LABQUALITY

External Quality Assessment Scheme

Erythrocyte Sedimentation Rate
Round 1, 2023

Specimen
Please find enclosed 1 human blood cell suspension S001 with preservatives, 4.5 mL.

Caution
Quality control specimens derived from human blood must be handled with the same care as patient samples, i.e. as potential transmitters of serious diseases. The specimens are found to be HBsAg, HCVAb and HIVAgAb negative when tested with licensed reagents, but no known test method can offer complete assurance that the specimens will not transmit these or other infectious diseases.

Examinations
ESR

Storage and use
After arrival, the sample should be stored at +2…8 °C. Analyse the sample on the arrival day, if possible. Do not freeze the sample. The temperature of the sample and the mixing has a great influence on ESR results.

1. Take the vial from refrigerator and let it to warm to room temperature for at least 20 min before mixing.
2. Mix the vial by gentle hand inversions until the red cells are completely and uniformly suspended (30 - 60 seconds). Do not shake the vial too vigorously or mix on a mechanical mixer. Avoid formation of foam.
3. Gently invert the vial end-to-end 10 times just before sampling. Ensure that there are no sedimented cells on the bottom of the vial. Examine the bottom of the vial for unsuspended red cells and repeat the gentle mixing if necessary.

Set up and test the sample exactly as you would do with a patient sample. If you use temperature correction in patient samples, use it in reporting the EQA sample results as well. The sample is not pre-diluted and if you normally dilute patient samples, also dilute the EQA sample (do not remove citrate from ESR tubes). When classical Westergren procedures* (*Westergren pipette: 200 mm, diameter 2.55 mm) are used, add four volumes of well-mixed sample to one volume of diluent in a tube or reservoir and invert end-to-end 20 times. Draw the blood to the ESR pipette and start the measurement. In vacuum and automated methods fill the ESR tube to the fill line (or pipette the same volume than the vacuum tube gets) with the well-mixed sample. Invert the tube end-to-end 20 times and test the sample following the manufacturer's instructions for the instrument you are using.

Result reporting
Please enter the results and methods via LabScala (www.labscala.com). If you cannot find your instrument from the registry, please contact the EQA Coordinator.

S001

LQ747323011

2023-02-27

INSTRUCTIONS

Product no. 2730
LQ747323011/US

If the kit is incomplete or contains damaged specimens, please report immediately to info@labquality.fi.

The results should be reported no later than **March 26, 2023**.

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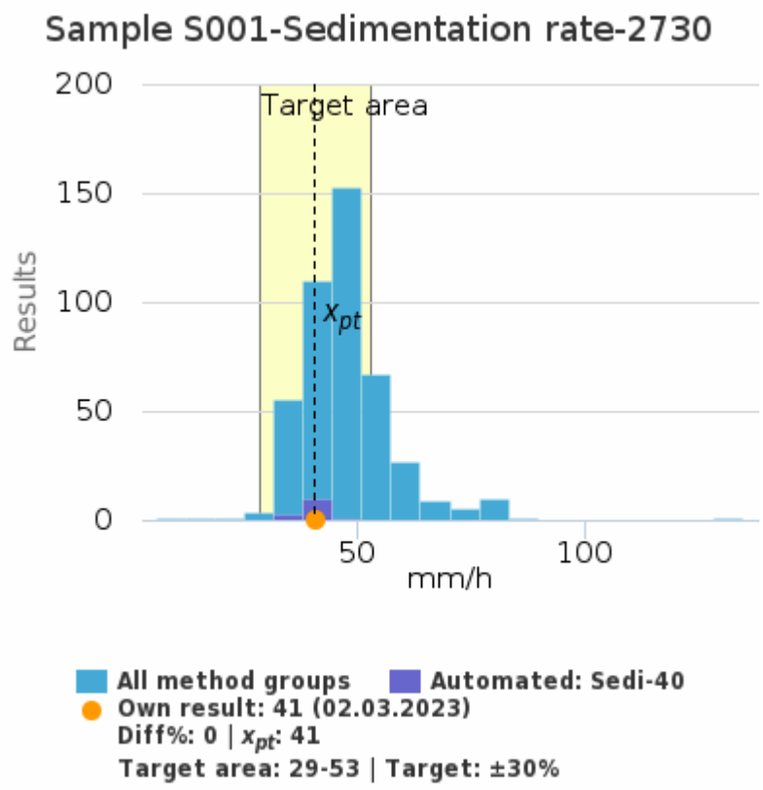
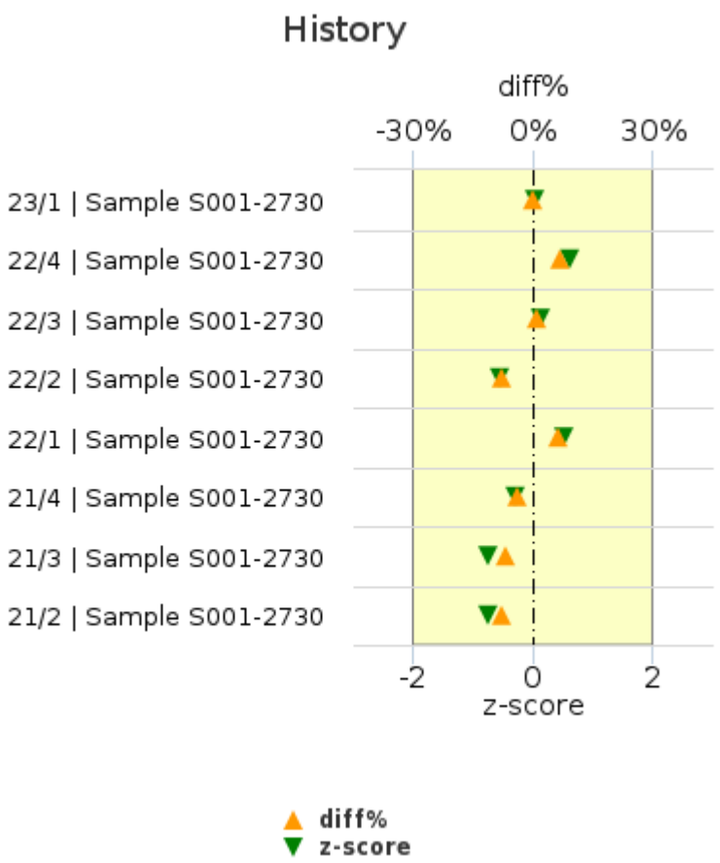
FINAS
Finnish Accreditation Service
PT02 (EN ISO/IEC 17043)

Quality Management
ISO 9001:2015

Sedimentation rate |Automated: Sedi-40



	x_{pt}	sd	SEM	CV%	n
Automated: Sedi-40	41 mm/h	3	<1	8.1	14
All methods	47 mm/h	9	<1	18.2	445



Round	Sample	x_{pt}	Result	diff%	z-score
23/1	Sample S001-2730	41	41	0%	0.02
22/4	Sample S001-2730	12	13	7%	0.63
22/3	Sample S001-2730	45	45	1%	0.13
22/2	Sample S001-2730	43	40	-8%	-0.56
22/1	Sample S001-2730	12	13	6%	0.51
21/4	Sample S001-2730	42	40	-4%	-0.30
21/3	Sample S001-2730	12	11	-7%	-0.75
21/2	Sample S001-2730	40	37	-8%	-0.74

Report info

Participants

501 participants from 27 countries.

Report info

Your own result should be compared to others using the same method.
Assigned values (x_{pt}, target values) are means of the results where results deviating more than +/- 3*standard deviation from the median are removed. The standard uncertainty (u) of the assigned value is reported as standard error of the mean (SEM). Additionally, if the measurement uncertainty of the target value is large an automatic text is printed on the report: “The uncertainty of the assigned value is not negligible, and evaluations could be affected.”
In case the client’s result is the only one in the method group, no assigned value will be calculated, no target area shown, and no statistics calculated. In case there are only a few results in the client’s own method group, the result can be compared to all method mean or to a group that is similar to the own method.
Results reported with < or > -signs cannot be included in the statistics.

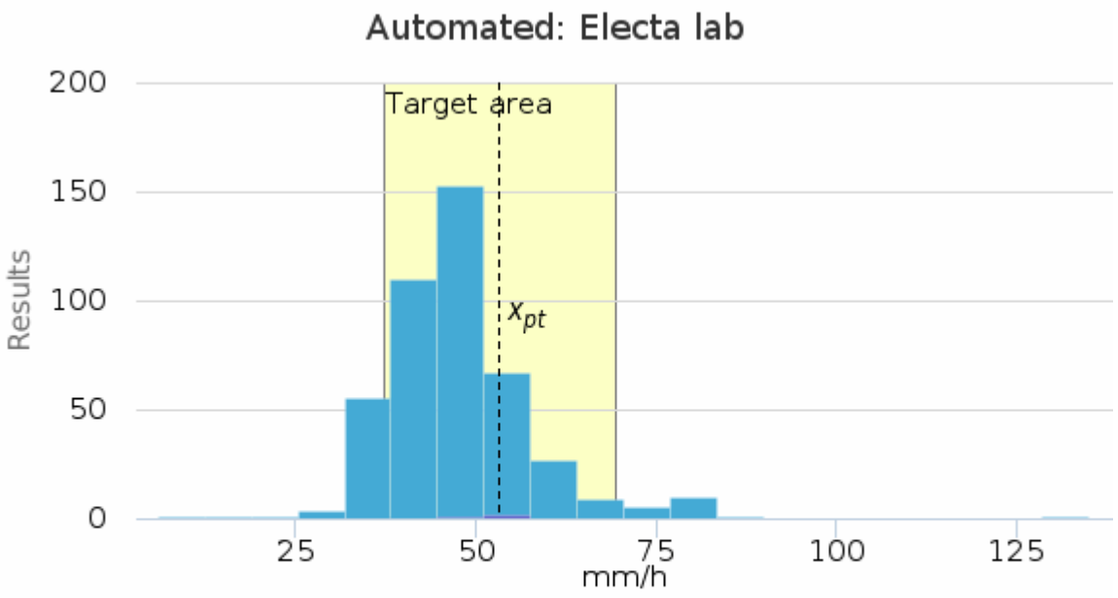
For information on report interpretation and performance evaluation, please see the " EQAS Interpretation guidelines" LabScala User instructions (top right corner ?Help link).

