UK Health Security Agency

Summary of Results

External Quality Assessment of Food/Environmental Microbiology

Environmental Swab Scheme

Distribution Number: ES27 **Sample Numbers: ES0053, ES0054**

Distribution Date:	**November 2022**
Results Due:	**02 December 2022**
Report Date:	**14 December 2022**
Samples prepared and quality control tested by:	**Divya George** **Nafeesa Hussain** **Cansev Katar** **Margaret Njenga** **Zak Prior** **Jake Videlefsky**
Data analysed by:	**Joanna Donn** **Nita Patel**
Report compiled by:	**Joanna Donn** **Nita Patel**
Authorised by:	**Nita Patel**

UK Health Security Agency
Food and Environmental Proficiency Testing Unit (FEPTU)
61 Colindale Avenue
London
NW9 5EQ
Tel: +44 (0)20 8327 7119
Fax:

For general information about the scheme please refer to:
Scheme Guide:

https://www.gov.uk/government/publications/food-and-water-proficiency-testing-schemes-scheme-guide

For more specific information about results assessments, scoring systems, statistics, and guidance on analysing your results for the proficiency testing samples please refer to:
Guide to Scoring and Statistics:

https://www.gov.uk/government/publications/food-and-water-proficiency-testing-schemes-scoring-systems-and-statistics

General guidance for z-scores:
Participants' enumeration results are converted into z-scores using the following formula:

$$Z = \frac{(x_i - X_{pt})}{\sigma_{pt}}$$

x_i = participants' result (expressed as a $\log_{10}$ value)
X_{pt} = assigned value (participants' consensus median (expressed as a $\log_{10}$ value))
σ_{pt} = the fixed standard deviation for the examination (calculated by FEPTU)

The σ_{pt}-value expresses the acceptable difference between the individual participant's result and the participants' consensus median. The σ_{pt}-value used for calculating z-scores for all parameters in the Environmental Swab Scheme is 0.35. A guide to interpreting z-scores follows, although laboratories must interpret their scores in the context of their own laboratory situation.

z = -1.99 to +1.99	satisfactory
z = -2 to -2.99 or +2 to +2.99	questionable
z= < -3.00 or > + 3.00	unsatisfactory

It is usually recommended that z-scores exceeding ±2 are investigated to establish the possible cause. As a general rule, UKHSA recommends that all questionable and unsatisfactory results are investigated.

FEPTU Quality Control: To demonstrate homogeneity of the sample, a minimum of 10 LENTICULE® discs, selected randomly from a batch, are tested in duplicate for parameters requiring enumeration and 10 LENTICULE discs are examined for pathogen detection.

To demonstrate stability of the sample, a minimum of six LENTICULE discs, selected randomly from a batch, are examined throughout the distribution period, either for enumeration or pathogen detection.

FEPTU results are determined using Publilc Health England method: Detection and Enumeration of Bacteria in Swabs and other Environmental Samples. Document number FNE54; version 4.

The intended results letters provide guidance for participants regarding the assigned values.

https://www.gov.uk/government/publications/food-and-water-proficiency-testing-schemes-scheme-guide

Refer to section 17.0 of the Scheme Guide if you have experienced difficulties with any of the examinations.

Please contact FEPTU staff for advice and information:

Repeat samples	Carmen Gomes or Kermin Daruwalla	**Tel:** **+44 (0)20 8327 7119**
Data analysis	Nita Patel	**Fax:**
Microbiological advice	Nita Patel or Zak Prior	**Email:** **foodeqa@ukhsa.gov.uk**
General comments and complaints	Nita Patel or Zak Prior	FEPTU's website
Scheme consultants	Nicola Elviss	
Scheme co-ordinator	Nita Patel	

Accreditation: UKHSA Food EQA Scheme for Environmental Swab is accredited by the United Kingdom Accreditation Service (UKAS) to ISO/IEC 17043:2010.

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Swab Sample: ES0053

Sample type: Random area swab taken from the inside of an empty spiced mayonnaise container that was used to make the potato salad

At least 15 people who attended a wedding banquet have reported mild to severe gastroenteritis. The wedding buffet consisted of cold and hot dishes that had been prepared by a restaurateur who was inexperienced in catering services and temperature control in particular when food is served outside the restaurant. A questionnaire done by the local authority has shown that the potato salad served at the party was significantly associated with symptoms

Request: Examine samples following your routine protocol for pathogens based on the outbreak scenario provided.

