



Summary of Results

External Quality Assessment of Water Microbiology Dialysis Water Scheme

Distribution Number: DW16

Sample Numbers: DW16A, DW16B

Distribution Date:	July 2018
Results Due:	27 July 2018
Report Date:	07 August 2018
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For further information about the scheme please refer to:

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

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:

x_i = participants' result (expressed as a log₁₀ value)

$Z = \frac{(x_i - X_{0.5})}{\sigma_0}$
The numerator expresses the difference between the individual (expressed as a log₁₀ value) participants' result and the consensus median. The denominator expresses the difference between the individual (expressed as a log₁₀ value) participants' result and the fixed standard deviation for the examination (calculated by FEPTU).
The optimal value expressed as a log₁₀ value 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 ± 2.0 are investigated to establish the possible cause. As a general rule, PHE 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 the enumeration test.

To demonstrate stability of the sample, a minimum of nine LENTICULE discs, selected randomly from a batch, are examined throughout the distribution period for the enumeration test.

The FEPTU results are determined using a method based on ISO 13959:2014 -Water for haemodialysis and related therapies.

The FEPTU results are used for guidance in the preliminary intended results notification, letters are posted on the website immediately after every distribution; electronic notification of their availability is sent to all participants.

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

Participants are reminded that reporting incorrect or false negative results for water samples could have serious public health implications.

Please contact FEPTU staff for advice and information:

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

Accreditation: PHE Water EQA Scheme for Dialysis Water is accredited by the United Kingdom Accreditation Service (UKAS) to ISO/IEC 17043:2010.

Repeat samples	Carmen Gomes or Kermin Daruwalla	Tel: +44 (0)20 8327 7119
Data Analysis	Manchari Rajkumar or Nita Patel	Fax: +44 (0)20 8200 8264
Microbiological advice	Nita Patel or Zak Prior	Email: foodeqa@phe.gov.uk
General comments and complaints	Nita Patel or Zak Prior	FEPTU's website
Scheme consultants	Caroline Willis or Julie E. Russell	
Scheme Co-ordinator	Nita Patel	

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Sample: DW16A**Contents:** *Pseudomonas putida* 87 (wild strain)**Expected Results:**

All counts are expressed as colony forming units (cfu) per mL.

The fixed standard deviation value (σ_{pt} value) used for calculation of the z-score is **0.35** for this parameter

Results	
FEPTU median (MF) ¹	87
No. results returned	68
Assigned value (Participants' median all results)	65
Interpretation based on assigned value**	Satisfactory/Triggers action level
Uncertainty of assigned value	4
Participants' mean (all results)	63
Expected Range	19 - 110
Standard deviation**	23
No of outlying counts	3
False positives	
False negatives	4
Your result	
Your interpretation	
Score for performance assessment	
Z-score	

¹ Membrane filtration* Reference: https://academic.oup.com/ndt/search-results?f_TocHeadingTitle=SECTION%20IV:%20Dialysis%20fluid%20purity

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

Total sent samples	73
Not examined	2
Non returns	3

Sample: DW16B**Contents:** *Micrococcus luteus* 50 (wild strain)**Expected Results:**

All counts are expressed as colony forming units (cfu) per mL.

The fixed standard deviation value (σ_{pt} value) used for calculation of the z-score is **0.35** for this parameter

Results	
FEPTU median (MF) ¹	50
No. results returned	68
Assigned value (Participants' median all results)	47
Interpretation based on assigned value**	Satisfactory/Triggers action level
Uncertainty of assigned value	5
Participants' mean (all results)	43
Expected Range	1 - 115
Standard deviation**	34
No of outlying counts	2
False positives	
False negatives	11
Your result	
Your interpretation	
Score for performance assessment	
Z-score	

¹ Membrane filtration* Reference: https://academic.oup.com/ndt/search-results?f_TocHeadingTitle=SECTION%20IV:%20Dialysis%20fluid%20purity