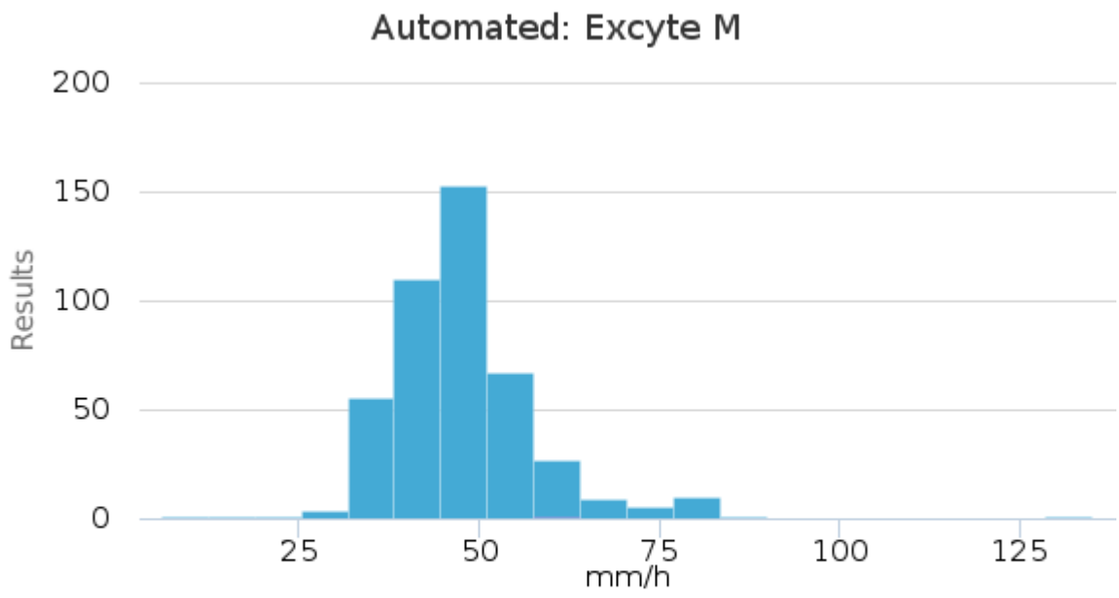
Sample S001 | Sedimentation rate, mm/h

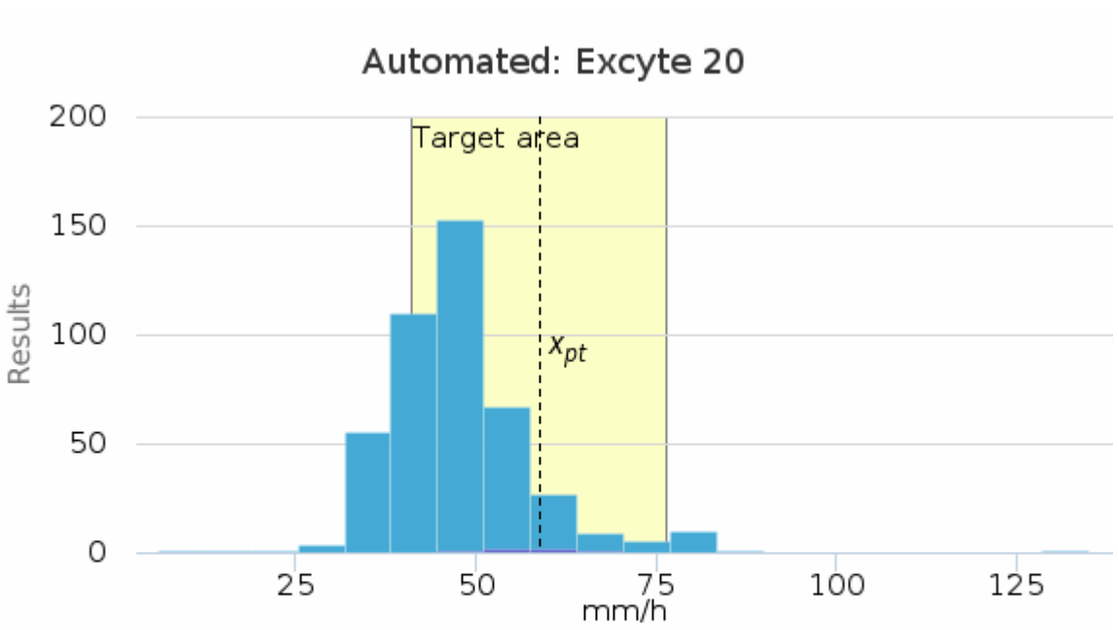
Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Automated: Electa lab	53	53	3	4.7	1	51	56	-	3
Automated: Excyte M	-	-	-	-	-	58	58	-	1
Automated: Excyte 20	59	58	6	9.7	2	51	67	-	6
Automated: Kimased Auto	-	-	-	-	-	71	71	-	1
Automated: Microsed	51	51	6	11.3	<1	38	64	-	41
Automated: Mini-Ves	-	-	-	-	-	83	83	-	1
Automated: Mix-Rate	55	55	6	11.3	1	44	70	-	18
Automated: Monitor V10	55	57	3	6.1	2	50	57	-	4
Automated: Monitor V100	54	55	4	7.1	2	49	58	-	4
Automated: Monitor V20	-	-	-	-	-	53	53	-	1
Automated: Sed Rate Timer & Screener	48	49	5	10.1	2	43	55	-	5
Automated: Sedimatic 100	-	-	-	-	-	58	58	-	1
Automated: Sediplus	51	50	6	11.7	2	44	65	-	16
Automated: Sedisystem	-	-	-	-	-	59	59	-	1
Automated: Sedivette	32	41	23	71.5	13	6	49	-	3
Automated: Sedi-15	-	-	-	-	-	78	78	-	1
Automated: Sedi-40	41	42	3	8.1	<1	34	45	-	14
Automated: StaRRsed	36	36	2	5.3	<1	33	38	-	11
Automated: StaRRsed InteRRliner	37	36	4	9.5	<1	33	46	-	21
Automated: StaRRsed Inversa	38	35	6	17.1	3	34	49	-	5
Automated: Vacuette SRS 100/II	46	44	3	5.8	1	44	51	-	7
Automated: Vacuette SRS 20/II	47	48	4	8.3	<1	40	59	2	43
Automated: Vacuette SRT 10/II	46	45	5	11.6	<1	38	64	2	59
Automated: Ves-Matic CUBE 200	-	-	-	-	-	61	61	-	1
Automated: Ves-Matic CUBE 30	69	72	13	18.8	5	52	84	-	6
Automated: Ves-Matic Cube 30 Touch	44	38	16	36.2	5	26	74	-	9
Automated: Ves-Matic 30	77	82	9	12.0	5	66	82	-	3
Automated: Vision Analyzers	39	40	9	21.9	5	30	47	-	3
Microvette CB200	-	-	-	-	-	40	40	-	1
Vacuum: Kimased	-	-	-	-	-	68	68	-	1
Vacuum: MONOSED ESR	54	50	11	20.2	3	42	79	-	14
Vacuum: Seditainer tube	44	44	4	8.0	2	40	48	-	4
Vacuum: Sedivette tube	47	45	7	13.9	2	42	62	-	8
Vacuum: Vacuette tube	45	45	8	17.3	<1	35	80	1	67
Vacuum: Vacutainer tube	-	-	-	-	-	40	40	-	1
Vacuum: Venoject other	-	-	-	-	-	73	73	-	1
Westergren: Aquisel P-3 System	54	53	8	15.6	4	47	65	-	4
Westergren: Medlab pipette	51	50	8	15.8	5	43	59	-	3
Westergren: Sarstedt pipette	46	46	5	10.5	1	39	56	1	21
Westergren: Sediplast pipette	49	50	9	18.2	4	32	56	-	6
Westergren: Sedi-Rate pipette	-	-	-	-	-	48	48	-	1
Westergren: Vacuette pipette	45	45	8	16.8	2	33	58	-	16
Westergren: Westergren pipette	50	48	16	32.5	6	28	77	-	8
All	**47**	**46**	**9**	**18.2**	**<1**	**17**	**78**	**10**	**445**

