UK NEQAS

International Quality Expertise

UKNEQAS

what can we do for you?

Shila Seaton
Bacteriology Scheme Manager
UK NEQAS PHE

UK NEQAS
International Quality Expertise

Quality Assurance - Definition

- QA is the total process whereby the quality of laboratory results can be guaranteed.
- Reliability of results is improved by undertaking QA.
- Variability may arise from biological or analytical sources.

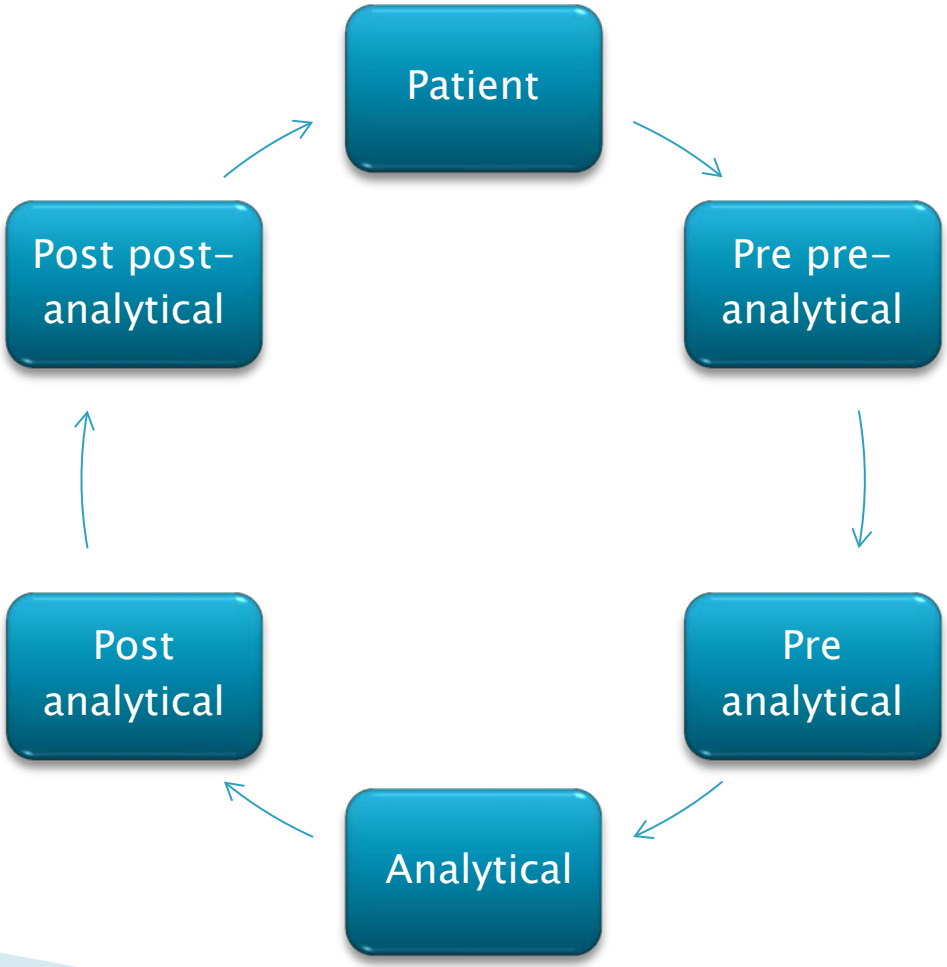
UK NEQAS

International Quality Expertise

UK NEQAS

International Quality Expertise

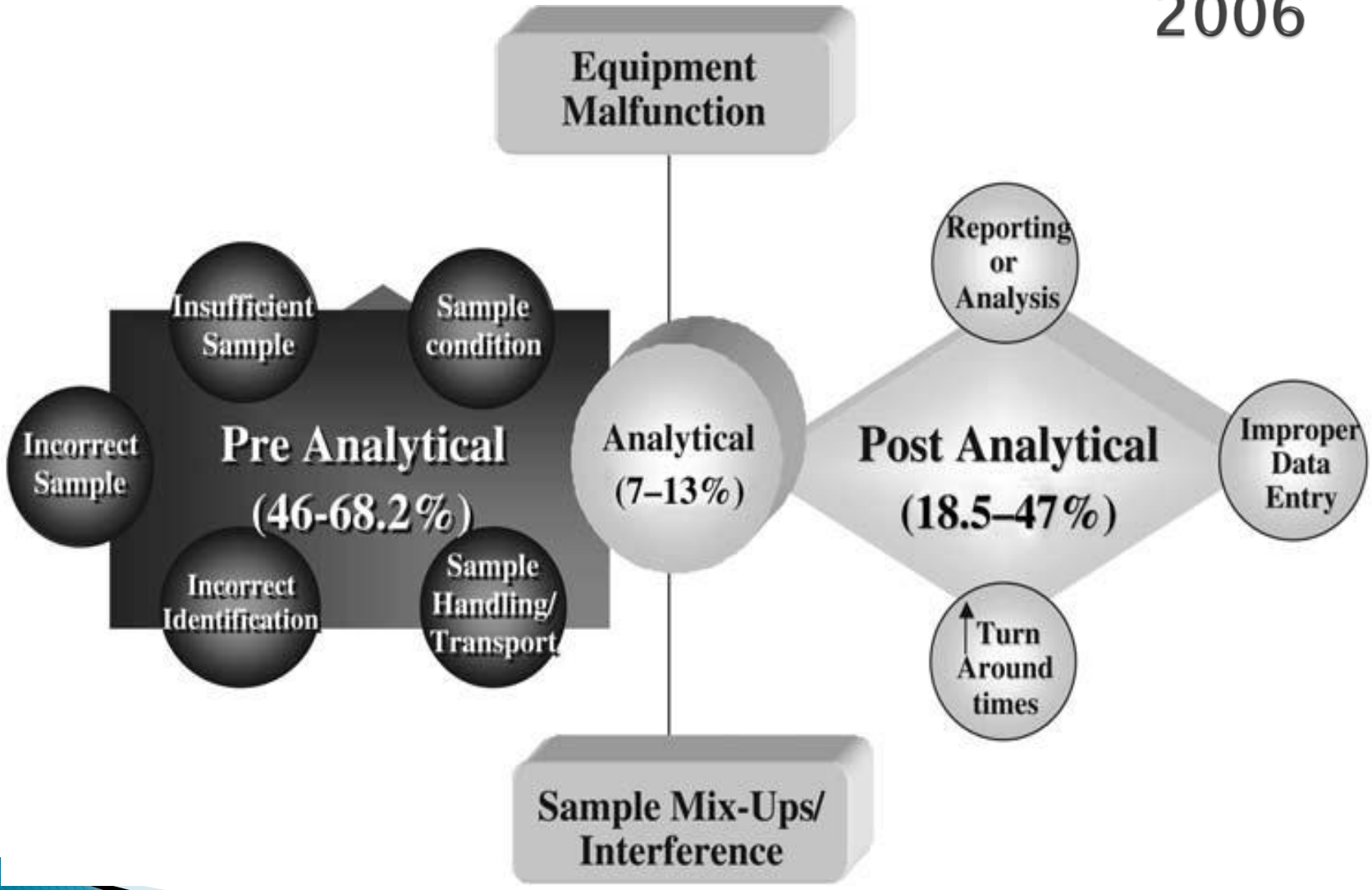
Total Testing Process



UK NEQAS

International Quality Expertise

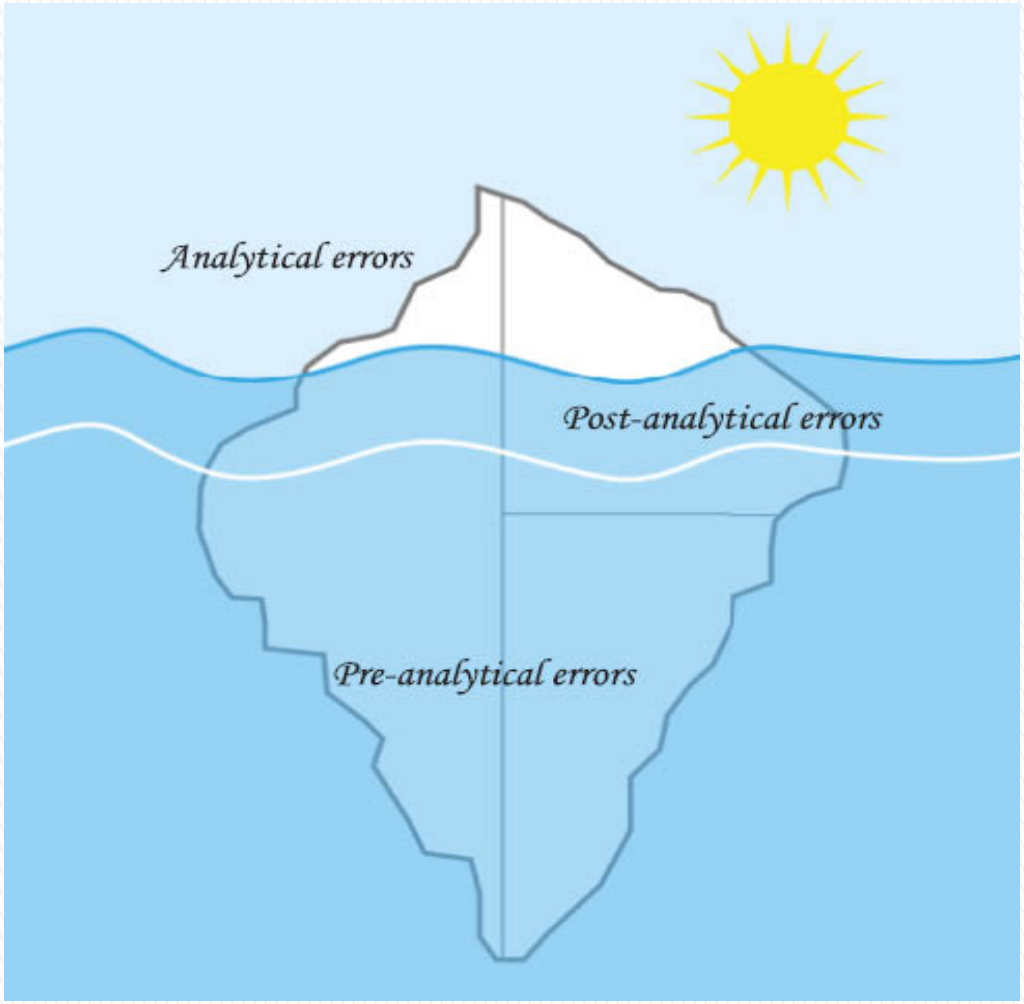
Plebani 2006



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, December 2014



UK NEQAS
International Quality Expertise

Pan UK NEQAS
(pre and post monitoring- PREPQ)

- Assessing provision of a pre and post analytical monitoring service in all disciplines of laboratory medicine.
- An aspect of the quality management to investigate post analytical errors.
- Investigate variable factors:

  age of specimen

  quality of specimen e.g correct specimen type

  volume received

  type of test performed (appropriate tests requested)

  turn around time (time taken to reporting results)

  interpretation of results (correct/incorrect)
- Data collated presently on the pre-pilot distributions