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

Total sent samples	73
Not examined	2
Non returns	3

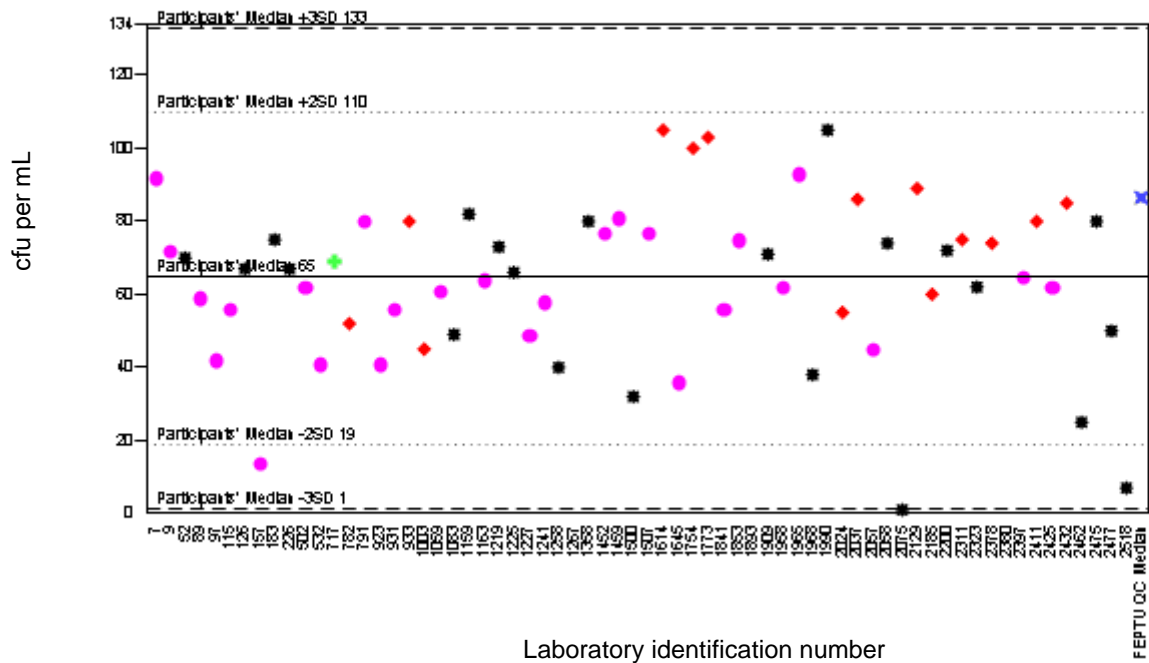
Method based presentation

DW16A : Total Viable Counts 17°C - 23°C for 7 days

FEPTU Method: Membrane Filtration

Method	Number of Results	Excluded Results	Percentage of the total	Median	Robust S*	Range Reported
Membrane Filtration	23	2	35	67	0	0 - 105
Not Stated	0	1	0			
Other	0	0	0			
Pour	27	0	41	61	0	0 - 93
Spread	15	0	23	80	0	0 - 105