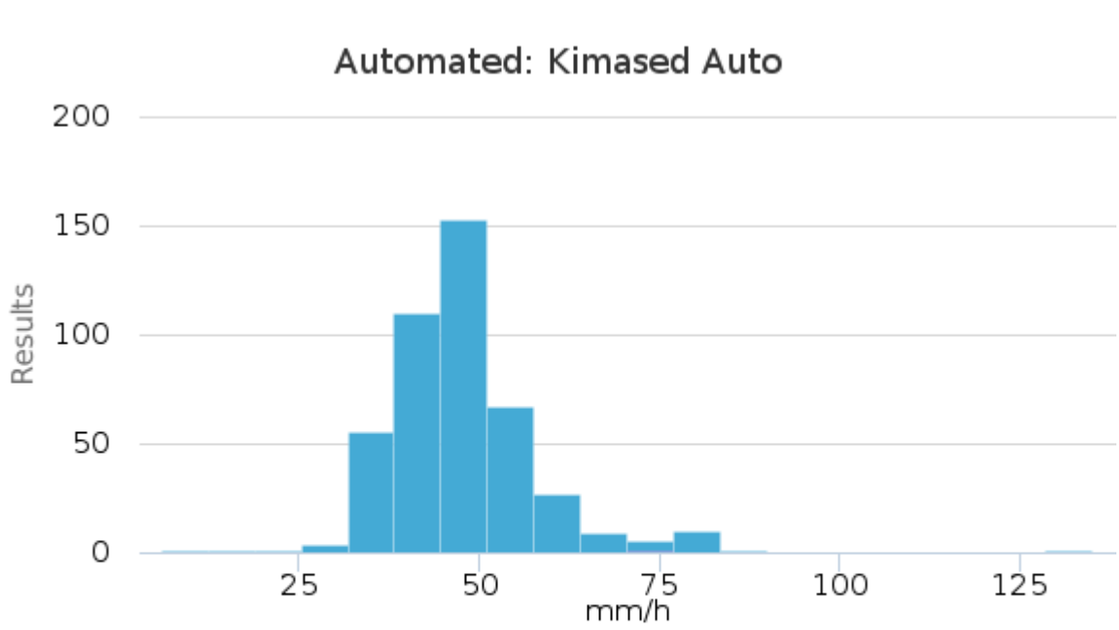
Sample S001 | Sedimentation rate, mm/h| histogram summaries in LabScala

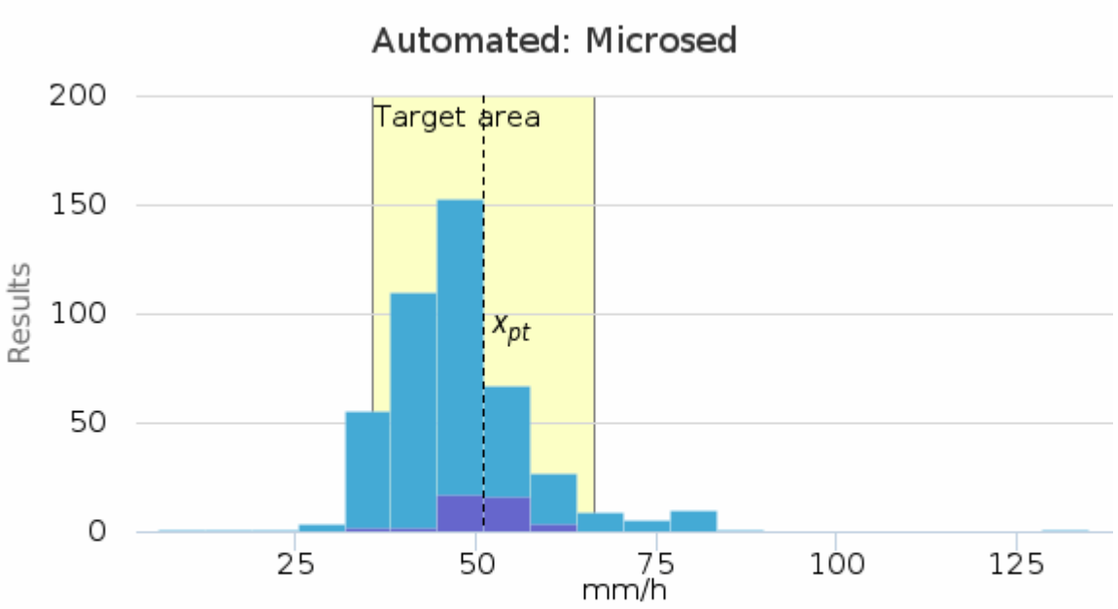
Erythrocyte sedimentation rate, March, 1-2023

