

Participants' Handbook

Reproductive Science Schemes



Changes for version 20.0:

- Scheme Quality manager updated to Lesley-Anne Davies, Scheme Administrator updated to Nia Aina (page 3).
- Reminder of Participants' responsibility to review reports (page 5,7,9,11,12).
- Clarification that samples are sent out 'in advance' of the distribution. Previously stated 'on the opening day' (page 4).
- Clarification that over-mixing can cause aggregation (page 4).
- Clarification that results can be amended and resubmitted up until the deadline for the distribution (page 5).
- **Update on situation for UK participants under referral to RCPATH National Quality Assurance Advisory Panel (page 17).**
- Updated reference for RCPATH Best practice recommendations, The retention and storage of pathological records and specimens (page 19).
- Updated usual overseas post to "International Tracked" postal services (page 25)
- Statement regarding temperature stability of samples (page 27).
- Clarification that UK NEQAS does not penalise for non-return of results (page 28)
- Investigation and resolution of complaints shall not result in any discriminatory actions to be added (page 33)
- Statement on UK NEQAS completion of supplier reviews (page 34).

Changes for version 19.0:

- Interpretive Morphology performance limit reduced from 16 to 14 (page 50).
- Clarification that Hub and Spoke reports are not accredited to 17043:2023 (page 13, 17).
- Scheme accreditation (unless stated otherwise) is now to ISO 17043:2023 (page 17).
- Statement added regarding methods used by low numbers of participants. (page 32).
- Clarification that 'All progressive' motility is scored for performance, rather than 'Rapid' or 'Slow' (page 32 & 49).
- Statement added to remind participants to review and act on reports (page 29).
- Return rate satisfactory/unsatisfactory comment removed from reports.

In partnership with:



8228

Contents

Section	Page No.
Contacting the Scheme	3
How to Join the Scheme	3
Getting Started	4
Schemes provided	16
Aims	16
Organisation	16
External Oversight of our EQA Services	17
Terms and Conditions of Participation	18
Participant Objectives	20
Scheme Design	21
Schedule of Analytes	22
Materials	24
Online services	25
Operations	26
Data processing	29
Reports and Report interpretation	30
Coincidence monitoring	33
Enrolment certificates	34
Performance Problems	34
Complaints & Appeals	36
Feedback & Footnotes	37
Example reports	39
Appendix 1: The ABC Reporting system	47
Appendix 2: Performance criteria	53
Appendix 3: ARCS Embryo Morphology Grading System	54
Appendix 4: Performance in UK NEQAS Reproductive Science Schemes	57
Appendix 5: Terms and conditions of EQA participation	60
Appendix 6: FREQUENTLY ASKED QUESTIONS (FAQ)	62
Appendix 7: Embryo time-lapse annotation analyte	65
Appendix 8: Standard Distribution Letters, Andrology scheme	66
Appendix 9: Standard distribution information, Embryology scheme	70

The bee pictured on the cover was adopted by the UK NEQAS Reproductive Science scheme as its logo in March 2013. As part of harmonisation within UK NEQAS it was felt that different schemes should adopt a logo to assist participants in directing follow-up enquires to the correct centre.

The bee has for centuries been a symbol of industry and is featured on the coat of arms of the city of Manchester, UK, where the scheme is based. It has also connections to reproduction in the old English language euphemism “The birds and the bees”.

The drawing features the Australian native Blue Banded Bee, *Amegilla cingulata* and was drawn by Ebony Bennett a Natural History Illustrator, Wildlife and Landscape artist from Newcastle, NSW, Australia. We would formally like to thank Ebony for her kind permission for us to use this image as our logo.

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Contacting the Scheme:

Email: repscience@ukneqas.org.uk

Web: <https://mft.nhs.uk/saint-marys/services/gynaecology/reproductive-medicine/ukneqasreproductive-science/>

Tel No: +44 (0) 161 276 6456/6437

Participants are requested to give their Laboratory Code Number when contacting the Centre.

Email to repscience@ukneqas.org.uk is the preferred method of contact. The office is staffed between the hours of 08:30 and 16:00 Monday to Friday.

Callers will be asked the nature of their request or enquiry and transferred to the appropriate member of staff. All calls and the actions taken are logged.

UK NEQAS Reproductive Science Manchester University NHS Foundation Trust Department of Reproductive Medicine Old Saint Mary's Hospital Oxford Road Manchester. M13 9WL United Kingdom	Scheme Organiser: Deputy Scheme Organiser: Scheme Manager: Scheme Administrator Scheme Administrator Scheme Quality Manager Deputy Scheme Quality Manager Scheme H&S Adviser	Annette Lloyd Dr Anna Burdina Peter Goddard Lauren Leech Nia Aina Lesley-Anne Davies Delimar Recio Toro Peter Goddard
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How to join the Scheme:

Please visit our website or contact repscience@ukneqas.org.uk for enrolment information.

Additional equipment:

As well as the equipment you are using for routine patient work you may need to acquire the following equipment for participation in our UK NEQAS schemes:

Andrology:

- Vortex mixer
- Computer with Internet connection is required. Tablets and smartphones are not recommended.
 - Screen recommendation: ≥ 1200 pixels width, ≥ 600 pixels height, ≥ 15inch (381mm) diagonal.

Embryology:

- Computer with Internet connection is required. Tablets and smartphones are not recommended.
 - Screen recommendation: ≥ 1200 pixels width, ≥ 600 pixels height, ≥ 15inch (381mm) diagonal.

Getting Started – Semen Concentration & Morphology

Receipt: Sample packs are sent out in advance of the distribution by either post or courier (according to the participants’ requirements).



Upon receipt, note the date of receipt (you will need to enter this date with your results).
Store between 2-8°C when not in use.

Check samples on receipt to be sure that the correct samples are in the pack and there is no damage to the ampoules. **Contact repscience@ukneqas.org.uk immediately if replacement samples are required.** Scan QR code on packaging to view Distribution letter (also emailed to participants).

Processing: Samples should be processed as soon as possible after receipt using the same methods used for your patient samples (where possible). Methods used should be referenced to current recognised guidelines (for example the WHO Laboratory Manual for the Examination and Processing of Human Semen 6th edition (2021)).

Samples can settle out during transit, so it is important that they are mixed using a vortex mixer for up to a minute each before processing (do not over-mix as this can cause aggregation). If for any reason the samples are lost, delayed, damaged or unsuitable for processing, please contact us at repscience@ukneqas.org.uk and request a repeat set.

Results: Log on to the UK NEQAS results and reports service <https://results.ukneqas.org.uk/scripts/scheme-select.pl> (using your lab ID number and password).

UK NEQAS
United Kingdom National External Quality Assessment Schemes

[UK NEQAS Website](#) [Switch Lab/ID](#) [Change password](#) [Help](#)

Results and Reports :

Lab

[UK NEQAS Reproductive Science \(Manchester\) \[Homepage\]](#)

Centre Contact

Andrology - Sperm Motility	Report 128 127	Dist	Result	Latest
Andrology - Sperm Concentration & Morphology	Report 128 127	Dist	Result	Latest
Andrology - Interpretive Sperm Morphology	Report 128 127	Dist	Result	Latest

Go to the Sperm concentration & Morphology “Result” tab.
This will automatically bring you to the ‘latest’ distribution.

Select methods, enter results, and state date of receipt in the boxes provided.

Comments about the distribution can be added in the comments box at the bottom of the page. Click "Submit" (results will not be saved unless you do this). This takes you to a new page which has a summary of the results and the comment "Results submitted" you may wish to print this page out for your records. Results can be amended and resubmitted up until the deadline for the distribution.

If extended morphology assessment is not used clinically at your workplace, you are welcome to use it for training and information purposes.

Reports: Once the distribution has closed you will receive an email telling you when reports are available (usually within five working days of the close of distribution).

Log on to the UK NEQAS results and reports service <https://results.ukneqas.org.uk/scripts/scheme-select.pl> (using lab ID number and password).

For the latest distribution results click on the 'Report' tab for Semen Analysis. This will display a 'PDF' copy of the report.

For older reports amend the distribution number in the 'drop down' box.

Page 1 of the report is a summary of the results. For individual specimen results 'traffic light' icons are used to aid interpretation. Results with red icons should be reviewed. Green and yellow are satisfactory.

Running A, B & C scores analyse results over several distributions. Red scores should be investigated. Green and yellow scores are satisfactory. Trend arrows indicate whether results are improving or declining.

It is the responsibility of all participants to access and review their own reports following publication. UK NEQAS are available for assistance to access and interpret reports, but participants should follow-up any erroneous results and act accordingly.

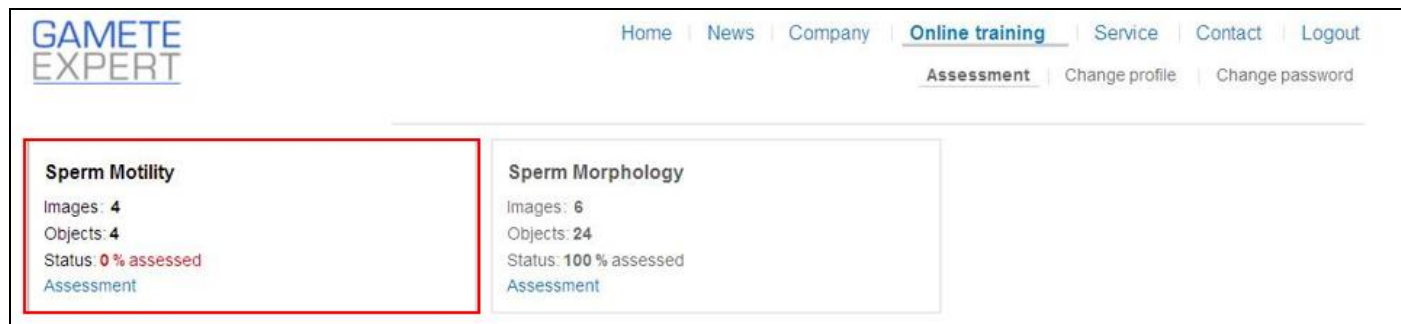
	Specimen	Result	Target	Specimen %bias	A score	B score	C score	A	B	C
Sperm concentration (millions/mL)	S505	31	36.76	-15.7 ▼	63	-1.3	22.4	●→→	●→→	●→→
	S506	24.75	24.10	+2.7 ▲						
	S507	9.95	8.97	+10.9 ▲						
	S508	29.88	36.22	-17.5 ▼						
Sperm morphology (% normal)	S505	3	3.03	-1.1 ◆	45	-20.7	18.0	●→→	●→→	●→→
	S506	2	2.53	-21.0 ◆						
	S507	2	2.84	-29.6 ◆						
	S508	2	2.96	-32.4 ◆						
Abnormal heads (%)	S505	93	92.56	+0.5 ◆	33	+3.3	1.8	●→→	●→→	●→→
	S506	98	93.91	+4.4 ◆						
	S507	98	93.49	+4.8 ◆						
	S508	97	93.77	+3.4 ◆						
Abnormal midpieces (%)	S505	28	27.35	+2.4 ◆	97	+4.6	13.8	●→	●→→	●→→
	S506	30	27.31	+9.8 ◆						
	S507	32	27.44	+16.6 ◆						
	S508	27	27.48	-1.7 ◆						
Abnormal tails (%)	S505	5	7.75	-35.5 ▼	347	-36.9	23.6	●→	●→→	●→→
	S506	6	8.64	-30.6 ▼						
	S507	7	8.32	-15.8 ▼						
	S508	4	7.82	-48.8 ▼						
Excess residual cytoplasm (%)	S505	3	3.15	-4.7 ◆	237	-5.9	32.6	●→	●→→	●→→
	S506	4	3.33	+20.1 ◆						
	S507	2	3.15	-36.6 ▼						
	S508	6	2.96	+102.7 ▲						
Teratozoospermia index (TZI (1.00 - 4.00))	S505	1.33	1.38	-3.4 ◆	23	-1.6	2.9	●→	●→→	●→→
	S506	1.41	1.38	+1.8 ◆						
	S507	1.42	1.40	+1.2 ◆						
	S508	1.37	1.38	-0.8 ◆						

- Very low
- Low
- Correct
- High
- Very high

Further information about performance criteria and interpretation of results can be found in this handbook.

Getting Started – Sperm motility.

Notification: Participants should receive an email shortly after the distribution opens from UK NEQAS and the host website (gamete-expert.com). Log onto <http://gamete-expert.com> using your username and password.



In the 'Sperm Motility' box select 'Assessment'.

Processing:

You will be asked if your lab routinely uses 4 speed classes before going to the videos.



The first video should appear and show between 6-8 fields each around 20 seconds long.

Analyse the video as you would a patient's sample.
NOTE - Results can only be entered as per WHO manual 6th edition: Rapid progressive, Slow progressive, Non-progressive and Immotile sperm.

Enter the results at the top right-hand corner of the page. Click forward and repeat on other samples. Select 'back to overview'.

To enlarge video screen press Ctrl and rotate the scroll wheel of your mouse anticlockwise. To reset, press Ctrl 0.

Once all videos have been assessed, please check that your 'Sperm Motility' box now states: 'Status: 100% assessed'. Results can be amended up until the deadline for the distribution.

Reports: Once the distribution has closed you will receive an email telling you that reports are now available (usually within five working days of the close of distribution).

Log on to the UK NEQAS results and reports service <https://results.ukneqas.org.uk/scripts/scheme-select.pl> (using lab ID number and password).

UK NEQAS
 United Kingdom National External Quality Assessment Schemes

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Results and Reports :

Lab

UK NEQAS Reproductive Science (Manchester) [Homepage]

Centre Contact

Andrology - Sperm Motility **Report** 128 127 Dist Result Latest

Andrology - Sperm Concentration & Morphology Report 128 127 Dist Result Latest

Andrology - Interpretive Sperm Morphology Report 128 127 Dist Result Latest

For the latest distribution results click on the 'Report' tab for Sperm motility. This will display a 'pdf' copy of the report.

For older reports amend the distribution number in the 'drop down' box.

Page 1 of the report is a summary of the results. For individual specimen results 'traffic light' icons are used to aid interpretation. Results with red icons should be reviewed. Green and yellow are satisfactory.

Running A, B & C scores analyse results over four distributions. Red scores should be investigated, green and yellow scores are satisfactory. Trend arrows indicate whether results are improving or declining.

	Specimen	Result	Target	Specimen %bias	A score	B score	C score	A	B	C
Rapid (%)	MO485	41	28.70	+42.9 ▲	74	+16.5	26.9	● ↔	● ↔	● ↔
	MO486	39	31.95	+22.1 ▲						
	MO487	42	41.33	+1.6 ◆						
	MO488	11	7.83	+40.5 ▲						
Slow (%)	MO485	3	13.68	-78.1 ▼	108	-49.8	30.7	● ↘	● ↘	
	MO486	3	11.35	-73.6 ▼						
	MO487	2	7.85	-74.5 ▼						
	MO488	5	7.65	-34.7 ▼						
Non Progressive (%)	MO485	4	5.01	-20.1 ◆	65	-11.0	34.6	● ↔	● ↔	
	MO486	7	5.54	+26.3 ◆						
	MO487	6	3.67	+63.5 ▲						
	MO488	3	3.59	-16.5 ◆						
Immotile (%)	MO485	52	51.94	+0.1 ◆	56	+3.7	8.1	● ↔	● ↔	● ↔
	MO486	51	50.61	+0.8 ◆						
	MO487	50	46.63	+7.2 ◆						
	MO488	81	80.38	+0.8 ◆						
All Progressive Motility (%)	MO485	44	42.56	+3.4 ◆	61	-1.9	9.1	● ↔	● ↔	● ↔
	MO486	42	43.30	-3.0 ◆						
	MO487	44	49.49	-11.1 ▼						
	MO488	16	15.71	+1.8 ◆						

▼ Very low
 ▼ Low
 ◆ Correct
 ▲ High
 ▲ Very high

Further information about performance criteria and interpretation of results can be found in this handbook.

It is the responsibility of all participants to access and review their own reports following publication. UK NEQAS are available for assistance to access and interpret reports, but participants should follow-up any erroneous results and act accordingly.

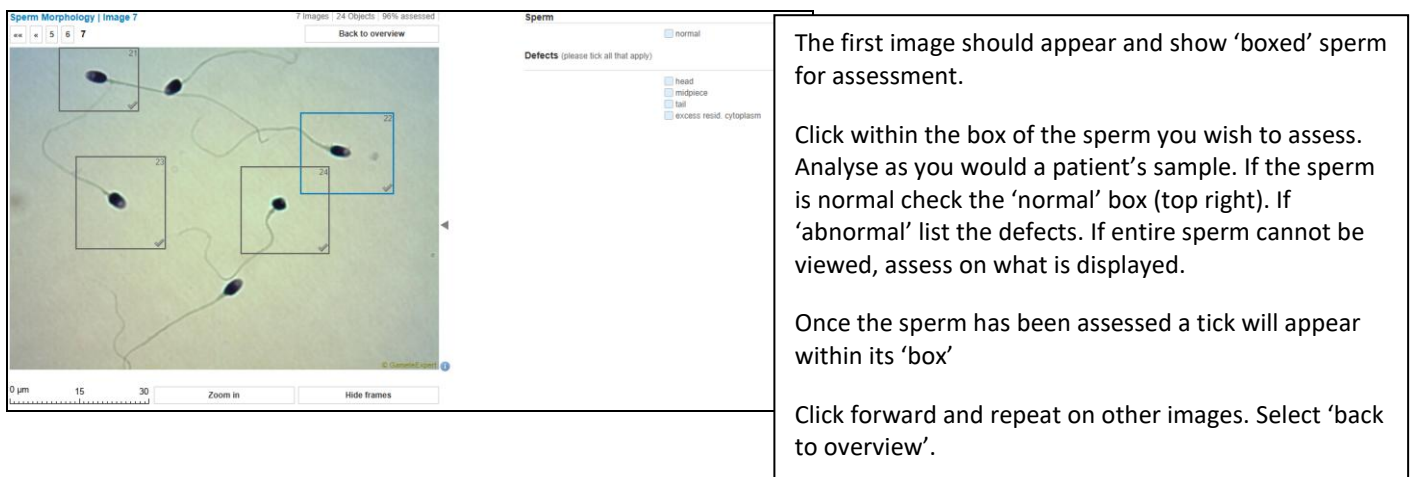
Getting Started – Interpretive morphology.

Notification: Participants should receive an email shortly after the distribution opens from UK NEQAS and the host website (gamete-expert.com). Log onto <http://gamete-expert.com> using your username and password



In the 'Sperm Morphology' box select 'Assessment'.

Processing:



Microscope function: The triangle on the right image side shows the focus position. When on the top, the sperm head is in focus. In the bottom position the tail is focused. The focus position is altered using the mouse wheel.

Once all sperm have been assessed, please check that your 'Sperm Morphology' box now states: 'Status: 100% assessed'. Results can be amended up until the deadline for the distribution.

Reports: Once the distribution has closed you will receive an email telling you that reports are now available (usually within five working days of the close of distribution).

Log on to the UK NEQAS results and reports service <https://results.ukneqas.org.uk/scripts/scheme-select.pl> (using lab ID number and password).

Results and Reports :

Lab

[UK NEQAS Reproductive Science \(Manchester\) \[Homepage\]](#)

Centre | Contact

- Andrology - Sperm Motility
- Andrology - Sperm Concentration & Morphology
- Andrology - Interpretive Sperm Morphology

Report	128 127	Dist	Result	Latest
Report	128 127	Dist	Result	Latest
Report	128 127	Dist	Result	Latest

For the latest distribution results click on the 'Report' tab for Interpretive Morphology. This will display a PDF copy of the report.

For older reports amend the distribution number in the 'drop down box'

Page 1 of the report summarises the results and any penalty points gained:

	Andrology - Interpretive Sperm Morphology		Laboratory : 14602		
	Distribution : 128	Date : 02-Mar-2026	Page 2 of 5		
	Distribution Summary				
<p>Proficiency testing materials: Images of Papanicolaou stained spermatozoa.</p> <p>The Performance traffic light is calculated over a four distribution time window.</p> <p>Images with consensus of less than 60% are unclassified and therefore a target will not be listed.</p> <p>The current penalty limit for Interpretive Morphology is 14 points.</p>					
	Specimen	Result	Target	Penalty	Performance
Sperm classification	Image 1-1	A	A	0	15 ● ↔
	Image 1-2	A	A	0	
	Image 1-3	N		0	
	Image 1-4	A	A	0	
	Image 1-5	A	A	0	
	Image 1-6	A	A	0	
	Image 2-7	N	A	1	
	Image 2-8	A	A	0	
	Image 2-9	A	A	0	
	Image 3-10	A	A	0	
	Image 3-11	N		0	
	Image 3-12	A	A	0	
	Image 4-13	A	A	0	
	Image 4-14	A	A	0	
	Image 4-15	A	A	0	
	Image 4-16	A	A	0	
	Image 5-17	N	N	0	
	Image 5-18	N	A	1	
	Image 5-19	A	A	0	
	Image 6-20	A	A	0	
	Image 6-21	A	A	0	
	Image 6-22	N	A	1	
	Image 6-23	A	A	0	
	Image 7-24	N	A	1	

The Performance traffic light is calculated over a four-distribution time window.

- ◆ Agree with UK NEQAS consensus
- ▼ Disagree with UK NEQAS consensus, 1 penalty point

Page 2&3 of the report analyses the results you submitted against other participants:

In this image your result agreed with the consensus (>60%) and so no penalty was given.

<p>Specimen : Image 1-6</p> <p>Pool : 13</p> <p>Total Normals : 3</p> <p>Total Abnormals : 219</p> <p>This was classed as [A - Abnormal]</p> <p>Your penalty 0 ◆</p> <p>Defect counts :-</p> <p>Residual excess cytoplasm : 0</p> <p>Head defects : 205</p> <p>Mid piece defects : 146</p> <p>Tail defects : 10</p>	<p>Specimen : Image 2-7</p> <p>Pool : 214</p> <p>Total Normals : 21</p> <p>Total Abnormals : 201</p> <p>This was classed as [A - Abnormal]</p> <p>Your penalty 1 ▼</p> <p>Defect counts :-</p> <p>Residual excess cytoplasm : 2</p> <p>Head defects : 185</p> <p>Mid piece defects : 78</p> <p>Tail defects : 4</p>
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In this image your result disagreed with the consensus and so a one point penalty was given.

Further information about performance criteria and interpretation of results can be found in this handbook.

It is the responsibility of all participants to access and review their own reports following publication. UK NEQAS are available for assistance to access and interpret reports, but participants should follow-up any erroneous results and act accordingly.

Getting Started – Embryo morphology

Notification: Participants should receive an email shortly after the distribution opens from UK NEQAS and the host website (gamete-expert.com). Log onto <http://gamete-expert.com> using your username and password.

The screenshot shows the GAMETE EXPERT website interface. At the top, there is a navigation bar with links for Home, News, Company, Online training, Service, Contact, and Logout. Below this, there are several assessment boxes arranged in a grid. The boxes are: Sperm Motility (0% assessed), Sperm Morphology (100% assessed), Embryos Patient 1 (100% assessed), Embryos Patient 2 (100% assessed), Embryos Patient 3 (100% assessed), Embryos Patient 4 (100% assessed), and Embryos Patient 4_TL (100% assessed). The 'Embryos Patient 1', 'Embryos Patient 2', 'Embryos Patient 3', and 'Embryos Patient 4' boxes are highlighted with red rectangles, indicating they need assessment.

Select 'Assessment' in the 'Embryo Patient' box that needs assessing.

