory Trials in Britain

S. M. LEWIS,* M.D., B.SC., M.C.PATH.
B. J. BURGESS,† F.I.M.L.T.

ROLE OF NEQAS

Educational: creates awareness of problems and stimulates their resolution –

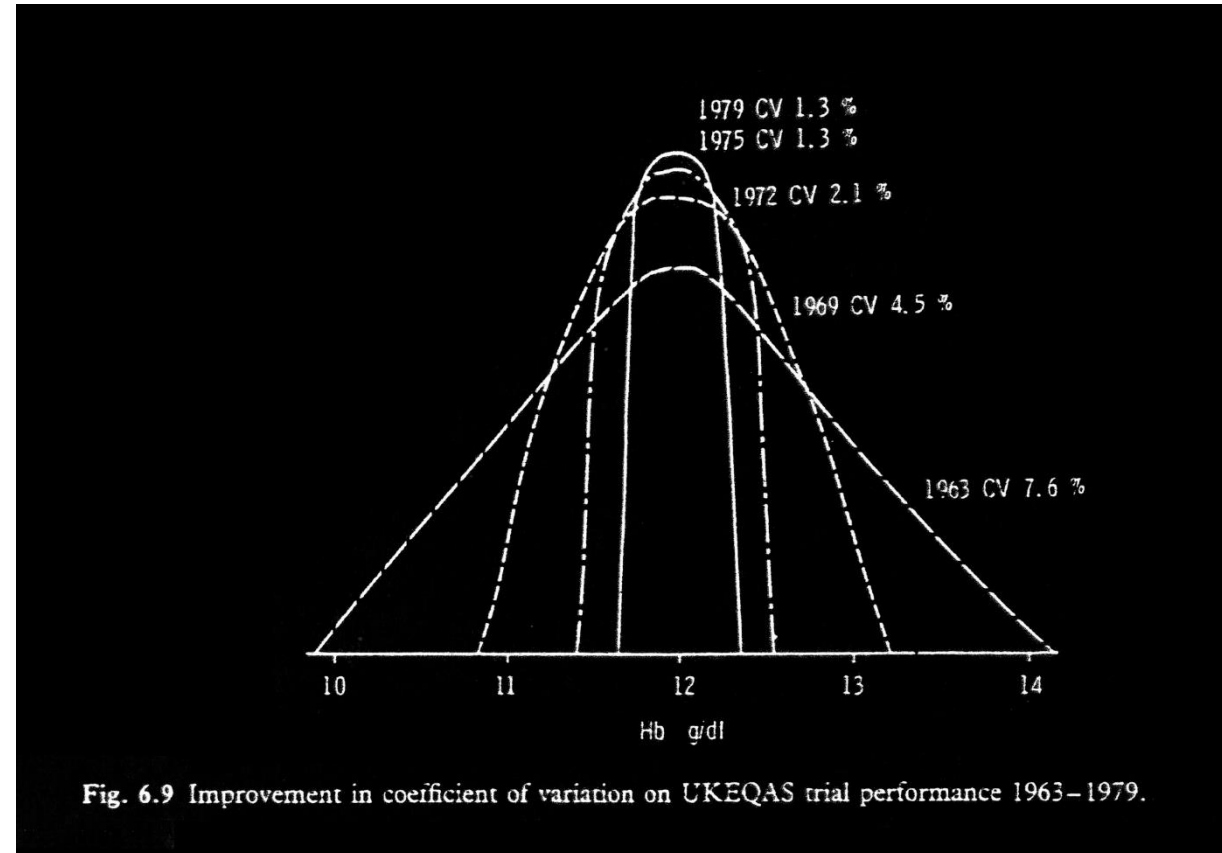
Improvement in individual laboratories
Improvement of state-of-art at national level
Informal interface between users and manufacturers
Provides participants with data on their performance

NEQAS has a confidential relationship with participants
– it is not a policing authority



UK NEQAS
International Quality Expertise

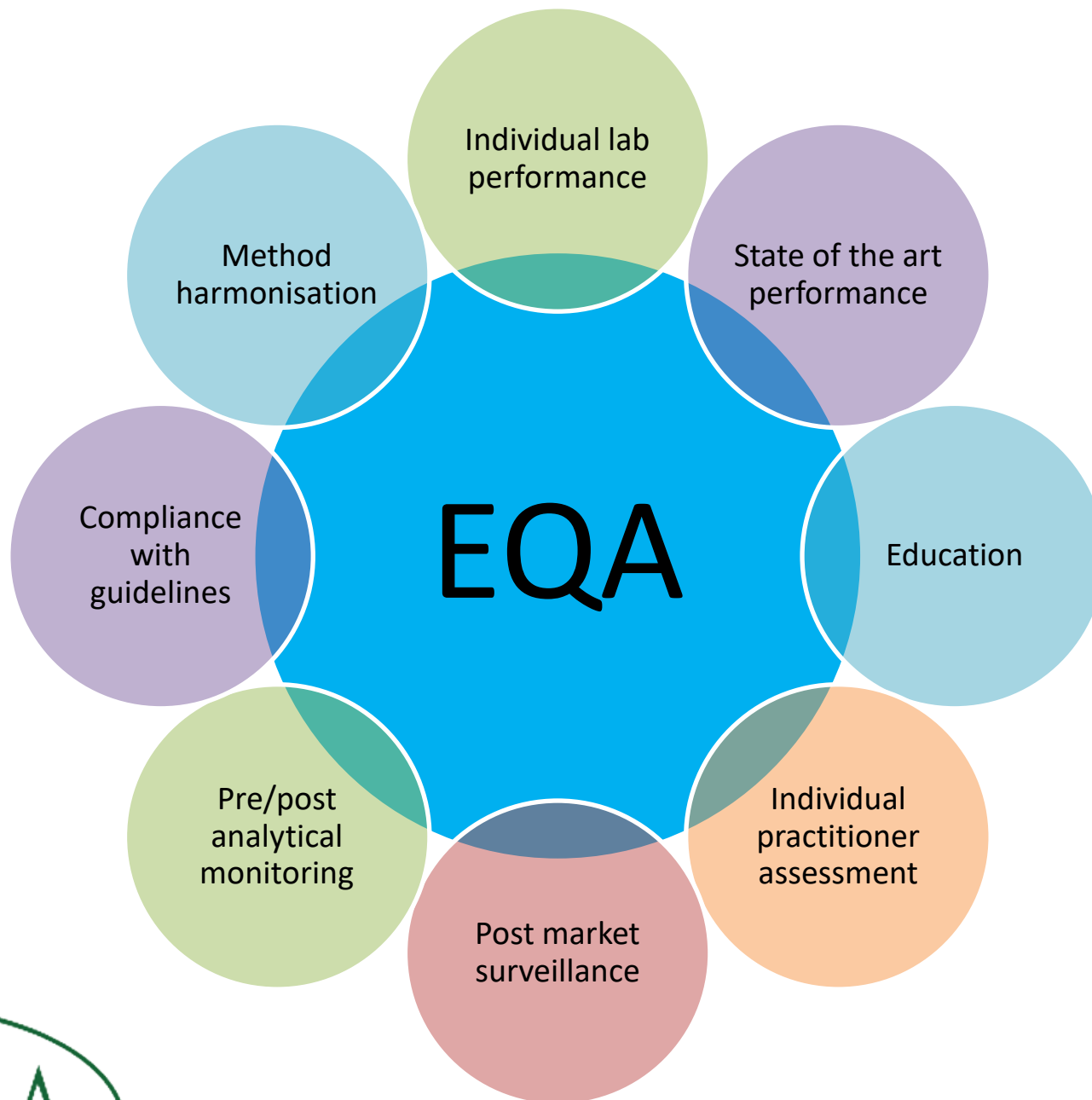
UK NEQAS Haematology CV% for Hb 1963-1979