Contents:

Bacillus cereus ($2.6x10^4$) (wild strain) - see comment on page 6, *Enterococcus durans* ($2.7x10^5$) (NCTC 14204), *Pantoea agglomerans* ($1x10^3$) (wild strain)

Expected Results:

Examination	Expected Result	Your Result	Score for performance assessment	Z-score
Listeria monocytogenes	Not Detected			
Salmonella spp.	Not Detected			
Coagulase-positive staphylococci	<10 cfu per swab			
B.cereus	$3.0x10^3$ - $9.5x10^4$ cfu per swab			

Comments on Performance:

Listeria monocytogenes	
Total participants reporting for *Listeria monocytogenes*	33
Participants reporting correctly	32 (97%)

***Salmonella* spp.**	
Total participants reporting for *Salmonella* spp.	37
Participants reporting correctly	37 (100%)

Coagulase-positive staphylococci	
Total participants reporting for Coagulase-positive staphylococci	36
Participants reporting a low censored value	32

B.cereus	
Total participants reporting for *B.cereus*	21
Participants reporting a high censored value	1
Assigned value (participants' median)	$1.7x10^4$ cfu per swab (4.23 log_{10})
Uncertainty of assigned value ($U(Xpt)$ = log_{10} cfu per swab)	0.09
No. of outlying counts	8 (7 low / 1 high)
Participants' mean	$1.4x10^4$ cfu per swab (4.16 log_{10})
*Standard deviation of participants' results	0.37 log_{10} cfu per swab
FEPTU QC median	$2.4x10^4$ cfu per swab (4.38 log_{10})

Total sent samples	52
Non-returns	4
Not examined	4

The fixed standard deviation value (σpt value) used for calculation of the z-scores is **0.35** for all parameters.

* Robust S^* based on median absolute deviation about the participants' median (*MADe*).

Swab Sample: ES0054

Sample type: Random area swab taken from the inside of an empty ice-cream container recovered from the rubbish bin of one of the cases

On Thursday 10 November 2022, the local health authority noted that a total of 23 people had reported having diarrhoea, fever and chills. Eighteen people interviewed reported eating or purchasing ice-cream from a local festival event on Sunday 6 November. The vendor had purchased the ice-cream from a local farm that had produced the item

Request: Examine samples following your routine protocol for pathogens based on the outbreak scenario provided.

Contents:

Listeria monocytogenes ($2.0x10^1$) (wild strain), *Aerococcus viridans* ($1.0x10^3$) (NCTC 8251), *Pseudomonas aeruginosa* ($1.7x10^5$) (wild strain), *Staphylococcus sciuri* ($2.0x10^5$) (wild strain)

Expected Results:

Examination	Expected Result	Your Result	Score for performance assessment	Z-score
Listeria monocytogenes	Detected			
Salmonella spp.	Not Detected			
Coagulase-positive staphylococci	<10 cfu per swab			
E.coli O157	Not Detected			

Comments on Performance:

Listeria monocytogenes	
Total participants reporting for *Listeria monocytogenes*	39
Participants reporting correctly	35 (90%)
***Salmonella* spp.**	
Total participants reporting for *Salmonella* spp.	36
Participants reporting correctly	35 (97%)
Coagulase-positive staphylococci	
Total participants reporting for Coagulase-positive staphylococci	26
Participants reporting a low censored value	25
***E.coli* O157**	
Total participants reporting for *E.coli* O157	16
Participants reporting correctly	16 (100%)