UK NEQAS
International Quality Expertise

UK NEQAS
International Quality Expertise

Analytical errors

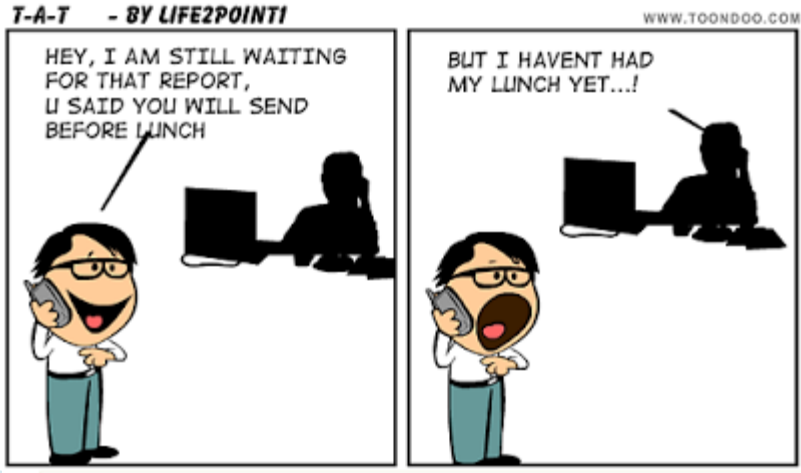
- Sample mix up
- Inappropriate tests carried out
- Diagnostic tests performed incorrectly
- Automation failure
- Mis-identification of the intended organism
- Report the contaminant(s)
- Test system not calibrated
- Reagents prepared incorrectly, stored inappropriately or used after expiry date
- Equipment malfunction

UK NEQAS

International Quality Expertise

Post analytical errors

1. Post analytical data entry error— transcription error
2. Turn around times– date results entered onto the web
3. Clinician or other provider fails to retrieve test result – non return
4. Failure to communicate critical value
5. Provider misinterprets lab result
6. Misinterpretation of results by requester
7. Oral miscommunication of results



UK NEQAS
International Quality Expertise

Methods in identification

- There has been an evolution in the methods used in identification of micro- organisms in diagnostic clinical samples.
- Methods selected by participants depend on the organism being identified.
- Conventional methods rarely used in busy clinical microbiological settings demanding a high TAT

UK NEQAS

International Quality Expertise

Trends in methods identification

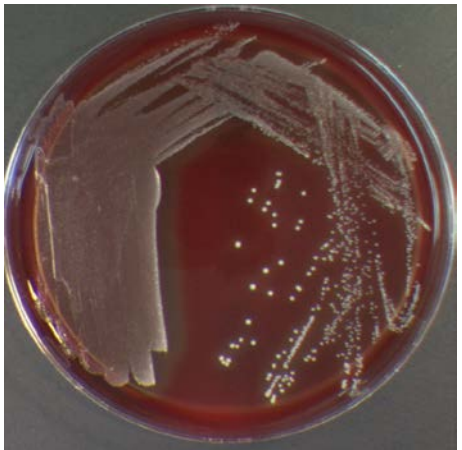
- Overall the percentage of participants obtaining a fully correct result for specimens examined since April 2013 compared with those selected from 5 years ago containing the same organism **were not significantly different.**

- With some organisms there was a change in the level of identification reported from genus only to species level.

UK NEQAS
International Quality Expertise

Proprionibacterium acnes

- *Proprionibacterium acne*s (Dist 3273 :2013) is generally difficult to discriminate by conventional methods due lack of biochemical activity
- Participants using MALDI-ToF and VITEK® instruments successfully reported to species level.



UK NEQAS

International Quality Expertise

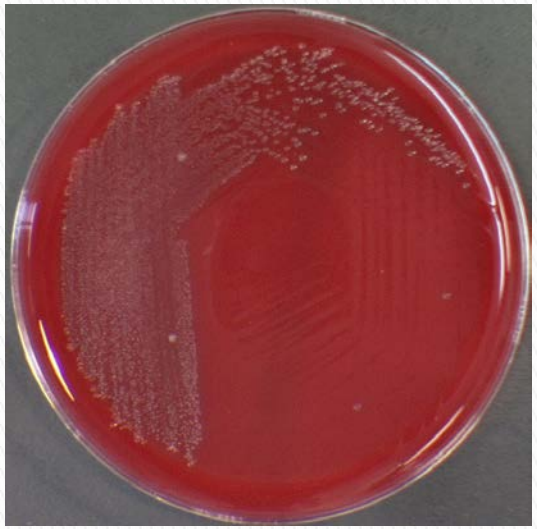
P. acnes; common Incorrect identification 44/617:

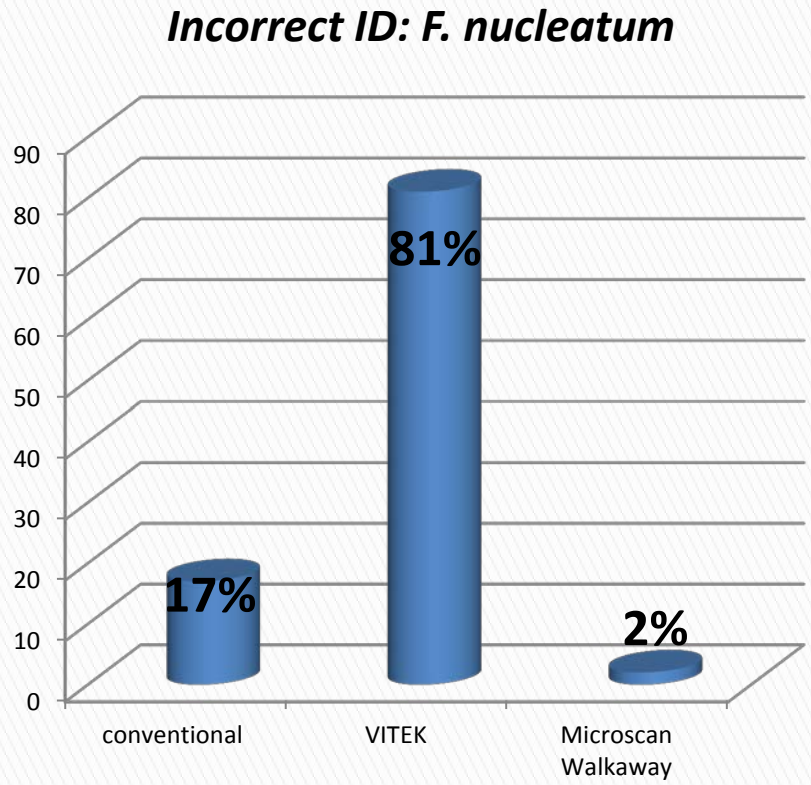
Genus	Number	Method used
Actinomyces spp	2	Conventional 1, VITEK 2
Corynebacterium spp	17	Conventional 11, VITEK 2, Phoenix 4
Kocuria spp	6	VITEK 6
Enterococcus faecalis	7	Conventional 1, Phoenix 3, MALDI-ToF 1, VITEK 2
Staphylococcus sp (not *S. aureus*)	5	Conventional 2, VITEK 3