“An integrated professional quality assurance activity of medical laboratories”

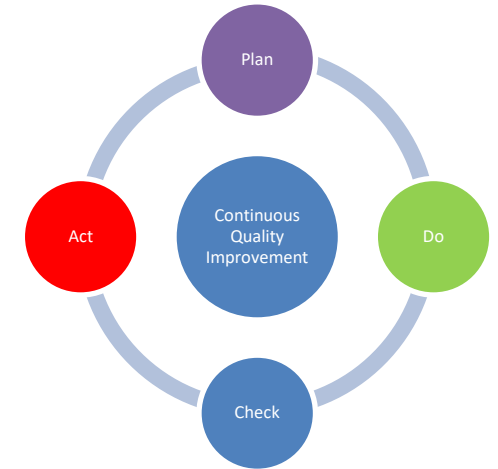
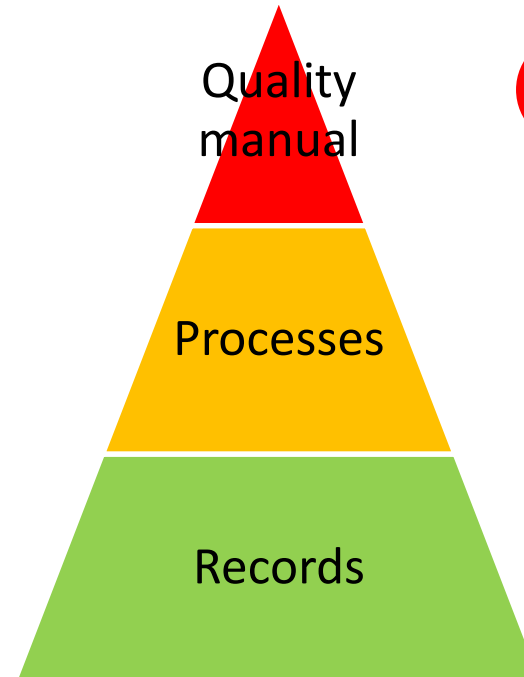
Uldall A., Origin of EQA programmes and multidisciplinary cooperation between EQA programme organizers within laboratory medicine. *EQA News 1997, 8: 1-27*





Total Quality Management:

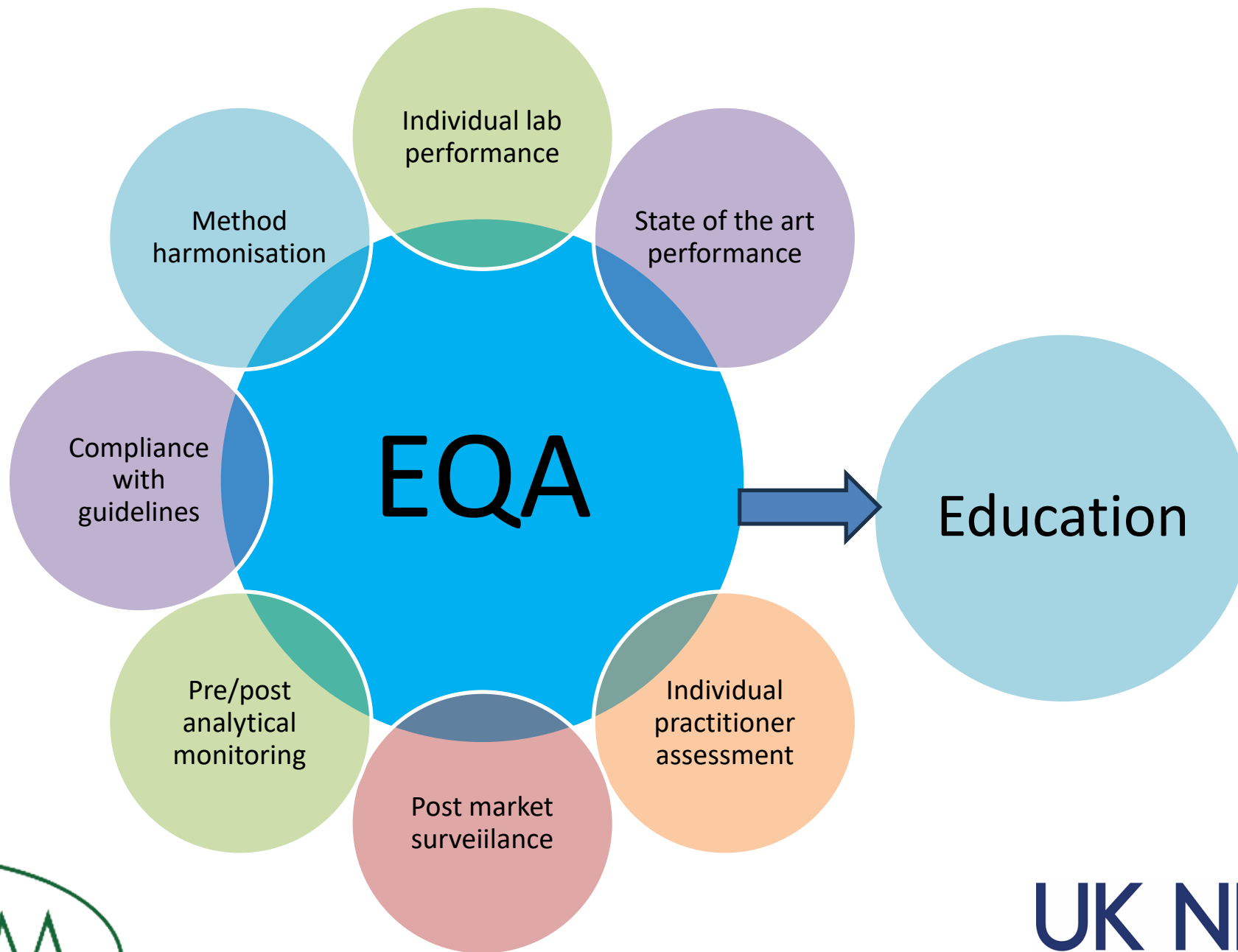
- Quality management culture:
 - Management structure
 - Control of environmental conditions
 - Assessment of staff competency
 - Document control
 - Method validation / verification
 - Measurement uncertainty
 - Investigation of errors and root cause analysis
- Quality monitoring:
 - Internal quality control
 - External quality assessment / proficiency testing
 - Audit
 - Accreditation against ISO15189
- Continuous quality improvement



PT vs EQA

- PT – laboratory performance evaluation for regulatory purposes
- EQAS – Laboratory performance and method evaluation. Educational.
- EQAP – Interlaboratory comparisons designed and operated to assure one or more of:
 - Participant performance (analytical, interpretive, clinical advice)
 - Method performance evaluation/IVDD vigilance
 - Education, training and help
- ISO17043:2023 – requirements for education, support and help from EQA providers





Let's define 'education'

“A process of teaching, training and learning”

- To improve knowledge and develop skills
- To develop abilities
- To discriminate between good and bad ideas
- To provide space to explore and test ideas



How do we educate?