Processing:

The screenshot shows the video player interface for an embryo assessment. The video shows a 'rolling' embryo. The interface includes a video player with a 'Forward' button and a 'Blastomere' analysis panel on the right. The 'Blastomere' panel has a 'Count' field and checkboxes for 'Size difference' and 'Fragmentation' with various grade options.

The first video should appear and show a 'rolling' embryo lasting around 40-50 seconds.

Analyse the video as you would a patient's sample. **NOTE - Results can only be entered using the ARCS Embryo Grading System – click on the 'i' for information or see Appendix 3.**

Enter the results at the top right-hand corner of the page. Click forward and repeat on other samples.

Select 'back to overview' and repeat on another 'Embryo Patient'.

To enlarge video screen press 'Ctrl' and rotate the scroll wheel of your mouse anticlockwise. To reset, press Ctrl 0.

To use the slider backwards and forwards: Please start the video. Go on the slider (while running video). Click left mouse button and keep it down (do not click back). The video stops. Move the slider with the down clicked mouse button. After release of the left mouse button the video starts again.

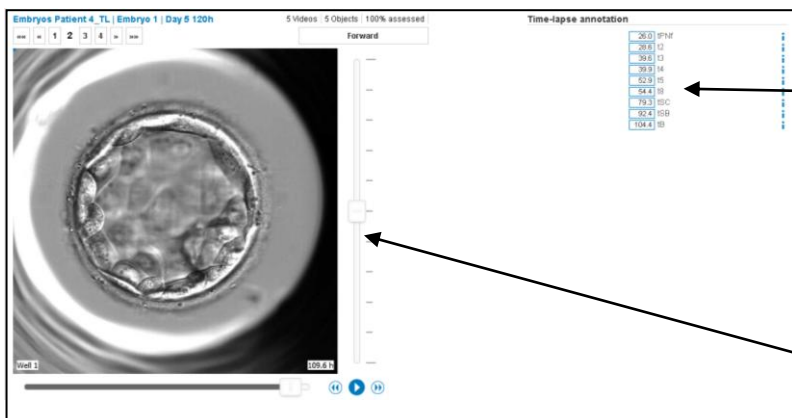
For the time-lapse annotation analyte with Patient 4 – please see appendix 7 for instructions.



Patient 4 Time-lapse:
Please mark box to state whether you routinely use or don't use Time-lapse annotations in your clinical setting.

Embryo should be annotated as you would in a clinical setting. If portion of embryo cannot be viewed, assess on what is displayed.

If not used clinically you are welcome to use it for training and information purposes.



Enter Time-lapse annotations time point to 1 decimal place for each of the time points listed from tPNf to tB.

Use the blue information button for further information.

Complete for all 4 videos

Ability to move up and down through the planes throughout the video.

Please check that each of your 'Embryo Patient' boxes now state: 'Status: 100% assessed'.

Results can be amended up until the deadline for the distribution.

Reports: Once the distribution has closed you will receive an email telling you that reports are now available (usually within five working days of the close of distribution).

Log on to the UK NEQAS results and reports service <https://results.ukneqas.org.uk/scripts/scheme-select.pl> (using lab ID number and password).

It is the responsibility of all participants to access and review their own reports following publication. UK NEQAS are available for assistance to access and interpret reports, but participants should follow-up any erroneous results and act accordingly.

Results and Reports :

[UK NEQAS Reproductive Science \(Manchester\) \[Homepage\]](#)

Centre Contact

Embryology - Embryo Morphology **Report** 128 127 Dist Result Latest

For the latest distribution results click on the 'Report' tab for Embryology. This will display a 'pdf' copy of the report.

For older reports amend the distribution number in the 'drop down box'

Page 1 of the report is a summary of the results

UK NEQAS
Reproductive Science

Embryology - Embryo Morphology Laboratory :
Distribution : 128 Date : 02-Mar-2026 Page 2 of 21
Distribution Summary

Distribution summary
Proficiency testing materials: video clips of embryos.
Embryo morphology targets are consensus derived. Time lapse annotation targets are derived from an All Laboratory Trimmed Mean (ALTM).
For further details on the design, operation and statistical analysis of this scheme, please see the Participants' Handbook.

Summary of results

	P1 emb1	P1 emb2	P1 emb3	P1 emb4	P2 emb1	P2 emb2	P2 emb3	P2 emb4	P3 emb1	P3 emb2	P3 emb3	P3 emb4	P4 emb1	P4 emb2	P4 emb3	P4 emb4
Blastomere count	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Size difference	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fragmentation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Expansion status	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Inner cell mass	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trophectoderm	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

▼ Very low
▼ Low
✓ Correct
▲ High
▲ Very high
□ Not scored
□ n/a

P1 emb1 - Embryo 1 Day 2 48h
 P1 emb2 - Embryo 2 Day 2 48h
 P1 emb3 - Embryo 3 Day 2 48h
 P1 emb4 - Embryo 4 Day 2 48h
 P2 emb1 - Embryo 1 Day 3 72h
 P2 emb2 - Embryo 2 Day 3 72h
 P2 emb3 - Embryo 3 Day 3 72h
 P2 emb4 - Embryo 4 Day 3 72h
 P3 emb1 - Embryo 1 Day 5 120h
 P3 emb2 - Embryo 2 Day 5 120h
 P3 emb3 - Embryo 3 Day 5 120h
 P3 emb4 - Embryo 4 Day 5 120h
 P4 emb1 - Embryo 1 Day 5 120h
 P4 emb2 - Embryo 2 Day 5 120h
 P4 emb3 - Embryo 3 Day 5 120h
 P4 emb4 - Embryo 4 Day 5 120h

Recent Performance

This time : Latest trend :

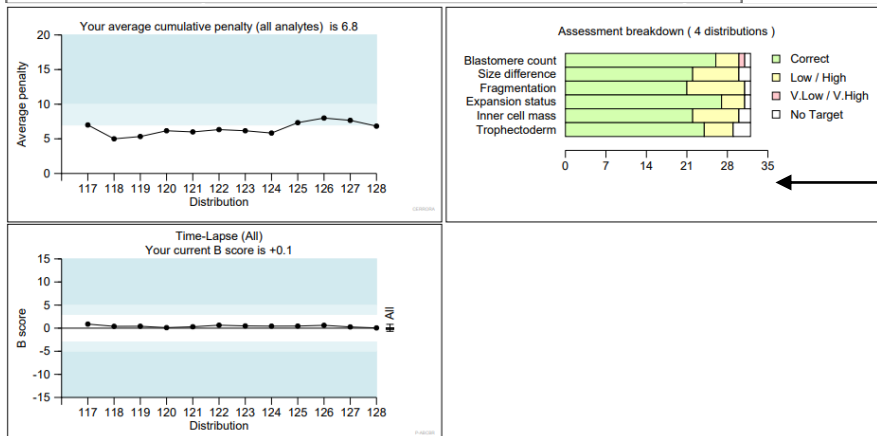
Blastomere count	0	0	0	0	0	Good and remains consistent	Good	OK	Poor
Size difference	0	2	6	0	0	OK, but has not improved	Good	OK	Poor
Fragmentation	0	1	7	0	0	Poor and has not improved	Good	OK	Poor
Expansion status	0	1	6	0	0	Good and remains consistent	Good	OK	Poor
Inner cell mass	0	1	6	0	0	OK, but has not improved	Good	OK	Poor
Trophectoderm	0	0	6	0	0	Good and remains consistent	Good	OK	Poor
Time-Lapse (All)	0	0	0	0	0	Good and remains consistent	Good	OK	Poor

Overall Performance
Analytically you are Good or OK for 9 analyte(s), you are Poor for 1 analyte(s).
You have returned results for 4 out of the last 4 Distributions.

Further information about performance criteria and interpretation of results can be found in this handbook. Quality parameters are excluded from this summary as they are not used to assess performance, but are used for the 'hub and spoke' reports (to compare inter-laboratory variation)

Count of each type of symbol for the current distribution (not the penalties)

Rolling penalties.



Green = no penalties (or match with target value).
Amber = one penalty/one step away from target value.
Red = 2 penalties for 2 or more steps away from the target value.
White = results with no consensus (not scored).

Only embryo grading parameters and time lapse 'B' score are used to assess satisfactory performance (quality parameters are **excluded** from this graph). A rolling average of penalties (over 4 distributions) is used.

It is the responsibility of all participants to access and review their own reports following publication. UK NEQAS are available for assistance to access and interpret reports, but participants should follow-up any erroneous results and act accordingly.

Getting Started – Embryo Morphology: Hub and Spoke reports

You can also see all the individual login returns made by your staff on one report. This should assist with your Internal Quality Control (IQC). **This report does not represent a proficiency testing report from UK NEQAS Reproductive Science, and it is not accredited to ISO 17043:2023 standards.**

Go to <https://results.ukneqas.org.uk>.

Enter Hub Number (HB####) as username and password. (*Please note HB#### where ‘#’ is a single digit.*) If you do not have these details, contact repscience@ukneqas.org.uk.

Results and Reports

HB

UK NEQAS Manchester [Homepage]

Centre Contact

UK NEQAS for Embryology (Hubs) Report Dist Network Latest

Click on the “Report” button to view the Hub report for the selected distribution (default latest).

Click on the Network button to access Spoke information (see below).

Each spoke will be listed with its SPnnnnnn number and any mnemonic (for example users’ initials)
The Hub coordinator can view the reports for individual spokes.

Results and Reports

HB

Scheme

Dist

<input type="text" value="SP0001"/> AB	<input type="text" value="Report"/>	<input type="text" value="Result"/>
<input type="text" value="SP 0002"/> CD	<input type="text" value="Report"/>	<input type="text" value="Result"/>
<input type="text" value="SP_0003"/> EF	<input type="text" value="Report"/>	<input type="text" value="Result"/>
<input type="text" value="SP 0004"/> GH	<input type="text" value="Report"/>	<input type="text" value="Result"/>
<input type="text" value="SP 0005"/> JK	<input type="text" value="Report"/>	<input type="text" value="Result"/>
<input type="text" value="SP 0006"/> LM	<input type="text" value="Report"/>	<input type="text" value="Result"/>

Where applicable, spoke results can be viewed/edited, otherwise this option is greyed out.

Access to spoke reports by individuals is available on request from repscience@ukneqas.org.uk.

Reports:

Key to code shapes:

- ◆ Green diamond - match with UK NEQAS consensus
- ▼ Yellow triangle - one step up or down away from UK NEQAS consensus
- ▲ Red triangles - two or more steps up or down from UK NEQAS consensus
- No symbol - no UK NEQAS consensus

Specimen	UKNEQAS Consensus	SIP200379 Result	SIP200537 Result	SIP200561 Result	SIP200549 Result	SIP200746 Result	SIP200790 Result	SIP200839 Result	SIP200949 Result	SIP200941 Result
Blastomere count										
P1-1	4	3 ▼	3 ▼	3 ▼	4 ◆				3 ▼	3 ▼
P1-2	5	5 ◆	5 ◆	5 ◆	5 ◆				5 ◆	5 ◆
P1-3	4	4 ◆	4 ◆	4 ◆	4 ◆				4 ◆	4 ◆
P1-4	4	4 ◆	4 ◆	4 ◆	4 ◆				4 ◆	4 ◆
P2-1	7	7 ◆	7 ◆	7 ◆	7 ◆				8 ▲	8 ▲
P2-2	12	12 ◆	12 ◆	10 ▼	11 ▼				11 ▼	12 ◆
P2-3	6	6 ◆	6 ◆	6 ◆	6 ◆				6 ◆	6 ◆
P2-4	7	6 ▼	7 ◆	6 ▼	7 ◆				7 ◆	7 ◆
Size difference (blastomere evenness)										
P1-1		3	3	3	2				3	3
P1-2		3	3	3	3				3	3
P1-3	3	3 ▼	3 ▼	3 ◆	3 ◆				3 ◆	3 ◆
P1-4	3	3	3	3	3				3 ◆	3 ◆
P2-1	3	2 ▼	2 ▼	3 ◆	3 ◆				3 ◆	3 ◆
P2-2	3	3 ◆	3 ◆	4 ▲	3 ◆				3 ◆	3 ◆
P2-3	3	2 ▼	2 ▼	4 ▲	3 ◆				3 ◆	3 ◆
P2-4	2	2 ▼	3 ◆	4 ▲	3 ◆				3 ◆	3 ◆
Fragmentation										
P1-1	4	3 ▼	3 ▼	3 ▼	4 ◆				3 ▼	3 ▼
P1-2	4	4 ◆	4 ◆	4 ◆	4 ◆				4 ◆	4 ◆
P1-3	3	3 ◆	4 ▲	4 ▲	3 ◆				4 ▲	4 ▲
P1-4	4	4 ◆	3 ▼	3 ▼	3 ▼				3 ▼	3 ▼
P2-1	3	3	2 ▼	3 ◆	3 ◆				3 ◆	3 ◆
P2-2	4	4 ◆	4 ◆	4 ◆	4 ◆				4 ◆	4 ◆
P2-3	4	4 ◆	4 ◆	4 ◆	4 ◆				4 ◆	4 ◆
P2-4	2	2 ◆	2 ◆	2 ◆	2 ◆				2 ◆	2 ◆
Expansion status										
P3-1	5	5 ◆	5 ◆	5 ◆	5 ◆				5 ◆	5 ◆
P3-2	5	5 ◆	5 ◆	5 ◆	5 ◆				4 ▼	5 ◆
P3-3	5	5 ◆	5 ◆	5 ◆	5 ◆				5 ◆	5 ◆
P3-4	5	5 ◆	5 ◆	5 ◆	5 ◆				5 ◆	5 ◆
P4-1	4	4 ◆	4 ◆	4 ◆	4 ◆				4 ◆	4 ◆
P4-2	4	4 ◆	4 ◆	4 ◆	4 ◆				3 ▼	4 ◆
Inner cell mass										
P3-1	5	4 ▼	5 ◆	5 ◆	5 ◆				4 ▼	5 ◆
P3-2	5	5 ◆	5 ◆	5 ◆	2 ▼				5 ◆	4 ◆
P3-3	3	3 ◆	3 ◆	3 ◆	1 ▼				3 ◆	3 ◆
P3-4	4	3 ▼	4 ◆	4 ◆	3 ▼				4 ◆	4 ◆
P4-1	2	2	2	3	2				2	2
P4-2	4	4 ◆	4 ◆	4 ◆	4 ◆				4 ◆	4 ◆
Trophectoderm										
P3-1	3	2 ▼	2 ▼	3 ◆	2 ▼				2 ▼	3 ◆
P3-2	3	2 ▼	2 ▼	2 ▼	1 ▼				2 ▼	2 ▼
P3-3	2	1 ▼	1 ▼	2 ◆	1 ▼				2 ◆	2 ◆
P3-4	2	1 ▼	2 ◆	2 ◆	2 ◆				2 ◆	2 ◆
P4-1	2	1 ▼	2 ◆	2 ◆	2 ◆				2 ◆	2 ◆
P4-2	2	1 ▼	2 ◆	2 ◆	2 ◆				2 ◆	2 ◆

Spokes are individual licence/login holders and will be identified by initials or a unique spoke number.

The report allows comparison between embryologists within your laboratory for IQC purposes.

These 3 people (spokes) did not submit results.

▼	Very low
▼	Low
◆	Correct
▲	High
▲	Very high

Continued on next page.

The quality categories below are very useful for comparisons between the embryologists in your laboratory.

Key to code shapes:

- ◆ Green diamond - match with UK NEQAS consensus
- ▼ Yellow triangle - one step up or down away from UK NEQAS consensus
- ▲ Red triangles - two or more steps up or down from UK NEQAS consensus
- No symbol - no UK NEQAS consensus

	Specimen	UKNEQAS Consensus	SP200379 Result	SP200637 Result	SP200661 Result	SP200649 Result	SP200746 Result	SP200790 Result	SP200939 Result	SP200940 Result	SP200941 Result	
Quality (suitability for cryostorage)	P1-1	N	Y	Y	N	N				Y	Y	
	P1-2	Y	Y	Y	Y	Y				N	Y	
	P1-3	Y	N	N	N	Y				Y	Y	
	P1-4	Y	Y	Y	Y	Y				Y	Y	
	P2-1	Y	N	N	N	Y				Y	Y	
	P2-2	Y	Y	Y	Y	Y				N	N	
	P2-3	Y	N	N	N	Y				N	Y	
	P2-4	N	N	N	N	N				N	N	
	P3-1	Y	Y	Y	Y	Y				Y	Y	
	P3-2	Y	Y	Y	Y	Y				Y	Y	
	P3-3	N	N	N	N	N				N	N	
	P3-4	Y	N	Y	Y	Y				Y	Y	
	P4-1	Y	N	N	N	N				N	N	
	P4-2	Y	N	Y	Y	Y				Y	Y	
	Quality category	P1-1	3	2	2	3	4				3	2
		P1-2	2	1	3	1	2				2	2
P1-3		2	3	2	2	3				2	2	
P1-4			2	2	2	2				2	2	
P2-1			3	3	2	2				3	2	
P2-2			1	2	2	4				4	2	
P2-3		2	3	3	1	2				3	3	
P2-4		4	5	4	4	4				3	3	
P3-1		1	2	1	1	2				2	1	
P3-2			1	2	1	4				2	2	
P3-3			3	4	3	4				4	3	
P3-4			4	3	2	3				2	2	
P4-1			5	4	3	4				5	3	
P4-2		2	3	2	1	2				3	2	
Quality ranking		P1-1	4	3	3	4	4				4	4
		P1-2		1	4	1	1				3	1
	P1-3		4	2	2	2				1	2	
	P1-4		2	1	3	3				2	3	
	P2-1		2	3	2	4				1	1	
	P2-2		1	1	3	1				4	2	
	P2-3		3	2	1	2				4	4	
	P2-4	4	4	4	4	4				3	3	
	P3-1	1	2	1	1	1				2	1	
	P3-2	2	1	2	2	3				1	2	
	P3-3	4	3	4	4	4				4	4	
	P3-4	3	4	3	3	2				3	3	
	P4-1	2	2	2	2	2				2	2	
	P4-2	1	2	1	1	1				1	1	

Suitability for cryostorage:
Are your embryologists adhering to your clinic's cryostorage policy?

Quality category:
How do your embryologists define top quality or poor-quality embryos?

Quality ranking:
Would your embryologists choose the same embryo for transfer?

Schemes provided

SCHEMES:	Andrology (Semen Analysis)	Embryology
ANALYTES:	Sperm Concentration (practical)	Embryo Morphology (online)
	Sperm Morphology (practical)	Time lapse annotation (online)
	Sperm Motility (online)	
	Interpretive Sperm Morphology (online)	

Aims

The UK NEQAS Reproductive Science Scheme aims to:

- Provide professionally led and scientifically based schemes with a primarily educational objective.
- Provide regular distributions of appropriate specimens.
- Provide rapid feedback of performance, with reports that are comprehensive and readily understood.
- Provide data on method performance.

Organisation

UK NEQAS Reproductive Science is part of Manchester University NHS Foundation Trust. It is administered as a self-financing unit within Saint Mary's Managed Clinical Service (part of the Specialist Hospitals Clinical Group) of the Trust.

UK NEQAS Reproductive Science is a member of the UK NEQAS consortium.

Some aspects of our services may be subcontracted; where this occurs, competent subcontractors are used, and UK NEQAS Reproductive Science remains responsible for their activities. Scheme design, performance evaluation and report authorisation are never subcontracted.

Changes to the scheme

Changes to Scheme Design or function would be announced, in advance, at the Participants' Meeting (if possible), emailed to current participants and then implemented for the new scheme year (April) into the Participants' Handbook and summarised in the 'changes for this version' box on page 1 of this document. If the change needed to occur during a scheme year (April – March) the same process will occur but without announcement at the Participants' Meeting.

Deviations from Contract

The scheme will inform participants (generally by email), subcontractors and suppliers of any deviation in their contract with UK NEQAS Reproductive Science. This would include any error or non-conformance that would affect the participants. This may be raised both internally and because of, subcontractor work.

External Oversight of our EQA Services

Accreditation to ISO/IEC 17043:2023

UK NEQAS Reproductive Science is accredited by UKAS against the requirements of ISO/IEC 17043:2023 – Conformity Assessment – General requirements for proficiency testing. The scope of accreditation can be viewed on the UKAS website: [Scope of Accreditation](#). UKAS number for UK NEQAS Reproductive Science is 8228.

The Hub and Spoke reports are for information purposes and are not accredited to ISO17043:2023.

Gamete Expert reports do not represent a proficiency testing report from UK NEQAS Reproductive Science and are not accredited to ISO17043:2023.

UK NEQAS Consortium

We have close ties with other UK NEQAS operations through the UK NEQAS Consortium. All UK NEQAS-designated services comply fully with the UK NEQAS Code of Practice (available from UK NEQAS).

Steering Committee

All EQA providers are required to seek advice from and report to Steering Committees and/or Specialist Advisory Groups. The Reproductive Science scheme of UK NEQAS is presently served by a Reproductive Science Steering Committee (RSSC) with representatives from both the field of Andrology and Embryology that advises on overall policy matters and provides external scientific advice.

RCPATH National Quality Assurance Advisory Panel

UK NEQAS Reproductive Science reports to the Royal College of Pathologists' National Quality Assurance Advisory Panel (NQAAP) for Reproductive Science for UK labs only. This body was paused by RCPATH from 01/01/2026 and this information was disseminated to UK based participants. We are currently in negotiations with RCPATH for the re-starting of the NQAAP and also with UK NEQAS with a view to replacing it with a similar body if the RCPATH does not restart the NQAAPs. In the short term, persistent unsatisfactory performance by UK participants, can be escalated to bodies such as HFEA and UKAS. Until the situation is resolved, references to the NQAAP and its escalation body, RCPATH Quality Assurance in Pathology Committee, remain in this document.

Escalation process for performance issues

In light of the current suspension of NQAAPs, the group reviewing the escalation process agreed to mitigate risk by producing some statements to highlight the responsibility of Heads of Department with regards to EQA performance issues:

The quality of laboratory testing is the responsibility of the Laboratory Director/Head of Department, who should be informed of any EQA incidents of persistent poor performance.

Ethics

Manchester University NHS Foundation Trust has an active Clinical Ethics Committee who can advise the scheme on ethical issues that may be encountered during the running of the scheme.

Other Links

We have close links (formal & informal) with UK professional groups and EQA providers in other sectors.

Terms and Conditions of Participation

Eligibility - Our services are designed principally for UK public and private sector clinical laboratories serving clinicians and patients. Non-UK clinical laboratories, those with purely research or industrial roles, manufacturers of diagnostic instruments and reagents and other laboratories are also welcome to participate. Manufacturers may do so on an 'information only' basis (without receiving samples and returning results).

Participation of non-UK laboratories in the Andrology scheme may be subject to the availability of a suitable specimen postal transport system.

Andrology scheme – The latest recommended World Health Organisation (WHO) guidelines for processing semen. WHO laboratory manual for the examination and processing of human semen (6th edition), can be found here: <https://www.who.int/publications/i/item/9789240030787>

Embryology scheme – This scheme uses a standardised grading system developed by the Association of Clinical Embryologists (ACE) in association with UK NEQAS Reproductive Science. This grading system has been endorsed in the UK by the National Institute for Health and Care Excellence (NICE) and ratified by the Association of Clinical Reproductive Scientists (ARCS) in 2020 (see Appendix 3).

All UK clinical service laboratories must agree to current **Quality Assurance Pathology Committee** (previously known as Joint Working Group (JWG)) conditions of participation (click <https://www.rcpath.org/profession/committees/jwgga.html> to view terms and conditions). As of 01/01/2026 this body is paused and under review along with the RCPATH NQAAP. See page 17.

