



Summary of Results

External Quality Assessment of Water Microbiology Dialysis Water Scheme

Distribution Number: DW28

Sample Numbers: DW28A, DW28B

Distribution Date:	October 2022
Results Due:	28 October 2022
Report Date:	02 November 2022
Samples prepared and quality control tested by:	Divya George Nafeesa Hussain Cansev Katar Margaret Njenga Zak Prior Jake Videlefsky
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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:

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

X_i = participants' result (expressed as a log₁₀ value)
 X_{pt} = assigned value (participants' consensus median (expressed as a log₁₀ 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 in the Dialysis Water 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 ± 2.0 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 the enumeration test.

To demonstrate stability of the sample, a minimum of six 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 23500-3:2019 Preparation and quality management of fluids for haemodialysis and related therapies - part 3 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.

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

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:

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	Caroline Willis	
Scheme Co-ordinator	Nita Patel	

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



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Sample: DW28A**Contents:** *Lactobacillus paracasei* (62) (wild strain), *Microbacterium luteolum* (5) (wild strain)**Expected Results:**

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

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

Results	
FEPTU median (MF) ¹	72
No. results returned	56
Assigned value (Participants' median all results)	85
Interpretation based on assigned value**	Satisfactory/Triggers action level
Uncertainty of assigned value	4
Participants' mean (all results)	86
Expected Range	32 - 138
Standard deviation**	27
No of outlying counts	8
False positives	
False negatives	0
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	62
Not examined	3
Non returns	3

Sample: DW28B**Contents:** *Enterococcus faecalis* (13) (wild strain), *Pseudomonas fluorescens* (8) (NCTC 3756)**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	29
No. results returned	57
Assigned value (Participants' median all results)	26
Interpretation based on assigned value**	Satisfactory/Triggers action level
Uncertainty of assigned value	1
Participants' mean (all results)	26
Expected Range	9 - 42
Standard deviation**	8
No of outlying counts	6
False positives	
False negatives	0
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	62
Not examined	2
Non returns	3

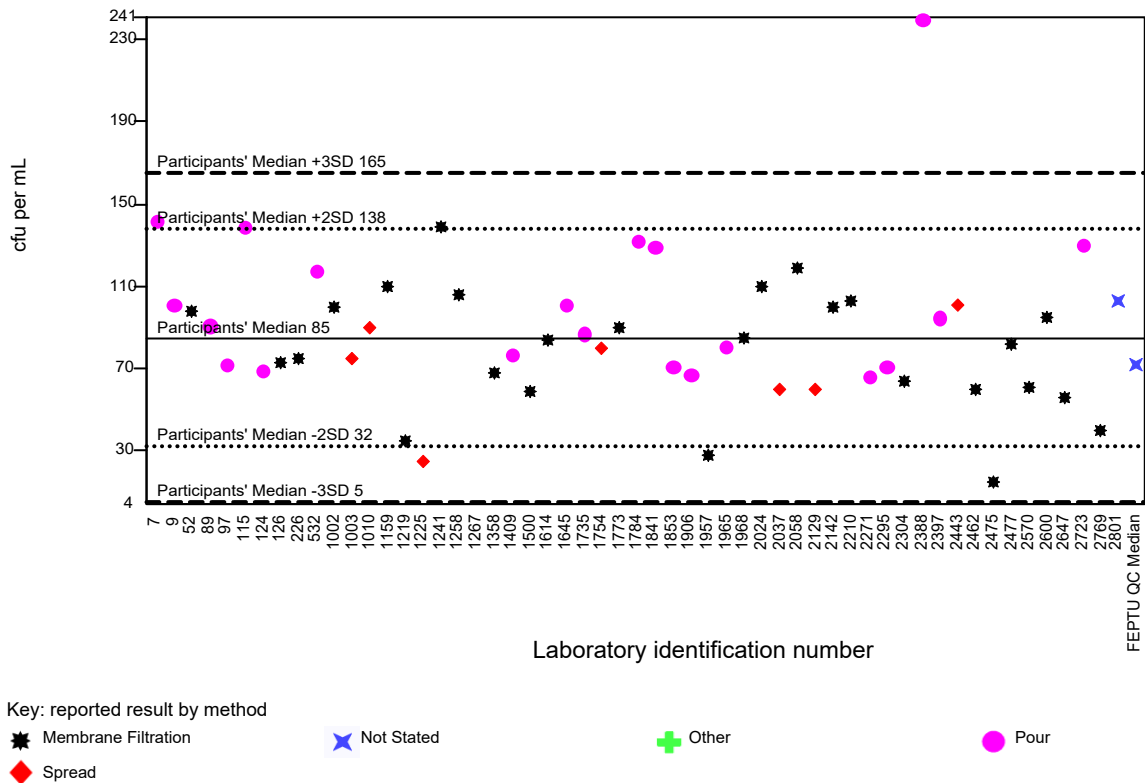
Method based presentation

DW28A : 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	26	1	48	83	0	15 - 139
Not Stated	1	1	1			
Other	0	0	0			
Pour	20	0	37	93	0	66 - 240
Spread	7	0	12			
IDEXX EasyDisc YEA	0	0	0			