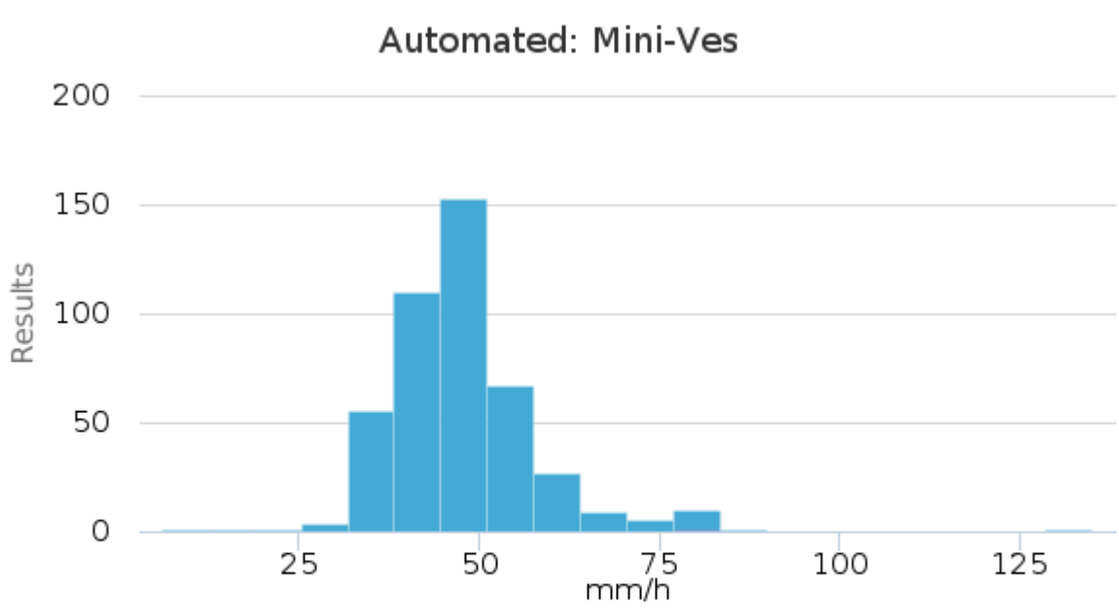




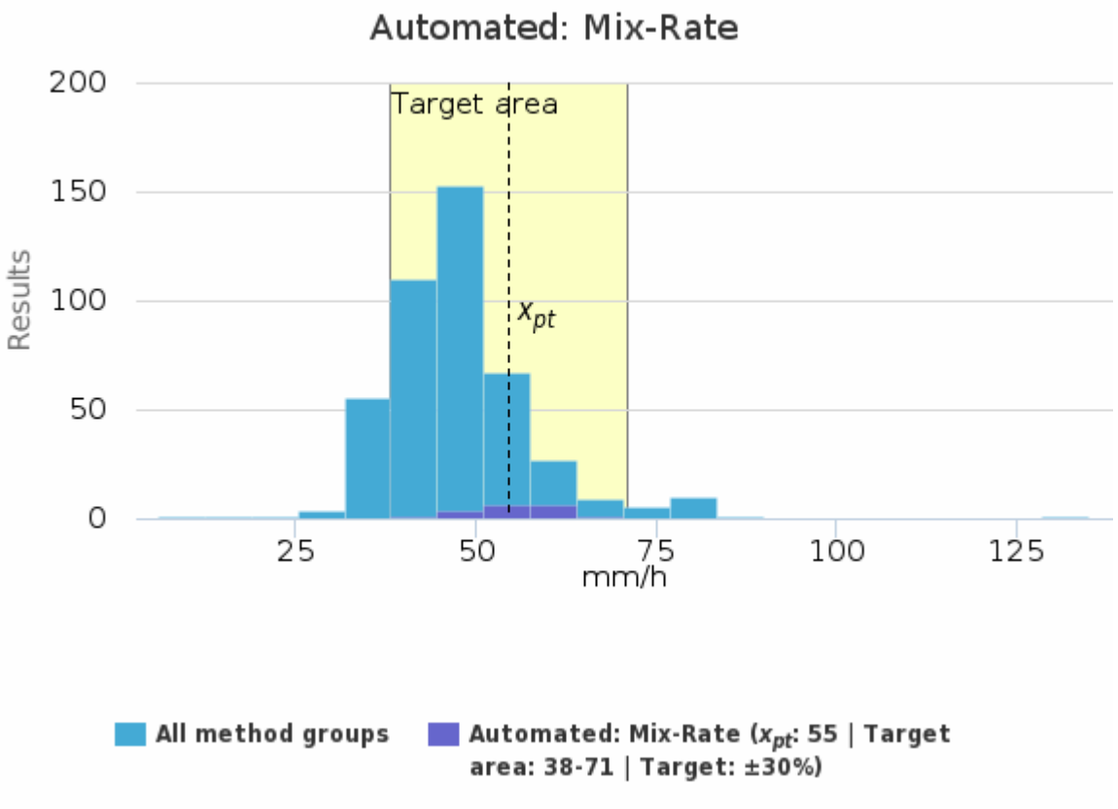


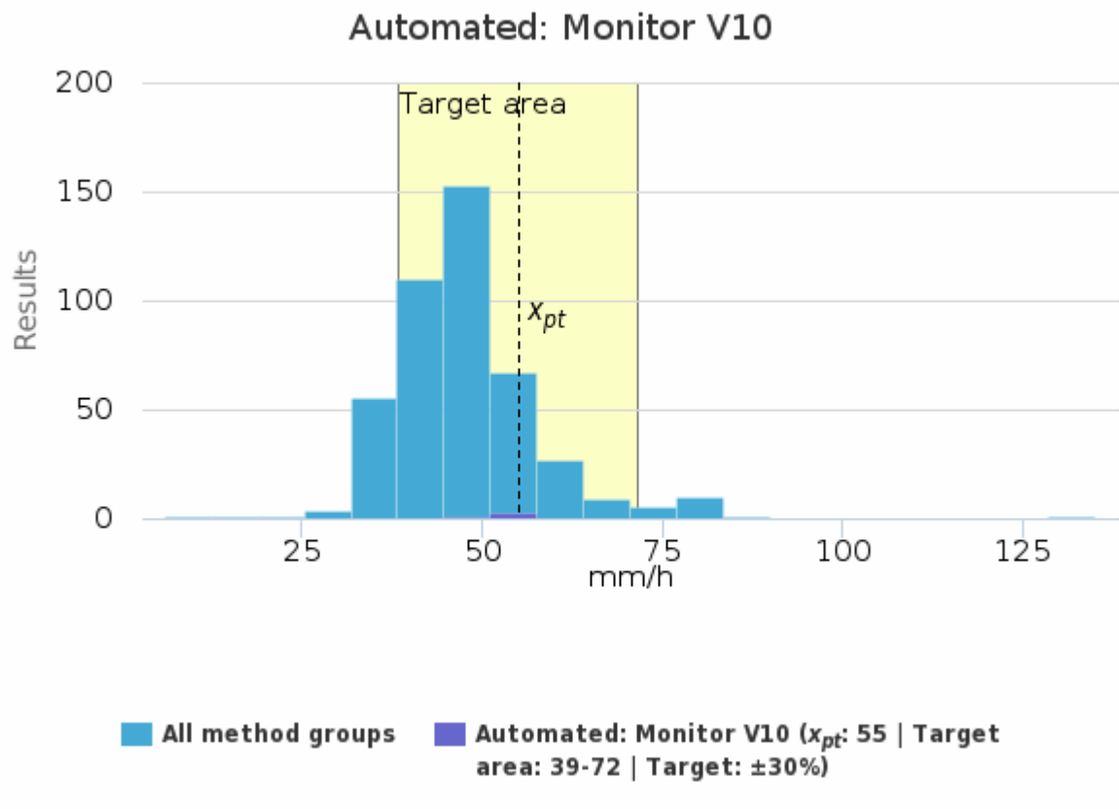