Period - Participation in all UK NEQAS Reproductive Science Schemes is deemed to be continuous with automatic annual renewal and invoicing for subscription fees for each NHS financial year (1st April to 31st March), unless we are advised to the contrary in writing in advance of annual renewal. Participation may begin at any time during the year; part-year charges are higher than *pro rata*.

Enrolment procedure - Participation begins at the first distribution following receipt of fully completed enrolment questionnaires sent in response to a formal request to participate. As indicated above, enrolment may take place at any time.

The following enrolment documents can be downloaded at the scheme website: <https://mft.nhs.uk/saint-marys/services/gynaecology/reproductive-medicine/ukneqasreproductive-science/> :-

- UK NEQAS Reproductive Science Participants' handbook.
- UK NEQAS Reproductive Science Privacy Policy.
- UK NEQAS Reproductive Science Terms and conditions of Participation.
- UK NEQAS Reproductive Science Scheme Leaflet (includes distribution schedules).

Annual re-registration – Re-registration notification is sent out to participants early in each new calendar year. This should be done via the <https://results.ukneqas.org.uk> website.

UK NEQAS laboratory identifier code - On enrolment, each participant is given a unique laboratory code (now shared across all UK NEQAS centres), which remains associated with that participant indefinitely. Reattribution

of codes and data can be accomplished where laboratories close, merge or de-merge. Participant codes must not be disclosed to third parties.

Please quote your laboratory code number in all communications.

Charges - Annual subscription charges are based on the full actual costs of providing EQA services according to the not-for-profit terms of the UK NEQAS Code of Practice. As such they are subject to continuous review and may be reduced as participation increases or if surpluses are generated.

Equally, prices may be increased if costs rise or if participation decreases, though any such increase must be justified to the UK NEQAS Executive Committee before they can be implemented. Current charges are available by emailing repscience@ukneqas.org.uk.

Refunds - Refunds of subscription charges are only payable under exceptional circumstances.

Confidentiality - The fact of participation, raw data and performance scores are currently confidential between the individual laboratory and Reproductive Science scheme, unless the participant waives confidentiality. For online aspects of the schemes, the fact of participation, raw data and performance scores are currently confidential between the individual laboratory, UK NEQAS Reproductive Science scheme and Gamete-Expert (as a subcontractor of the scheme). Input of results via the Gamete-Expert.com website presumes understanding of this by the participants.

All information provided by a participant to UK NEQAS Reproductive Science shall be treated as confidential.

When an interested party requires the proficiency testing results to be directly provided by UK NEQAS Reproductive Science, the participants shall be made aware of the arrangement in advance of participation.

In exceptional circumstances, when a regulatory authority requires UK NEQAS Reproductive Science results to be directly provided by UK NEQAS Reproductive Science, the affected participants shall be notified of this action in writing.

Performance scores (and some raw data) may be shared with the relevant NQAAP under defined circumstances as part of the routine reporting of persistent unsatisfactory performance. This data may be shared with local management, regional QA officers, accrediting bodies and suppliers of equipment and reagents where appropriate and necessary, but the participant shall be informed. UK NEQAS Reproductive science reports are copyright and may not be copied, distributed, published, or used for publicity and promotion in any form without the written consent of the relevant scheme Organiser on each and every occasion, though performance data may be shared with individual clients (for example GPs, clinicians, pharmaceutical companies) without consultation.

Use of residual material - The materials distributed are provided as specimens for the sole purpose of enabling external quality assessment at the recipient's laboratory during the current distribution. They do not constitute In Vitro medical diagnostic Devices (IVDs) and EQA specimens are explicitly excluded from the scope of the IVD Directive. No claim is made that they may be suitable for any other purpose or at any other point in time. Resale or distribution to third parties is strictly prohibited. It is accepted, however, that residual material

may be retained by the participant and used for method evaluation, although it is recommended that fresh samples are obtained from us (see below) for this purpose. If materials are to be used in research which is expected to be published or, if participation forms part of contractual agreements with third parties, written consent must be obtained from the Scheme Organiser on each, and every occasion.

Samples are obtained under RCPATH Best Practice recommendations, The Retention and Storage of Pathological Records and Specimens (Version 6, October 2025, page 19) from semen analysis patients. Additional consent is gained from patients/donors in the form of a signed consent.

Repeat samples - Single samples or sets from a particular distribution are usually freely available at no charge to full participants who may wish to review unsatisfactory results or evaluate new methods. We reserve the right to ask why repeat samples are needed and limit their supply if this would compromise the service to other participants.

For the online portions of the schemes a library of the images and videos analysed by participants is available (this function is unavailable during an open distribution).

Reporting of results - All full participants are expected to return results promptly within the specified reporting period. However, non-return of results is not penalized by UK NEQAS. Participants may be required to justify non-return of results to regulatory and accreditation bodies, for example UKAS or HFEA.

Sub-contractors – The scheme makes use of subcontractors for various aspects of running the scheme (for example, sample procurement or website hosting). As far as is practicable we ensure that these providers adhere to the same standards as ourselves. If participants encounter any issues regarding a subcontractor, please email repscience@ukneqas.org.uk.

Terms & Conditions – A full list of our current terms and conditions can be found in appendix 5 of this document.

Participant objectives

The purpose of the Reproductive Science Schemes is to test a participant's ability to analyse a sample. The following objectives should be followed:

- EQA samples should (where possible) be treated in an identical manner to a laboratory's routine clinical samples.
- Participants must inform the Centre of any problems with their testing facilities.
- Participants must inform the Centre of any method changes.
- Participants should use recognised methods and guidelines for processing samples.
- Participants should process the UK NEQAS samples in a timely manner and submit results before the deadline.
- Failure to pay subscription fees on presentation of an invoice will result in discontinuation of participation.
- All reports and the data they contain are copyright and may not be published in any form without the permission of the Scheme Organiser.

- Collusion between laboratories is prohibited. If a laboratory was suspected of collusion, UK NEQAS would review its participation in its schemes. See page 33 – Co-incidence Monitoring.

Participation in the scheme does not of itself validate that a laboratory is correctly performing semen analysis or embryo morphology. A laboratory can repeatedly fail to meet requisite criteria in the scheme but continue to participate as the scheme is designed to encourage them to meet accepted standards. When assessing a laboratory any interested party should ask to be provided the EQA results of that laboratory.

Scheme Design

All UK NEQAS Reproductive Science schemes are designed to mimic diagnostic and interpretive procedures in participant laboratories. The schemes have been formulated with participants and experts in the reproductive sciences. Our steering committee also contain experts (who have relative technical expertise in the reproductive sciences) and participants in the schemes.

UK NEQAS Reproductive Science is solely responsible for the planning and design of the schemes. This aspect is never subcontracted. All samples, images and videos are obtained with written consent and according to appropriate regulatory and ethical requirements.

Further information on the proficiency testing material and the number and frequency of samples we send out in our distributions can be found in our 'Schedule of Analytes' section.

GDPR

UK NEQAS Reproductive Science handles personal data, provided by participants, in accordance with EU Regulation 2016/679 (GDPR). Our Privacy Policy is on our website.

Schedule of Analytes

Andrology scheme:

	Sperm Concentration	Sperm Morphology (practical)	Sperm Motility	Interpretive Sperm Morphology
Accreditation	Accredited by UKAS against the requirements of ISO/IEC 17043:2023			
Date started	1994	1994	1995	2011
Units of Reporting	x10 ⁶ /ml	Percentage (%) for Normal forms, abnormal heads, abnormal midpieces, abnormal tails, excess residual cytoplasm and TZI for Teratozoospermia Index	Percentage (%) for Rapid Progressive (A), Slow progressive (B), Non-Progressive (C) and Immotile (D) sperm.	Normal/Abnormal
Proficiency testing materials	Human semen containing preservative (10% neutral buffered formalin)	Human semen containing preservative (10% neutral buffered formalin)	Video clips of fresh semen	Images of Papanicolaou stained spermatozoa
Distributions per year	4			
Samples per Distribution	4	4	4	24
Frequency of Distributions	Every three months as outlined in the Scheme Leaflet	Every three months as outlined in the Scheme Leaflet	Every three months as outlined in the Scheme Leaflet	Every three months as outlined in the Scheme Leaflet
Examination	Assessment of sperm concentration using Participants' own procedure (where practicable).	Assessment of sperm morphology using Participants' own procedure (where practicable).	Assessment of sperm motility using Participants' own procedure (where practicable).	Assessment of sperm morphology using Participants' own procedure (where practicable). If entire sperm cannot be viewed, assess on what is displayed.
Schedule of Analysis	Data entry is via the UK NEQAS Results and Reports service for the submission of results. Data analysis is commenced 28 days after sample dispatch. Late returns are not accepted.		Data entry is via the Gamete-Expert.com website for the submission of results. Data analysis is commenced 28 days after sample dispatch. Late returns are not accepted	
Data Analysis	Method Related Trimmed Mean (MRTM). All participants' methods are compared to the Improved Neubauer haemocytometer (the recommended method of the WHO laboratory manual for the examination and processing of human semen (6th edition)	Method Related Trimmed Mean (MRTM). All participants' methods are compared to the Strict/WHO 2021 criteria (which is the recommended method of the WHO laboratory manual for the examination and processing of human semen (6th edition),	All Laboratory Trimmed Mean (ALTM).	Consensus. All participants' results are compiled and must reach 60% consensus to be classified.
Performance Scoring	ABC system			Penalty points system
Criteria of Performance	Laboratory performance is assessed over a running analytical window of 4 Distributions (12 months) See appendix 2 for details			
Persistent Unsatisfactory Performance	Defined as being in the Unsatisfactory Performance category for three or more successive Distributions without improvement.			

Embryology scheme:

	Embryo Morphology	Embryo Time Lapse Annotation
Accreditation	Accredited by UKAS against the requirements of ISO/IEC 17043:2023	
Date Started	2011	2016
Units of Reporting	ARCS Embryo Grading System (see Appendix 3)	
Proficiency testing materials	Video clips of embryos	
Distributions per year	4	
Samples per Distribution	16	4
Frequency of Distributions	Every three months as outlined in the Scheme Leaflet	
Examination	Assessment of embryo morphology using Participants' own procedure (where practicable) in conjunction with the ARCS Embryo Grading System (see Appendix 3)	Assessment of time-lapse annotations in conjunction with the Ciray et al (2014) Embryo annotation timing System. If entire embryo cannot be viewed, assess on what is displayed.
Schedule of Analysis	Data entry is via the Gamete-Expert.com website for the submission of results. Data analysis is commenced 28 days after sample dispatch. Late returns are not accepted.	
Data Analysis	Consensus. All participants' results are compiled and must reach 50% consensus to be classified	All Laboratory Trimmed Mean (ALTM)
Performance Scoring	Penalty points system for embryo morphology	Rolling B score (ABC system)
Criteria of Performance	Laboratory performance is assessed over a running analytical window of 4 Distributions (12 months) See appendix 2 for details	Laboratory performance is assessed over a running analytical window of 4 Distributions (12 months). Formal monitoring for assessment purposes from May 2021. For full details of the time-lapse annotation analyte please see Appendix 7.
Persistent Unsatisfactory Performance	Defined as being in the Unsatisfactory Performance category for three or more successive Distributions without improvement	

Materials

Sources of semen & embryos

All samples, images and videos are obtained with written consent and according to appropriate regulatory and ethical requirements.

Semen used by the Scheme is pooled from residual semen obtained from patients (by permission) or from participant laboratories. Semen specimens for concentration and morphology assessment are pooled specimens.

All specimens, images and video clips are human in origin.

The sperm motility component consists of video clips and is viewed online.

The Interpretive Morphology scheme consists of images of stained sperm and is viewed online.

The Embryology scheme consists of video clips of embryos and embryo development and is viewed online.

IMPORTANT SAFETY NOTICE

Semen specimens are preserved with 10% neutral buffered formalin. Please handle EQA semen specimens with the same precautions as are normally adopted in the handling of patient specimens in accordance with your departmental safety arrangements. Appropriate procedures should be used to minimise contact with samples and for their disposal. A Material Safety Data Sheet is available on request.

Initial analysis & storage – Semen samples are stored between 2-8°C after analysis. After a week the samples are viewed to eliminate contamination and then pooled.

Pool processing - The principal features of routine pool processing are available on request, but the emphasis is placed on minimum number of donations per pool and minimal disturbance to the matrix. From time to time, special pools are prepared to address specific problems or scientific/clinical issues.

Participant handling and storage - EQA samples should always be handled, stored, and analysed by participant laboratories as closely as possible to the way they handle, store, and analyse patients' samples. This means that results submitted should be an individual's results from within the laboratory, **NOT** an average of several individual's results.

Online services

UK NEQAS Reproductive Science recognises the importance of the internet for communication with and provision of services to participants, as well as interaction with oversight committees, professional bodies and the diagnostic industry.

We are committed to the development of unified, easy to use web interfaces which enhance the utility of existing services to participants and enable new services to be developed. Wherever possible, this will be done in collaboration with other UK NEQAS centres and schemes, to maintain a pan-UK NEQAS harmonised approach. Reporting of results for the semen concentration and 'practical' morphology analytes is done using the UK NEQAS Results and Reports service which is used by many other UK NEQAS schemes. Reports for all Andrology and Embryology analytes can be also downloaded from this site.

Gamete-Expert.com – We use the gamete-expert.com website to host videos for the sperm motility analyte, images for the Interpretive Morphology analyte and videos for the Embryology scheme. Results inputted onto gamete-expert are automatically transferred to the UK NEQAS results and reports service for processing and reporting at the close of the distribution.

Individual logins

Individual logins can also be purchased for online analytes to assist in the development of Internal Quality Control (IQC). These are generated by Gamete-Expert and are based on a ranking system of results from all the logins in the schemes.

Further information can be obtained from Gamete-Expert.com.

Gamete Expert reports do not represent a proficiency testing report from UK NEQAS Reproductive Science and they are not accredited to ISO 17043:2023.

Hub and Spoke Reports

In the Embryology scheme you can also see all the individual login returns made by your staff on one report. This should assist with your Internal Quality Control. See 'Getting Started' section for details.

Transfer of Data

As explained above, UK NEQAS Reproductive Science schemes utilises two data collection points. One is the UK NEQAS results and reports service and the other is Gamete-Expert.com.

UK NEQAS results and reports service - The layout and validation of the online data entry web forms replicates that of the Birmingham Quality (Wolfson) EQA software.

This is achieved by means of a 'distribution export file' which creates a copy of all the relevant scheme setups. This file, which includes participation, result validation, method options and any other relevant scheme design and setup information, is subsequently imported into the web service database for each distribution.

The web service does not permit the user to independently add or modify the validation or associated setups. This ensures it fully replicates the manual data entry options and result validation as defined in the Wolfson software. The participants are responsible for accurately entering their results.

Results entered online are thus pre-validated and can be imported directly into the Wolfson EQA software (again by file transfer).

Gamete-Expert – Following submission of results by the Participant to Gamete-Expert the results are then transferred as raw data to Birmingham Quality. Checks are then made that there aren't multiple identities for the UK NEQAS lab numbers and that every lab has a UK NEQAS lab number. Where there are two identities for a UK NEQAS lab, these are cross checked with the Gamete-Expert "EQA assignments" spread sheet to confirm that these match the two separate identity numbers allocated for Andrology and Embryology.

Due to individual IQC logins there could be many identities for a UK NEQAS lab number. The "EQA assignments" spread sheet provides the list of usable ID / Lab numbers.

If any ID fails to find a UK NEQAS lab number, or the EQA assignments don't cross-check with the IDs then Gamete-Expert would be contacted.

Provided this step has a satisfactory outcome, the data associated with each Gamete-Expert ID will automatically be associated with the correct UK NEQAS lab number.

There is a final check after the data has been imported.

Random checks are made from each scheme and the data from both the Gamete-Expert data file and the EQA database are extracted and compared.

Operations

Distribution cycle - All schemes operate according to a regular cycle of activity, based on 4 distributions per year. A distribution has a unique identifier (numeric) with fixed sample dispatch and results return dates.

Pool distribution policy - It is intended that within any given performance assessment period a number of different materials/images will be distributed that assess the range of analyte concentrations agreed by our expert groups and advisors to be clinically important. How successfully this policy is delivered in practice also depends on scheme size and analytes, and whether materials are multi- or single analyte.

Distribution dates – Once distributions go live, they usually remain open for four calendar weeks for all schemes (this can be extended in certain circumstances). The schedule for the current calendar year (and the following year when finalised) is available at <https://mft.nhs.uk/saint-marys/services/gynaecology/reproductive-medicine/ukneqasreproductive-science/>, dates are subject to minor changes dependent upon operational circumstances.

Method classification - A crucial element of participation for the concentration and 'practical' morphology analytes is the correct assignment of method codes, since performance scoring may be method based.

Considerable effort is expended by our staff to ensure the accuracy of method coding and updating records when this changes. Participants are required to co-operate with this process by informing us when their methods change and for errors, omissions, or changes at the earliest opportunity.

If semen specimens and email notification of the online schemes do not arrive on time or are incorrect it is essential that participants inform repscience@ukneqas.org.uk as soon as possible. Replacement samples will be sent.

Packaging & Mailing (Andrology scheme) - Participation fees include basic UK postal rates. Samples of semen for each distribution are mailed to the registered scheme contact as appropriate. Semen specimens are distributed quarterly by first class post within the UK. "International Tracked" postal services are used for overseas participants at an additional cost. Overseas Participants are responsible to make UK NEQAS aware, in writing of any additional import or Customs rules or fees. Alternatively, participants may want to arrange an international courier at their expense.

Packaging complies with current UK legislation for the mailing of 'Human Exempt Specimens'. All tubes are labelled with the scheme name and sample number. The naming convention for the latter is a sequential numeric sample identifier plus a letter where there are multiple specimens in a distribution (for example S401, S402, S403, S404).

Receipt of samples: Check samples on receipt to be sure that the correct samples are in the pack and there is no damage to the ampoules. Contact repscience@ukneqas.org.uk immediately if replacement samples are required. Temperature stability investigations have been carried out and unopened samples have been stored at -20, 5, 20 and 37 degrees C without detrimental affect to the samples. We do not know the effect of temperatures below -20 deg C or above 37 deg C. If you suspect that your samples have come into contact with temperatures outside this range, please contact us for a repeat set of samples.

If your samples do not arrive within an appropriate time frame (5 working days after start of distribution) for most participants, may take longer for overseas post) please contact repscience@ukneqas.org.uk.

Sample handling - The general rule is that participants should treat EQA samples identically to those from patients. However, this will not apply exactly for the online parts of the schemes. In principle, however, accession numbering and assay should be the same as for patients. In order that there should be uniformity of handling amongst participants, **it is recommended that if an assay is not to be performed on the day of receipt**, EQA semen samples should be stored at 2-8°C and with thorough mixing using a vortex mixer just prior to analysis. Unless instructed otherwise, participants should ensure that ALL samples in a given distribution are analysed on the same day to ensure that unknown additional variability is not introduced.

- **Semen specimens (Concentration and Practical Morphology)**
The semen analysis specimens (four per distribution) are used to estimate both sperm concentration and 'practical' sperm morphology.
- **Sperm Motility and Interpretive Morphology (online)**
Each motility distribution consists of four samples with several clips of sperm for each sample.
The Interpretive Morphology distributions consist of a series of images containing 24 sperm for assessment. If entire sperm cannot be viewed, assess what is displayed.
- **Embryo Morphology**
The Embryo Morphology distributions contain videos of embryos (rolling and 'time-lapse') from patients for assessment.

Please note - videos used for assessment purpose may be longer than the time taken to grade embryos in a clinical setting, to allow participants to have sufficient time to assess.

Processing UK NEQAS samples in your laboratory

Receipt and analysis

UK NEQAS distributions are intended to monitor your performance on routine patient specimens. Please process them through your normal reception, analytical and reporting procedure.

Result reporting procedure

Results should be entered in the units shown onto the correct results document (or online service form), taking care to match sample numbers and avoid transcription or transposition errors. In the numerical analytes, concentration results should be reported to 2 significant figures, motility and 'practical' morphology results should be reported to the nearest whole number (as stated in WHO manual 2021).

The statistics package can only view numbers, and so it is not possible to enter, for example, a result shown as <2 million. In this case your result should be entered as 2 million.

Users may enter/update/amend their results for online service enabled schemes at any time while the distribution is open. Late returns can only be accepted in exceptional circumstances.

Semen concentration & morphology

Results must be returned by the distribution closing date (usually 4 weeks after distribution open), if they are to be included in the report. Results are reported online at <https://results.ukneqas.org.uk/scripts/scheme-select.pl>. All labs will have been allocated a username and password. Reports will be available from this site once the distribution has been closed and processed.

Motility & Interpretive Morphology

Results must be entered while viewing the images/videos online at <http://gamete-expert.com/>. Participants are allocated a username (usually an email address) and a password. This will not be the same username as for sperm concentration & motility. Reports will be available shortly after processing from <https://mft.nhs.uk/saint-marys/services/gynaecology/reproductive-medicine/ukneqasreproductive-science/>.

Embryo Morphology including time-lapse annotation

Results must be entered while viewing the images/videos online at <http://gamete-expert.com/>. Participants are allocated a username (usually an email address) and a password. This will not be the same username as for sperm concentration & motility. Reports will be available shortly after processing from <https://mft.nhs.uk/saint-marys/services/gynaecology/reproductive-medicine/ukneqasreproductive-science/>.

Non-return of results .

If your laboratory makes no response to a distribution by the due date (non-return) your report will have a blank space for your results, and you will receive an email from the scheme informing you of a non-return. Regular participation is important if adequate data is to be obtained to establish satisfactory performance. **UK NEQAS Reproductive Science does not penalise for non-return of results**, but participants would need to justify non return to their accreditation/regulatory body, for example UKAS or HFEA in the UK.

Failure to return results for 3 distributions within the last 4 distributions will mean there is insufficient data to establish satisfactory performance for analytes. The Scheme Organiser has the option to contact the RCPATH's National Quality Assurance Advisory Panel (NQAAP) for advice if a UK lab persistently fails to return results.

Late returns.

Designated values are derived from a consensus of received results; therefore, late returns can only be accepted in exceptional circumstances.

Input errors.

Care must be taken when entering results that the intended answer is inputted. **Input errors cannot be amended after the distribution is closed unless the participant has evidence that the correct results were recorded before the deadline and publication of Target Values.**

Amendments to results prior to reporting deadline.

Amendments to results can only be made prior to the closing date. Although results cannot be amended in the computer system after the reporting deadline an explanation will be kept in your file, and this will be taken into account when assessing unsatisfactory performance.

UK NEQAS errors.

If you suspect that we have made an error, please let us know immediately. We audit all such errors, and it is important that we know about them so that we can improve our service.

Data processing

Data handling.

All Scheme data are held on secure network servers which are backed up daily. Data processing is performed using special EQA software modules which have been developed in association with Birmingham Quality. These allow all schemes to be optimally configured according to Birmingham Quality house style.

Calculation of target values.

Target values are crucial to scheme design and usefulness and are the basis for accurate performance scores. In all cases, a robust estimator of the central tendency of the data set and its dispersion are calculated. Target values are derived from a consensus of participants' results which is a recognised statistical technique. Consensus limits are reviewed regularly along with other performance criteria (see appendix 2).