DW16A - Total Viable Counts 17°C - 23°C for 7 days



Key: reported result by method

- ★ Membrane Filtration
- ✕ Not Stated
- ✚ Other
- Pour
- ◆ Spread

Sample: DW16A

Total Viable Counts 17° C - 23°C for 7 days Method	Total Viable Counts 17°C - 23°C for 7 days Media	Total Viable Counts 17°C - 23°C for 7 days Standard Method	Count
Membrane Filtration	Other	European pharmacopoeia 5.0	1
Membrane Filtration	Other	ISO 11663:2014	1
Membrane Filtration	R2A	European pharmacopoeia 5.0	1
Membrane Filtration	R2A	ISO 13959:2014	7
Membrane Filtration	R2A	Other; please state	2
Membrane Filtration	R2A	PHE guidelines	1
Membrane Filtration	TGEA	European Renal Best Practice Guidelines	1
Membrane Filtration	TGEA	ISO 13959:2014	1
Membrane Filtration	TGEA	ISO 23500:2014	1
Membrane Filtration	TGEA	Other; please state	2
Membrane Filtration	TGEA	UK Renal Association Guidelines	1
Membrane Filtration	TSA	ISO 13959:2014	1
Membrane Filtration	YEA	ISO 11663:2014	1
Membrane Filtration	YEA	ISO 13959:2014	1
Membrane Filtration	YEA	Other; please state	1
Other	R2A	European pharmacopoeia 5.0	1
Pour	Other	ISO 6222:1999	1
Pour	R2A	ISO 11663:2014	3
Pour	R2A	ISO 13959:2014	3
Pour	R2A	ISO 23500:2014	2
Pour	R2A	ISO 6222:1999	1
Pour	R2A	Other; please state	1
Pour	R2A	UK Renal Association Guidelines	2
Pour	TGEA	ISO 13959:2014	2
Pour	TGEA	ISO 23500:2014	1
Pour	TGEA	PHE guidelines	1
Pour	YEA	European pharmacopoeia 5.0	1
Pour	YEA	ISO 13959:2014	2
Pour	YEA	ISO 6222:1999	3
Pour	YEA	UK Renal Association Guidelines	3
Spread	R2A	European pharmacopoeia 5.0	2
Spread	R2A	European Renal Best Practice Guidelines	1
Spread	R2A	ISO 13959:2014	3
Spread	R2A	ISO 23500:2014	2
Spread	R2A	Other; please state	1
Spread	R2A	UK Renal Association Guidelines	1
Spread	TGEA	ISO 11663:2014	1
Spread	TGEA	ISO 13959:2014	1
Spread	TSA	UK Renal Association Guidelines	1
Spread	YEA	ISO 23500:2014	1

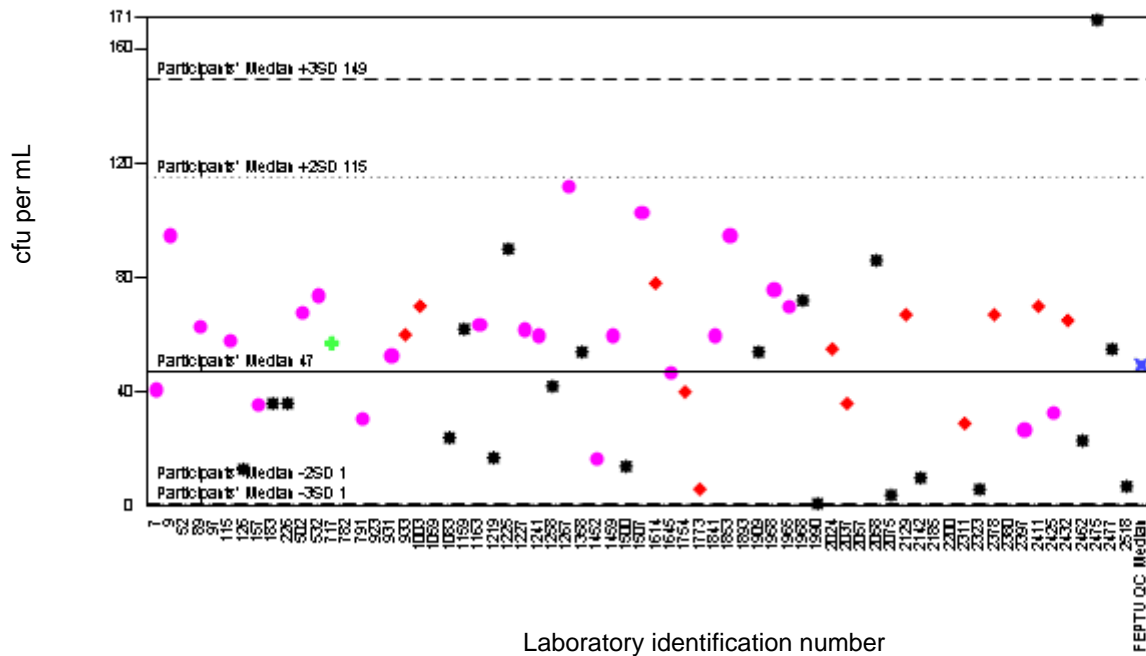
Method based presentation

DW16B : Total Viable Counts 17°C - 23°C for 7 days

FEPTU Method:

Method	Number of Results	Excluded Results	Percentage of the total	Median	Robust S*	Range Reported
Membrane Filtration	26	1	39	20	1	0 - 170
Not Stated	0	1	0			
Other	0	0	0			
Pour	26	0	39	60	0	0 - 112
Spread	14	0	21	58	0	0 - 78

DW16B - Total Viable Counts 17°C - 23°C for 7 days



Key: reported result by method

- ★ Membrane Filtration
- ✕ Not Stated
- ✚ Other
- Pour
- ◆ Spread

Sample: DW16B

Total Viable Counts 17°C - 23°C for 7 days Method	Total Viable Counts 17°C - 23°C for 7 days Media	Total Viable Counts 17°C - 23°C for 7 days Standard Method	Count
Membrane Filtration	Other	European pharmacopoeia 5.0	1
Membrane Filtration	Other	ISO 11663:2014	1
Membrane Filtration	R2A	European pharmacopoeia 5.0	1
Membrane Filtration	R2A	ISO 13959:2014	7
Membrane Filtration	R2A	Other; please state	2
Membrane Filtration	R2A	PHE guidelines	1
Membrane Filtration	TGEA	European Renal Best Practice Guidelines	1
Membrane Filtration	TGEA	ISO 11663:2014	1
Membrane Filtration	TGEA	ISO 13959:2014	2
Membrane Filtration	TGEA	ISO 23500:2014	1
Membrane Filtration	TGEA	Other; please state	2
Membrane Filtration	TGEA	UK Renal Association Guidelines	1
Membrane Filtration	TSA	ISO 13959:2014	1
Membrane Filtration	YEA	ISO 11663:2014	1
Membrane Filtration	YEA	ISO 13959:2014	1
Membrane Filtration	YEA	Other; please state	1
Other	R2A	European pharmacopoeia 5.0	1
Pour	Other	ISO 6222:1999	1
Pour	R2A	ISO 11663:2014	3
Pour	R2A	ISO 13959:2014	3
Pour	R2A	ISO 23500:2014	2
Pour	R2A	ISO 6222:1999	1
Pour	R2A	Other; please state	1
Pour	R2A	UK Renal Association Guidelines	2
Pour	TGEA	ISO 13959:2014	1
Pour	TGEA	PHE guidelines	1
Pour	YEA	European pharmacopoeia 5.0	1
Pour	YEA	ISO 13959:2014	2
Pour	YEA	ISO 6222:1999	3
Pour	YEA	UK Renal Association Guidelines	3
Spread	R2A	European pharmacopoeia 5.0	2
Spread	R2A	ISO 11663:2014	1
Spread	R2A	ISO 13959:2014	4
Spread	R2A	ISO 23500:2014	2
Spread	R2A	Other; please state	1
Spread	R2A	UK Renal Association Guidelines	1
Spread	TGEA	ISO 11663:2014	1
Spread	TSA	UK Renal Association Guidelines	1
Spread	YEA	ISO 23500:2014	1

Performance Assessment Sheet

Distribution	Sample	Total Viable Counts 17°C - 23°C for 7 days score
DW16	DW16A	
	DW16B	
DW15	DW15A	
	DW15B	
DW14	DW14A	
	DW14B	
Total maximum possible score		
Total percentage		