UK NEQAS
International Quality Expertise

Fusobacterium necrophorum

- Incorrect identification of *Fusobacterium* species increased from 1% (5/691) in 2007 to 19% (116/597) in 2013.





UK NEQAS

International Quality Expertise

Enterococcus gallinarum

- 69% correct (dist 3230 2013) in a urine.
- Problems with identification of some enterococcal species using commercially available challenging for the automated systems
- *E. gallinarum* is a reportedly rare cause of urinary tract infections (UTI)
- Organism was identified as *E. gallinarum* using the bioMerieux API Rapid ID 32 Strep 92.2%

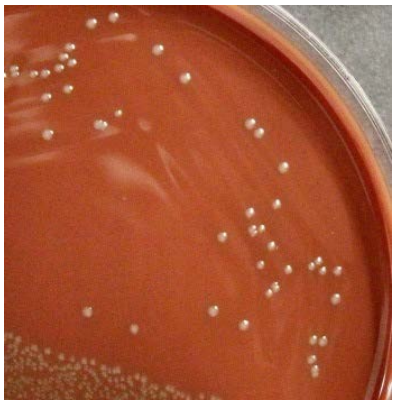
  by a species specific PCR

  MALDI-ToF

UK NEQAS
International Quality Expertise

E. gallinarum

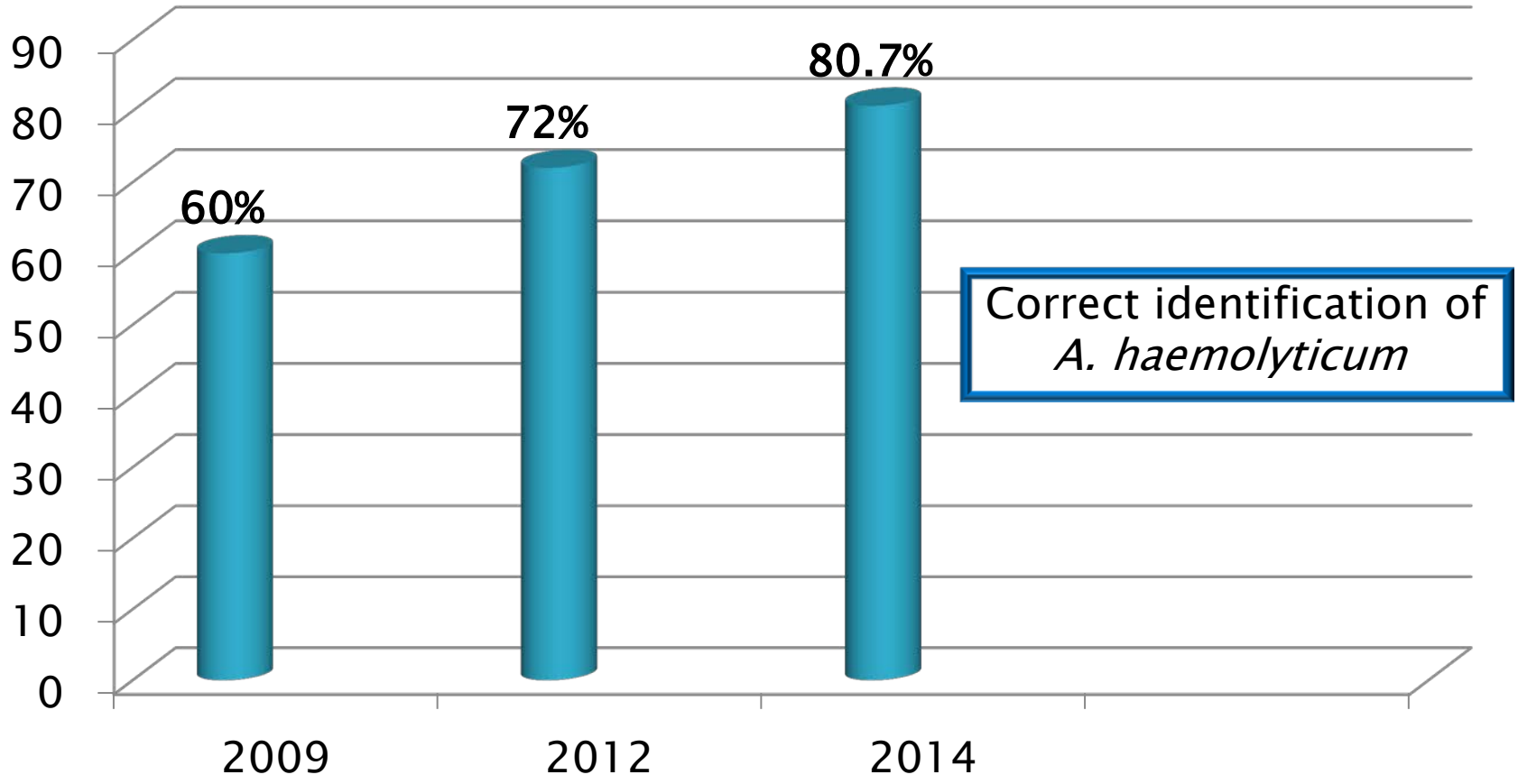
- 79.3% (dist 3926 in 2016) (467/589) in blood,
- 70 labs reported incorrectly *E. casseliflavus*, 37 labs *Enterococcus* species (*E. faecalis* =5, *E. faecium* =31 and *E. raffinosus* =1)
- Conventional testing provided an excellent discrimination for *E. gallinarum*
- MALDI-ToF determined an index of 2.271. (most common method reported)