Clearly the larger the number of data points the better the estimate, which becomes important when method-related target values are employed rather than those from all laboratories or groups of methods. To eliminate the distorting effect of grossly atypical results, outliers are trimmed from both tails of the ranked data set, with a corrected estimate of dispersion (SD or CV) usually by the method of Healy (1979)¹ to allow for the removal of extreme values which are not 'true' outliers. The data processing for individual schemes is conducted using individually configured modules within the computer system.

Validity of target values

UK NEQAS attaches great importance to validation of Target Values (TV). Target values should be accurate and stable, but this is difficult to achieve where reference methods are unavailable.

For the semen concentration the Method Related Trimmed Mean (MRTM) is taken from participants using Improved Neubauer chambers (See section 'Example Reports' - Fig 1).

The MRTM taken from results of laboratories reporting the use of WHO (2021)/strict criteria is used for morphology (Fig 2). This changed from Distribution 121 when uptake of WHO 2021 overtook WHO 2010.

An All Laboratory Trimmed Mean (ALTM) is used for motility (Fig 3).

Consensus values of 60% agreement are used in interpretive morphology (Fig 4).

For the embryo morphology grading scheme, a consensus is used to derive target values. More than 50% consensus for each result from participating laboratories is required to set a target value. This may mean a consensus may not be reached for all embryos assessed. Results without consensus are not included in performance monitoring within that distribution. A consensus result is not a 'correct' or 'gold standard' result, and only reflects how a majority (>50%) of participating laboratories are interpreting the ARCS Embryo Grading System (Figure 6). The 'correct answer' displayed on the Gamete Expert website is a consensus result for all participating laboratories (UK NEQAS target value) or for all participating individuals with personal logins (Gamete Expert target value). The Time-lapse annotation scheme uses an All Laboratory Trimmed Mean (ALTM). The ARCS embryo grading system is available in the Participants' Handbook via the website <https://mft.nhs.uk/saint-marys/services/gynaecology/reproductive-medicine/ukneqasreproductive-science/>

Calculation of performance scores

As well as providing data on closeness to the target value in a given distribution, schemes employ scoring systems which yield a performance score averaged over a number of distributions and individual samples within a rolling time window to give a robust estimate of overall bias and its variability. The scoring method used for all numeric Reproductive Science analytes is the ABC of EQA system (concentration, motility and practical morphology).

Acceptable performance criteria - Schemes are required to provide information on persistent unsatisfactory performers to the RCPATH's National Quality Assurance Advisory Panel (NQAAP) for Reproductive Science. Limits for acceptable performance scores are agreed by the NQAAP after due deliberation and consultation with Organiser and Steering committee, to reflect the state of the art of analysis and encourage improvement. Special procedures are used to identify those laboratories which have breached these limits on a set number of occasions within the cumulative reporting period. Current limits for our schemes are outlined in Appendix 2.

Reports and Report interpretation

Target Turn-Around Times for Reporting - All fully accredited UK NEQAS services have the following associated performance target:

"Reports are to be published to the web server before the next Distribution is open to UK participants."

For most Schemes, the time between distribution closure and publication of reports will be less than 5 working days. The exact time is recorded and is monitored.

The situation for Pilot schemes is inherently more variable owing to their fluid nature, but we always aim to have reports published and available before the next Distribution is dispatched. Once again, these dates are recorded.

Reports.

Schemes' reports are the main interface with participants, and a great deal of effort has gone into making these informative and easy to interpret. All scheme reports are generated as A4 format PDF files, which display the data in a number of discrete tabular and graphic formats shared across related schemes. Scheme reports have 'traffic light' colour coding; where symbols and their colour (green, yellow or red) indicate how close individual percentage biases are to the target value, and whether performance scores lie within or outside acceptable limits. Examples are available on request, but all reports share most of the following features:

- Distribution summary (tabular).
- Overall performance summary (graphical).
- Current performance scores and limits of acceptable performance.
- Individual results obtained, target values, deviation from the target value (tabular).
- Histogram of all results (method group and individual results marked).
- Graphical indication of performance scores.
- 'Snapshot page' (ABC of EQA analytes only) showing a selection of useful graphs.
- Standard Uncertainty measurement (numerical schemes only).

Distribution of reports.

The default status for EQA report distribution is electronic. Participants may download their reports as electronic PDF files from the secure Results and Reports website.

For online analytes of the scheme, you will also receive a report from gamete-expert.com. This is a ranking comparison of all the individuals in the scheme rather than focusing on one set of results per participating laboratory. This is a good snapshot of results and is more relevant to Internal Quality Control than External Quality Assessment.

Interpretation of routine scheme reports & performance scores.

You will need your username and password to access this information on the Results and Reports page. These should be studied carefully, and our staff consulted if clarification is needed. All are under continuous review with the intention to extend harmonisation of both aspects of scheme design throughout our schemes and in collaboration with other UK NEQAS centres.

The principal components of report interpretation may be summarised as follows:

Result validation

It should not be possible for anyone to download the wrong PDF report from the website as each is specific for the laboratory identifier and password entered. However, participants viewing reports should check that they have received the correct report for their laboratory. Mistakes do occur though these are very rare. Email us immediately and give the code number of the report received and your own, then delete the incorrect report. A new one will be issued to both laboratories.

The results for that distribution should be checked to ensure that they are the ones returned by your laboratory. Mistakes can occur though these are very rare.

Results for all analytes are inputted by the participants and we would only amend any transcription errors in exceptional circumstances and following an appeal from the participant.

It is important that participants' methods (and sub-methods, where appropriate) are accurately identified, especially where performance is assessed against the method mean. Any apparent discrepancies should be reported immediately.

Current distribution.

Use the distribution summary pages to examine the deviation of your results from the designated target value and (if not the target) the mean (or median) of your method group for each analyte. If deviations are consistent with usual overall or method-related bias and cumulative scores remain stable and within acceptable limits, then it may not be necessary to examine analyte-specific pages in detail. If, however, there are unusual deviations for certain analytes, types of material or analyte concentration which appear not to be shared by other users of the method, then detailed examination of the problem area will be required. (If these are very large, then non-analytical errors should be suspected.) Where appropriate, use the 'traffic light' colour coding to identify aberrant results.

In examining analyte-specific pages, participants should relate their results to the overall and method-related distribution of results for each sample as indicated by the histogram and table of method means and CVs.

Standard Uncertainty

On the reports for numerical analytes (motility, concentration, and practical morphology) a value is given for 'Standard Uncertainty'. This is done using the following formula:

$$\text{Standard Uncertainty} = \frac{1.25 \times \text{SD}}{\text{SQRT (NTRIM)}}$$

Where:

SD = Standard deviation

SQRT = Square root

NTRIM = Number of Participants remaining once outliers are trimmed.

Standard Uncertainty is included for UK NEQAS quality purposes and is expressed in the unit of the analyte (for example in millions/ml for concentration). Participants should focus on the ABC scores for their performance indicators.

Rolling Time Window performance scores

One of the main purposes of a performance score derived from a number of distributions and many samples is to 'smooth out' the natural variation in deviations from target values over a number of distributions, by trimming extreme values and deriving a robust estimate of the central tendency for overall bias together with an index of its consistency. Thus, when interpreting the performance score elements of reports, it is important to note that (a) a small number of atypical results is unlikely to affect overall scores, and (b) aberrant results which are numerous enough to affect performance scores will take some time to work their way out of the scoring 'window'.

The principal concern of EQA is the overall bias of participants' results and the consistency (variability) of this bias over time with different materials and different analyte concentrations. It is important to note that when the score that relates to 'consistency of the bias' ('C' score) is high, then the confidence which can be placed in the overall bias score (B score) is reduced (and vice versa). Also, the C score may relate to assay imprecision

(and/or reproducibility), but only if there are insignificant pool- or analyte concentration-dependent variations in deviations from the target value or changes over time. Only internal quality control (IQC) can give a clear assessment of analytical imprecision.

When interpreting performance scores, participants should look first for atypical results in a single isolated distribution (as above) and relate these to IQC data on the day of analysis, and then for shifts or trends over a number of distributions which might indicate a method related problem. Note that the C score always increases when the B score changes in either direction, so that this will occur when bias shifts and again if a correction is made. Only after a full period of stable performance (with or without a change in bias) will the C score decrease to low levels. The graphical elements of cumulative reports show this clearly in relation to acceptable limits of performance (not all schemes) and the overall behaviour of different method groups. Attempts should be made to correlate trends and/or shifts in bias with IQC data, which in turn should indicate whether changes in personnel, data reduction, procedures, calibration, or instruments are implicated.

Calculation of Analytical Performance Scores for Concentration, morphology & motility

Laboratory performance is reported as a cumulative mean running Score using the UK NEQAS ABC system. A brief overview of this system is outlined in appendix 2. Examples of the report format are shown below (Fig 2-4). Current performance limits are detailed in Appendix 2.

Calculation of Analytical Performance Scores for Interpretive Morphology Scheme

Laboratory Performance is scored for this scheme (from April 2017). Current performance limits are detailed in Appendix 2. An example of the report format is shown below (Fig 5). The performance criteria are based on penalty points where Participants get 1 penalty point for disagreement with the consensus.

Calculation of Analytical Performance Scores for Embryology Scheme

Laboratory Performance is scored for this scheme (from April 2013) and is based on 'matching' with the target values (TVs) and penalty point accumulation. No penalty points are accrued for a 'match' with the consensus target value (TV); one point is accrued for one step either way from the TV; a maximum of two penalty points are accrued for two or more steps either way from the TV. An example of the report format is shown below (Fig 6). Only ARCS Embryo Grading System parameters (cell number, even-ness, fragmentation, blastocyst expansion, inner cell mass and trophectoderm) are used to monitor satisfactory performance. Embryo suitability for freezing and quality ranking are not, as clinics may have different policies or criteria for this. Therefore, this part of the scheme is for interpretive and educational purposes only and for use in the 'hub and spoke' reports for comparing inter-laboratory variation. Current performance limits are detailed in Appendix 2.

Time-lapse annotation analyte (introduced April 2016): 9 annotations for assessment: Laboratory performance is formally assessed (from May 2021) after a trial period following the pilot scheme and UKAS accreditation (gained in March 2019). Target values (TVs) for each of the 9 annotations are given and are derived by consensus (from April 2022). Rolling performance is reported on page 20 of the report. This part of the scheme gained UKAS accreditation (ISO17043:2023) in March 2019.

Coincidence Monitoring

UK NEQAS Reproductive Science routinely performs 'coincidence monitoring' (from April 2020). If two or more participants submit the same set of results, this will be notified to the participants as a 'coincidence'. If this occurs on multiple occasions, the participants will be notified and the RCPATH's National Quality Assurance Advisory Panel (NQAAP) informed (or for overseas participants, their equivalent professional body). The NQAAP will investigate further to determine if falsification of results or, collusion between laboratories has occurred.

Enrolment Certificates

A certificate of enrolment is available for each registered laboratory. To download an enrolment certificate, log on to the Results and Reports website <https://results.ukneqas.org.uk/scripts/scheme-select.pl> using your laboratory ID number and password. On the home page, next to your UK NEQAS ID number there is a button labelled 'Lab'. Click on this and you will see the certificates listed as 'MAN_[UK NEQAS number]_REGISTRATION_YYYY.pdf'.



Participation certificates are not issued. Evidence of participation is displayed on your distribution report.

Performance Problems

Non-analytical errors

These are defined as 'blunders' made by participants, which appear as anomalous results (which may or may not be classified as outliers), and may fall into the following categories:

- Assaying the wrong samples
- Assaying the right samples in the wrong order
- Incorrectly entering laboratory results.

The above can also happen with patient samples so will only be amended in exceptional circumstances.

Low Method numbers: Method groups with participation numbers below eight are for information only. The data set is too small to ensure relevance below this number.

Performance surveillance and Advisory Panel liaison

Limits for acceptable performance are approved by the NQAAP for Reproductive Science in consultation with the RSSC where appropriate. The criteria include acceptable limits for BIAS and for return rate.

We are required to report to the NQAAP for Reproductive Science on UK laboratories whose performance scores move outside acceptable limits on a set number of occasions (see below) within the scoring time window, or who fail to return sufficient results. The computer system is used to generate a list of such laboratories for each scheme or analyte. The performance of each laboratory identified is then reviewed in association with any correspondence between Organiser and the participant, and a decision made on further action. This may be just to monitor, to stimulate dialogue between Organiser and participant and monitor improvement in performance, or to suggest that the Panel Chairman should make contact. Participants who cancel participation whilst under referral to NQAAP are highlighted to the Panel in case they are moving schemes to mask performance issues.

The latter course of action is relatively rarely undertaken and begins with a first Panel letter inviting the participant to make contact to discuss action to correct the unsatisfactory performance. If a satisfactory response is made and improvement in performance ensues, no further action is taken. If unsatisfactory performance persists or no response is made, then a second Panel letter (direct from Panel Chairman to Head of Department with lab code disclosed) is written requesting that decisive action is taken to re-establish satisfactory performance; this may include a site visit by Panel members. If this fails, the Quality Assurance Pathology Committee may take further action.

Concentration or 'Practical' Morphology - if the rolling A, B or C scores break the performance criteria limits (see Appendix 2) it will be noted as an unsatisfactory performance. If this happens on three distributions within the last 4 distributions (without improvement), the laboratory will be contacted as a persistent unsatisfactory performer.

Sperm motility - if the rolling A, B or C scores break the performance criteria limits (see Appendix 2) for two of the three categories it will be noted as an unsatisfactory performance. If this happens on three distributions within the last 4 distributions (without improvement), the laboratory will be contacted as a persistent unsatisfactory performer. **Currently, 'All progressive' is scored, Rapid and Slow values are for information only.**

Interpretive morphology - if the rolling penalty point total breaks the performance criteria limits (see Appendix 1) it will be noted as an unsatisfactory performance. If this happens on three distributions within the last 4 distributions (without improvement), the laboratory will be contacted as a persistent unsatisfactory performer.

Embryology - if the rolling penalty point total breaks the performance criteria limits (see Appendix 1) it will be noted as an unsatisfactory performance. If this happens on three distributions within the last 4 distributions (without improvement), the laboratory will be contacted as a persistent unsatisfactory performer.

Complaints & Appeals

Definition

A complaint is any communication, written or verbal, from internal or external sources indicating deficiencies relating to the identity, quality, durability, reliability, safety, effectiveness, or performance of the EQA service. Complaints and other communications which point out deficiencies, difficulties, or problems (which we classify as errors) are recorded together with any response or action taken by us. These are audited by the Quality Manager.

Types of Complaint and How to make a Complaint.

Please study the sequence of actions indicated below and either write or email the appropriate individual. Emails of complaint to repscience@ukneqas.org.uk should contain the words 'complain' or 'complaint' in the subject line so these can be filtered to the complaint handling area. Most problems experienced by participants consist of minor misunderstandings or problems with specimens and reports, which can usually be resolved over the telephone by any member of staff. If difficulties persist, then participants with continued justified cause for complaint about any aspect of the service should communicate their concerns immediately to the relevant member of senior staff, preferably in writing (letter or email) though a preliminary telephone call may assist in clarifying the issue and establishing the requisite action. All 17043:2023 complaints shall be acknowledged within 5 working days of receipt. Wherever possible, a final response is given within 3 months of the acknowledgement.

- Where the complaint is about scheme logistics, then the Scheme Manager may be the most appropriate person to investigate via anonymised correspondence with the Administrators.
- Where the matter is related to performance assessment and scheme design, the Scheme Organiser or Scheme Manager may be the most appropriate person to assist if the participant waives their anonymity.
- If the complaint concerns the conduct of a member of UK NEQAS staff, or a satisfactory response has not been received from the individual first contacted, then the Scheme Organiser should be contacted.
- If matters remain unresolved, or the action taken by us is not satisfactory to the complainant, the next step is to refer the complaint to the Chairman of the Steering Committee.
- If the issue concerns performance assessment, the Chairman of the Advisory Panel may also be contacted.
- Where lack of compliance with **ISO 17043:2023 Standards** is suspected by the complainant, then (in the first instance), contact the **Quality Manager**. If the complaint is not resolved to the satisfaction of the complainant, then the **Executive Chair of UKAS** may be contacted.
- Where the UK NEQAS Code of Practice itself is the issue of concern, the President of UK NEQAS may be appropriate.
- Investigation and resolution of complaints shall not result in any discriminatory actions to be added.

In all cases, UK NEQAS Reproductive Science staff will provide the names and addresses of the appropriate individuals and can be contacted using the details on page 3 of this document.

Appeals Against the Evaluation of Your Performance and erroneous results.

If you wish to appeal against the evaluation of your performance, or if there are erroneous results, please contact UK NEQAS Reproductive Science using the details on page 2 of this document and putting appeal in the subject heading. Your appeal will be handled according to our Complaints procedure. If a lab submits an appeal more than twice within a two-year period, the RCPATH's National Quality Assurance Advisory Panel for Reproductive Science shall be informed.

With regards to complaints against the evaluation of your performance, the Organiser's decision is final.

Feedback

UK NEQAS Reproductive Science welcomes feedback from participants and potential customers. A user survey is circulated annually for each scheme and UK NEQAS Reproductive Science are active on X (formerly Twitter) as @UKNEQASReproSci.

Review by participants of UK NEQAS as a supplier.

Please be aware that we are not able to complete self-assessment questionnaires from participants. UK NEQAS Reproductive Science has over 250 laboratories enrolled and therefore we hope you understand that completion of these forms is not possible.

Whilst we do provide a service, the UK NEQAS scheme does not provide laboratory activities, which may fall into a service level agreement. Whilst the service provided by UK NEQAS supports laboratories in providing external review for the assessment of certain parameters, the terms and conditions state that 'enrolment in the scheme is not evidence that a laboratory is correctly performing reproductive science techniques to relevant recognised national or international standards.

We understand the importance of such reviews; however, it does not fall under the UK NEQAS RS remit to complete them for laboratories that are subscribed to our services. We complete similar forms when we review external service providers as part of the maintenance of our own UKAS accreditation and adhere to relevant ISO standards. We hope you understand our position.

Useful information when completing supplier reviews:

UKAS number 8228

Do we have a complaints procedure: Yes, see page 33

Do we have a Quality Management System: Yes

Do we perform regular Audits: Yes

Footnotes

FEEDBACK ON THIS HANDBOOK

This handbook has been made as comprehensive as possible, but it is appreciated that revision may be required to reflect progress. Participants are invited to make comments and suggestions, not only on the handbook but also any aspect of our schemes or procedures, so that amendments may be made for the next edition. Please email repscience@ukneqas.org.uk for your comments & suggestions, putting 'Participants' Handbook' in the subject line.

ACKNOWLEDGEMENTS

The careful work of all our staff, the support of colleagues at other UK NEQAS centres and advice from members of expert committees and professional bodies are gratefully acknowledged. UK NEQAS Reproductive Science are grateful for the work of the Manchester University Foundation Trust Andrology & Embryology laboratories, the Manchester University Foundation Trust's Finance Department, and our subcontractors. The continued loyalty of all participants, which has enabled the Schemes to develop and expand to meet the challenges of the proficiency testing environment, is also warmly acknowledged.

FURTHER COPIES OF THIS HANDBOOK

The current definitive version of the Participants Handbook may be downloaded (from <https://mft.nhs.uk/saint-marys/services/gynaecology/reproductive-medicine/ukneqasreproductive-science/>).

REFERENCES


1. Healy MJR (1979) Outliers in clinical chemistry quality control schemes. *Clin. Chem.* 25: 675-679

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Example Reports

Figure 1 – Address and Comments page

	Andrology - Sperm Concentration & Morphology	Laboratory :
	Distribution : 127 Date : 01-Dec-2025	Page 1 of 11
	Address and Comments	

Pathology Laboratory
Biochemistry Department
Hospital
Town
County
Postcode

Current contact person and address details we have for your laboratory.

Current email address details on file for your laboratory.

This Scheme is essentially web-based. We can alert you to information regarding the Scheme via email. The e-mail address (or addresses) we are currently using to contact your laboratory is shown below in red. If no e-mail address is displayed or the information shown is incorrect, please email us with an appropriate contact e-mail address as soon as possible, using the word 'feedback' in the title line and stating your UK NEQAS lab number.

Transit and analysis times (Sperm Concentration & Morphology only).

Based on the date information you have provided, the transit time from specimen dispatch [] to receipt [] was day(s), and the subsequent time to analysis [] in your laboratory was day(s). (Missing values indicate dates not provided. "0 days" represents same day receipt/analysis).

Any comments you made to us are shown below and have been acted upon where necessary

Any specific comments applicable only to laboratory are shown below

Any general comments applicable to all laboratories are shown below

Please note that samples S505 and S508 are taken from the same pool (402) and therefore are the same sample.

Comments received from your laboratory and any response from UK NEQAS.

General comments from UK NEQAS specific to this distribution. Authorisation signature, date and report type.

UK NEQAS Internal QC: The homogeneity and stability assessment for this distribution was satisfactory.

For further details on the design, operation and statistical analysis of this scheme, please see the Participants' Handbook (available to download from <https://mft.nhs.uk/saint-marys/services/ukneqasreproductive-science/>).

Please note: From Distribution 121 onwards the Target values for morphology are based on WHO 2021/Strict criteria returns. For further details see Participants' Handbook.

Final Report, authorised on Thursday 05th March 2026 by Annette Lloyd.
Scheme Organiser, UK NEQAS for Reproductive Science.

Type of report (final), date and named authoriser.

Date and time of Publication of report.



UK NEQAS Reproductive Science is a UKAS accredited proficiency testing provider No. 8228. Please see <http://www.ukas.com> for full details of the accreditation status of our services.



UK NEQAS Reproductive Science is proud to offer EQA services that adhere to the code of practice and have the badge of quality of UK NEQAS

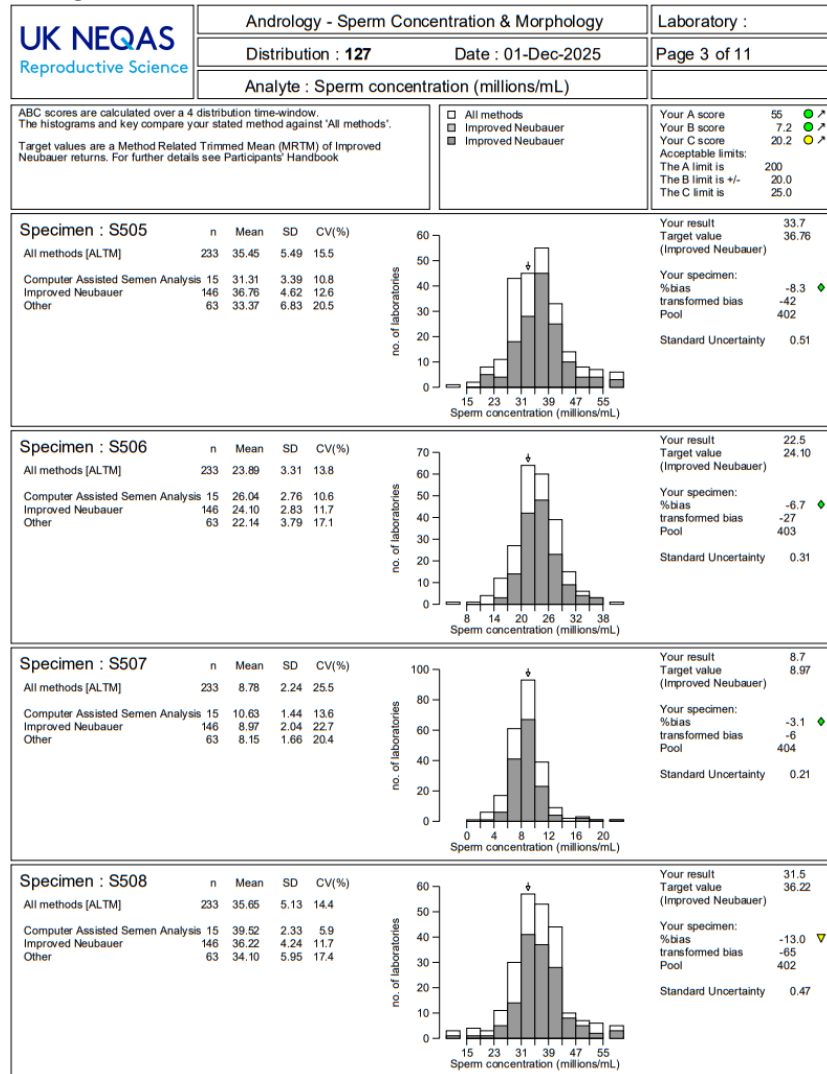
UK NEQAS Reproductive Science is part of Manchester University Hospitals NHS Foundation Trust and provides this UK NEQAS service from Andrology Laboratories, St Mary's Hospital, Oxford Rd, Manchester, M13 9WL, UK.
To contact us email repscience@ukneqas.org.uk or Tel +44 (0)161 276 6437
Please return results for Semen Concentration and Morphology via the Online Results and Reports Service.
Sample collection is partially subcontracted to other laboratories.