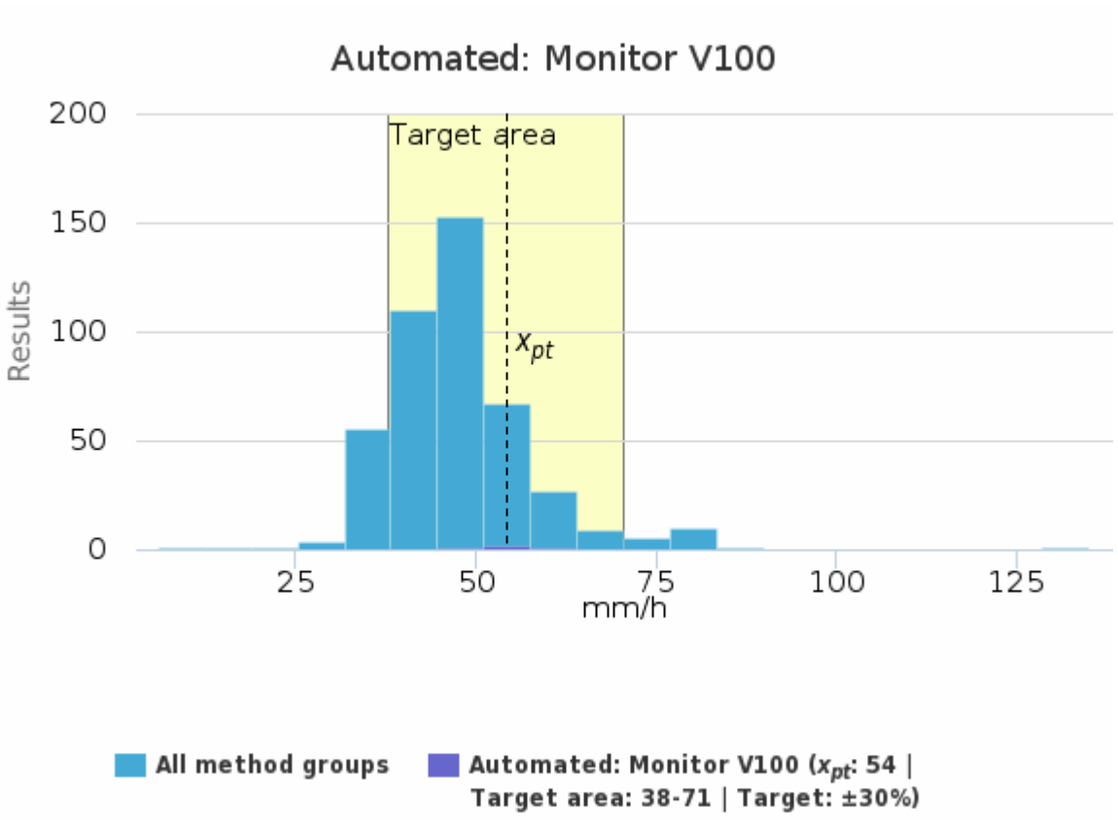


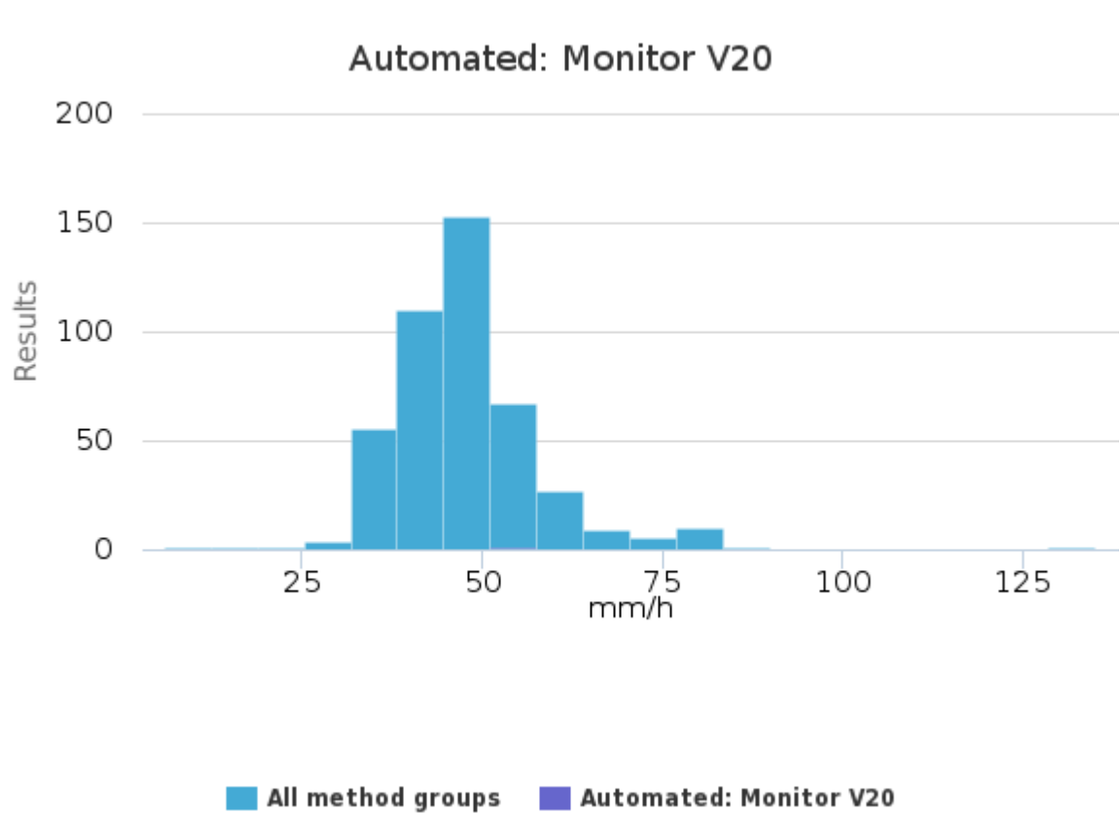


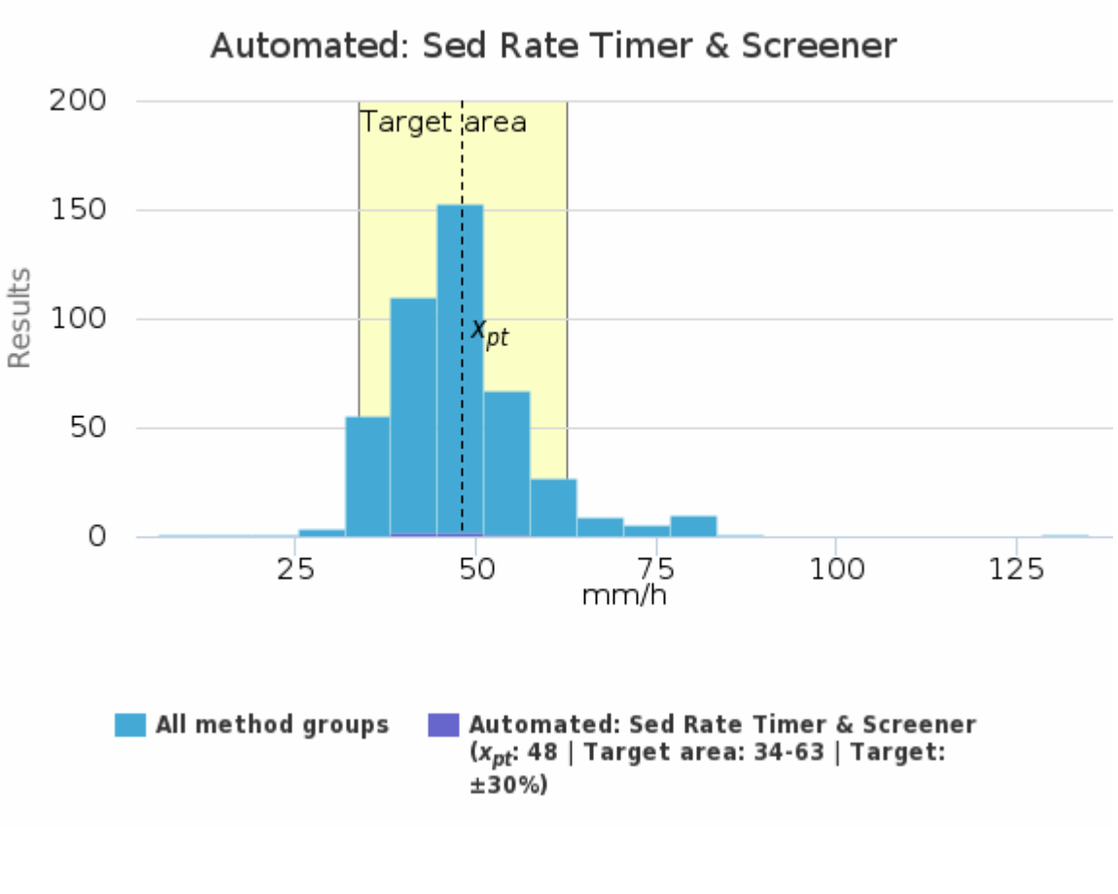
Erythrocyte sedimentation rate, March, 1-2023