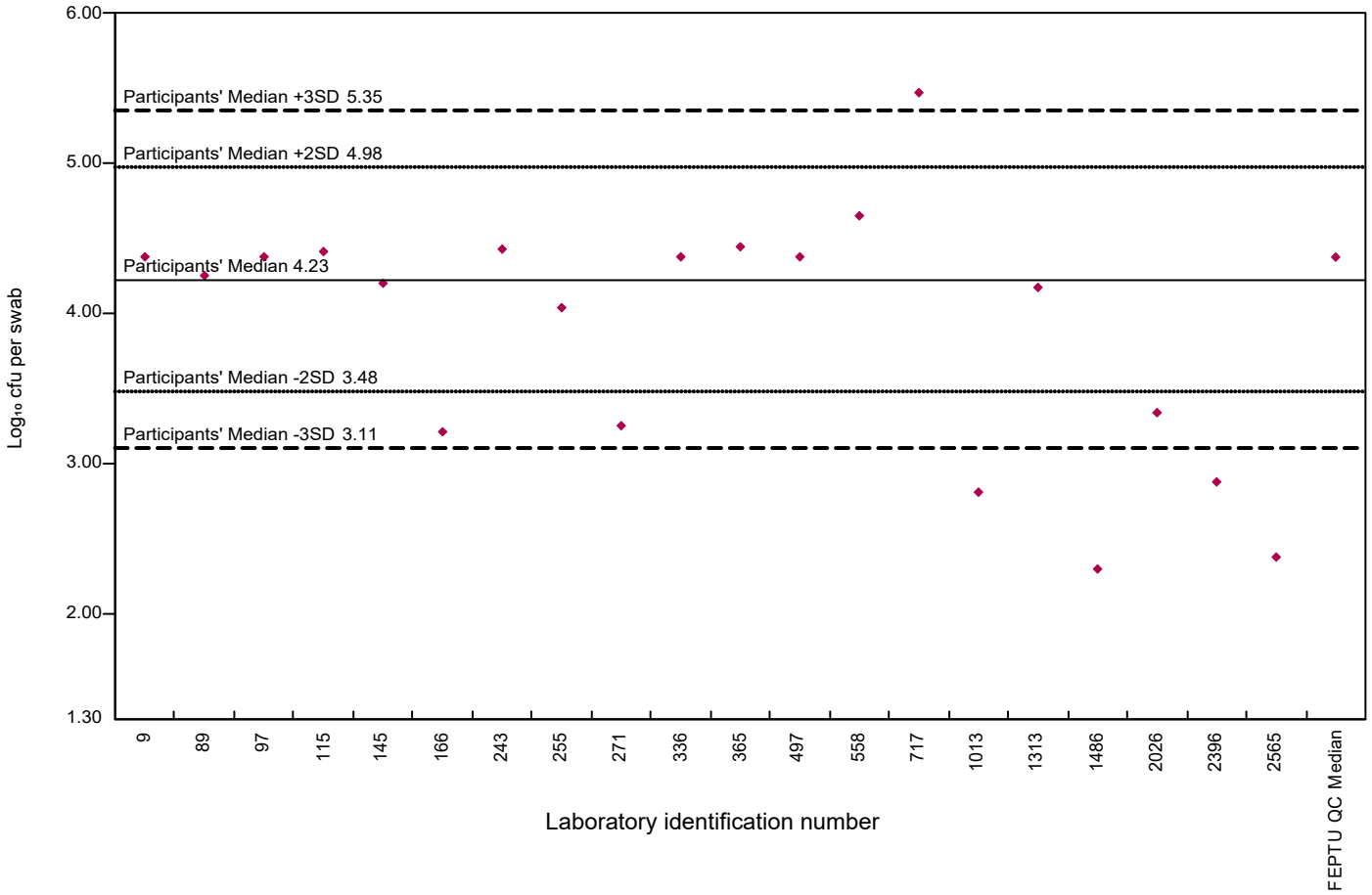
Total sent samples	52
Non-returns	4
Not examined	3

The fixed standard deviation value (σ_{pt} value) used for calculation of the z-scores is **0.35** for all parameters.

* Robust S^* based on median absolute deviation about the participants' median (*MADe*).

ES0053 - *B.cereus*

Key: ◆ Reported result



Comments for distribution ES27

Sample ES0053
The pathogen in this sample was *Bacillus cereus.*

The table below shows the additional examinations carried out by the laboratories and the reported results.

Additional examinations	Number of laboratories examining	Reported results
Campylobacter spp.	5	Not detected (5)
Clostridium perfringens	7	<10 (2) <100 (5)
Escherichia coli O157	7	Not detected (7)
Vibrio cholerae	1	Not detected (1)

8/21 (38%) of the laboratories reported a count outside the expected range of $3.0x10^3$ - $9.5x10^4$ colony forming units (cfu) per swab. The standard deviation was also wide at 0.37 log_{10} cfu per swab. A greater variation in enumeration results is commonly observed with our proficiency testing samples when it contains a *Bacillus* spp., this is due to the growth of large rhizoid colonies on the agar media used. In addition, the low number of results reported and analysed may also have contributed to the variable performance observed with this examination. Therefore, all participants have been awarded a UKHSA score of 2, participants using the z-score to analyse their performance should do so with caution.

Sample ES0054
The pathogen in this sample was *Listeria monocytogenes.*

The table below shows the additional examinations carried out by the laboratories and the reported results.

Additional examinations	Number of laboratories examining	Reported results
Bacillus cereus	4	<20 (1) <100 (3)
Campylobacter spp.	13	Not detected (13)
Clostridium perfringens	2	<10 (1) <1000 (1)
Vibrio cholerae	1	Not detected (1)

General comments

If your laboratory does not examine for a certain pathogen/s that is potentially implicated in an outbreak you must return a result of 'Not examined' for that pathogen when entering your results on-line. This will ensure that your laboratory is awarded a correct score.

If you do not return a result for a distribution, you will not be able to view all the participants' results data in your individualised report. Therefore, we will post generic reports on the website, which will be available for 12 months after the distribution has closed, so you can access the missing data.

End of report