© Data UK NEQAS report is confidential
For this scheme the Organiser is Annette Lloyd
UK NEQAS Reproductive Science is a UKAS accredited proficiency testing provider, No. 8228.
Published at 15:55 on Wednesday 3 June 2026

Example reports

Figure 2 – Sperm concentration (millions/ml)

Histograms



Summary

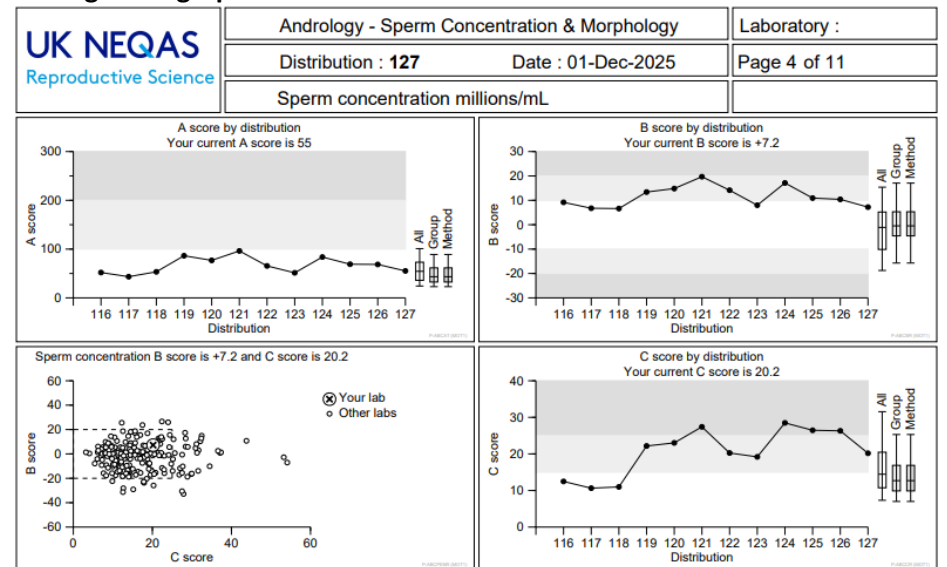
	Andrology - Sperm Concentration & Morphology	Laboratory :
	Distribution : 127 Date : 01-Dec-2025	Page 2 of 11
	Distribution Summary	

Proficiency testing materials: Human semen containing preservative (10% Neutral Buffered Formalin)

You have returned results for 4 out of the last 4 Distributions for Sperm Concentration.

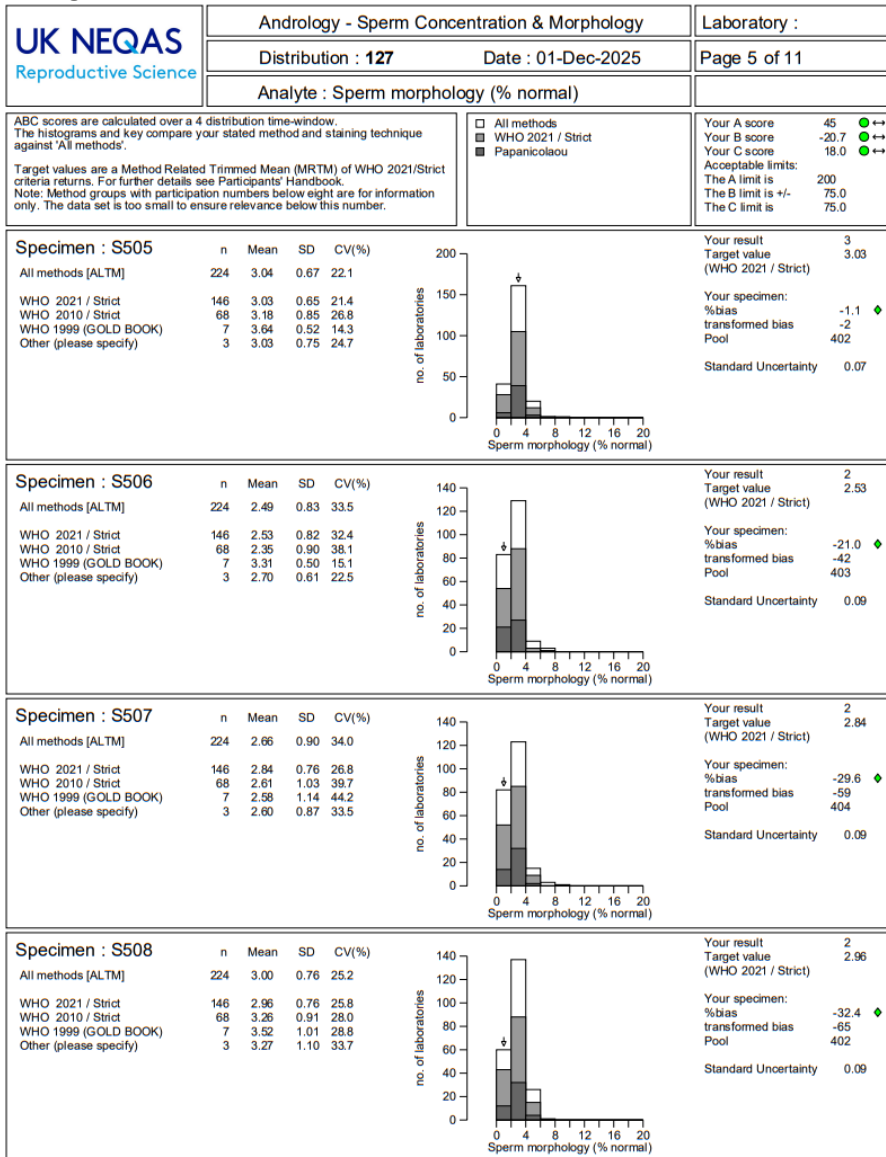
Specimen	Result	Target	Specimen %bias	A score	B score	C score	A	B	C	
Sperm concentration (millions/mL)	S505	33.7	36.76	-8.3 ●	55	+7.2	20.2	● →	● →	● →
	S506	22.5	24.10	-6.7 ●						
	S507	8.7	8.97	-3.1 ●						
	S508	31.5	36.22	-13.0 ▼						

Rolling score graphs



For current performance limits, see appendix 2.

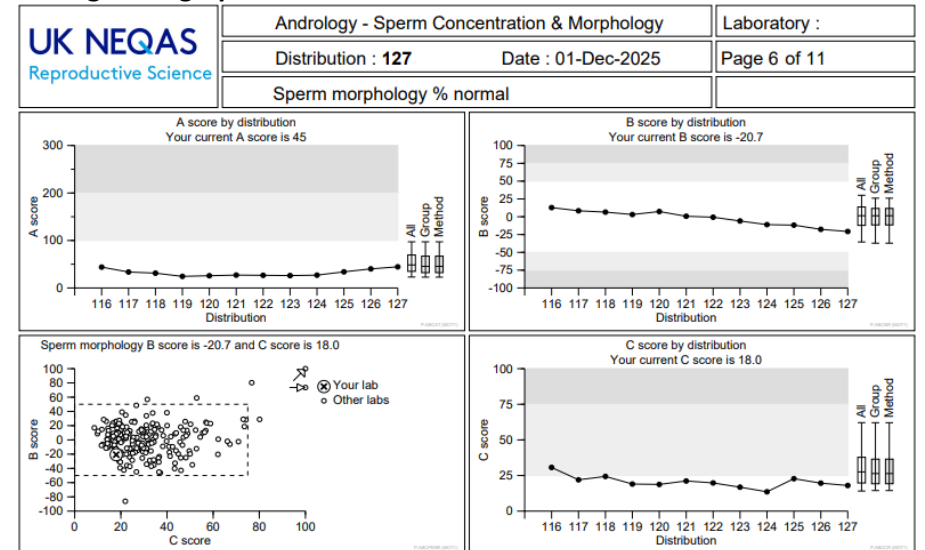
Figure 3 – Sperm Morphology (% normal) and annotation.
Histograms



Summary

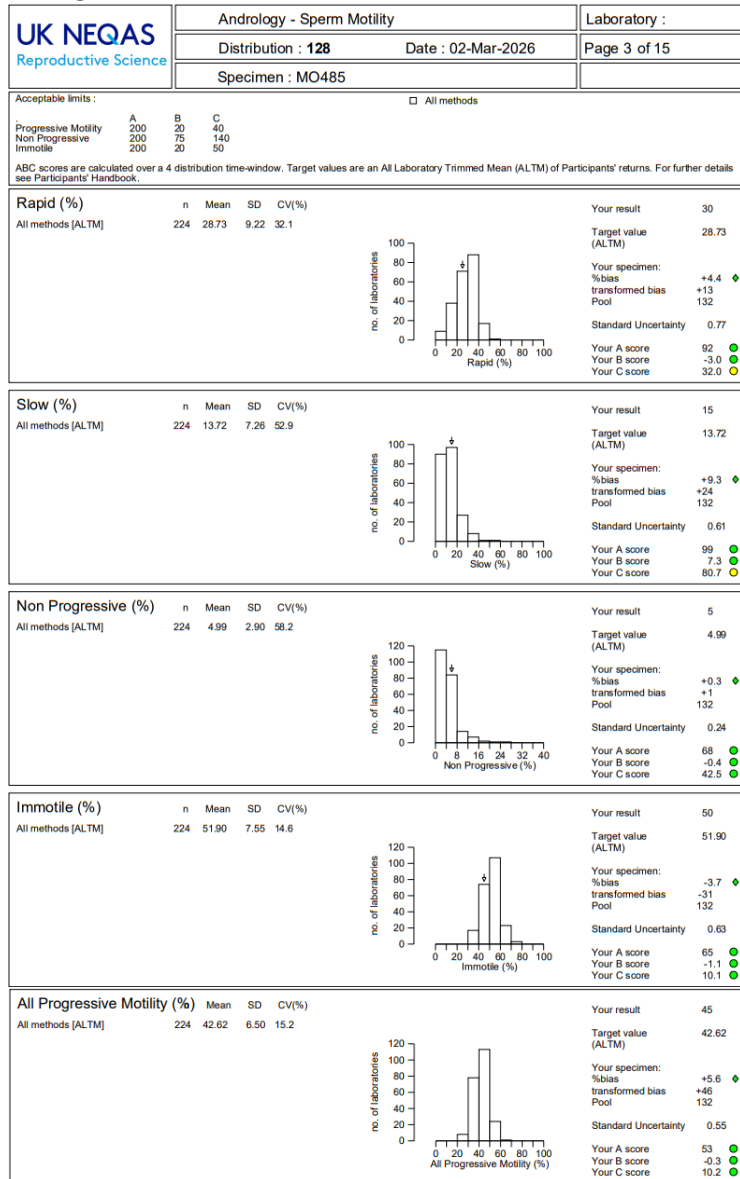
	Specimen	Result	Target	Specimen %bias	A score	B score	C score	A	B	C
Sperm concentration (millions/mL)	S505	31	36.76	-15.7 ▼	63	-1.3	22.4	● ↔	● ↔	● ↔
	S506	24.75	24.10	+2.7 ▲						
	S507	9.95	8.97	+10.9 ▲						
	S508	29.88	36.22	-17.5 ▼						
Sperm morphology (% normal)	S505	3	3.03	-1.1 ▲	45	-20.7	18.0	● ↔	● ↔	● ↔
	S506	2	2.53	-21.0 ▲						
	S507	2	2.84	-29.6 ▲						
	S508	2	2.96	-32.4 ▲						
Abnormal heads (%)	S505	93	92.56	+0.5 ▲	33	+3.3	1.8	● ↔	● ↔	● ↔
	S506	98	93.91	+4.4 ▲						
	S507	98	93.49	+4.8 ▲						
	S508	97	93.77	+3.4 ▲						
Abnormal midpieces (%)	S505	28	27.35	+2.4 ▲	97	+4.6	13.8	● ↗	● ↔	● ↔
	S506	30	27.31	+9.8 ▲						
	S507	32	27.44	+16.6 ▲						
	S508	27	27.48	-1.7 ▼						
Abnormal tails (%)	S505	5	7.75	-35.5 ▼	347	-36.9	23.6	● ↘	● ↔	● ↔
	S506	6	8.64	-30.6 ▼						
	S507	7	8.32	-15.8 ▼						
	S508	4	7.82	-48.8 ▼						
Excess residual cytoplasm (%)	S505	3	3.15	-4.7 ▼	237	-5.9	32.6	● ↘	● ↘	● ↔
	S506	4	3.33	+20.1 ▲						
	S507	2	3.15	-36.6 ▼						
	S508	6	2.96	+102.7 ▲						
Teratozoospermia index (TZI (1.00 - 4.00))	S505	1.33	1.38	-3.4 ▼	23	-1.6	2.9	● ↔	● ↔	● ↔
	S506	1.41	1.38	+1.8 ▲						
	S507	1.42	1.40	+1.2 ▲						
	S508	1.37	1.38	-0.8 ▼						

Rolling score graphs



For current performance limits, see appendix 2.

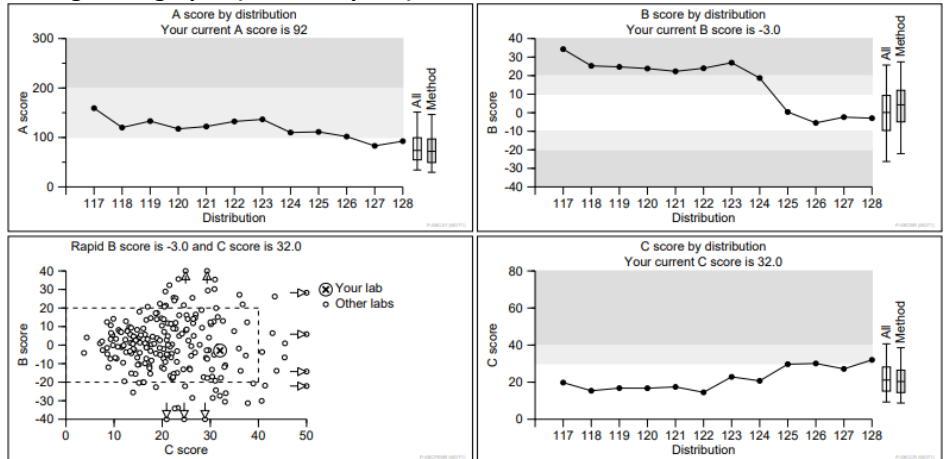
Figure 4 – Sperm Motility – Histograms



Summary

	Specimen	Result	Target	Specimen %bias	A score	B score	C score	A	B	C
Rapid (%)	MO485	30	28.73	+4.4	92	-3.0	32.0	↔	↔	↘
	MO486	39	31.97	+22.0						
	MO487	48	41.48	+15.7						
	MO488	5	7.81	-36.0						
Slow (%)	MO485	15	13.72	+9.3	99	+7.3	80.7	↔	↗	↔
	MO486	6	11.39	-47.3						
	MO487	4	7.90	-49.4						
	MO488	8	7.66	+4.4						
Non Progressive (%)	MO485	5	4.99	+0.3	68	-0.4	42.5	↔	↔	↔
	MO486	4	5.53	-27.6						
	MO487	1	3.66	-72.7						
	MO488	3	3.60	-16.6						
Immotile (%)	MO485	50	51.90	-3.7	65	-1.1	10.1	↗	↔	↔
	MO486	51	50.56	+0.9						
	MO487	43	46.55	-7.6						
	MO488	84	80.38	+4.5						
All Progressive Motility (%)	MO485	45	42.62	+5.6	53	-0.3	10.2	↔	↔	↔
	MO486	45	43.36	+3.8						
	MO487	52	49.66	+4.7						
	MO488	13	15.71	-17.2						

Rolling score graphs (for each speed)



For current performance limits, see appendix 2.

Figure 5 – Interpretive Morphology Report Summary

UK NEQAS Reproductive Science	Andrology - Interpretive Sperm Morphology		Laboratory :	
	Distribution : 128	Date : 02-Mar-2026	Page 2 of 5	
	Distribution Summary			

Proficiency testing materials: Images of Papanicolaou stained spermatozoa.
 The Performance traffic light is calculated over a four distribution time window.
 Images with consensus of less than 60% are unclassified and therefore a target will not be listed.
 The current penalty limit for Interpretive Morphology is 14 points.

Specimen	Result	Target	Penalty	Performance
Sperm classification				
Image 1-1	A	A	0	◆
Image 1-2	A	A	0	◆
Image 1-3	A	A	0	◆
Image 1-4	A	A	0	◆
Image 1-5	A	A	0	◆
Image 1-6	A	A	0	◆
Image 2-7	A	A	0	◆
Image 2-8	A	A	0	◆
Image 2-9	A	A	0	◆
Image 3-10	A	A	0	◆
Image 3-11	A	A	0	◆
Image 3-12	A	A	0	◆
Image 4-13	A	A	0	◆
Image 4-14	A	A	0	◆
Image 4-15	A	A	0	◆
Image 4-16	A	A	0	◆
Image 5-17	A	N	1	▲
Image 5-18	A	A	0	◆
Image 5-19	A	A	0	◆
Image 6-20	A	A	0	◆
Image 6-21	A	A	0	◆
Image 6-22	A	A	0	◆
Image 6-23	A	A	0	◆
Image 7-24	A	A	0	◆

Pie Charts

UK NEQAS Reproductive Science	Andrology - Interpretive Sperm Morphology		Laboratory :	
	Distribution : 128	Date : 02-Mar-2026	Page 4 of 5	
	Analyte : Sperm classification			

Specimen	Result	Target	Penalty	Performance
Specimen : Image 4-13				
Pool :	85			
Total Normals :	2			
Total Abnormals :	221			
This was classed as [A - Abnormal]				
Your penalty	0			
Defect counts :-				
Residual excess cytoplasm :	8			
Head defects :	207			
Mid piece defects :	74			
Tail defects :	38			
Specimen : Image 4-14				
Pool :	86			
Total Normals :	7			
Total Abnormals :	216			
This was classed as [A - Abnormal]				
Your penalty	0			
Defect counts :-				
Residual excess cytoplasm :	6			
Head defects :	211			
Mid piece defects :	16			
Tail defects :	10			
Specimen : Image 4-15				
Pool :	87			
Total Normals :	1			
Total Abnormals :	222			
This was classed as [A - Abnormal]				
Your penalty	0			
Defect counts :-				
Residual excess cytoplasm :	4			
Head defects :	221			
Mid piece defects :	90			
Tail defects :	8			
Specimen : Image 4-16				
Pool :	88			
Total Normals :	65			
Total Abnormals :	158			
This was classed as [A - Abnormal]				
Your penalty	0			
Defect counts :-				
Residual excess cytoplasm :	3			
Head defects :	147			
Mid piece defects :	15			
Tail defects :	9			
Specimen : Image 5-17				
Pool :	295			
Total Normals :	144			
Total Abnormals :	79			
This was classed as [N - Normal]				
Your penalty	1			
Defect counts :-				
Residual excess cytoplasm :	2			
Head defects :	69			
Mid piece defects :	10			
Tail defects :	6			
Specimen : Image 5-18				
Pool :	296			
Total Normals :	61			
Total Abnormals :	162			
This was classed as [A - Abnormal]				
Your penalty	0			
Defect counts :-				
Residual excess cytoplasm :	2			
Head defects :	138			
Mid piece defects :	21			
Tail defects :	34			
Specimen : Image 5-19				
Pool :	298			
Total Normals :	2			
Total Abnormals :	221			
This was classed as [A - Abnormal]				
Your penalty	0			
Defect counts :-				
Residual excess cytoplasm :	1			
Head defects :	203			
Mid piece defects :	50			
Tail defects :	3			
Specimen : Image 6-20				
Pool :	406			
Total Normals :	1			
Total Abnormals :	222			
This was classed as [A - Abnormal]				
Your penalty	0			
Defect counts :-				
Residual excess cytoplasm :	1			
Head defects :	219			
Mid piece defects :	76			
Tail defects :	2			
Specimen : Image 6-21				
Pool :	407			
Total Normals :	0			
Total Abnormals :	223			
This was classed as [A - Abnormal]				
Your penalty	0			
Defect counts :-				
Residual excess cytoplasm :	40			
Head defects :	211			
Mid piece defects :	194			
Tail defects :	5			
Specimen : Image 6-22				
Pool :	408			
Total Normals :	59			
Total Abnormals :	164			
This was classed as [A - Abnormal]				
Your penalty	0			
Defect counts :-				
Residual excess cytoplasm :	2			
Head defects :	136			
Mid piece defects :	52			
Tail defects :	4			
Specimen : Image 6-23				
Pool :	409			
Total Normals :	4			
Total Abnormals :	219			
This was classed as [A - Abnormal]				
Your penalty	0			
Defect counts :-				
Residual excess cytoplasm :	11			
Head defects :	199			
Mid piece defects :	134			
Tail defects :	2			
Specimen : Image 7-24				
Pool :	309			
Total Normals :	30			
Total Abnormals :	193			
This was classed as [A - Abnormal]				
Your penalty	0			
Defect counts :-				
Residual excess cytoplasm :	3			
Head defects :	181			
Mid piece defects :	49			
Tail defects :	8			

For current performance limits, see appendix 2.