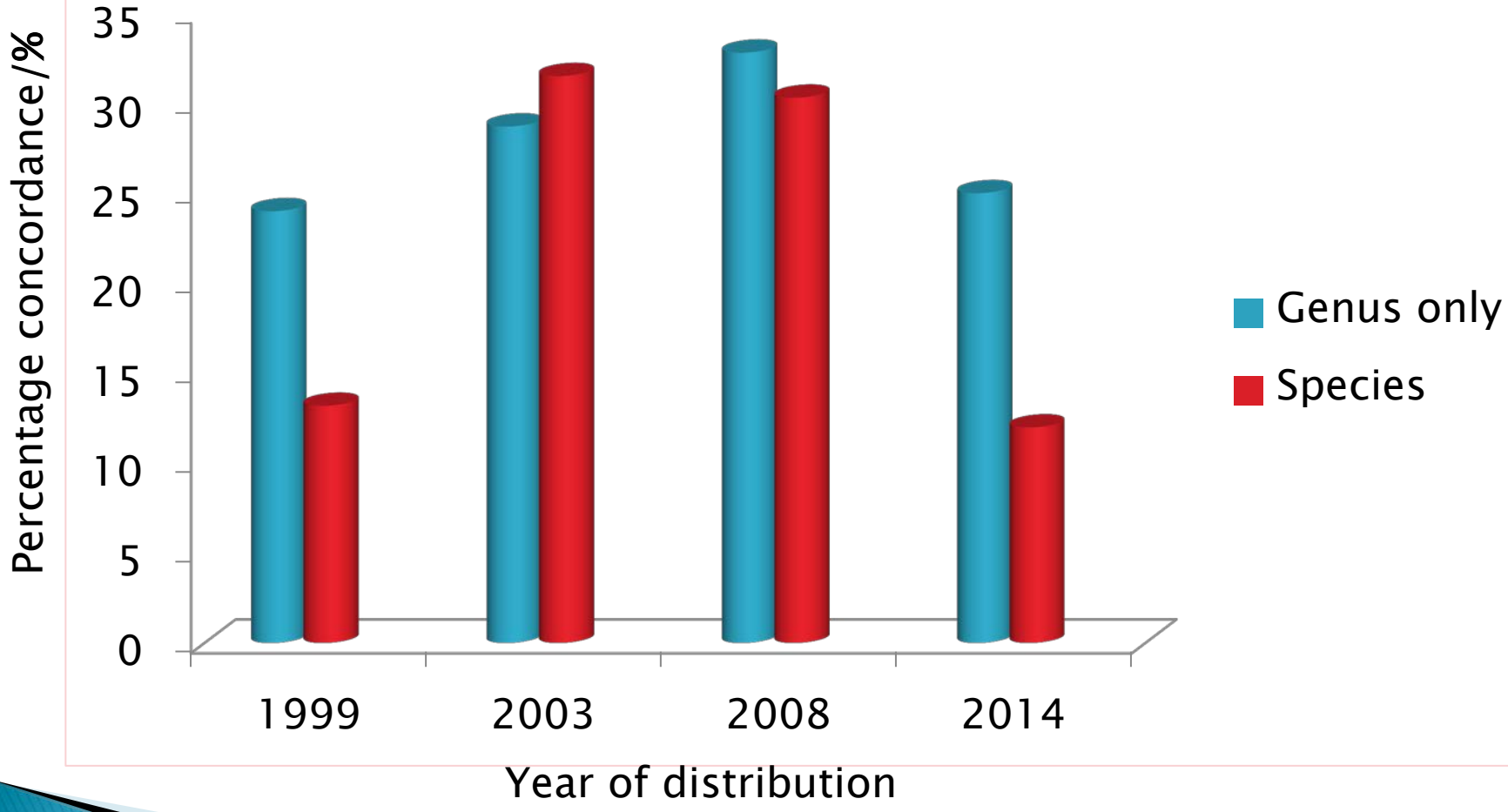
UK NEQAS

International Quality Expertise

Arcanobacterium haemolyticum



Capnocytophaga carnimorsus



UK NEQAS
International Quality Expertise

Report form for General Bacteriology

UK NEQAS Microbiology

General bacteriology | Laboratory :

Distribution : **3938** | Page 1 of 4

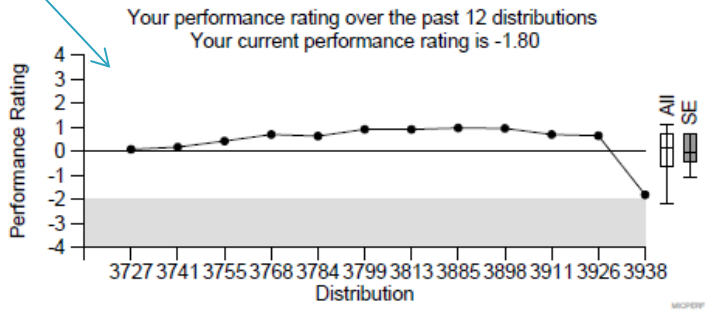
Dispatch Date : 01-Aug-2016

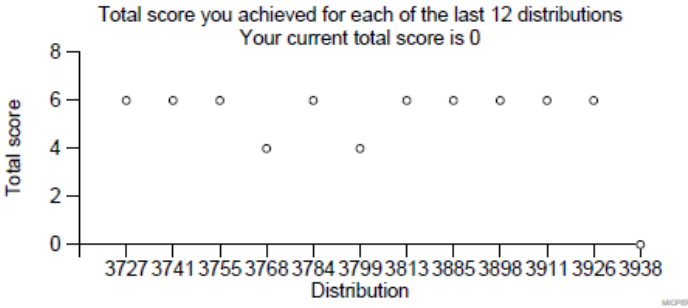
Intended Result		Your Report	Your Score
Specimen 3294	*Streptococcus pneumoniae*	Unexpected pathogen	-1
Specimen 3295	*Nocardia cyriacigeorgica* complex	Unexpected pathogen	-1
Specimen 3296	*Shigella flexneri* serotype 2a	*Shigella flexneri*	2