WE GATHER, EVALUATE,
REPORT AND PUBLISH DATA



WE CHALLENGE
LABORATORIES AT CLINICAL
DECISION-MAKING ANALYTE
CONCENTRATIONS



WE SUPPORT INDIVIDUAL
PARTICIPANTS WITH
TRAINING AND ADVICE



WE PROVIDE REAL-LIFE CASES
WITH EXPERT COMMENTARY



WE PROVIDE INTERPRETIVE
STUDIES AND PROGRAMMES



WE SHARE BEST PRACTICE
AND ADVICE



WE PROVIDE EXPERT
TRAINING COURSES,
WEBINARS, WORKSHOPS,
MEETINGS



WE PROVIDE INFORMATION
FOR GUIDELINES

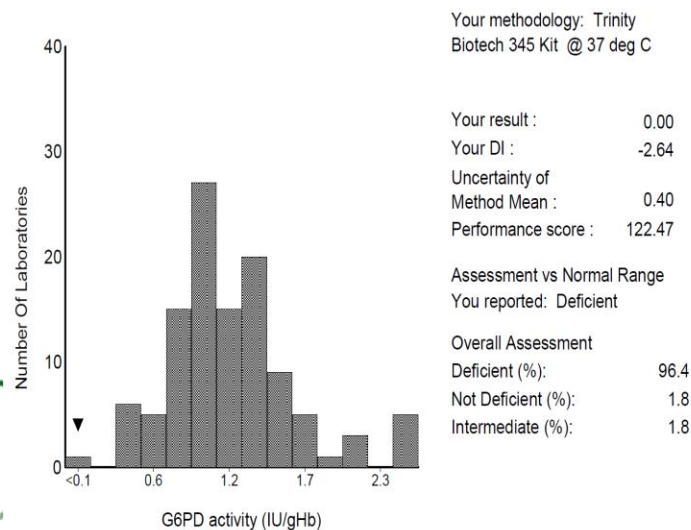
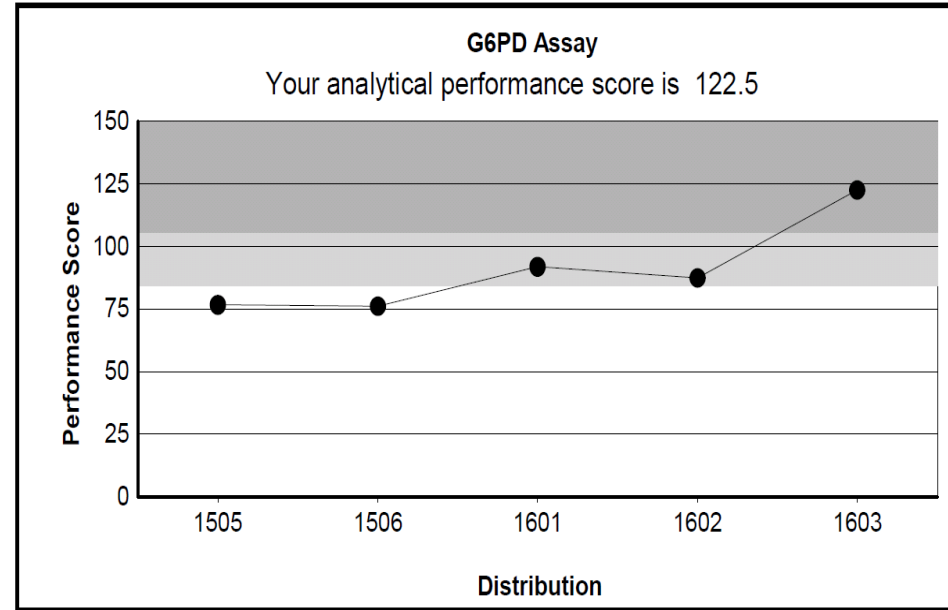
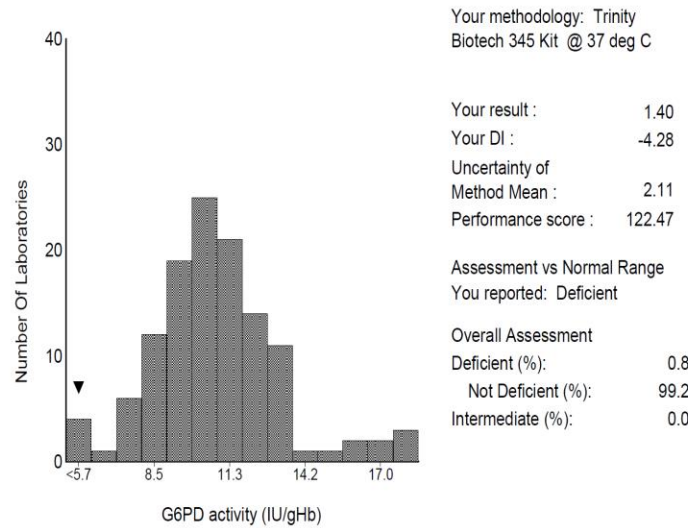


Whom do we educate?

Laboratories



Unsatisfactory performance – G6PD



- Error in Hb units -> results 10x too low
- 62 patients affected
- 43 incorrectly diagnosed as G6PD deficient

What it means to our participants

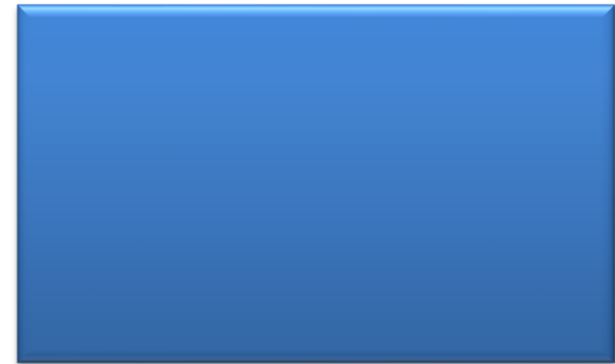
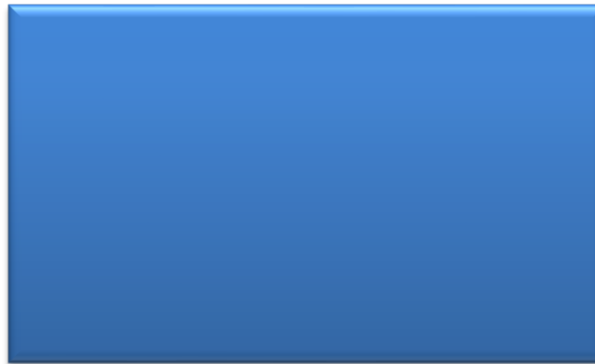
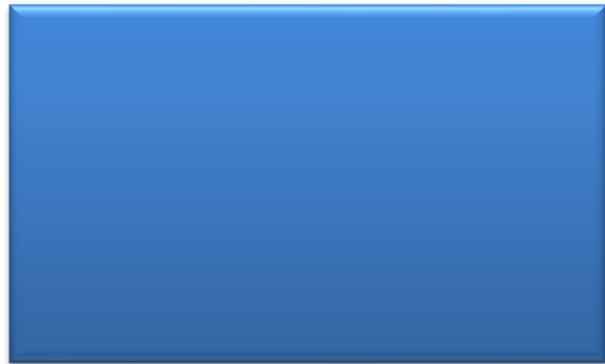
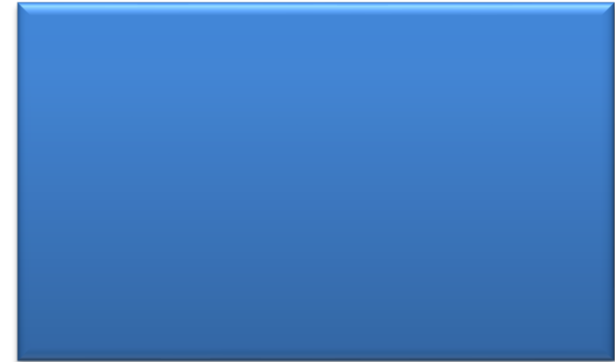
“Another paramount aspect of the NEQAS schemes is the teaching and training value, especially for us, a children’s hospital, as your schemes are the only opportunity for our scientists to experience adult haematology cases.”