Figure 6 – Embryology Scheme Report (part 2)

Histograms



Time Lapse Annotation Histograms

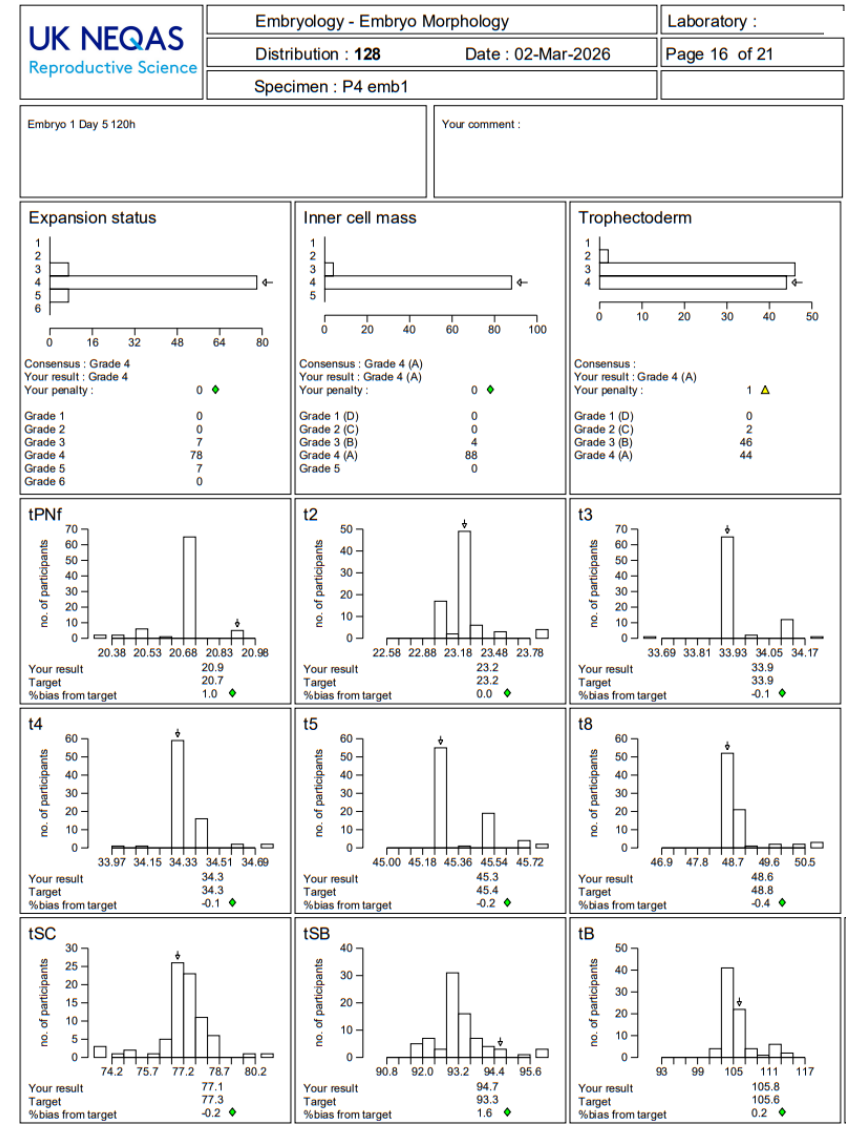
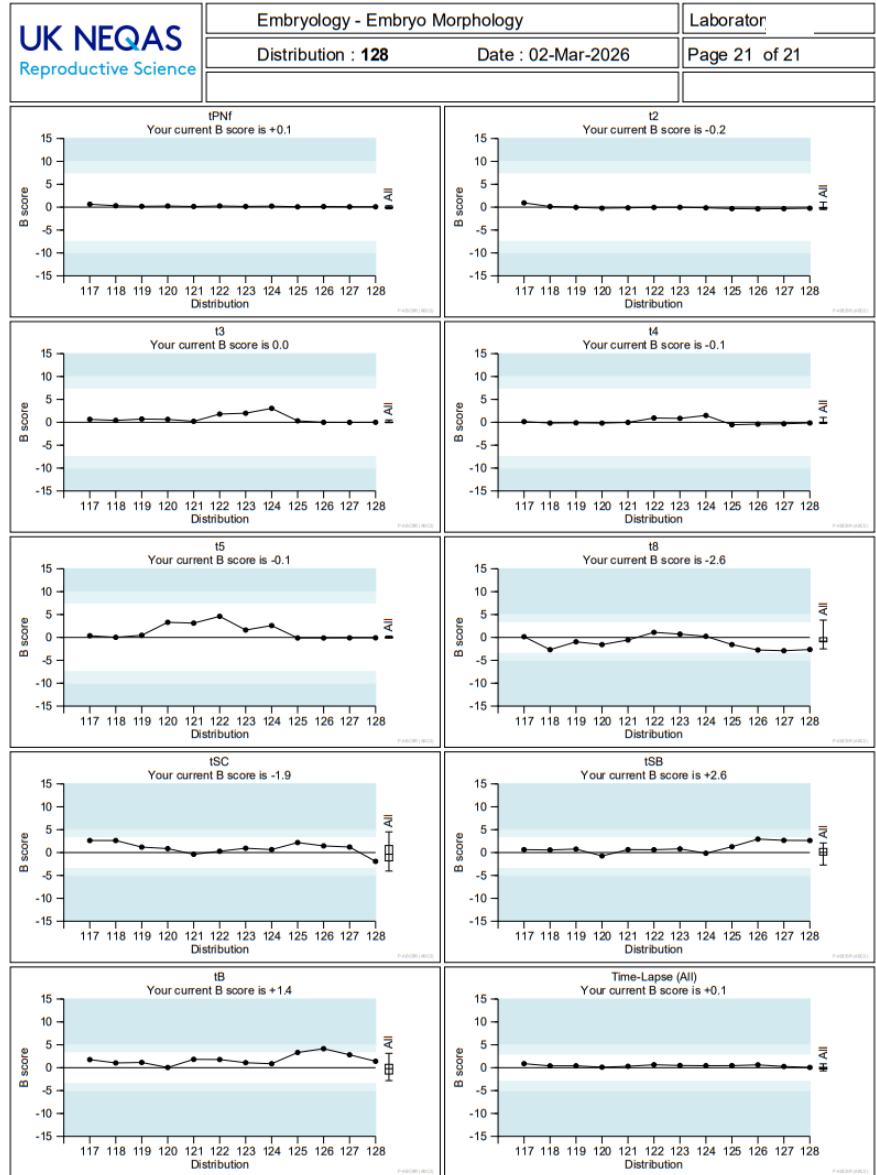
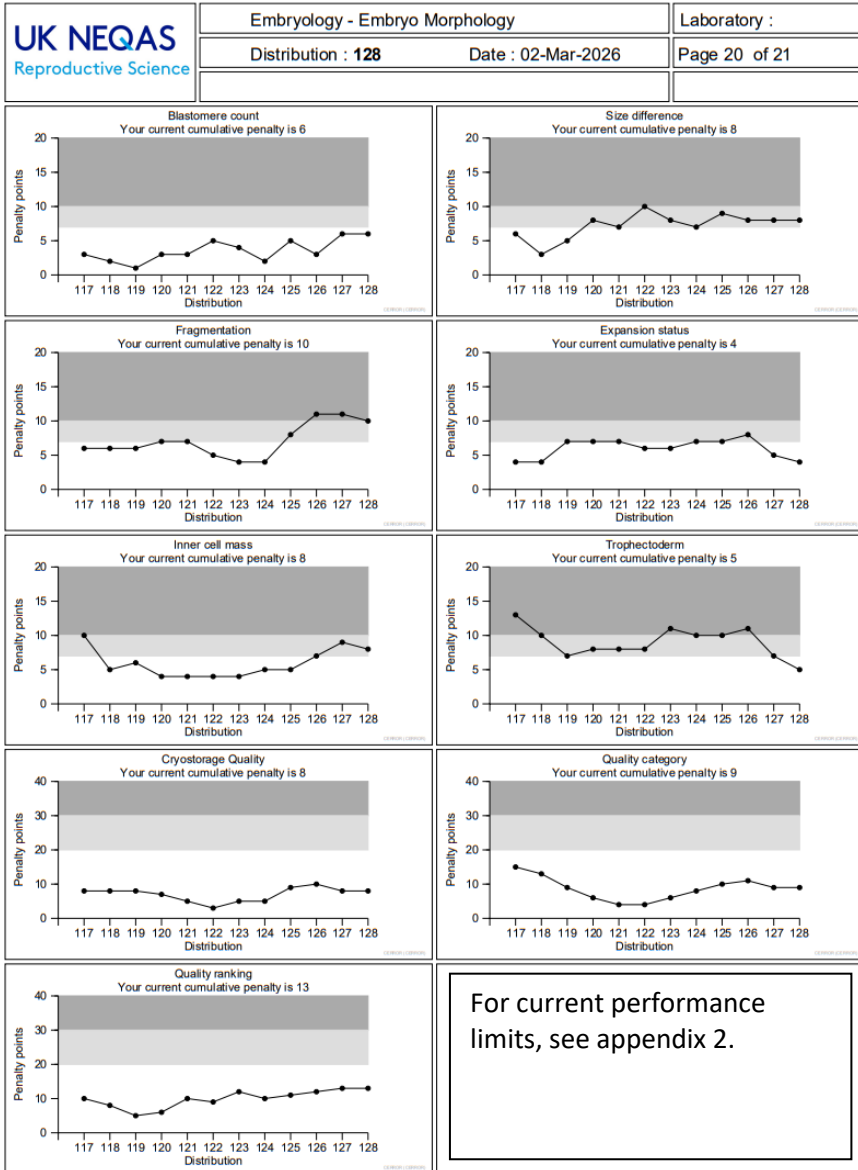


Figure 6 – Embryology Scheme Report (part 3)



Appendix 1: The ABC Reporting system for motility, concentration & 'practical' morphology

In April 2013 the report format changed for the above analytes. The change harmonised the Andrology scheme into line with other UK NEQAS schemes which already use this system. Below is an explanation of the system:

The '**ABC of EQA**' is an ISO 17043:2010 compliant framework which meets and surpasses the utility of existing systems. The main benefit for participant laboratories, EQA Organisers, Steering Committees, Specialist Advisory Groups and the RCPATH's NQA Advisory Panels alike, is that it is a **single** system, which not only **works** across analytes, schemes, and disciplines, but can allow **meaningful comparisons** to be made between analytes, schemes and disciplines.

Definitions

There are three scores **A**, **B** and **C**

A is for **Accuracy** (total error)

B is for **Bias**

C is for **Consistency of bias**

These are conveniently referred to as the '**A score**', '**B score**' and '**C score**', or simply **A**, **B** and **C**.

- Every laboratory will have an **A**, **B** and **C** score for **each analyte** they measure.
- **All 3** scores should be used when assessing performance.
- The **B** and **C** scores (*which have **not** been transformed*) are best looked at together and provide analytical data on average bias and its consistency (pattern).
- The **A** score is weighted as part of a transformation process to take into account factors such as 'degree of difficulty' and normalised (median set at 100) to that attainable by the average laboratory at January 2000, to allow meaningful comparisons across analytes.
- The **A** score is primarily used as a quick 'comparator' or 'screening tool' for performance across all analytes. An **A** score of 100 is 'average', but this may of course be 'better' or 'worse' than what is required clinically, depending on the analyte.

A, B and C scores in detail

Each of the 3 scores is calculated over a **rolling time-window** and thus comprises data (results) from many specimens. At each distribution they are updated with fresh current data, while older data drops out of the 'time-window'.

For **all** UK NEQAS Birmingham Schemes, **all** scores are set so that **a low score is 'good', a high score is 'bad'**.

- The Accuracy **A score** tells you, on average, how good your overall performance is. This takes into account such factors as **bias, consistency of bias, degree of difficulty** etc. It has been *transformed* to ensure that **A scores** are broadly equivalent across analytes. For example, if you have an **A score** of 85 for TSH and you also have an **A score** of 85 for sodium, this would indicate that you are performing both, on average, equally well.
- The Bias **B score** tells you how far away from the 'target', on average, you are. It has **not** been transformed. Therefore, a **B score** of 5% for TSH might be considered to be very acceptable, while a **B score** of 5% for sodium would suggest your assay is in urgent need of attention.
- The Consistency of bias **C score** tells you, on average, if you usually have the same bias pattern. It is also **not** transformed and can assist in answering the following questions. '*Do you have different bias depending on the concentration of analyte in the sample?*' '*Does your bias vary depending on the*

*specimen matrix?' 'Has your bias changed during the time window?' 'Are you imprecise?' A high (poor) C score does not necessarily mean that you are imprecise, though if you are imprecise, it is impossible for you to have a very good (low) C score. Poor consistency of bias is **not** the same as imprecision.*

A, B and C score calculation

The specimen-level % bias calculation (**specimen %bias**) is at the heart of all calculations:

$$\text{specimen \% bias} = \frac{(\text{result} - \text{target})}{\text{target}} \times 100$$

If the target is 10 and you get a result of 11, then your bias is +10%; if the target is 10 and you get a result of 8, then your bias is -20%; if the target is 10 and you get a result of 10, then your bias is 0%, and so on.

We then calculate your '**B score**', (i.e. your **average bias**), as the **trimmed mean** of all individual '**specimen %biases**' (*including the sign*) in the rolling time window.

The '**C score**' is simply the **standard deviation** (adjusted to take into account the degree of trimming) of the data which make up the B score.

The **A score** is an estimate of **accuracy [total error]** in UK NEQAS and is derived as follows:

- we take your **Specimen % bias** and transform it by a 'degree of difficulty' factor (see below) to get your **Specimen transformed bias** [this can be positive or negative]
- we then take the modulus of this **Specimen transformed bias** to give the **Specimen Accuracy Index** [as it is a modulus it has no sign]
- we calculate your '**A score**' as the **trimmed mean** of all of your **Specimen Accuracy Indices** in the rolling time-window.

(Taken from "The 'ABC of EQA' harmonised scoring in UK NEQAS" (V6, January 2007))

A, B, C system in relation to Reproductive Science schemes.

The individual sample results are compared to the Target Value to give each result a % Bias. The symbols for individual % biases (green diamond, yellow triangle and red double triangle) are for consistency based on the same levels as the rolling scores (below).

The time-window is set at 4 distributions (equivalent to 1 year). So the A, B & C scores are all based on data submitted in this time-window.

The reports also use a summary page to bring the report together in an easy to view format that includes the results, the rolling A, B & C scores, the colour icons and trend arrows.

Example reports:

Summary page (concentration & morphology)

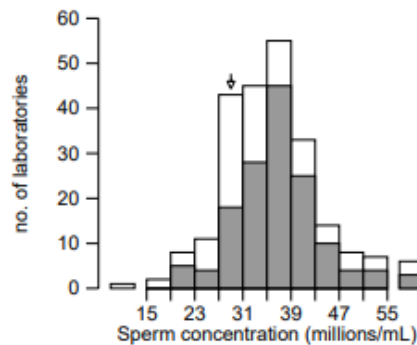
The 'trend' arrows help you to see if your results are improving, staying constant or getting worse.

	Specimen	Result	Target	Specimen %bias	A score	B score	C score	A	B	C
Sperm concentration (millions/mL)	S505	31	36.76	-15.7 ▼	63	-1.3	22.4	● ↔	● ↔	● ↔
	S506	24.75	24.10	+2.7 ◆						
	S507	9.95	8.97	+10.9 ▲						
	S508	29.88	36.22	-17.5 ▼						
Sperm morphology (% normal)	S505	3	3.03	-1.1 ◆	45	-20.7	18.0	● ↔	● ↔	● ↔
	S506	2	2.53	-21.0 ◆						
	S507	2	2.84	-29.6 ◆						
	S508	2	2.96	-32.4 ◆						

Results page (concentration & morphology)

Specimen : S505

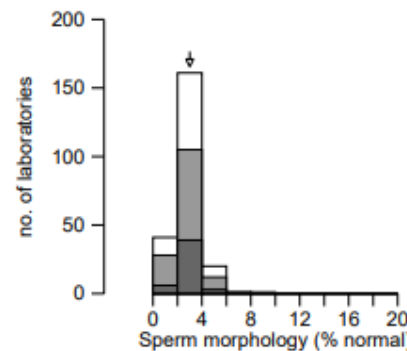
	n	Mean	SD	CV(%)
All methods [ALTM]	233	35.45	5.49	15.5
Computer Assisted Semen Analysis	15	31.31	3.39	10.8
Improved Neubauer	146	36.76	4.62	12.6
Other	63	33.37	6.83	20.5



Your result	31
Target value (Improved Neubauer)	36.76
Your specimen: %bias	-15.7 ▼
transformed bias	-78
Pool	402
Standard Uncertainty	0.51

Specimen : S505

	n	Mean	SD	CV(%)
All methods [ALTM]	224	3.04	0.67	22.1
WHO 2021 / Strict	146	3.03	0.65	21.4
WHO 2010 / Strict	68	3.18	0.85	26.8
WHO 1999 (GOLD BOOK)	7	3.64	0.52	14.3
Other (please specify)	3	3.03	0.75	24.7



Your result	3
Target value (WHO 2021 / Strict)	3.03
Your specimen: %bias	-1.1 ◆
transformed bias	-2
Pool	402
Standard Uncertainty	0.07

Summary page (motility)

	Specimen	Result	Target	Specimen %bias	A score	B score	C score	A	B	C
Rapid (%)	MO485	30	28.73	+4.4 ◆	92	-3.0	32.0	● ↔	● ↔	● ↘
	MO486	39	31.97	+22.0 ▲						
	MO487	48	41.48	+15.7 ▲						
	MO488	5	7.81	-36.0 ▼						
Slow (%)	MO485	15	13.72	+9.3 ◆	99	+7.3	80.7	● ↔	● ↗	● ↔
	MO486	6	11.39	-47.3 ▼						
	MO487	4	7.90	-49.4 ▼						
	MO488	8	7.66	+4.4 ◆						
Non Progressive (%)	MO485	5	4.99	+0.3 ◆	68	-0.4	42.5	● ↔	● ↔	● ↔
	MO486	4	5.53	-27.6 ◆						
	MO487	1	3.66	-72.7 ▼						
	MO488	3	3.60	-16.6 ◆						
Immotile (%)	MO485	50	51.90	-3.7 ◆	65	-1.1	10.1	● ↗	● ↔	● ↔
	MO486	51	50.56	+0.9 ◆						
	MO487	43	46.55	-7.6 ◆						
	MO488	84	80.38	+4.5 ◆						
All Progressive Motility (%)	MO485	45	42.62	+5.6 ◆	53	-0.3	10.2	● ↔	● ↔	● ↔
	MO486	45	43.36	+3.8 ◆						
	MO487	52	49.66	+4.7 ◆						
	MO488	13	15.71	-17.2 ▼						

The 'trend' arrows help you to see if your results are improving, staying constant or getting worse.

Results page (motility)

UK NEQAS Reproductive Science		Andrology - Sperm Motility		Laboratory :																	
		Distribution : 128	Date : 02-Mar-2026	Page 3 of 15																	
		Specimen : MO485																			
Acceptable limits : <input type="checkbox"/> All methods <table border="1"> <tr> <td></td> <td>A</td> <td>B</td> <td>C</td> </tr> <tr> <td>Progressive Motility</td> <td>200</td> <td>20</td> <td>40</td> </tr> <tr> <td>Non Progressive</td> <td>200</td> <td>75</td> <td>140</td> </tr> <tr> <td>Immotile</td> <td>200</td> <td>20</td> <td>50</td> </tr> </table> <p>ABC scores are calculated over a 4 distribution time-window. Target values are an All Laboratory Trimmed Mean (ALTM) of Participants' returns. For further details see Participants' Handbook.</p>							A	B	C	Progressive Motility	200	20	40	Non Progressive	200	75	140	Immotile	200	20	50
	A	B	C																		
Progressive Motility	200	20	40																		
Non Progressive	200	75	140																		
Immotile	200	20	50																		
Rapid (%)		n	Mean	SD	CV(%)	Your result	30														
All methods [ALTM]		224	28.73	9.22	32.1	Target value (ALTM)	28.73														
						Your specimen: %bias	+4.4 ◆														
						transformed bias	+13														
						Pool	132														
						Standard Uncertainty	0.77														
						Your A score	92 ●														
						Your B score	-3.0 ●														
						Your C score	32.0 ●														
Slow (%)		n	Mean	SD	CV(%)	Your result	15														
All methods [ALTM]		224	13.72	7.26	52.9	Target value (ALTM)	13.72														
						Your specimen: %bias	+9.3 ◆														
						transformed bias	+24														
						Pool	132														
						Standard Uncertainty	0.61														
						Your A score	99 ●														
						Your B score	7.3 ●														
						Your C score	80.7 ●														
Non Progressive (%)		n	Mean	SD	CV(%)	Your result	5														
All methods [ALTM]		224	4.99	2.90	58.2	Target value (ALTM)	4.99														
						Your specimen: %bias	+0.3 ◆														
						transformed bias	+1														
						Pool	132														
						Standard Uncertainty	0.24														
						Your A score	68 ●														
						Your B score	-0.4 ●														
						Your C score	42.5 ●														
Immotile (%)		n	Mean	SD	CV(%)	Your result	50														
All methods [ALTM]		224	51.90	7.55	14.6	Target value (ALTM)	51.90														
						Your specimen: %bias	-3.7 ◆														
						transformed bias	-31														
						Pool	132														
						Standard Uncertainty	0.63														
						Your A score	65 ●														
						Your B score	-1.1 ●														
						Your C score	10.1 ●														
All Progressive Motility (%)		Mean	SD	CV(%)		Your result	45														
All methods [ALTM]		224	42.62	6.50	15.2	Target value (ALTM)	42.62														
						Your specimen: %bias	+5.6 ◆														
						transformed bias	+46														
						Pool	132														
						Standard Uncertainty	0.55														
						Your A score	53 ●														
						Your B score	-0.3 ●														
						Your C score	10.2 ●														

'A' scores

The 'A' scores for samples is a 'transformed bias' (%bias x 100 / CCV). UK NEQAS normalise ABC data so that the median 'A' score at 1st January 2000 is 100 (setting the Chosen Co-efficient of Variation (CCV) to achieve this). More information on the current CCV values is available by contacting the scheme.

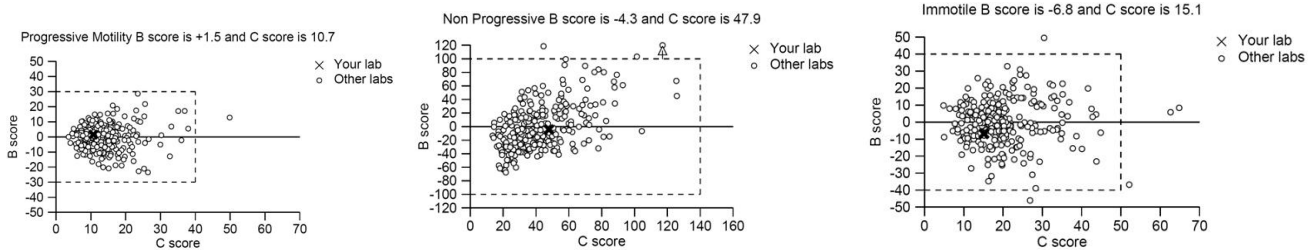
'B' & 'C' scores

We have plotted the data and looked at the 5th/95th percentiles to determine suitable values for B & C. We have also introduced a colour system into the reports to make it easier to determine your performance.