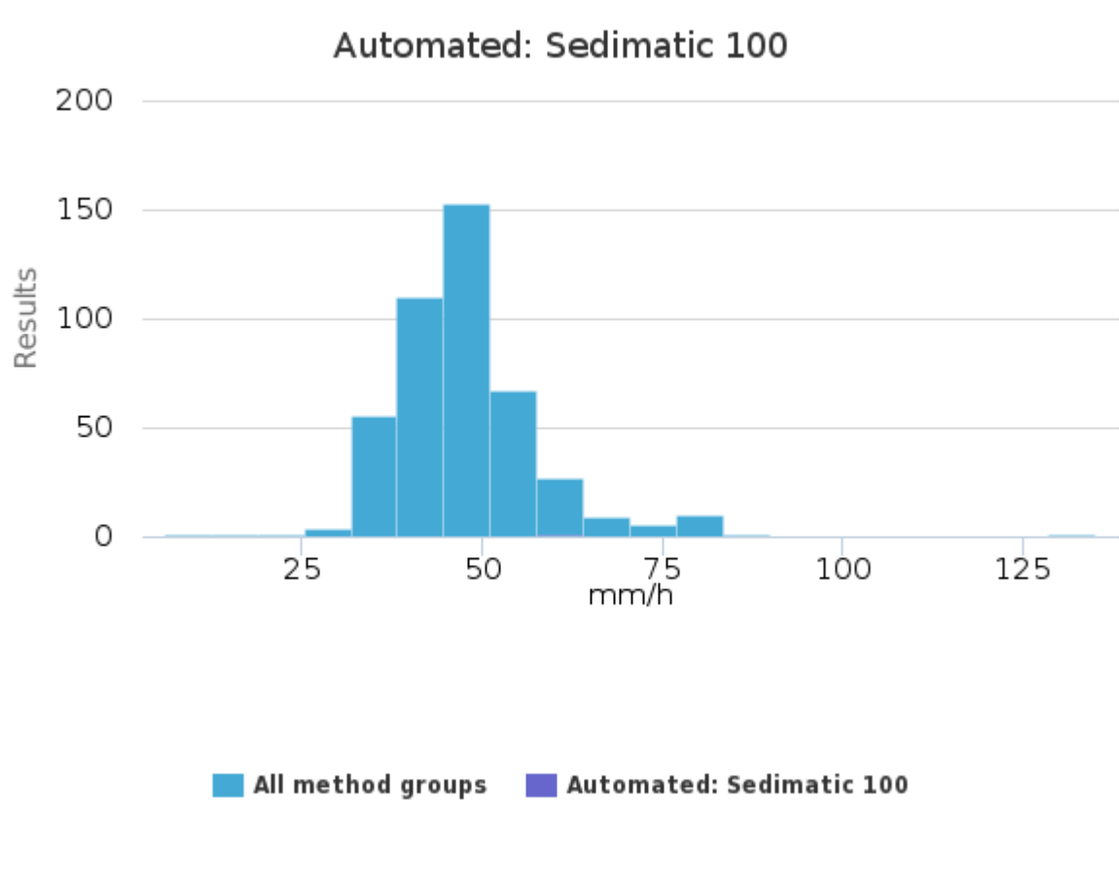




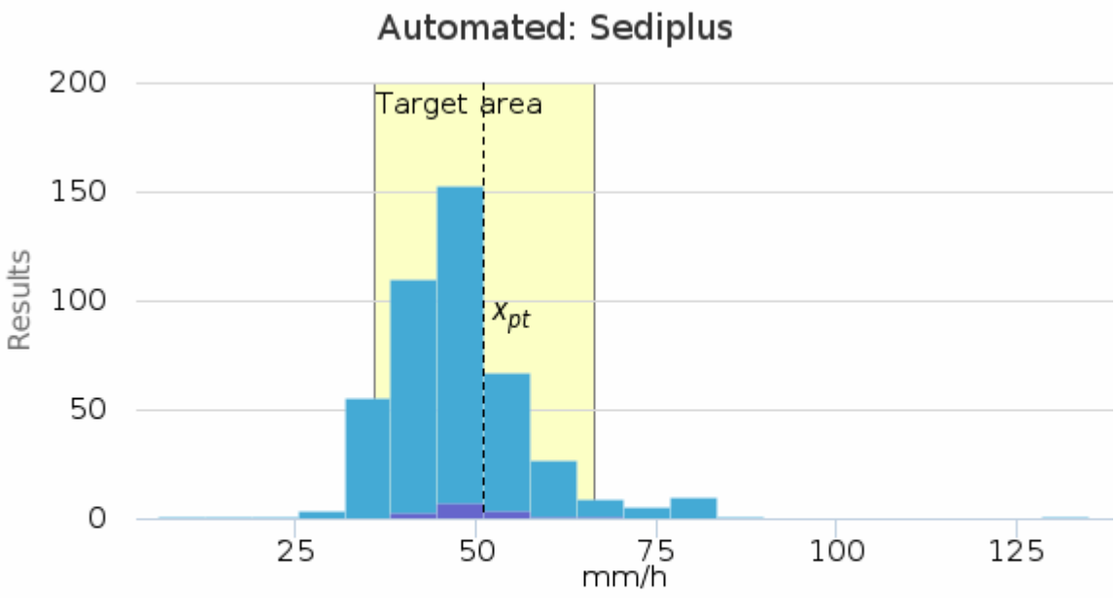


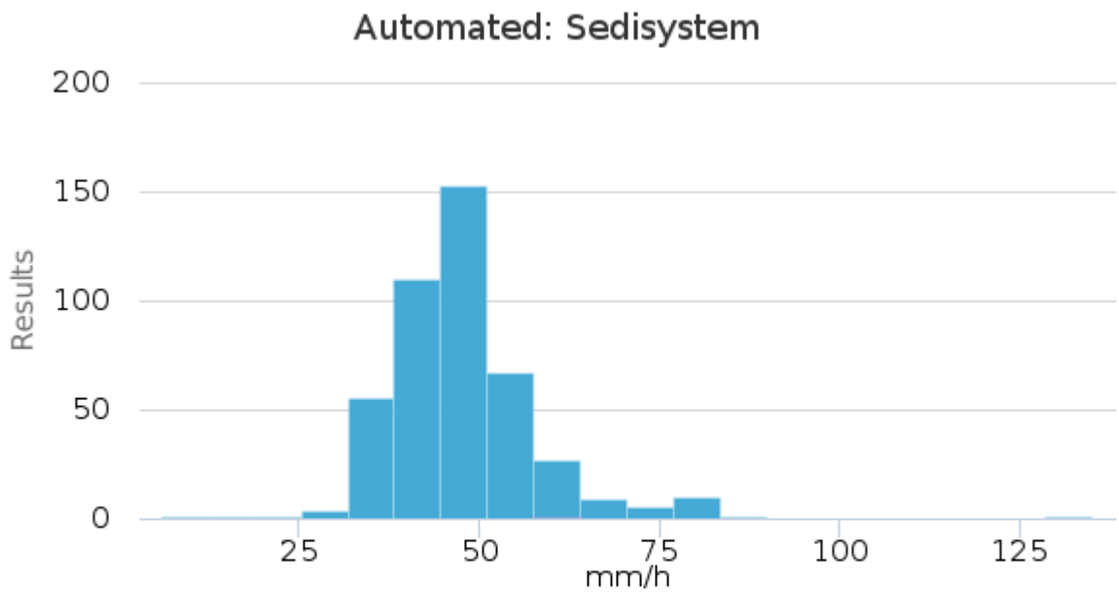


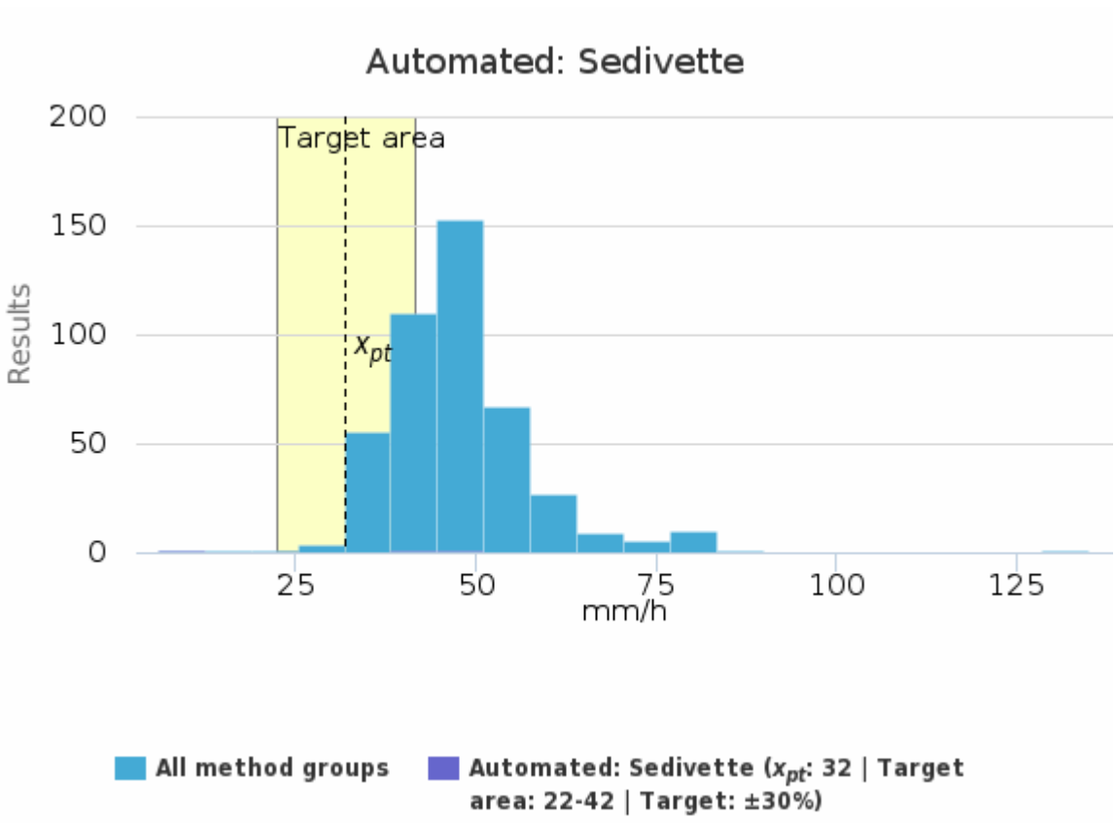


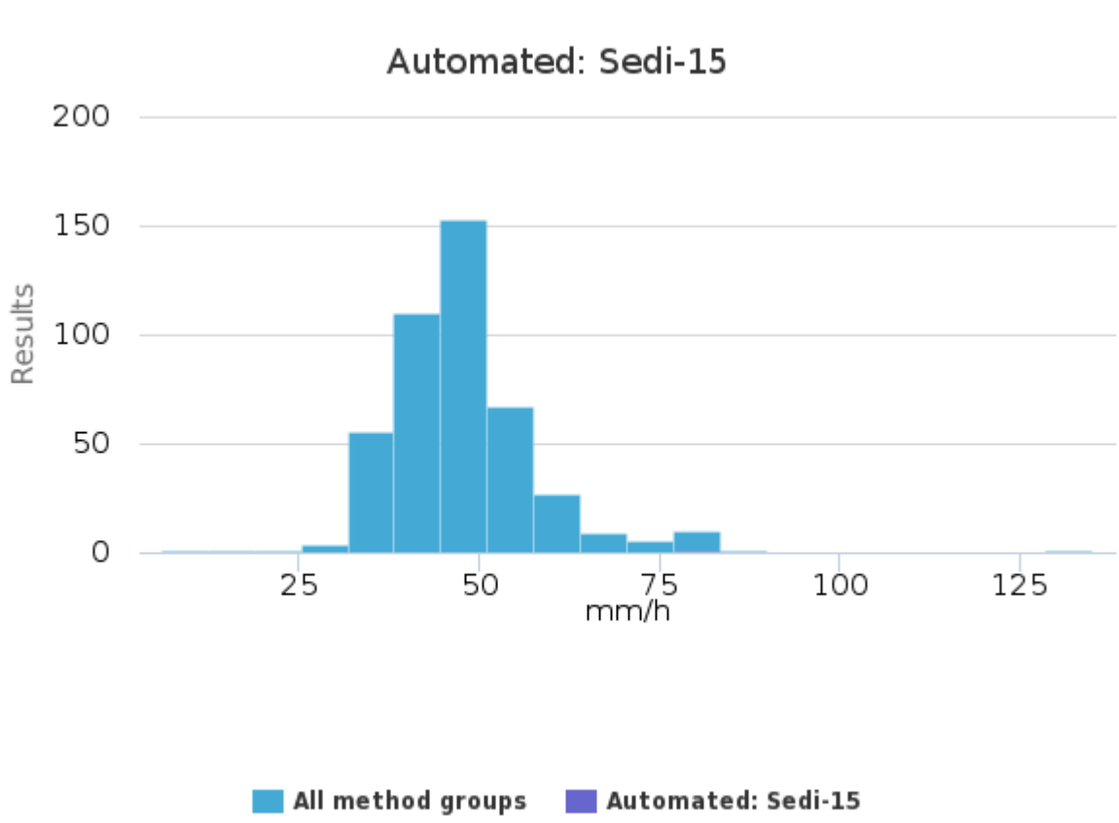


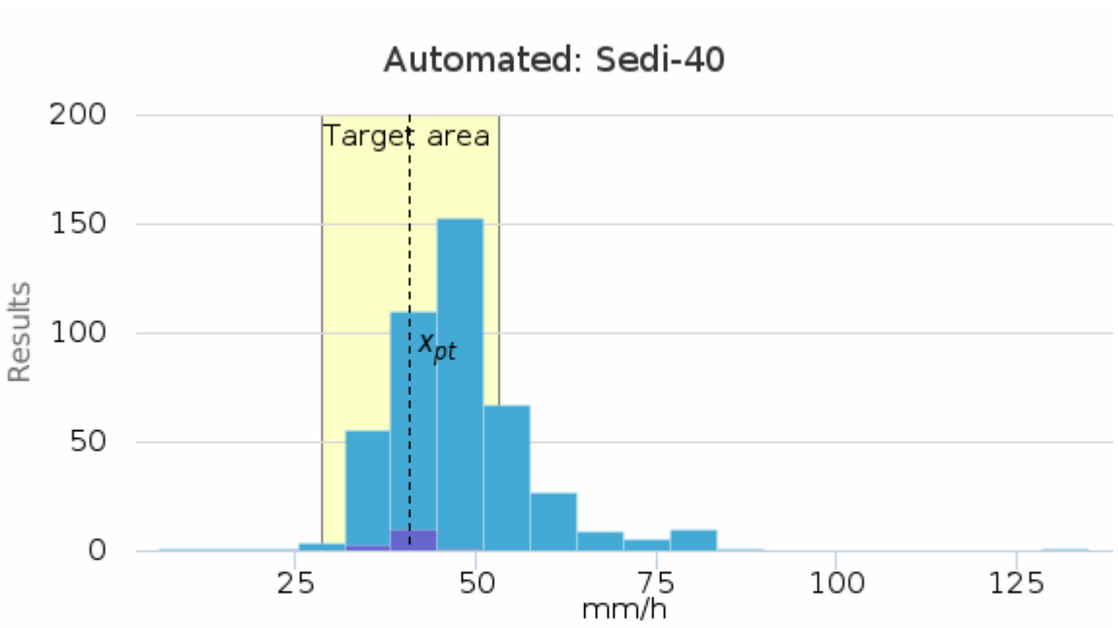
Erythrocyte sedimentation rate, March, 1-2023