Whom do we educate?

Laboratories

Individual
practitioners



For individuals



Bridging the gap between theory and practice in UK Transfusion laboratories – application of a knowledge based competency scheme

Claire Whitham, Quality Manager
UK NEQAS BTLP
On behalf of the TACT team



Digital Academy



UK NEQAS
Haematology and Transfusion
Digital Morphology CPD

Participant: Mr Haem Team
CPD Date: 18/02/2019
Total Number of Participants: 1572
Module: 2018
Case Identifier: DM 2018-19 1901DM

Certificate: 00000406

Consensus of morphological features recorded:

Rank	Morphological Feature	Participants who selected this feature
1	Anisochromasia	20.17%
2	Atypical myeloid cells	0.32%
3	Megakaryocyte fragments	1.34%

All participants' observations

Rank	Morphological Feature	Participants who selected this feature
1	Hypochromic cells	76.78%
2	Target cells	68.07%
3	Tear drop polychromocytes	62.4%
4	Anisocytosis	54.35%
5	RBC fragments/schistocytes/helmet cells	54.13%

Actual pathological diagnosis
Thrombocytopenia (platelet disorder) with iron deficiency

Brief morphology panel comments
The main features selected by participants summed up the blood film well: hypochromia, target cells and marked anisocytosis, with tear drop cells and fragments. There was no option to select contracted cells, but these were also present. Many participants noted also the presence of leucocytes. These findings would be unusual in uncomplicated iron deficiency, but are a frequent combination of findings in HbE disease. Nucleated red cells would not be expected in this disorder (it would have been nice to see basophilic stippling, but this was absent in this case). However, the anaemia reported for this case was very marked (normality in HbE disease the level is above 10g/dl and is often rather higher than this). In this instance, the patient presented with new symptoms of anaemia, it is also the case of this severe anaemia that signs of previous treatment might be expected. In this case there were no signs of previous transfusion or previous splenectomy. There can be many causes of falling Hb in HbE disease, but this case there was no associated severe iron deficiency. Just under half of participants correctly identified that the appearances reflected the co-existence of at least two

EQATE DM 2023-24

Ends in 35 hours
Case is now closed
2304DM

Outline Description
This blood film arrives in the laboratory in the early evening, a film is prepared based on a wide range of

Narrative
This film arrived during the evening shift, where the morphology caused some concern! There are abnormalities affecting all lineages.

Platelets:
A thrombocytopenia is confirmed, there is no evidence of clots or platelet clumping in this image (although the trails would normally need to be

User Observations

QUESTIONNAIRE

BACK

Continuing Professional Development
Competency assessment
Interpretive comments programmes
Teaching/training days



And webinars, YouTube videos,
quizzes, publications, posters

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Case Interpretation

EQATE

Stages

Study > 2023-24 Study 1 - TEST > 2301CN Test

Closed

Submitted

Presentation

Follow Up

Supplemental

Narrative & Closing

Film and FBC

First Review

Notes

This case is of a 24 year old primigravida, 36 weeks with thrombocytopenia. She is otherwise well and has had no health issues of note during her pregnancy.

Hb 95 g/l, WBC 10.5 x 10⁹/l, Platelets 58 x 10⁹/l

Please review the film, select your film comments and submit, then answer the questionnaire to be found under 'First Review' before moving on to the next stages in this case.

Observations

Observations

Add Observations by choosing from the list below

Observations:

Tear drop poi...

Basophilic sti...

Polychromasia

Thrombocyto...

Platelet aniso...

2201 im...

FBC

SUBMIT

EQATE

Stages

Study > 2023-24 Study 1 - TEST > 2301CN Test

Closed

Submitted

Presentation

Follow Up

Supplemental

Narrative & Closing

Film and FBC

First Review

Notes

Observations

+

-

4x

10x

20x

40x

60x

100x

Haematology - FBC		
Parameter	Result	Normal Range
RBC (10 ¹² /L)	3.96	3.80 – 5.80
Hb (g/L)	95	115 – 165
Hct (L/L)	0.27	0.37 – 0.47
MCV (fL)	68.2	78.0 – 97.0
MCH (pg)	24.0	27.0 – 34.0
MCHC (g/L)	351	310 – 360
RDW (%)	15.4	11.5 – 15.0
Platelets (10 ⁹ /L)	58	150 – 450
MPV (fL)	8.7	8.9 – 11.8
WBC (x10 ⁹ /L)	10.5	4.0 – 11.0
Neutrophils	7.1	1.5 – 8.0
Lymphocytes	2.5	1.1 – 4.0
Monocytes	0.8	0.2 – 1.1
Eosinophils	0.1	0.1 – 0.4
Basophils	0.0	0.0 – 0.3

2201 im...

FBC

SUBMIT



Whom do we educate?