The allowance of % BIAS (B score) or (C score) is (where Green = satisfactory, Yellow = warning and Red = unsatisfactory):

Motility

The below penalty box plots show the 95th/5th centiles used to determine the B & C score limits:



B scores:	Green	Yellow	Red
Rapid Progressive	0 to +/- 10	+/-10 to +/-20	>+/-20
Slow Progressive	0 to +/- 30	+/-30 to +/-50	>+/-50
Non-Progressive:	0 to +/- 50	+/-50 to +/-75	>+/-75
Immotile:	0 to +/- 10	+/-10 to +/-20	>+/-20
All Progressive:	0 to +/- 10	+/-10 to +/-20	>+/-20

C scores:	Green	Yellow	Red
Rapid Progressive	0 to 20	20 to 40	>40
Slow Progressive	0 to 70	70 to 100	>100
Non-Progressive:	0 to 100	100 to 140	>140
Immotile:	0 to 30	30 to 50	>50
All Progressive:	0 to 20	20 to 40	>40

Concentration

B scores:	Green	Yellow	Red
Concentration	0 to +/-10	+/-10 to +/- 20	>+/-20

C scores:	Green	Yellow	Red
Concentration	0 to 15	15 to 25	>25

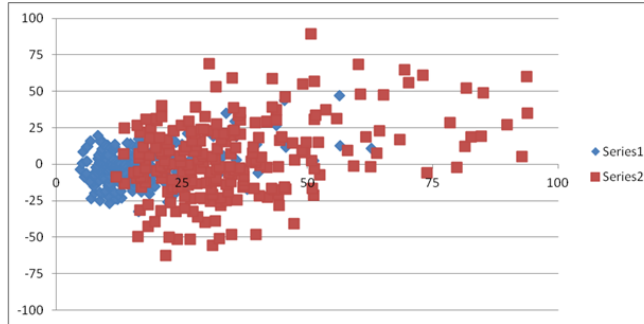
Morphology (practical)

B scores:	Green	Yellow	Red
Morphology	0 to +/-50	+/-50 to +/- 75	>+/-75
Abnormal Heads	0 to +/-10	+/-11 to +/- 20	>+/-20
Abnormal Midpiece	0 to +/-50	+/-51 to +/- 75	>+/-75
Abnormal Tail	0 to +/-50	+/-51 to +/- 75	>+/-75
Excess Residual Cytoplasm	0 to +/-50	+/-51 to +/- 75	>+/-75
Teratozoospermia index (TZI)	0 to +/-30	+/-31 to +/- 50	>+/-50

C scores:	Green	Yellow	Red
Morphology	0 to 25	25 to 75	>75
Abnormal Heads	0 to 10	11 to 20	>20
Abnormal Midpiece	0 to 50	51 to 75	>75

Abnormal Tail	0 to 50	51 to 75	>75
Excess Residual Cytoplasm	0 to 50	51 to 75	>75
Teratozoospermia index (TZI)	0 to 30	31 to 50	>50

The below penalty box plots show the 95th/5th centiles used to determine the B & C score limits: B vs.C for Concentration (blue) and Morphology (red).



Performance assessment

In essence, an A score of >200 (i.e. red) for two consecutive distributions would raise an unsatisfactory performance flag. However, if the median A score has improved with time (e.g. from Jan 1st 2000) because the "state of the art" of the scheme has improved, then few people will fail this criteria because A scores will generally be lower.

We therefore tend to use either a B score and/or C score failing (red) for 2 consecutive distributions.

We use 4 distributions (16 data points) for the rolling ABC time window. The format is designed so that the performance is determined automatically over a four-distribution period. 'RED' & 'AMBER' labs would then be contacted. (participants who have a red B and/or C score for >2 consecutive distributions). This would not include 'Non returns' which are addressed separately.

Appendix 2:

Performance criteria - Limits of Acceptable Performance in UK NEQAS Reproductive Science Schemes

For all UK NEQAS Reproductive Science schemes, the current rolling ‘time-window’ period of assessment is 4 distributions.

Analytes, for which performance criteria have been agreed by the RCPATH’s National Quality Assurance Advisory Panel (NQAAP) for Reproductive Science, on recommendation from the UK NEQAS Steering Committee, are shown in **green**

Analytes (which are not yet scored for performance and) for which performance limits are provided for participants' guidance are shown in **blue**

Below are the performance limits for each scheme in the four-distribution time-window. Participants whose scores go above these limits may be contacted about their performance. If a participant does not return results they will also be contacted.

Andrology (Semen Analysis) Scheme

	Consensus limit	Penalty limit	B score limit (+/-)	C score limit
Semen concentration			20	25
Sperm morphology			75	75
Abnormal Heads			20	20
Abnormal Midpiece			75	75
Abnormal Tails			75	75
Excess Residual Cytoplasm			75	75
Teratozoospermia index (TZI)			50	50
Sperm motility – Rapid Progressive			20	40
Sperm motility – Slow Progressive			50	100
Sperm motility – Non-Progressive			75	140
Sperm motility – Immotile			20	50
Sperm motility – Progressive			20	40
Interpretive morphology	60%	14		

Embryology scheme

	Consensus limit	Penalty limit*	B score limit (+/-)
Embryo grading	50%	10	
Time-lapse annotation	50%		5

*N.B. only ARCS Embryo Grading System parameters (cell number, even-ness, fragmentation, blastocyst expansion, inner cell mass and trophoctoderm) are used to monitor satisfactory performance. Embryo suitability for freezing and quality ranking are not, as clinics may have different policies/criteria for this. Therefore, this part of the scheme is for interpretive/educational purposes only.

It must be emphasised that a single unsatisfactory score does not constitute "unsatisfactory performance", and while repeated transgressions will trigger internal scrutiny by the Scheme Organiser this does not automatically mean that the laboratory will be contacted.

Appendix 3: ARCS Embryo Morphology Grading System (version 2, April 2017)

Grading system developed with the Association of Clinical Embryologists (ACE) and ratified by Association of Reproductive Clinical Scientists (ARCS) in 2020.

Cleavage stage embryo grading system

Assess blastomere number followed by grading of blastomere size and degree of fragmentation.

	First assess blastomere number	
Grades	Blastomere size	Fragmentation
4	Same as ideal stage specific embryo*	<10%
3	Stage specific size for majority of blastomeres (i.e. slightly uneven sizes)	10-20%
2	Majority of blastomeres different sizes	>20-50%
1	Not stage specific	>50%

*Please see figure 1

Blastocyst stage embryo grading system

Expansion Score	Expansion status	ICM/ TE score*	Inner Cell Mass (ICM)**	Trophectoderm (TE)**
6	Hatched blastocyst (the blastocyst has evacuated the ZP)			
5	Hatching blastocyst (trophectoderm has started to herniate through ZP)			
4	Expanded (blastocoel volume larger than the embryo, with thinning of ZP)	A	ICM prominent, easily seen, tightly adhered compacted cells	Continuous layer of small identical cells
3	Full blastocyst (blastocoel completely fills embryo)	B	ICM less prominent (cells appear compacted and larger in size, loosely adhered)	Fewer cells with gaps, not continuous
2	Blastocyst (blastocoel >50% volume of embryo)	C	Very few cells visible (cells similar to TE)	Fewer small cells with large cells, not continuous
1	Early blastocyst (blastocoel <50% volume of embryo)	D	No visible cells or visible cells are degenerate or necrotic	Sparse cells, large/flat/degenerate

*A numerical score from 4 to 1 may be used for statistical purposes or where a 'cumulative' score is required e.g. where 4=A etc.

** see Figure 2

Figure 1: The diagram below gives an illustration of the cell sizes in idealised embryos

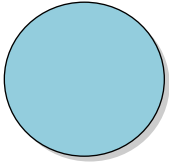
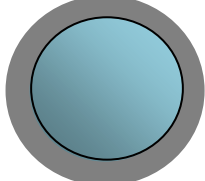
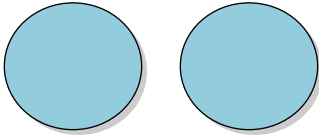
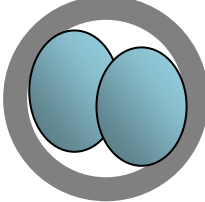
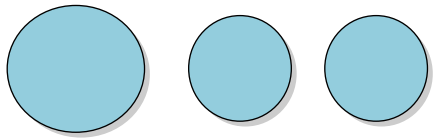
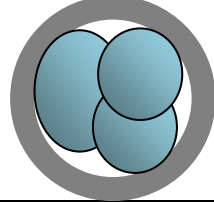
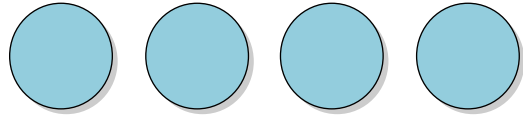
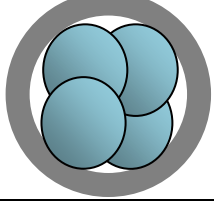
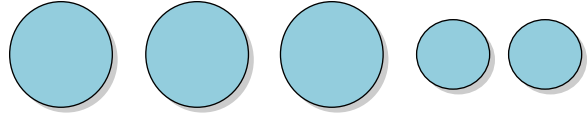
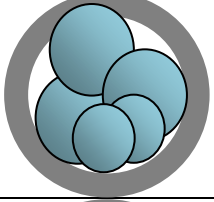
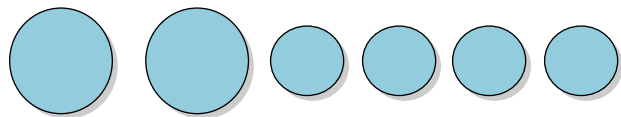
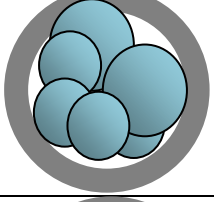
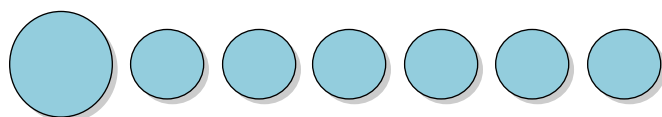
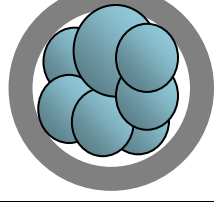
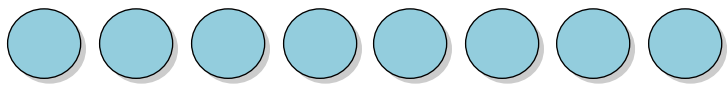
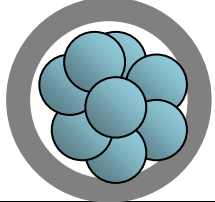
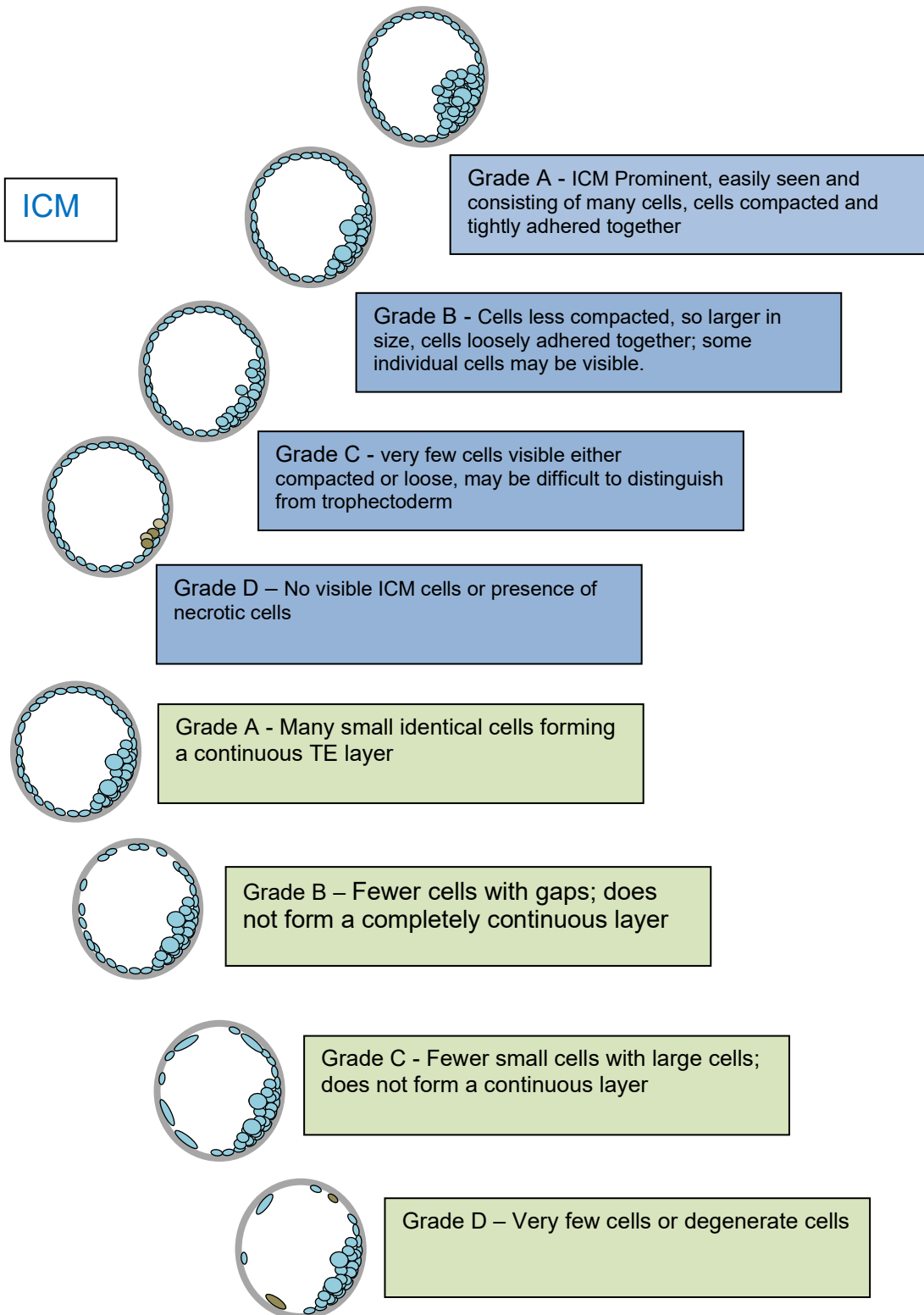
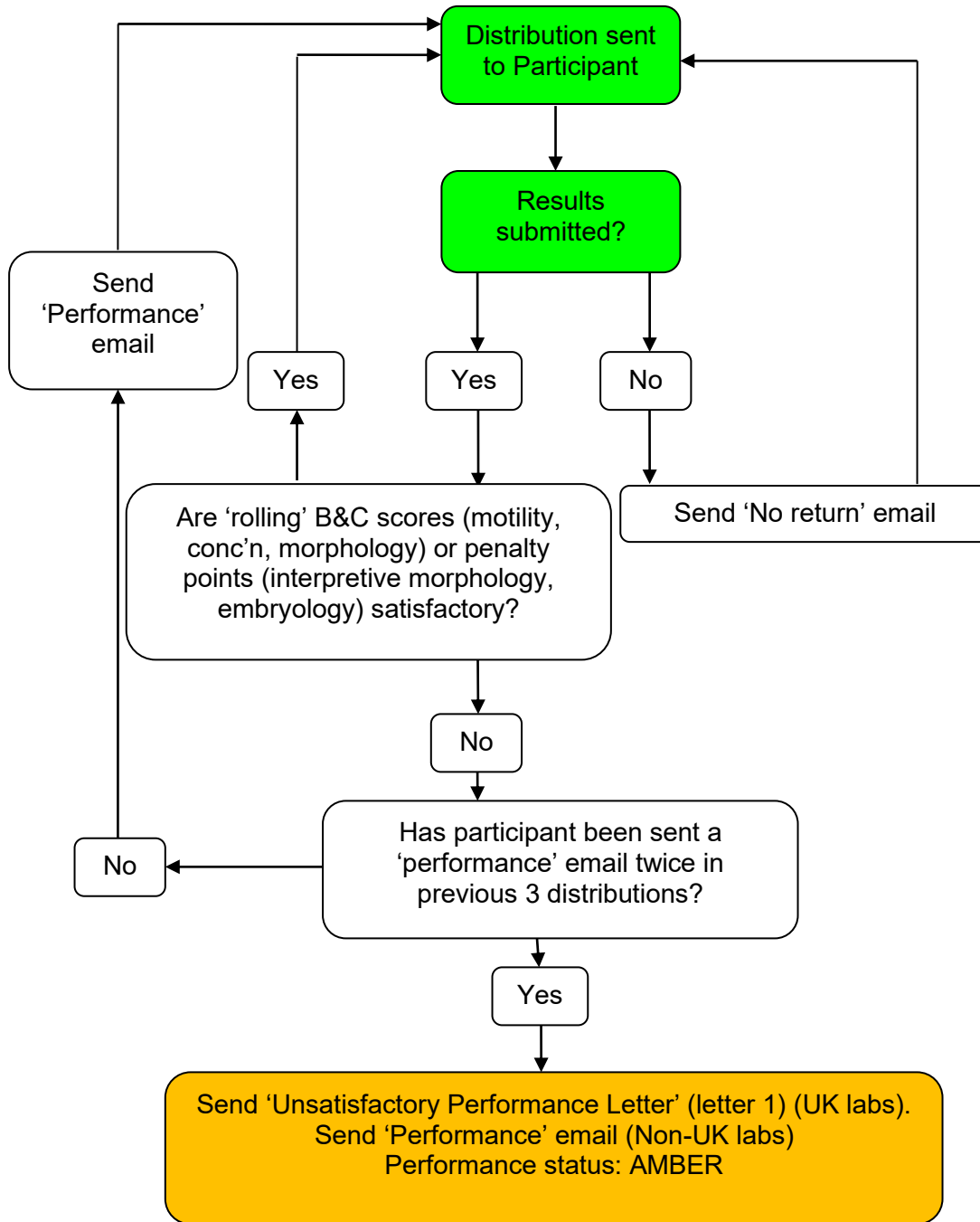
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2-cell		
3-cell		
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5-cell		
6-cell		
7-cell		
8-cell		

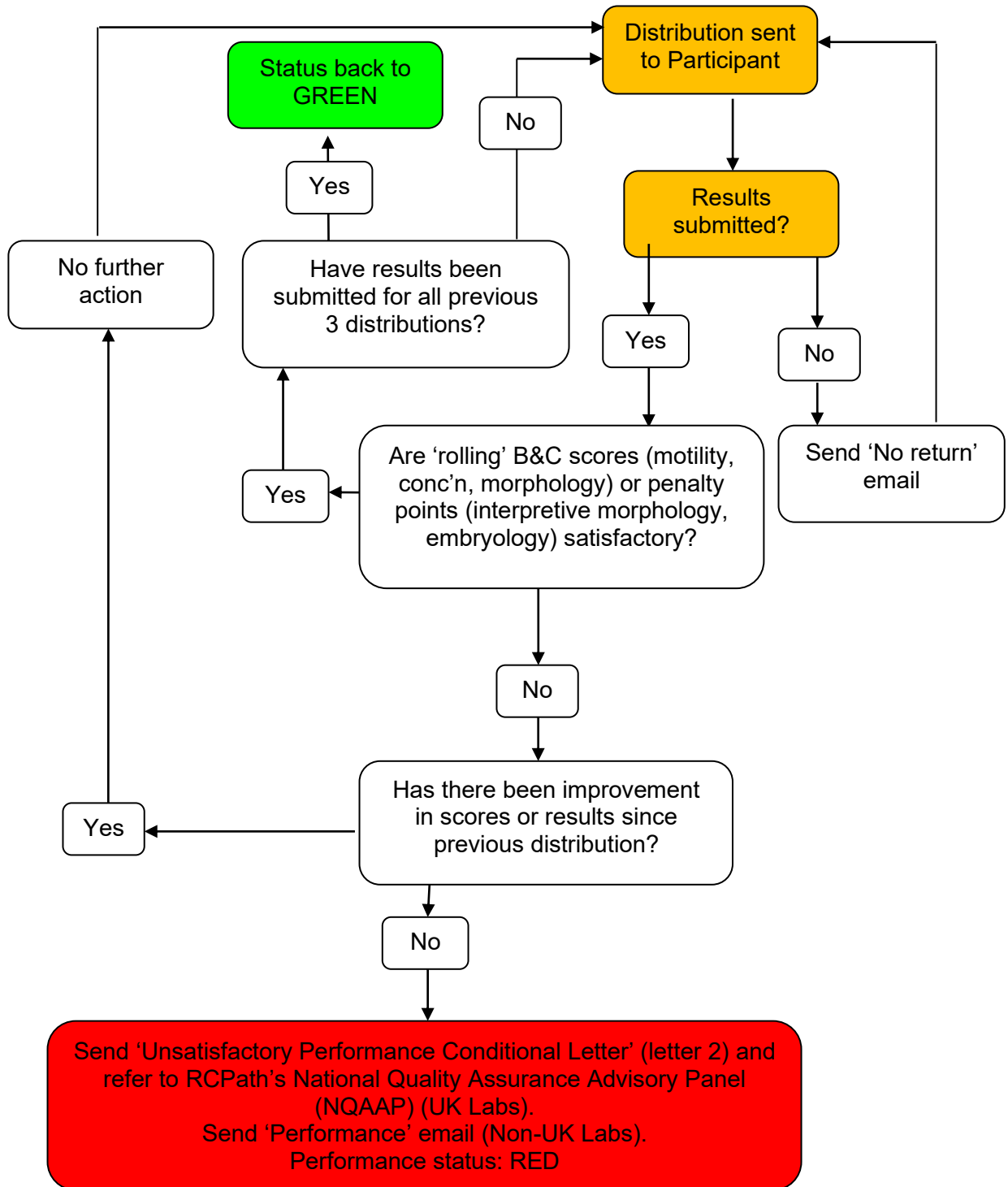
Figure 2: The blastocyst grading system is illustrated below



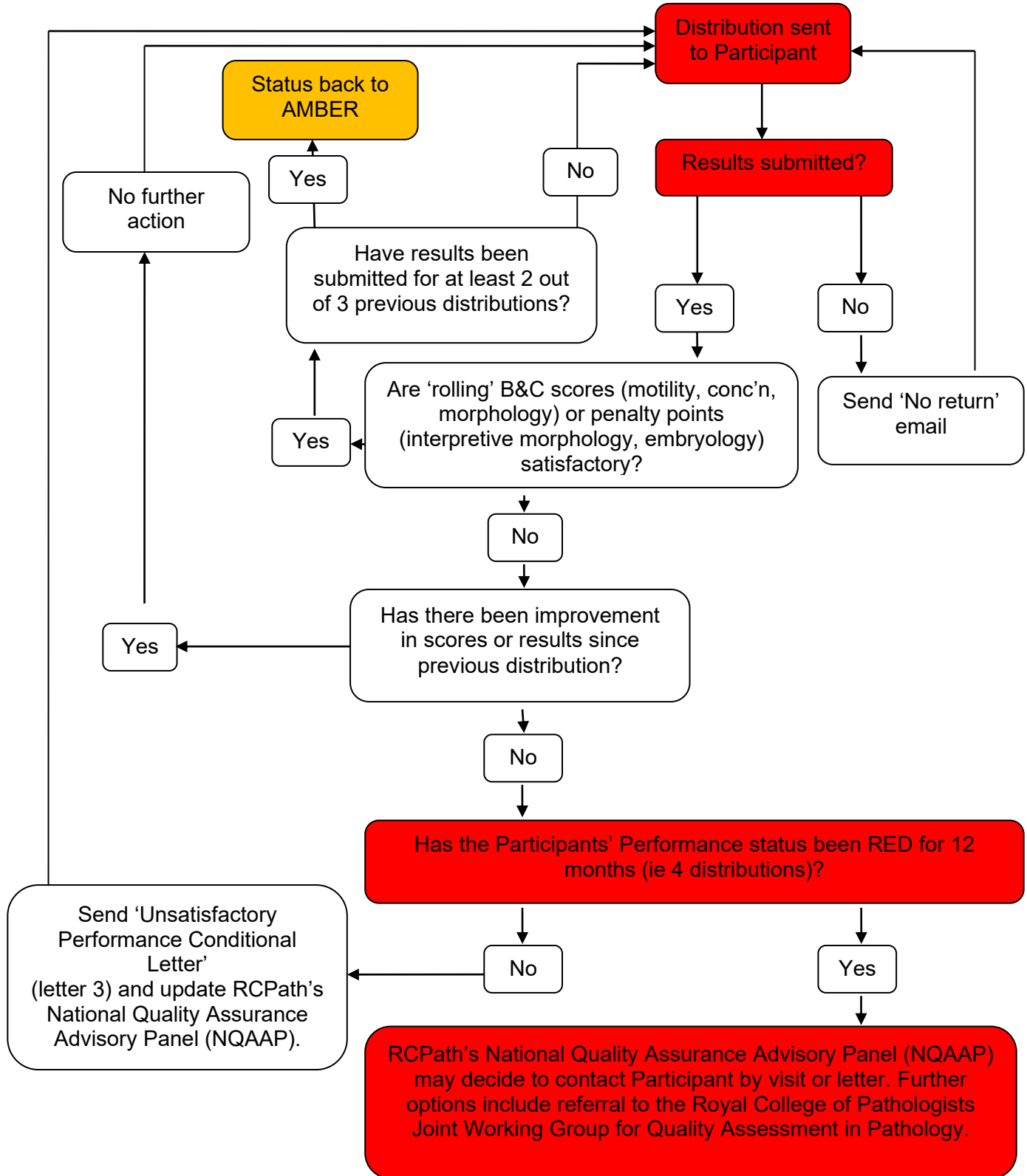
**Appendix 4: Performance in UK NEQAS Reproductive Science Schemes
GREEN to AMBER**