Cumulative score information
Total number of specimens sent to you for **UK NEQAS for General bacteriology** over the last 6 distributions is 18
Specimen numbers 3010 3011 3012 3128 3129 3130 3173 3174 3175 3208 3209 3210 3250 3251 3252 3294 3295 3296 have been analysed and scored.
Number of reports returned and scored 18
Number of specimens reported as not examined (not scored) 0
Number of specimens received too late for analysis (not scored) 0
Number of specimens for which no report was received (not scored) 0
Your cumulative score for these specimens was 30 out of a possible total of 36
The mean score calculated from the reports returned by **Sweden** laboratories was 34.21 with a standard error of 2.34.

Performance rating
Your performance rating for **UK NEQAS for General bacteriology** (i.e. the number of standard errors by which your cumulative score lies above or below the mean for **Sweden** laboratories) is -1.80.

A performance rating of more than 1.96 standard errors below the mean indicates possible poor performance.
Performance ratings may change if other participants' results are amended.
No score penalty is incurred for non return of reports. However non return of results may be used as a measure of poor performance.





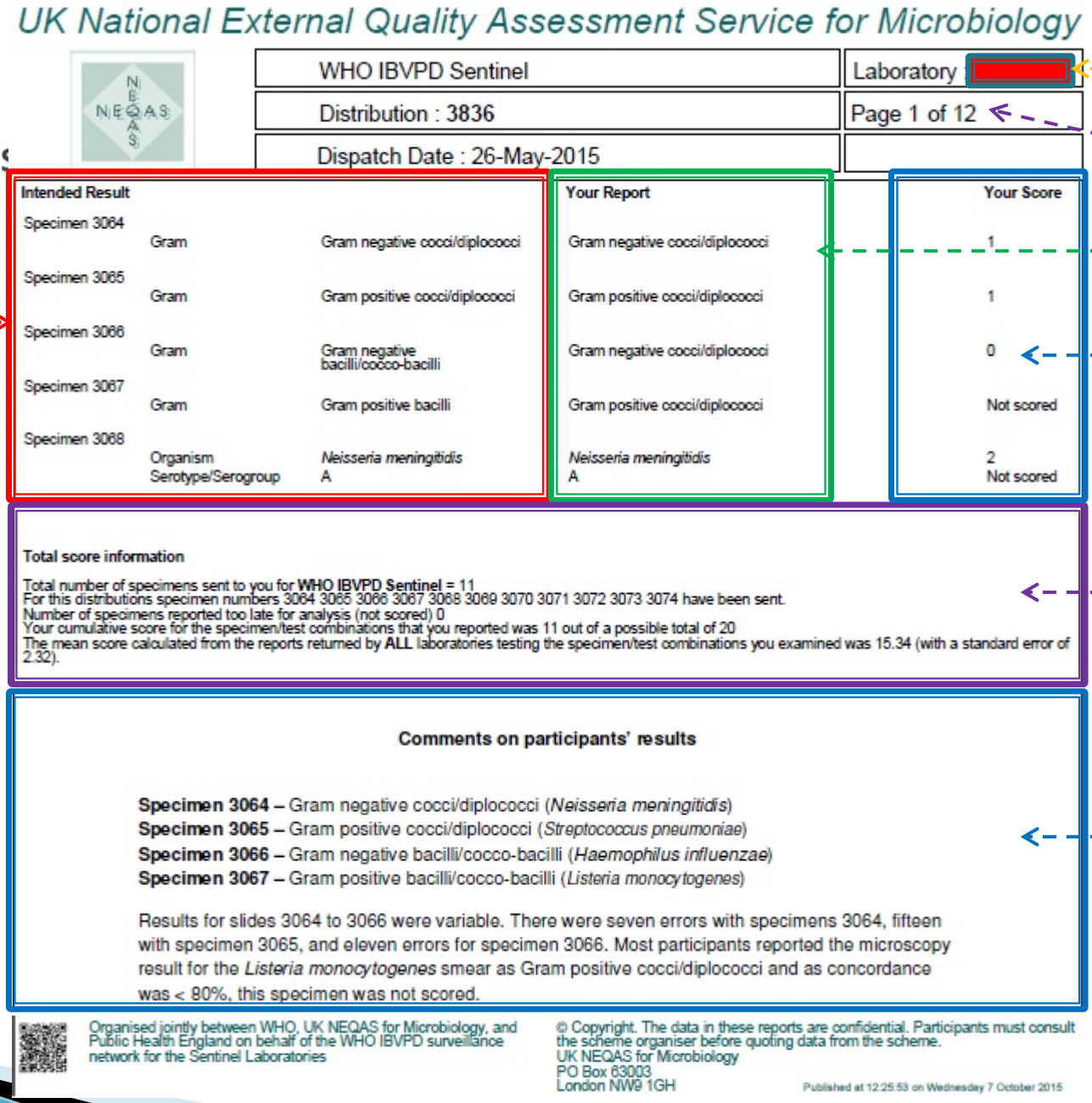
Turn around time: The time taken to report your results was 21- day(s). This information is provided for your own use and does not form part of your performance assessment.