Laboratories

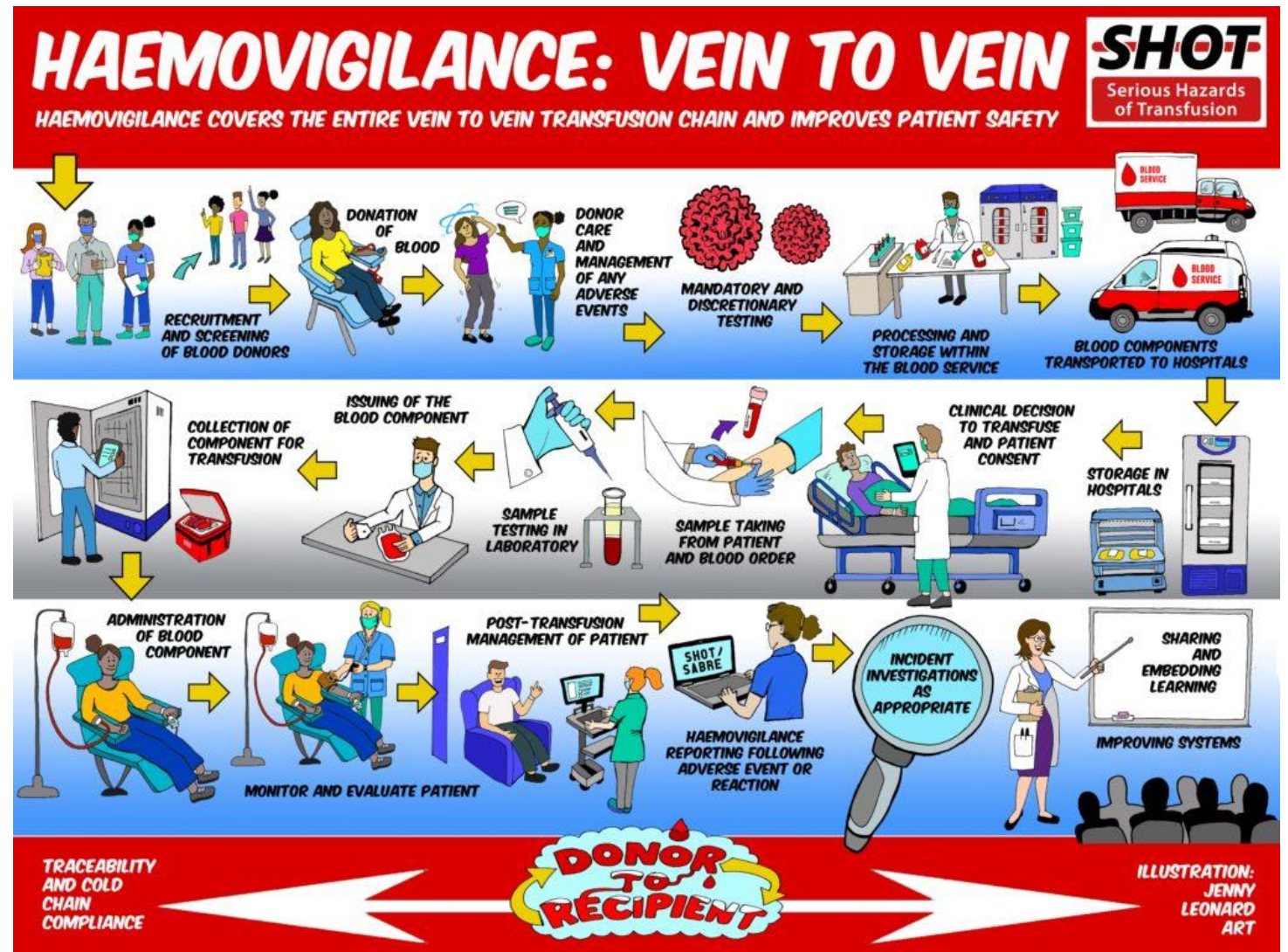
Individual
practitioners

Accreditation
and professional
bodies



Learning from errors

- UK Serious Hazards of Transfusion (SHOT) committee
- Encourages 'no blame' reporting of errors and near misses
- Reports outcomes of investigations and shares best practice recommendations



<https://www.shotuk.org>

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International Quality Expertise

Whom do we educate?

Laboratories

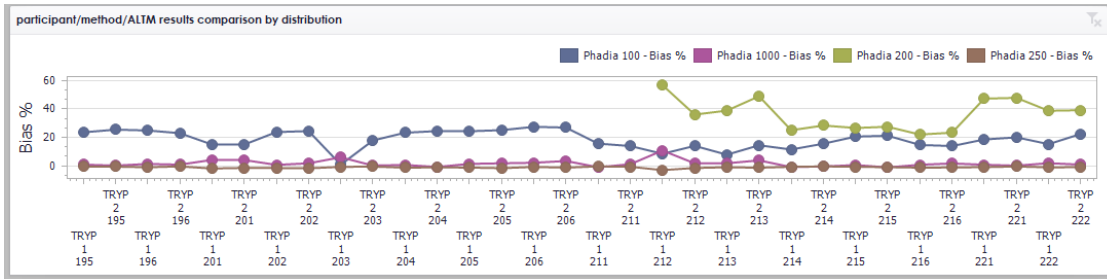
Individual
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bodies

IVDD industry



Tryptase- Bias



Phadia 100 ▲ +20.01%	Phadia 1000 ▲ +1.06%	Phadia 200 ▲ +33.37%	Phadia 250 ▼ -0.97%
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FSN Ref: QA2022-15

ThermoFisher
SCIENTIFIC
The world leader in serving science

2. Reason for Field Safety Corrective Action (FSCA)

2.1 Description of the problem

Several customer complaints have been registered questioning the accuracy of ImmunoCAP™ Tryptase results obtained on Phadia 200 instruments based on comparison to results for the same samples obtained on other Phadia instruments. Further investigation has shown that the Phadia 200 instrument does not meet specifications.

Examination of the Phadia 200 instrument showed a tendency to provide elevated tryptase measurements and that the magnitude of difference varied across the measurement range. Because of the variation across the measurement range, the specifications are not fulfilled and disqualify the Phadia 200 instruments from performing the ImmunoCAP Tryptase assay.

EQA RESPONSE

- Communication with manufacturer initiated
- Confirmation from manufacturer that same reagents used across all analysers
- Investigation of anaphylactic reactions undertaken by measuring serial tryptase samples. Impact on patient care?
- Educational commentary circulated and outcome available via Digital Academy on website
- Field safety notice issued by manufacturer

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Whom do we educate?

Laboratories

Individual
practitioners

Accreditation
and professional
bodies

IVDD industry

Service
commissioners



Quality embedded from the start

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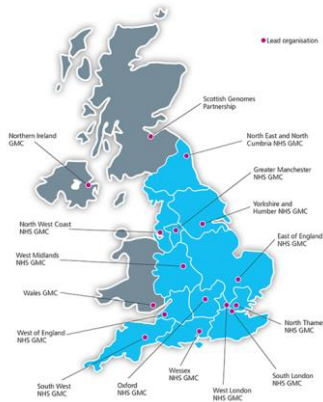


*Centrally funded participation in EQA
for all tests commissioned
with performance monitored*