**Performance in UK NEQAS Reproductive Science Schemes
AMBER to RED**



**Performance in UK NEQAS Reproductive Science Schemes
RED (UK Labs only)**



Appendix 5: Terms and Conditions of Participation UK NEQAS for Reproductive Science

Updated: 14th May 2026

1. The UK National External Quality Assessment Services for Reproductive Science (UK NEQAS Reproductive Science), herein referred to as *the Scheme*, is hosted by Manchester University NHS Foundation Trust (MFT), which acts as the legal entity.
2. All samples distributed as part of the Scheme must be treated, handled, and disposed of as if they were clinical specimens. Participants are responsible for ensuring their laboratory facilities and staff are adequately equipped and trained to safely handle such materials.
3. Scheme participation is continuous from year to year unless the Scheme Organiser is informed in writing of withdrawal. The membership period runs from 1 April to 31 March annually. Participants joining mid-year may be eligible for a pro-rata fee based on the remaining period of the Scheme year. Withdrawal from the Scheme can occur at any time, but no refund of fees already paid will be given. The full annual fee remains applicable unless formal written notification of withdrawal is received before the start of the Scheme year.
4. UK NEQAS Reproductive Science reserves the right to amend the design of the Scheme during the year and may suspend services where provision depends on the availability of clinical materials.
5. Each participating laboratory will be assigned a unique UK NEQAS code number, consistent across UK NEQAS centres. Participation, identifiable raw data, and performance scores are confidential and will not be disclosed to third parties, except in line with agreed mechanisms for managing performance concerns. All UK-based participants providing clinical services are subject to the Royal College of Pathologists Quality Assurance Pathology Committee (QAPC) conditions of EQA Scheme participation. Participants may share their own performance data with clients but not for promotional or advertising purposes.
6. All reports and associated data issued by the Scheme are copyright protected and may not be published, distributed, or used for promotional purposes without written permission from the Scheme Organiser.
7. Failure to pay membership fees by the due date may result in termination of Scheme participation without notice, and MFT reserves the right to recover any outstanding fees for services already provided.
8. MFT and UK NEQAS Reproductive Science accept no liability for indirect or consequential loss, including (but not limited to) loss of profit, business opportunity, reputation, or third-party claims, however arising.
9. Participants bear full responsibility for the handling and use of all samples received, including any related activities performed by themselves or third parties, from the moment of receipt.
10. Overseas Participants are responsible to make UK NEQAS aware, in writing of any additional import or Customs rules or fees.
11. MFT and UK NEQAS Reproductive Science warrant that all services provided under the Scheme will be performed with reasonable care and skill. To the extent permitted by law, all other warranties, terms, and conditions (implied by statute, common law, or otherwise) are excluded.

12. The total liability of MFT and UK NEQAS Reproductive Science to a participant in any Scheme year shall not exceed the value of the annual fee paid by that participant for the same period.
13. By completing our enrolment form, or our renewal form, you authorise UK NEQAS to handle your personal data in accordance with EU Regulation 2016/679 (GDPR)
14. Participant data provided to UK NEQAS Reproductive Science will be used solely for the administration of Scheme participation and handled in accordance with our Privacy Policy, which is available on the UK NEQAS Reproductive Science website.
15. Participation in the Scheme does not constitute evidence that a laboratory meets recognised national or international technical standards (e.g., WHO, ISO, HFEA, ARCS).
16. Collusion between participants and falsification of results are strictly prohibited.
17. Participants will be notified of changes to the Scheme's design or operation by email, with details also reflected in the Participants' Handbook.
18. These terms and conditions shall be governed by, and construed in accordance with, the laws of England. Both MFT and the participant agree to submit to the exclusive jurisdiction of the English courts.

Appendix 6: FREQUENTLY ASKED QUESTIONS (FAQ)

Q: How do I know when to expect the survey material?

A: You should have received a scheme leaflet that contains a schedule at registration or re-registration. A schedule can also be found on the website: <https://mft.nhs.uk/saint-marys/services/gynaecology/reproductive-medicine/uknegasreproductive-science/>

Q: What do I do if my specimens don't arrive when expected?

A: If they haven't arrived within 5 working days (UK Labs) after the published distribution date, you should contact the Scheme for advice. For overseas participants it is difficult to predict how long it will take to arrive by post. If overseas labs have difficulties, it may be worth considering using a courier service.

Q: What do I do if I miss the closing date?

A: Unfortunately, we are unable to accept late results. Please email the scheme at repscience@uknegas.org.uk giving an explanation as to why the materials were not processed in time (please quote your UK NEQAS ID number).

Q: What do I do if the sample quality is unsatisfactory or if I break the samples?

A: Contact the Scheme on repscience@uknegas.org.uk or +44 (0) 161 276 6437 to request a repeat sample. You will need to give for your ID number and the reason for your request.

Q: What do I do if I cannot find or have forgotten my UK NEQAS ID or password?

A: Email the Scheme at repscience@uknegas.org.uk. If you are not the main contact, your email request will need to be copied to the main contact, so we can release an ID or password.

Q: What do I do if I cannot find or have forgotten my gamete-expert.com password?

A: Go to the <http://gamete-expert.com/morphology/login-password-forgotten.html> and enter your email address. If you do not receive contact within 24 hours email repscience@uknegas.org.uk.

Q: Can I change my password details?

A: You are supplied with a randomly generated password; you may change this on request, however there are some restrictions, e.g. the password must be at least 7 characters long and contain a mixture of alpha and numeric characters.

Q: Other EQA schemes are available. Why should I participate in UK NEQAS?

A: UK NEQAS has over 50 years of experience in offering EQA schemes. Our Semen analysis and Embryology schemes are accredited by UKAS to ISO 17043:2023 standards.

Q: The method/sub method I am using for concentration/morphology is not on the list on the 'results and reports' website. What do I do?

A: Contact us at repscience@uknegas.org.uk and give us the details of the method. We can then update our lists.

Q: Why do we have two morphology schemes?

A: The 'practical' morphology scheme mimics the processing, analysing and reporting for morphology that you do in the laboratory. The interpretive morphology scheme compliments this by asking participants to assess the same images of sperm. Over time this should make morphology reporting more consistent.

Q: We do not report morphology, can we opt out of this analyte?

A: No. The WHO guidelines define Semen Analysis as including concentration, motility and morphology so it is an important part of the test. UK NEQAS cannot give an 'opt out'. If you do not return results you will have to justify to your institution and regulatory body (for example UKAS or HFEA)

Q: At what stage of the time lapse should I grade my blastocyst?

A: During the time lapse video the required Day and hours required for assessment will be displayed on screen.

Q: What support is available if results fall below expected values?

A: Scheme staff can offer advice on all aspects of the schemes. Please read the below section on troubleshooting and if you can't find an answer email repscience@ukneqas.org.uk quoting your lab ID number.

Q: There is aggregation in my UK NEQAS semen sample, will it affect my results?

A: All UK NEQAS samples should be mixed on a vortex mixer for up to a minute before analysing. If aggregation persists it should be ignored and testing performed as normal. Ongoing studies show that it is an artefact and does not adversely affect results. Repeat sets are available if participants are concerned.

Performance troubleshooting:

Q: My performance in Semen concentration is unsatisfactory, what can I do?

A: First you need to establish if this is a one-off event or an ongoing problem. To do this you need to look at your 'rolling time window' results. It would then be worth considering:

- Were unsatisfactory results due to non-analytical problems (e.g. non return of results, input error, dilution error)?
- Were the samples mixed thoroughly using a vortex mixer (recommended)?
- Were the samples stored at 2-8°C when not in use?
- Were the counting chambers calibrated recently (where applicable)?
- Were the dilution pipettes calibrated recently (where applicable)?
- Were positive displacement pipettes used (where applicable)?

If further assistance is required, contact repscience@ukneqas.org.uk quoting your UK NEQAS ID number.

Q: My performance in practical morphology is unsatisfactory, what can I do?

A: First you need to establish if this is a one-off event or an ongoing problem. To do this you need to look at your 'rolling time window' results. It would then be worth considering:

- Were unsatisfactory results due to non-analytical problems (e.g. non return of results, input error, reporting of 'Abnormal' forms)?
- Were the samples mixed thoroughly using a vortex mixer (recommended)?
- Were the slides stained using a recognised staining method for morphology?
- Were the slides assessed using a recognised method (e.g. WHO 6th edition)?
- Did the microscope have an integral graticule for measuring sperm?
- Were 'interpretive morphology' results also unsatisfactory (this may pinpoint a problem in assessment)?

If further assistance required contact repscience@ukneqas.org.uk quoting your ID number

Q: My performance in Sperm motility is unsatisfactory, what can I do?

A: First you need to establish if this is a one-off event or an ongoing problem. To do this you need to look at your 'rolling time window' results. It would then be worth considering:

- Were unsatisfactory results due to non-analytical problems (e.g. input error)?
- Were videos assessed using WHO criteria?

If further assistance required contact repscience@uknegas.org.uk quoting your ID number

Q: My performance in Interpretive morphology is unsatisfactory, what can I do?

A: First you need to establish if this is a one-off event or an ongoing problem. To do this you need to look at your 'rolling time window' results. It would then be worth considering:

- Were unsatisfactory results due to non-analytical problems (e.g. input error)?
- Were 'practical' morphology results also unsatisfactory (this may pinpoint a problem in assessment)?

If further assistance required contact repscience@uknegas.org.uk quoting your ID number

Q: My performance in Embryology is unsatisfactory, what can I do?

A: First you need to establish if this is a one-off event or an ongoing problem. To do this you need to look at your 'rolling time window' results. It would then be worth considering:

- Were unsatisfactory results due to non-analytical problems (e.g. input error)?
- Were embryos assessed using the recognised ARCS criteria (see appendix 3)?

If further assistance required contact repscience@uknegas.org.uk quoting your ID number

Appendix 7: Embryo time-lapse annotation analyte

This part of the Embryology scheme was launched April 2016 and is an extension to the time-lapse images used for Patient 4 blastocyst grade assessment.

For 'Schedule of Analytes, see Participants' Handbook, page 23.

Time Lapse Annotation

*Taken from: Proposed guidelines on the nomenclature and annotation of dynamic human embryo monitoring by a time-lapse user group H. Nadir Ciray^{1,†, *}, Alison Campbell^{2,†}, Inge Errebo Agerholm³, Jesu' s Aguilar⁴, Sandrine Chamayou⁵, Marga Esbert⁶, and Shabana Sayed⁷, for The Time-Lapse User Group. Human Reproduction, Vol.29, No.12 pp. 2650–2660, 2014*

- 1. tPNf:** The time when both (or the last) PN disappear. This annotation is made at the first frame whereby the embryo is still at the 1-cell stage but pronuclei can no longer be visualized.
- 2. t2:** The time of the first cell cleavage, or mitosis. t2 is the first frame at which the two blastomeres are completely separated by individual cell membranes.
- 3. t3:** The first observation of three discrete cells. The three cells stage marks initiation of the second round of cleavage.
- 4. T4:** The first observation of four discrete cells.
- 5. T5:** The first observation of five discrete cells.
- 6. T8:** The first observation of eight discrete cells.
- 7. tSC (From distribution 97):** The first frame in which evidence of compaction is present; the initial frame that any (two) cells start to compact is observed. (The precise timing of initiation of compaction may be difficult to observe due to the increased number of cells and the type of compaction (partial or complete).
- 8. tSB ¼ initiation/start of blastulation.** The first frame when initiation of a cavity formation is observed.
- 9. tB full blastocyst.** The last frame before the zona pellucida starts to thin.

N.B Previously tM (April 2017- March 2018): This marks the end of the compaction process; when observable compaction is complete. The morula may be fully or partially compacted, where f is full and p is partial; the morula has excluded material.

Appendix 8: Standard Distribution Letters, Andrology Scheme for D129 to D132

Distribution letters are no longer be printed. A QR code link for this information will be attached to the semen samples each distribution and a copy of the below letter emailed to the named contact.

Dear Participants,

Distribution 129 consists of:

- Semen samples S513, S514, S515 and S516 for Concentration and Morphology assessment.
- Sperm Motility (four video samples) hosted online by <http://gamete-expert.com> .
- Interpretive Morphology (images of 24 sperm) hosted online by <http://gamete-expert.com> .

Please submit results for ALL these components.

Samples and images should be processed as soon as possible after receipt using the same methods used for your patient samples (where possible). Methods used should be referenced to current recognised guidelines (e.g., WHO laboratory manual for the examination and processing of human semen 6th edition (2021).

Check samples on receipt to be sure that the correct samples are in the pack and there is no damage to the ampoules. Please inform us if your package appears to have been damaged in transit. Contact repscience@ukneqas.org.uk immediately for replacement samples.

If you are not aware of your online Motility/Morphology Username and password or have trouble viewing the distribution, please contact us at repscience@ukneqas.org.uk immediately.

Closing date for result entry is 8th June 2026

All semen samples should be well mixed (vortexed for up to a minute) before analysis as specimen may have settled in transit. Samples should be kept at 2-8 deg C when not in use.

All semen samples contain 10% formalin, added as a preservative. When performing the concentration this inclusion of formalin should be ignored and treated as neat semen. You should employ all your usual safety measures and dispose of the specimens in accordance with your usual clinical waste disposal procedure.

Result entry and reporting

Concentration results should be reported to 2 significant figures and motility and 'practical' morphology results should be reported to the nearest whole number (as stated in WHO manual 2021).

The statistics package can only view numbers, and so it is not possible to enter, for example, a result shown as <2 million. In this case your result should be entered as 2 million.

Concentration and Morphology - online at <https://results.ukneqas.org.uk> (or alternatively via <http://www.birminghamquality.org.uk>) all labs will have been allocated a user name and password. When entering results please ensure you click the submit button after both motility and concentration/morphology. A printable confirmation of submission will appear.

Online Motility and Morphology – view online and input results at <http://gamete-expert.com> , results entered can be altered up until the deadline. All labs have been allocated a username and can request a password from the website login page. After the distribution closes UK NEQAS reports can be viewed at <https://results.ukneqas.org.uk>

Links to both these websites can be found on the Reproductive Science pages via <http://www.ukneqas.org.uk>

Yours sincerely



Mr Peter Goddard
Reproductive Science EQA Scheme Manager
11th May 2026

Please note date samples received below:

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Dear Participants,

Distribution 130 consists of:

- Semen samples S517, S518, S519 and S520 for Concentration and Morphology assessment.
- Sperm Motility (four video samples) hosted online by <http://gamete-expert.com> .
- Interpretive Morphology (images of 24 sperm) hosted online by <http://gamete-expert.com> .

Please submit results for ALL these components.

Samples and images should be processed as soon as possible after receipt using the same methods used for your patient samples (where possible). Methods used should be referenced to current recognised guidelines (e.g., WHO laboratory manual for the examination and processing of human semen 6th edition (2021).

Check samples on receipt to be sure that the correct samples are in the pack and there is no damage to the ampoules. Please inform us if your package appears to have been damaged in transit. Contact repscience@ukneqas.org.uk immediately for replacement samples.

If you are not aware of your online Motility/Morphology Username and password or have trouble viewing the distribution, please contact us at repscience@ukneqas.org.uk immediately.

Closing date for result entry is 7th September 2026

All semen samples should be well mixed (vortexed for up to a minute) before analysis as specimen may have settled in transit. Samples should be kept at 2-8 deg C when not in use.

All semen samples contain 10% formalin, added as a preservative. When performing the concentration this inclusion of formalin should be ignored and treated as neat semen. You should employ all your usual safety measures and dispose of the specimens in accordance with your usual clinical waste disposal procedure.

Result entry and reporting

Concentration results should be reported to 2 significant figures and motility and 'practical' morphology results should be reported to the nearest whole number (as stated in WHO manual 2021).

The statistics package can only view numbers, and so it is not possible to enter, for example, a result shown as <2 million. In this case your result should be entered as 2 million.

Concentration and Morphology - online at <https://results.ukneqas.org.uk> (or alternatively via <http://www.birminghamquality.org.uk>) all labs will have been allocated a user name and password. When entering results please ensure you click the submit button after both motility and concentration/morphology. A printable confirmation of submission will appear.

Online Motility and Morphology – view online and input results at <http://gamete-expert.com> , results entered can be altered up until the deadline. All labs have been allocated a username and can request a password from the website login page. After the distribution closes UK NEQAS reports can be viewed at <https://results.ukneqas.org.uk>

Links to both these websites can be found on the Reproductive Science pages via <http://www.ukneqas.org.uk>

Yours sincerely



Mr Peter Goddard
Reproductive Science EQA Scheme Manager
10th August 2026

Please note date samples received below:

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Dear Participants,

Distribution 131 consists of:

- Semen samples S521, S522, S523 and S524 for Concentration and Morphology assessment.
- Sperm Motility (four video samples) hosted online by <http://gamete-expert.com> .
- Interpretive Morphology (images of 24 sperm) hosted online by <http://gamete-expert.com> .

Please submit results for ALL these components.

Samples and images should be processed as soon as possible after receipt using the same methods used for your patient samples (where possible). Methods used should be referenced to current recognised guidelines (e.g., WHO laboratory manual for the examination and processing of human semen 6th edition (2021).

Check samples on receipt to be sure that the correct samples are in the pack and there is no damage to the ampoules. Please inform us if your package appears to have been damaged in transit. Contact repscience@ukneqas.org.uk immediately for replacement samples.

If you are not aware of your online Motility/Morphology Username and password or have trouble viewing the distribution, please contact us at repscience@ukneqas.org.uk immediately.

Closing date for result entry is 30th November 2026

All semen samples should be well mixed (vortexed for up to a minute) before analysis as specimen may have settled in transit. Samples should be kept at 2-8 deg C when not in use.

All semen samples contain 10% formalin, added as a preservative. When performing the concentration this inclusion of formalin should be ignored and treated as neat semen. You should employ all your usual safety measures and dispose of the specimens in accordance with your usual clinical waste disposal procedure.

Result entry and reporting

Concentration results should be reported to 2 significant figures and motility and 'practical' morphology results should be reported to the nearest whole number (as stated in WHO manual 2021).

The statistics package can only view numbers, and so it is not possible to enter, for example, a result shown as <2 million. In this case your result should be entered as 2 million.

Concentration and Morphology - online at <https://results.ukneqas.org.uk> (or alternatively via <http://www.birminghamquality.org.uk>) all labs will have been allocated a user name and password. When entering results please ensure you click the submit button after both motility and concentration/morphology. A printable confirmation of submission will appear.

Online Motility and Morphology – view online and input results at <http://gamete-expert.com> , results entered can be altered up until the deadline. All labs have been allocated a username and can request a password from the website login page. After the distribution closes UK NEQAS reports can be viewed at <https://results.ukneqas.org.uk>

Links to both these websites can be found on the Reproductive Science pages via <http://www.ukneqas.org.uk>

Yours sincerely



Mr Peter Goddard
Reproductive Science EQA Scheme Manager
2nd November 2026

Please note date samples received below:

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Dear Participants,

Distribution 132 consists of:

- Semen samples S525, S526, S527 and S528 for Concentration and Morphology assessment.
- Sperm Motility (four video samples) hosted online by <http://gamete-expert.com> .
- Interpretive Morphology (images of 24 sperm) hosted online by <http://gamete-expert.com> .

Please submit results for ALL these components.

Samples and images should be processed as soon as possible after receipt using the same methods used for your patient samples (where possible). Methods used should be referenced to current recognised guidelines (e.g., WHO laboratory manual for the examination and processing of human semen 6th edition (2021).

Check samples on receipt to be sure that the correct samples are in the pack and there is no damage to the ampoules. Please inform us if your package appears to have been damaged in transit. Contact repscience@ukneqas.org.uk immediately for replacement samples.

If you are not aware of your online Motility/Morphology Username and password or have trouble viewing the distribution, please contact us at repscience@ukneqas.org.uk immediately.

Closing date for result entry is 1st March 2027

All semen samples should be well mixed (vortexed for up to a minute) before analysis as specimen may have settled in transit. Samples should be kept at 2-8 deg C when not in use.

All semen samples contain 10% formalin, added as a preservative. When performing the concentration this inclusion of formalin should be ignored and treated as neat semen. You should employ all your usual safety measures and dispose of the specimens in accordance with your usual clinical waste disposal procedure.

Result entry and reporting

Concentration results should be reported to 2 significant figures and motility and 'practical' morphology results should be reported to the nearest whole number (as stated in WHO manual 2021).

The statistics package can only view numbers, and so it is not possible to enter, for example, a result shown as <2 million. In this case your result should be entered as 2 million.

Concentration and Morphology - online at <https://results.ukneqas.org.uk> (or alternatively via <http://www.birminghamquality.org.uk>) all labs will have been allocated a user name and password. When entering results please ensure you click the submit button after both motility and concentration/morphology. A printable confirmation of submission will appear.

Online Motility and Morphology – view online and input results at <http://gamete-expert.com> , results entered can be altered up until the deadline. All labs have been allocated a username and can request a password from the website login page. After the distribution closes UK NEQAS reports can be viewed at <https://results.ukneqas.org.uk>

Links to both these websites can be found on the Reproductive Science pages via <http://www.ukneqas.org.uk>

Yours sincerely



Mr Peter Goddard
Reproductive Science EQA Scheme Manager
1st February 2027

Please note date samples received below:

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Appendix 9: Standard Distribution information for Embryology Scheme.

Result entry is now open for Embryology - Embryo Morphology, Distribution ***.

Distribution consists of:

Patient 1 showing 4 rolling videos on day 2 of embryo development.

Patient 2 showing 4 rolling videos on day 3 of embryo development.

Patient 3 showing 4 rolling videos on day 5 of embryo development.

Patient 4 showing 4 time-lapse videos for embryo grading and annotation on day up to day 5 of development.

These are all hosted online by <http://gamete-expert.com> .

Please grade these embryos using the ARCS National Grading scheme as detailed in the Participants Handbook and on the blue information buttons on the Gamete Expert website. Embryos should be graded accordingly with additional information on suitability for freezing, quality grade and ranking as prompted.

If you are not aware of your online Username and password or have trouble viewing the distribution please contact us at repscience@ukneqas.org.uk immediately.

Result entry and reporting View online and report at <https://gamete-expert.com> , results can be entered up until the deadline. All labs have been allocated a username and can request a password from the website login page.

After the distribution closes UK NEQAS reports can be viewed at <https://results.ukneqas.org.uk>. Links to both these websites can be found on the UK NEQAS Reproductive Science pages <http://www.ukneqas.org.uk>