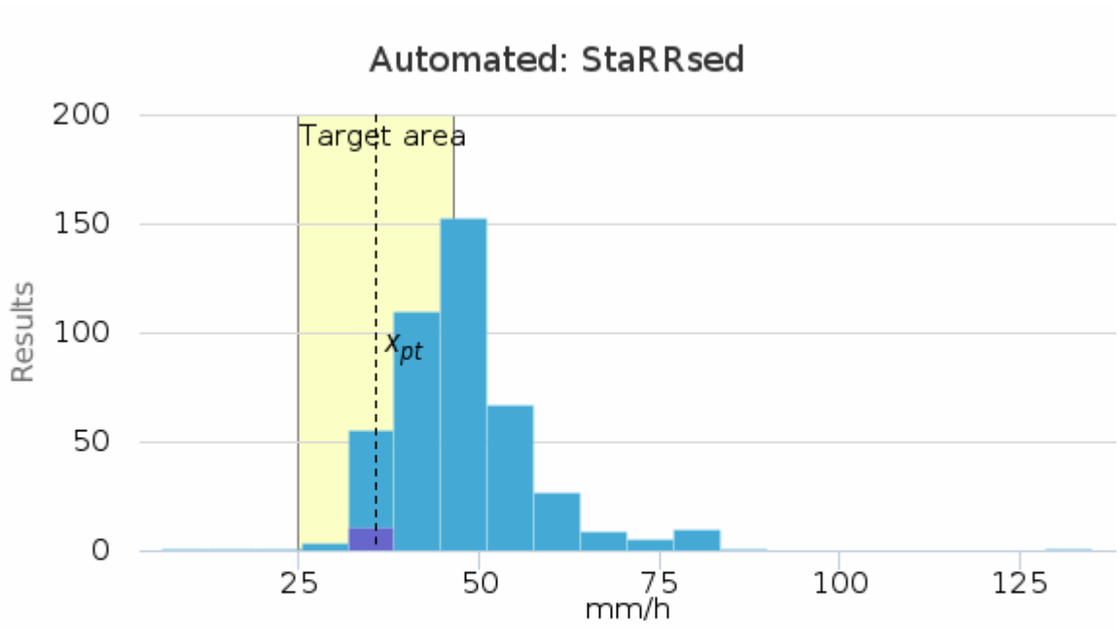




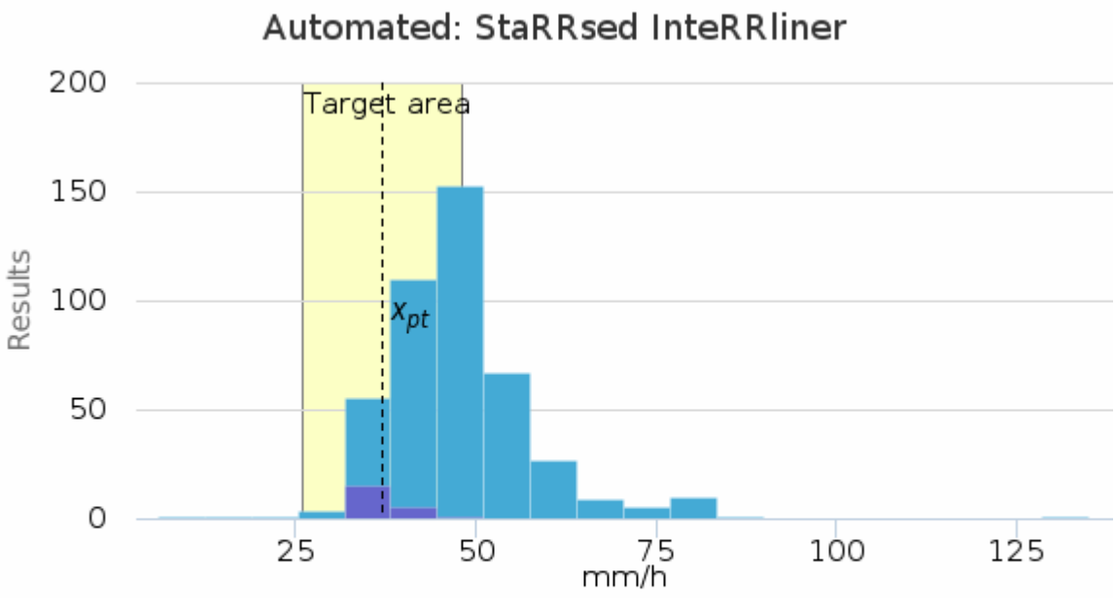


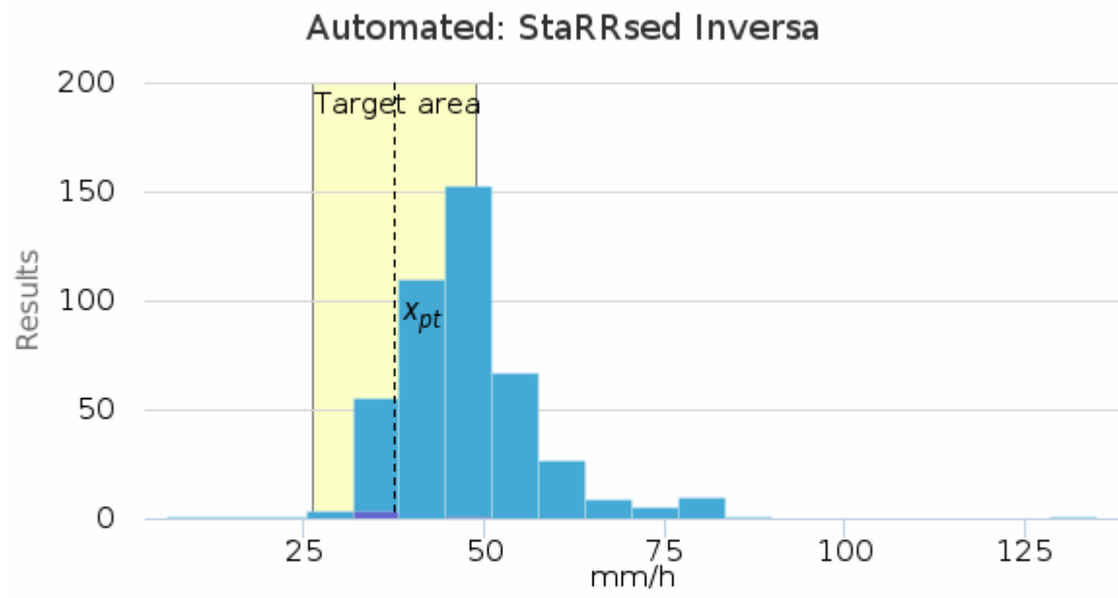


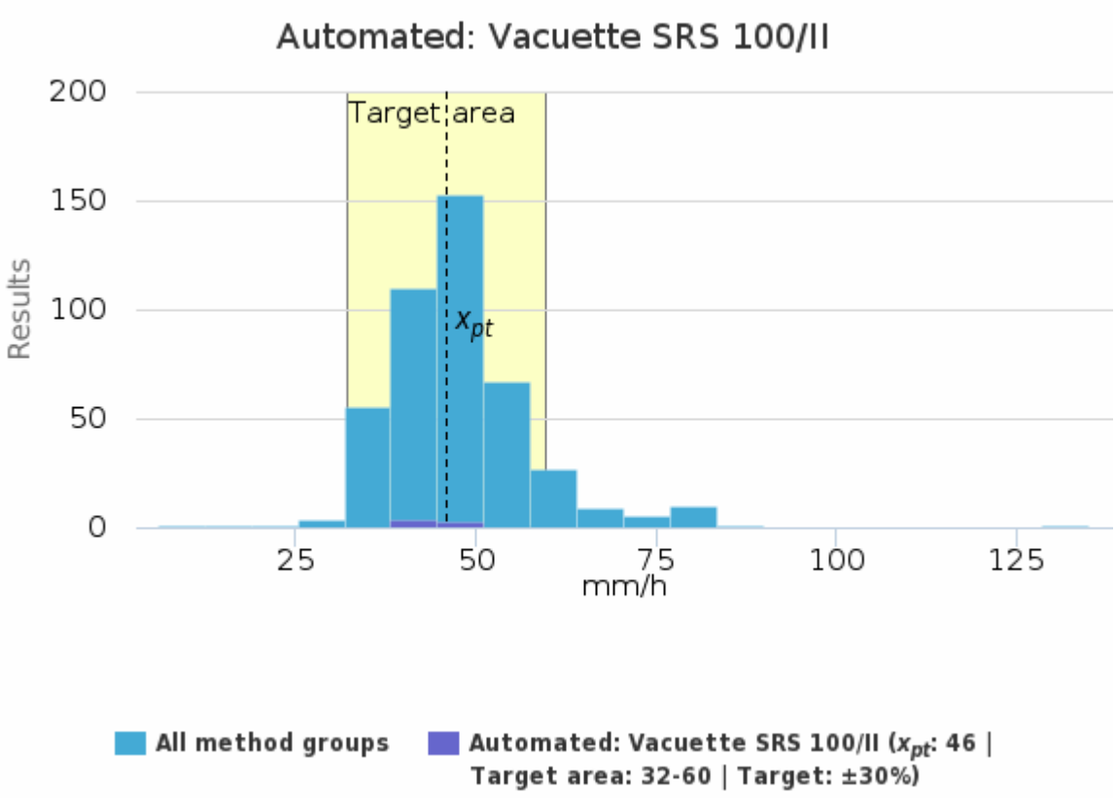