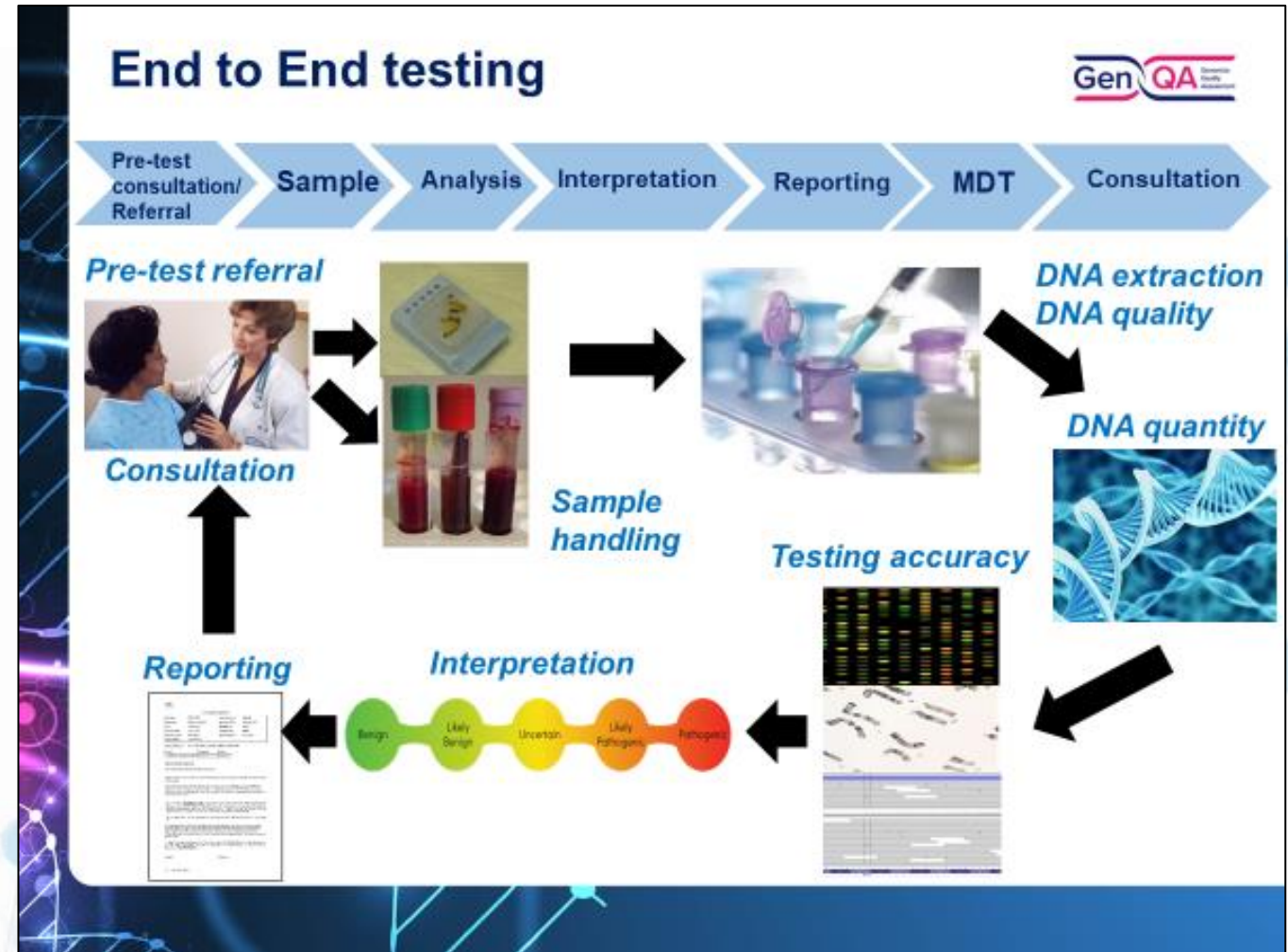
100,000 Genomes Project

- Network of 13 Genomic Medicine Centres
- Centralised WGS
- Centralised bioinformatics pipelines

*Required standardisation of
sample handling, quantification
and approval to provide
samples for WGS*



*GenQA provided EQA to determine the
quality, quantify and QC measurement of
DNA extracted from blood and FFPE tissue
- Fundamental to the commissioning of the
laboratories*



Royal College of Pathologists: Developing a EQA Governance Framework

Workstream 1

- Developing and implementing a governance framework

Workstream 2

- Agreeing and implementing a consistent approach to identifying and responding to poor performance

Workstream 3

- Developing systems, policies, practices and procedures to share learning relating to quality management and assurance

Workstream 4

- Strengthening collaboration with our external/regulatory partners across the health service in the UK



RCPATH Policies for managing EQA performance



Defining error and poor performance

Escalating performance concerns

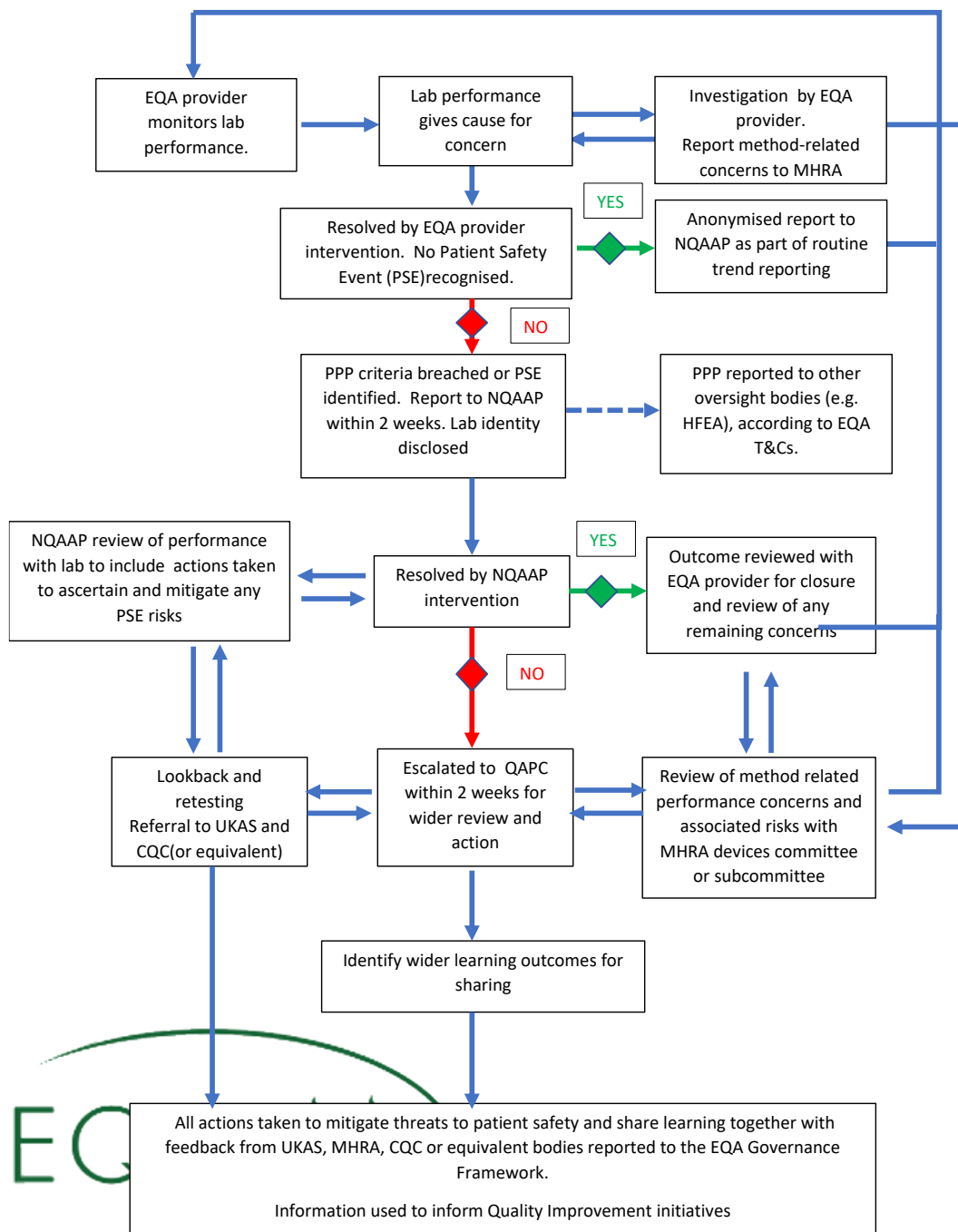
Reporting and learning from Patient Safety Incidents

Reporting performance concerns to MHRA

Reporting IVDD concerns

Scheme hopping

Glossary of terms



Proposed EQA escalation process for labs in the UK

Laboratory level and method level investigation

Sharing data

Identification of best practice

Harmonisation

Let's define 'a holy grail'

“Something people want and are looking for but that is extremely difficult to find or get”



Whom do we educate?