Performance rating

Cumulative scoring

Turnaround time

Understanding your report: Summary pages



UK National External Quality Assessment Service for Microbiology

WHO IBVPD Sentinel	Laboratory [redacted]
Distribution : 3836	Page 1 of 12
Dispatch Date : 26-May-2015	

Intended Result			Your Report	Your Score
Specimen 3064				
	Gram	Gram negative cocci/diplococci	Gram negative cocci/diplococci	1
Specimen 3065				
	Gram	Gram positive cocci/diplococci	Gram positive cocci/diplococci	1
Specimen 3066				
	Gram	Gram negative bacilli/cocco-bacilli	Gram negative cocci/diplococci	0
Specimen 3067				
	Gram	Gram positive bacilli	Gram positive cocci/diplococci	Not scored
Specimen 3068				
	Organism	*Neisseria meningitidis*	*Neisseria meningitidis*	2
	Serotype/Serogroup	A	A	Not scored

Total score information

Total number of specimens sent to you for **WHO IBVPD Sentinel** = 11
For this distributions specimen numbers 3064 3065 3066 3067 3068 3069 3070 3071 3072 3073 3074 have been sent.
Number of specimens reported too late for analysis (not scored) 0
Your cumulative score for the specimen/test combinations that you reported was 11 out of a possible total of 20
The mean score calculated from the reports returned by **ALL** laboratories testing the specimen/test combinations you examined was 15.34 (with a standard error of 2.32).

Comments on participants' results

Specimen 3064 – Gram negative cocci/diplococci (*Neisseria meningitidis*)
Specimen 3065 – Gram positive cocci/diplococci (*Streptococcus pneumoniae*)
Specimen 3066 – Gram negative bacilli/cocco-bacilli (*Haemophilus influenzae*)
Specimen 3067 – Gram positive bacilli/cocco-bacilli (*Listeria monocytogenes*)

Results for slides 3064 to 3066 were variable. There were seven errors with specimens 3064, fifteen with specimen 3065, and eleven errors for specimen 3066. Most participants reported the microscopy result for the *Listeria monocytogenes* smear as Gram positive cocci/diplococci and as concordance was < 80%, this specimen was not scored.

Organised jointly between WHO, UK NEQAS for Microbiology, and Public Health England on behalf of the WHO IBVPD surveillance network for the Sentinel Laboratories

UK NEQAS for Microbiology
PO Box 63003
London NW9 1GH

Published at 12:25:53 on Wednesday 7 October 2015

Intended results

ON ALL PAGES: Your lab ID number

Page number

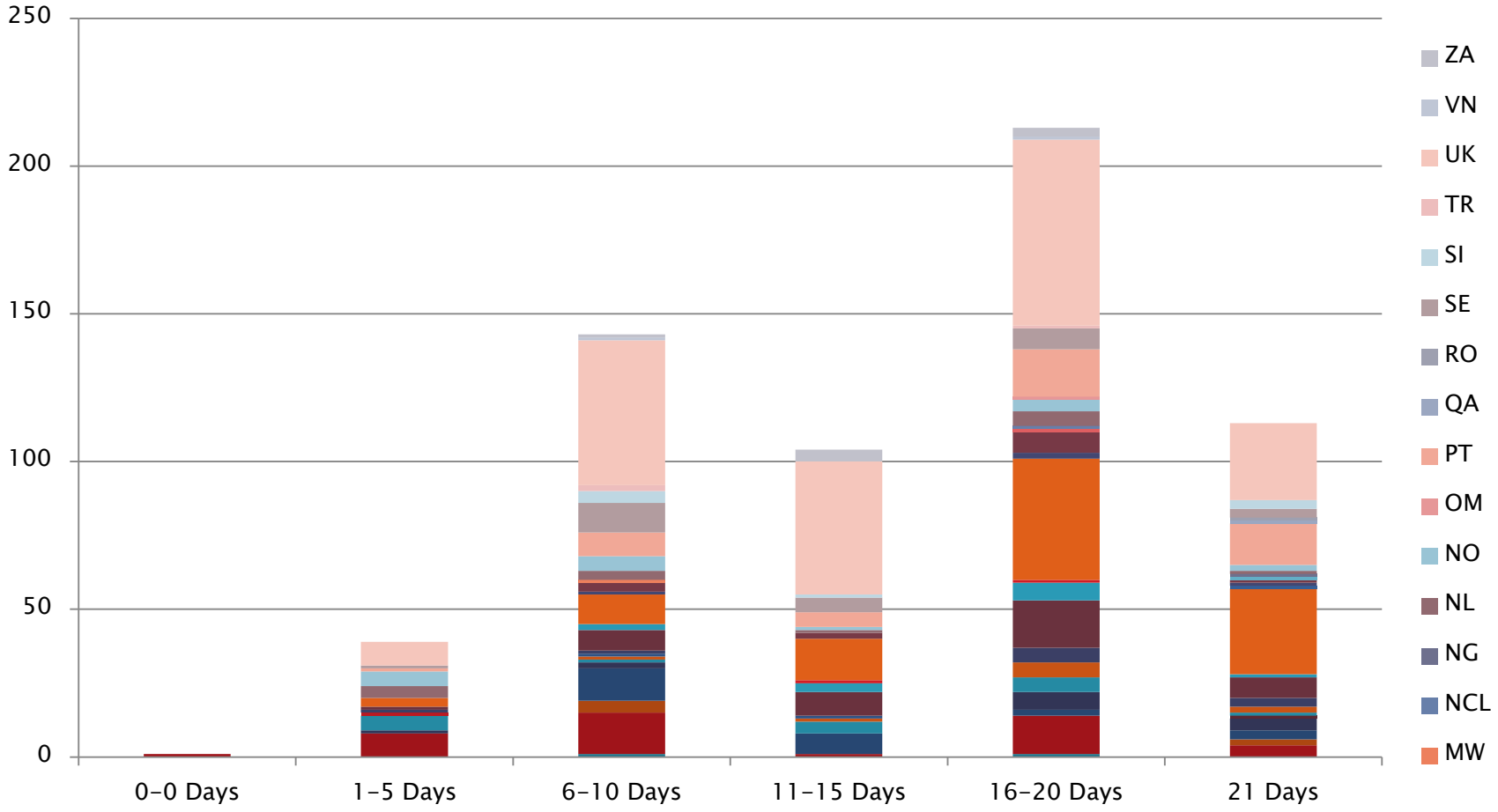
Your results

Your scores

ON PAGE 2: Total score information

ON PAGE 11: General comments including scoring and details on results on the final pages