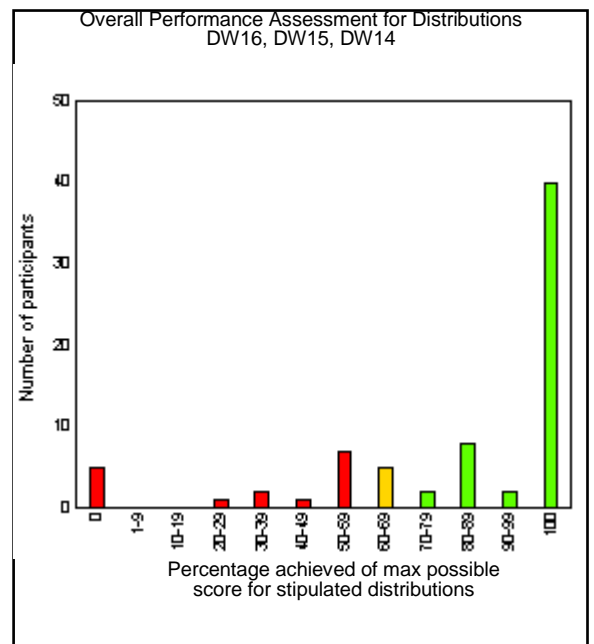
Performance Assessment Comment:

Participants are reminded that to take advantage of the performance assessment overtime tool provided in the reports they need to take part in more than one distribution a year.

Performance assessments are designed to alert participants to on-going problems with their examinations and are provided after every distribution. Scores are allocated to results reported for every parameter, for every sample to help assess performance.

Cumulative scores are calculated for the current and previous distribution for the Dialysis Water Scheme. Participants' cumulative scores for each of the examinations are compared with the maximum possible scores after every distribution.

Your overall performance with the enumerations in the dialysis water proficiency testing samples for the current and previous two distributions is collated in the chart to the right.



Performance Assessment Comment:

Laboratories that achieve less than 70% of the maximum possible score are likely to be experiencing significant problems with their examinations and are advised to:

- refer to the relevant distribution reports for sample-specific comments
- refer to the website guidance documents:

c) <https://www.gov.uk/government/collections/external-quality-assessment-ega-and-proficiency-testing-pt-for-food-water-and-environmental-microbiology>
contact the organisers for advice

Method based presentation of results:

Participants are advised if less than 10 laboratories report a result for a method, no data is shown for the Median, Robust SD and the Range Reported in the 'Method based presentation' tables. Numbers shown in the 'Excluded Results' column are laboratories that reported a censored value.

Sample specific comments:

DW16A: 46 laboratories provided a conclusion on the results reported, responses are shown in the table below:

Colony forming counts reported per mL	Conclusion reported by the laboratories (number of laboratories)
Count reported 0 Range reported 1 - 85	Satisfactory/Acceptable (2) (17)
Count reported 72	Other (1)
Range reported 62 - 92	Border line (5)
Range reported 52 - 93	Breaches action level (11)
Range reported 56 - 82	Satisfactory/Triggers action level (4)
Censored value of > 100 Range reported 25 - 100	Unsatisfactory/Unacceptable (1) (5)

DW16B: 45 laboratories provided a conclusion on the results reported, responses are shown in the table below:

Colony forming counts reported per mL	Conclusion reported by the laboratories (number of laboratories)
Count reported 0 Range reported 6 - 70	Satisfactory/Acceptable (5) (19)
Count reported 54	Other (1)
Count reported 0 Count reported 47 - 95	Borderline (1) (3)
Range reported 55 - 74	Breaches action level (6)
Range reported 17 - 95	Satisfactory/Triggers action level (5)
Range reported 23 - 170	Unsatisfactory/Unacceptable (5)

It is unclear why 11/68 (16%) of the participants reported a false negative count for this sample when it contained a *Micrococcus luteus* at levels of 50 per mL. On further analysis no particular method was identified as a reason for these results. Participants reporting an incorrect result are advised to request a repeat sample from FEPTU for your own internal investigation.

Participants are reminded to only report a conclusion on a test result if this is part of your reporting procedures.

Interpretation of test results can be found in ISO 13959:2014 - Water for haemodialysis and related therapies or the European Best Practice Guidelines for Haemodialysis. The Interpretation/conclusions of microbiological test results in your country may vary to those published in these documents.

General comment:

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.