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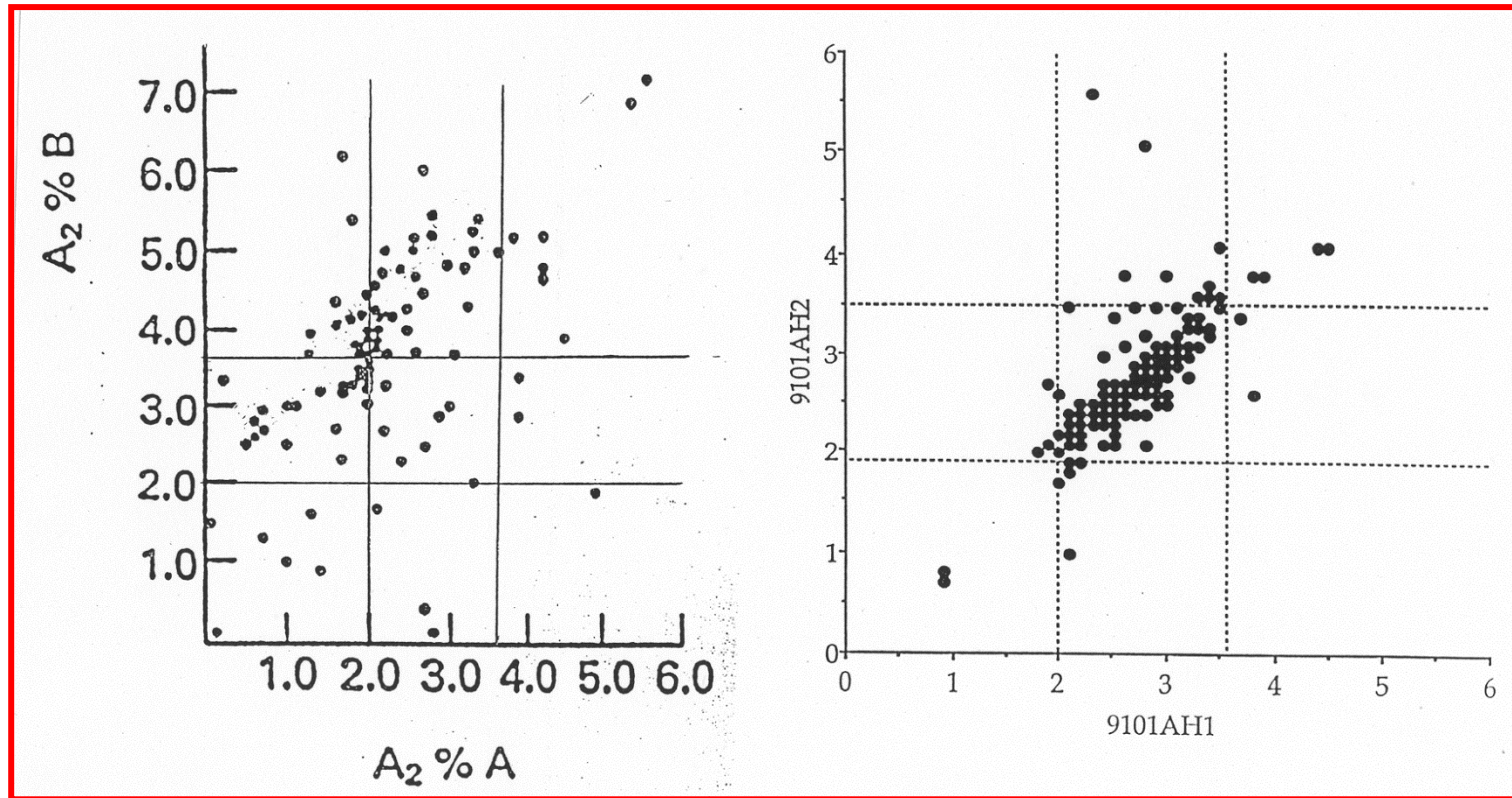
Top level
decision makers



How do we know it is effective?



Case 1: an EQA wet workshop



Case 2: Antenatal Haemoglobinopathy Screening

NHS England guidance is that the baby's biological father should be offered haemoglobinopathy screening where a pregnancy is the result of egg donation, regardless of the woman's screening result



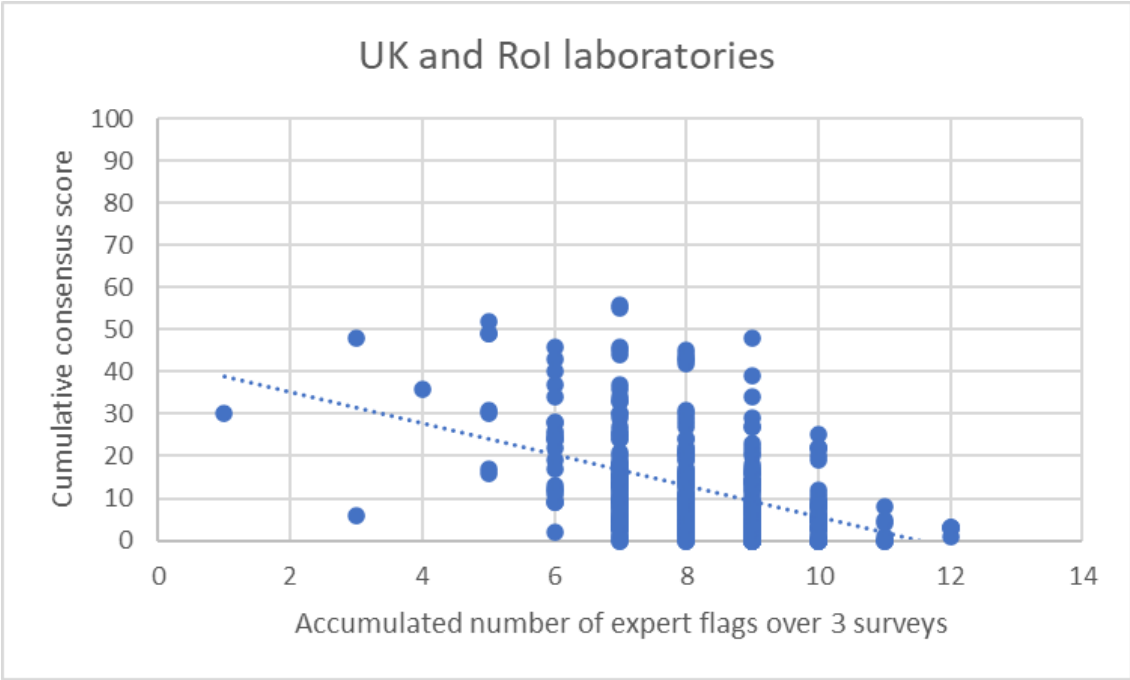
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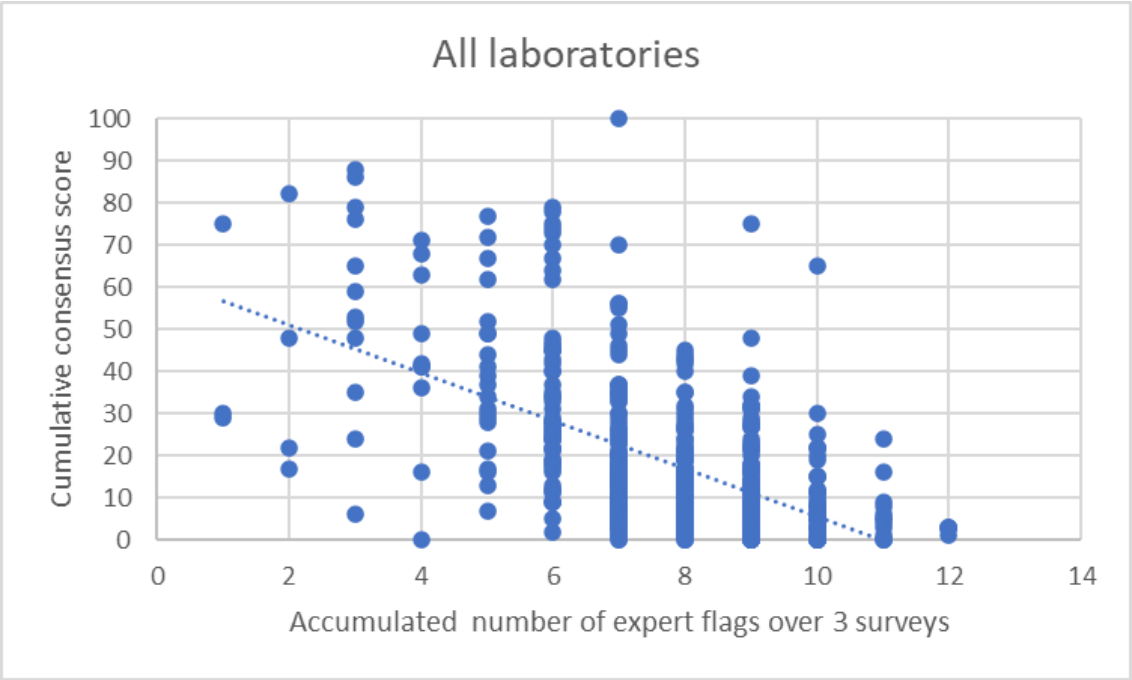
Case 3: Monitoring morphology skills