TAT: General bacteriology scheme 2015



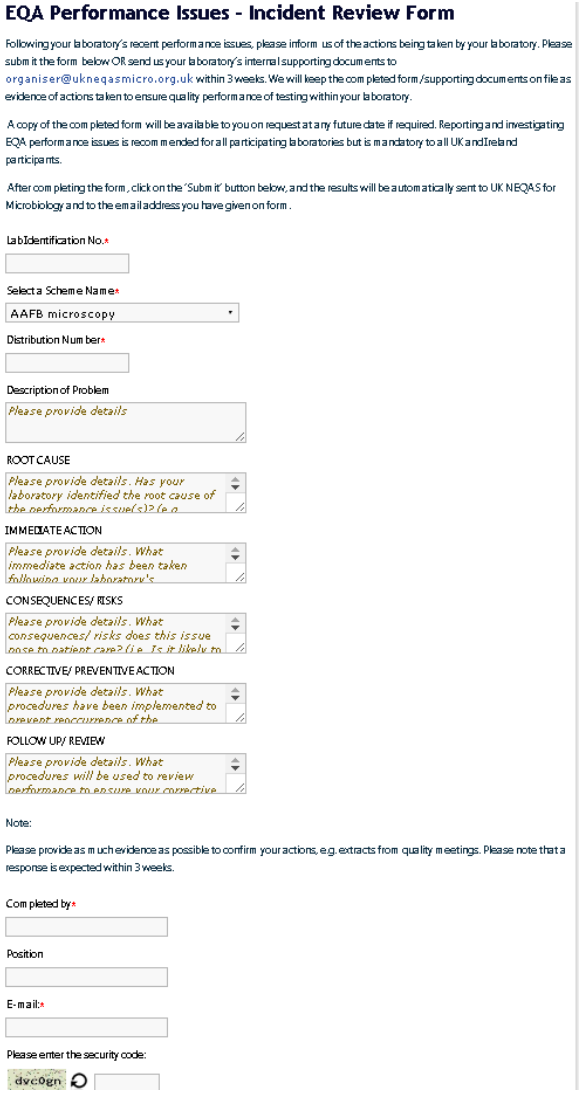
UK NEQAS
International Quality Expertise

UK NEQAS

International Quality Expertise

EQA Performance Issues - Incident Review Form

- Lab Identification No.
- Scheme Name
- Distribution Number
- Description of Problem
- ROOT CAUSE
- IMMEDIATE ACTION
- CONSEQUENCES/ RISKS
- CORRECTIVE/ PREVENTIVE ACTION
- FOLLOW UP/ REVIEW
- Completed by
- Position
- E-mail



EQA Performance Issues - Incident Review Form

Following your laboratory's recent performance issues, please inform us of the actions being taken by your laboratory. Please submit the form below OR send us your laboratory's internal supporting documents to organiser@uknegasmicro.org.uk within 3 weeks. We will keep the completed form /supporting documents on file as evidence of actions taken to ensure quality performance of testing within your laboratory.

A copy of the completed form will be available to you on request at any future date if required. Reporting and investigating EQA performance issues is recommended for all participating laboratories but is mandatory to all UK and Ireland participants.

After completing the form, click on the 'Submit' button below, and the results will be automatically sent to UK NEQAS for Microbiology and to the email address you have given on form.

Lab Identification No.*

Select a Scheme Name*

AAFB microscopy

Distribution Number*

Description of Problem

Please provide details

ROOT CAUSE

Please provide details. Has your laboratory identified the root cause of the performance issue(s)? (e.g.

IMMEDIATE ACTION

Please provide details. What immediate action has been taken following your laboratory's

CONSEQUENCES/ RISKS

Please provide details. What consequences/ risks does this issue pose to patient care? (i.e. Is it likely to

CORRECTIVE/ PREVENTIVE ACTION

Please provide details. What procedures have been implemented to prevent reoccurrence of the

FOLLOW UP/ REVIEW

Please provide details. What procedures will be used to review performance to ensure your corrective

Note:

Please provide as much evidence as possible to confirm your actions, e.g. extracts from quality meetings. Please note that a response is expected within 3 weeks.

Completed by*

Position

E-mail:*

Please enter the security code:

dvc0gn

UK NEQAS

International Quality Expertise

Educational

- Distribute organisms that are not usually encountered in routine diagnostic laboratories
- *Exserohilum rostratum*
- *Bergeyella zoohelcum*
- Carbapenamase test reporting in AST scheme
- Simulated specimens appropriate for training purposes but **not validation**

UK NEQAS

International Quality Expertise

Exserohilum rostratum

UK NEQAS

International Quality Expertise

EQA benefits

- Maintain and improve analytical quality
- Improve inter-laboratory agreement and raise standards
- Detect equipment faults, identify reagent problems and review staff training
- Initiate and evaluate corrective actions
- Compare performance to different analytical methods
- Ongoing monitoring of EQA performance using an accredited EQA scheme will help to reduce laboratory errors, produce accurate patient test results and most importantly improve patient care.

UK NEQAS

International Quality Expertise

New developments

- Pilot in Fungal biomarkers
- Pilot in cryptococcal antigen
- Molecular detection of Bordetella pertussis and other respiratory pathogens.
- Mycology workshop
- HEV serology
- HEV RNA qualitative/quantitative detection

UK NEQAS

International Quality Expertise

Summary

- Accrediting bodies advise implementation of all components of QA.
- Full and regular participation in appropriate EQA schemes is a necessary and integral part of the rational provision of a reliable clinical laboratory service.
- EQA is one of the critical elements of a laboratory quality management system.
- Reduce in errors—improve in quality

UK NEQAS

International Quality Expertise

THANK YOU for listening.

UK NEQAS TEAM