DW28A - Total Viable Counts 17°C - 23°C for 7 days



Sample: DW28A

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	R2A	European pharmacopoeia 5.0	2
Membrane Filtration	R2A	European Renal Best Practice guidelines for Haemodialysis	1
Membrane Filtration	R2A	ISO 23500-3:2019	8
Membrane Filtration	R2A	Other; please state	2
Membrane Filtration	R2A	UK Renal Association guideline	1
Membrane Filtration	TGEA	European pharmacopoeia 5.0	1
Membrane Filtration	TGEA	ISO 23500-3:2019	2
Membrane Filtration	TGEA	Other; please state	1
Membrane Filtration	TGEA	UK Renal Association guideline	1
Membrane Filtration	TSA	Other; please state	1
Membrane Filtration	YEA	ISO 23500-3:2019	1
Membrane Filtration	YEA	ISO 6222:1999	1
Pour	Other	ISO 6222:1999	1
Pour	Other	Other; please state	1
Pour	R2A	ISO 23500-3:2019	3
Pour	R2A	ISO 23500-5:2019	2
Pour	R2A	UK Renal Association guideline	3
Pour	TGEA	European Renal Best Practice guidelines for Haemodialysis	1
Pour	TGEA	ISO 23500-3:2019	1
Pour	TGEA	ISO 23500-5:2019	1
Pour	TSA	Other; please state	1
Pour	YEA	ISO 23500-3:2019	2
Pour	YEA	ISO 6222:1999	1
Pour	YEA	Other; please state	1
Pour	YEA	UK Renal Association guideline	2
Spread	R2A	European pharmacopoeia 5.0	1
Spread	R2A	Other; please state	1
Spread	TGEA	European pharmacopoeia 5.0	1
Spread	TGEA	ISO 23500-3:2019	1
Spread	TSA	UK Renal Association guideline	1
Spread	YEA	ISO 23500-3:2019	1
Spread	YEA	UK Renal Association guideline	1

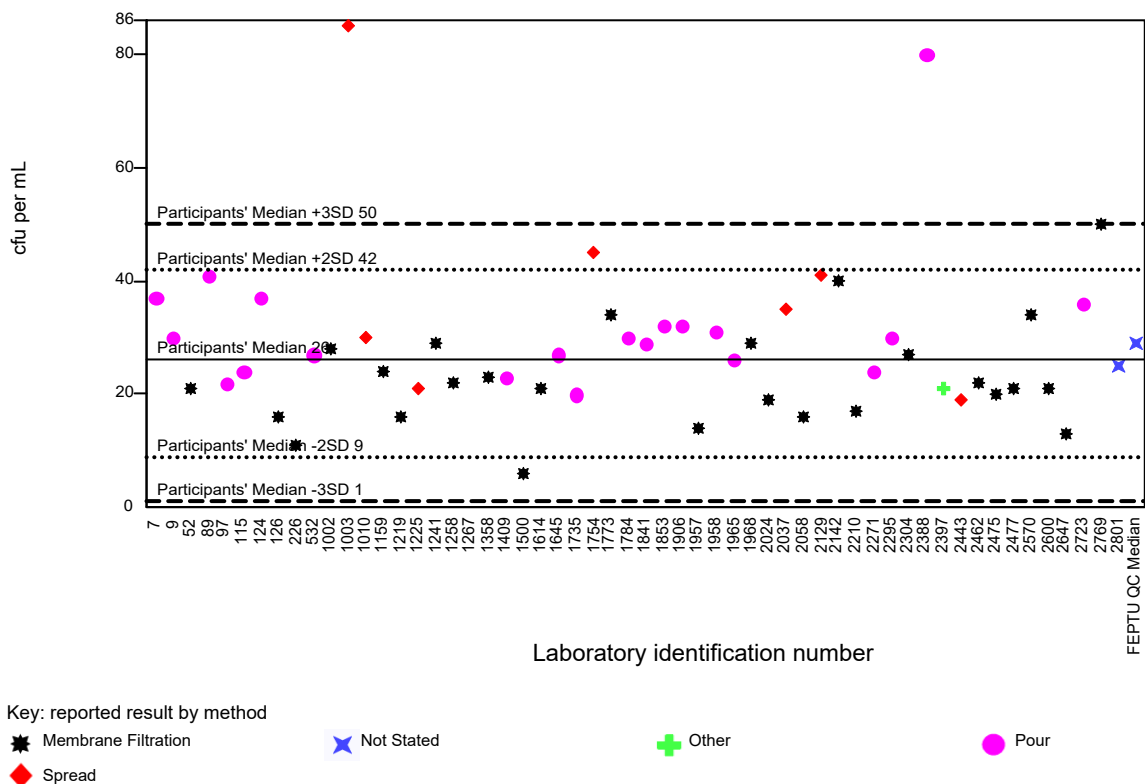
Method based presentation

DW28B : 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	26	1	47	21	0	6 - 50
Not Stated	1	1	1			
Other	1	0	1			
Pour	20	0	36	30	0	20 - 80
Spread	7	0	12			
IDEXX EasyDisc YEA	0	0	0			