Comparison of consensus scores and expert flags

UK and Republic of Ireland



All laboratories



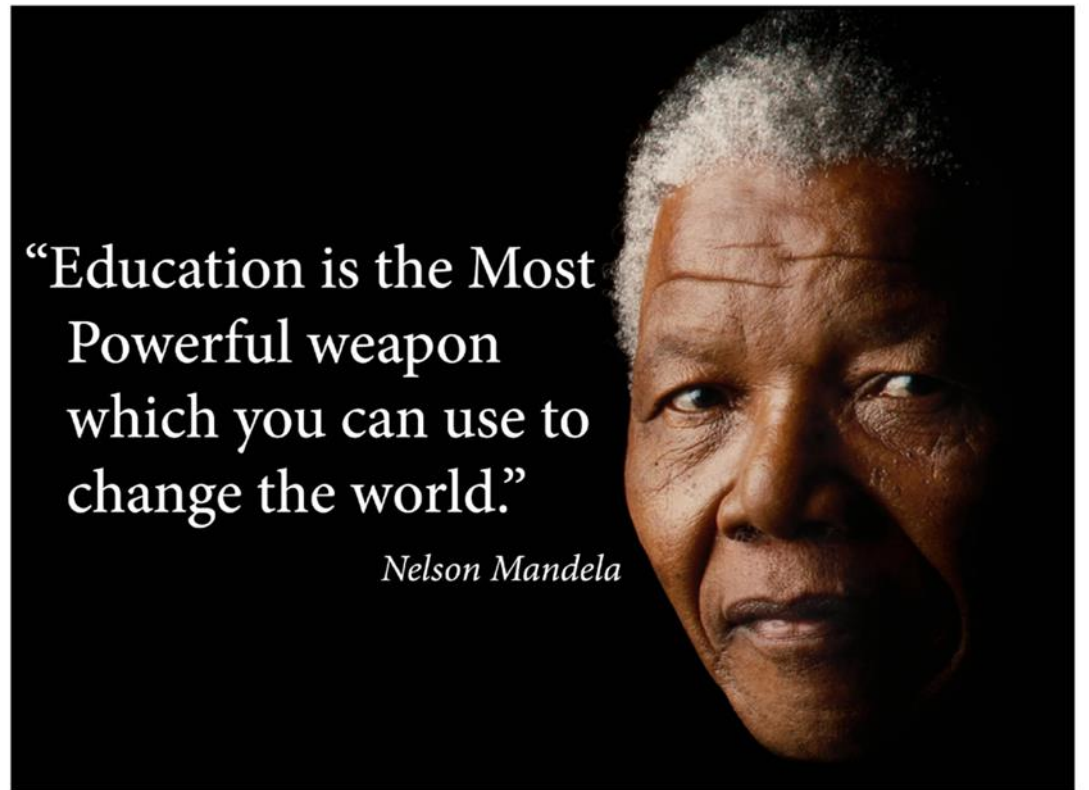
What can't we do?

- We are not academics, we do not provide a balanced or designed curriculum
- EQA cannot improve the quality of laboratory testing
- EQA can highlight where the errors occur
- EQA can highlight the limitations of the technologies in use
- Other authorities must have the will and provide the resources to change processes, procedures and methods



We CAN share best practice

- We have a unique insight into performance data and lab practice
- We should evaluate and support diagnostic strategies
- We should work, individually and collectively, to raise the profile of external quality assessment
- We should resist the pressure of the drive to the bottom



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Let's define 'education'

Synonyms:

- Culture
- Improvement
- Information
- Discipline
- Learning
- Training (*and many more*)



Let's define 'education'

Synonyms:

- Culture
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Antonyms:

There is one antonym shared between education and culture, discipline, learning and training:

Let's define 'education'

Synonyms:

- Culture
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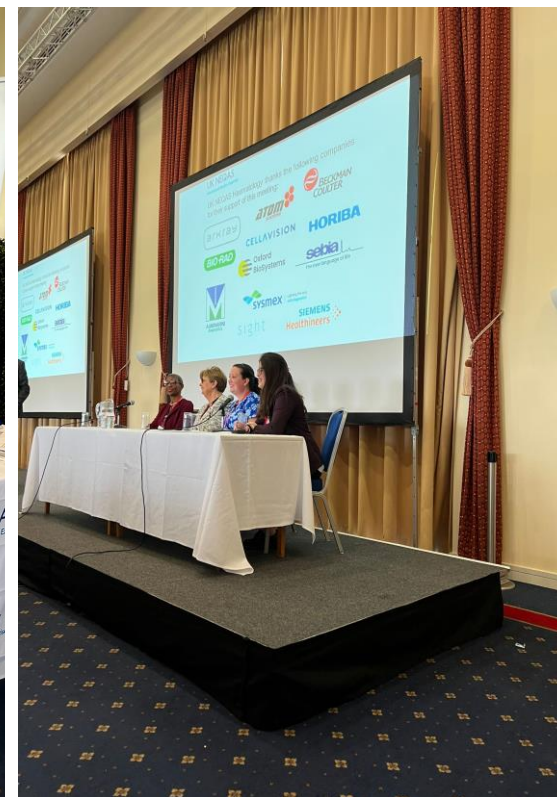


Antonyms:

There is one antonym shared between education and culture, discipline, learning and training:

“IGNORANCE”

Thank you for your attention



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