DW28B - Total Viable Counts 17°C - 23°C for 7 days



Sample: DW28B

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	R2A	European pharmacopoeia 5.0	2
Membrane Filtration	R2A	ISO 23500-3:2019	8
Membrane Filtration	R2A	Other; please state	2
Membrane Filtration	R2A	UK Renal Association guideline	1
Membrane Filtration	TGEA	European pharmacopoeia 5.0	1
Membrane Filtration	TGEA	ISO 23500-3:2019	2
Membrane Filtration	TGEA	Other; please state	1
Membrane Filtration	TGEA	UK Renal Association guideline	1
Membrane Filtration	TSA	Other; please state	1
Membrane Filtration	YEA	ISO 23500-3:2019	1
Membrane Filtration	YEA	ISO 6222:1999	1
Other	Other	Other; please state	1
Pour	Other	ISO 6222:1999	1
Pour	R2A	ISO 23500-3:2019	3
Pour	R2A	ISO 23500-5:2019	2
Pour	R2A	UK Renal Association guideline	3
Pour	TGEA	European Renal Best Practice guidelines for Haemodialysis	1
Pour	TGEA	ISO 23500-3:2019	1
Pour	TGEA	ISO 23500-5:2019	1
Pour	TSA	Other; please state	1
Pour	YEA	ISO 23500-3:2019	2
Pour	YEA	ISO 6222:1999	1
Pour	YEA	Other; please state	1
Pour	YEA	Public Health England guideline	1
Pour	YEA	UK Renal Association guideline	2
Spread	R2A	European pharmacopoeia 5.0	1
Spread	R2A	Other; please state	1
Spread	TGEA	European pharmacopoeia 5.0	1
Spread	TGEA	ISO 23500-3:2019	1
Spread	TSA	UK Renal Association guideline	1
Spread	YEA	ISO 23500-3:2019	1
Spread	YEA	UK Renal Association guideline	1

Performance Assessment Sheet

Distribution	Sample	Total Viable Counts 17°C - 23°C for 7 days score
DW28	DW28A	
	DW28B	
DW27	DW27A	
	DW27B	
DW26	DW26A	
	DW26B	
Total maximum possible score		
Total percentage		

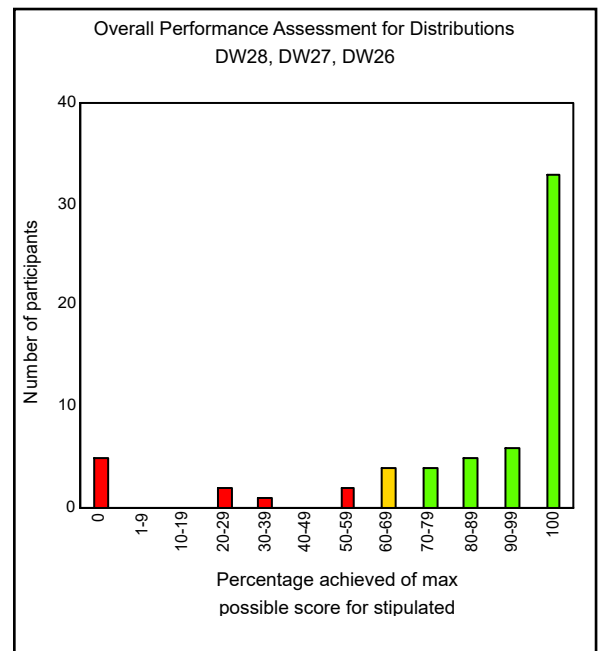
Performance Assessment Comment:

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: <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

Sample specific comment

DW28A: 37 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)
Range reported 15 - 110	Satisfactory/Acceptable (13)
Range reported 56 - 100000	Satisfactory/Triggers action level (2)
Range reported 73 - 98	Borderline (3)
Range reported 60 - 240	Unsatisfactory/Unacceptable (15)
Range reported 60 - 85	Breaches action level (3)
Count reported 40	Other (1)
Range reported 67 - 132	Not routinely reported (8)

DW28B: 38 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)
Range reported 11 - 85	Satisfactory/Acceptable (31)
Range reported 16 - 34	Unsatisfactory/Unacceptable (4)
Range reported 20 - 100000	Satisfactory/Triggers action level (2)
Count reported 50	Other (1)
Range reported 20 - 41	Not routinely reported (8)

One laboratory reported an extremely high count of 100,000 for both samples – these results have been excluded from the statistical calculations.

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 23500-3:2019 – Preparation and quality management of fluids for haemodialysis and related therapies — Part 3: Water for haemodialysis and related therapies. The Interpretation/conclusions of microbiological test results in your country may vary to those published in these documents.

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.

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. To access the missing data contact us on foodeqa@ukhsa.gov.uk.

End of report.