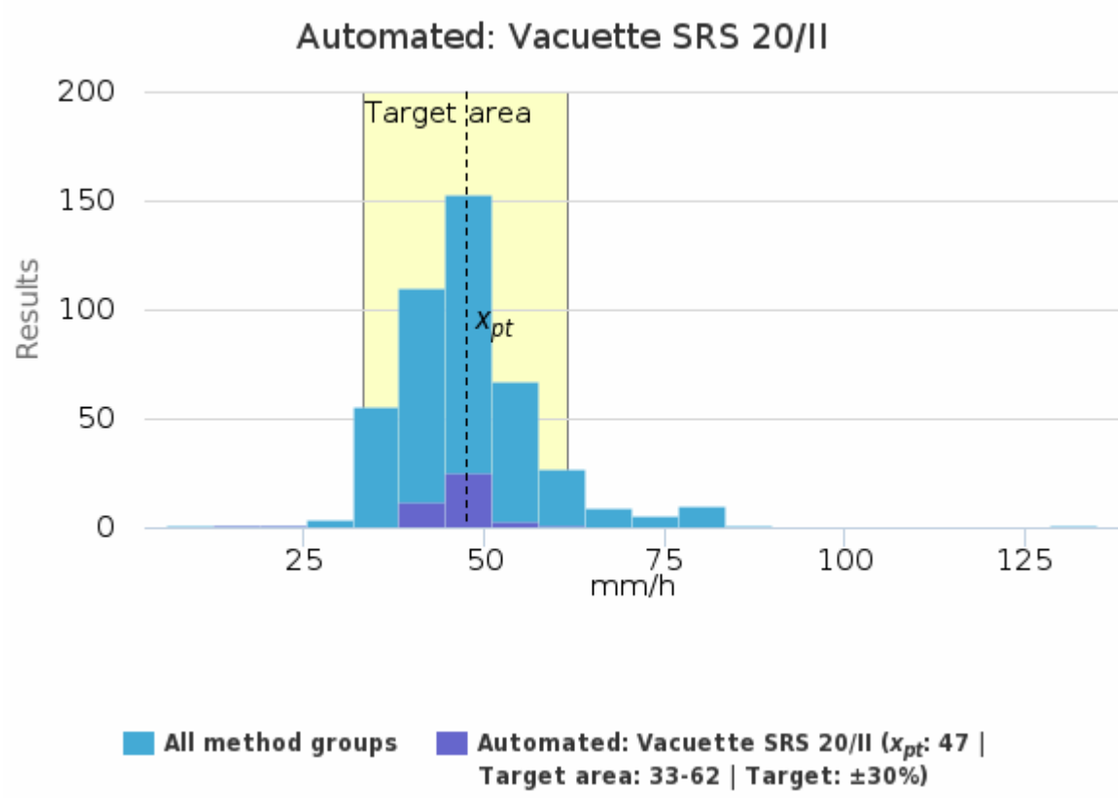


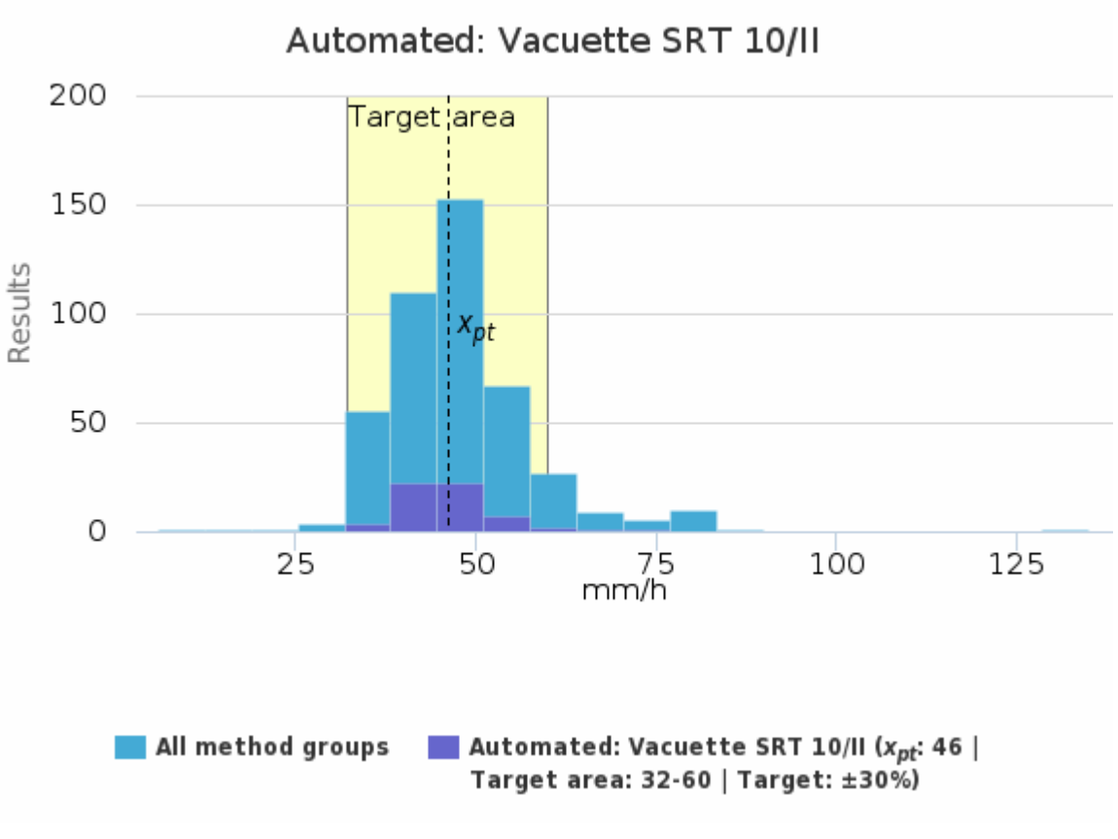
Erythrocyte sedimentation rate, March, 1-2023

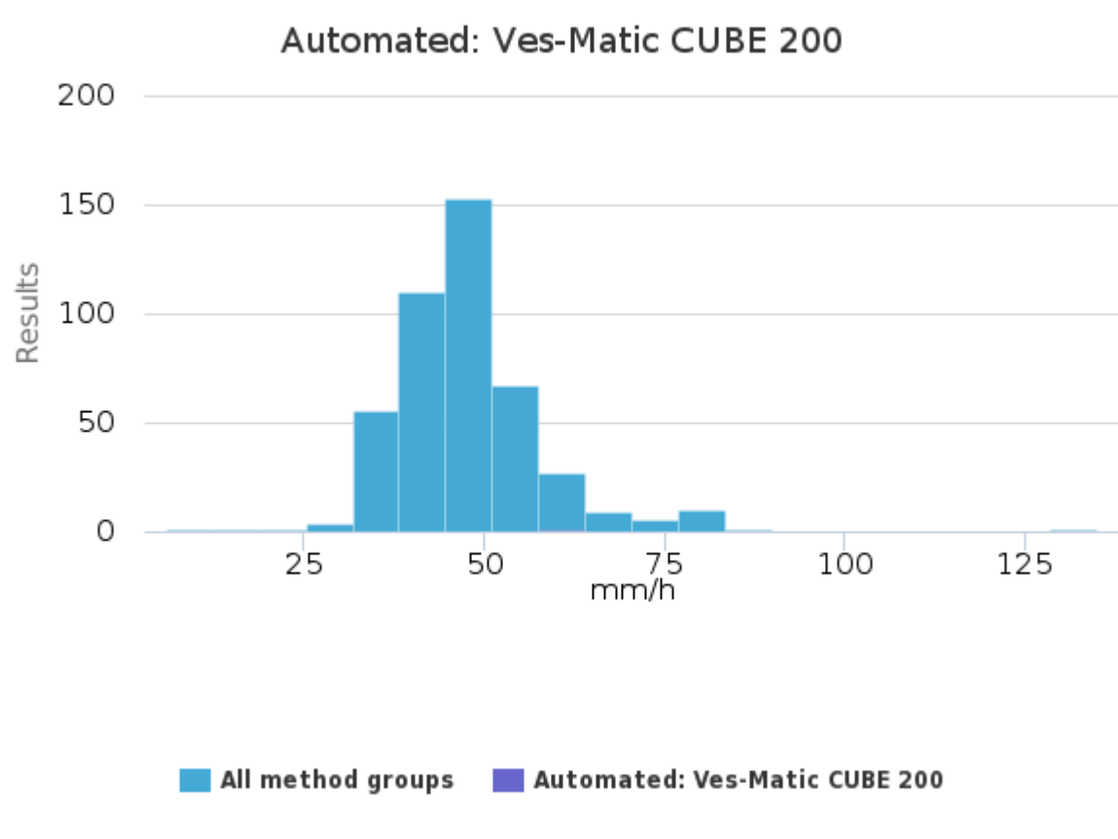




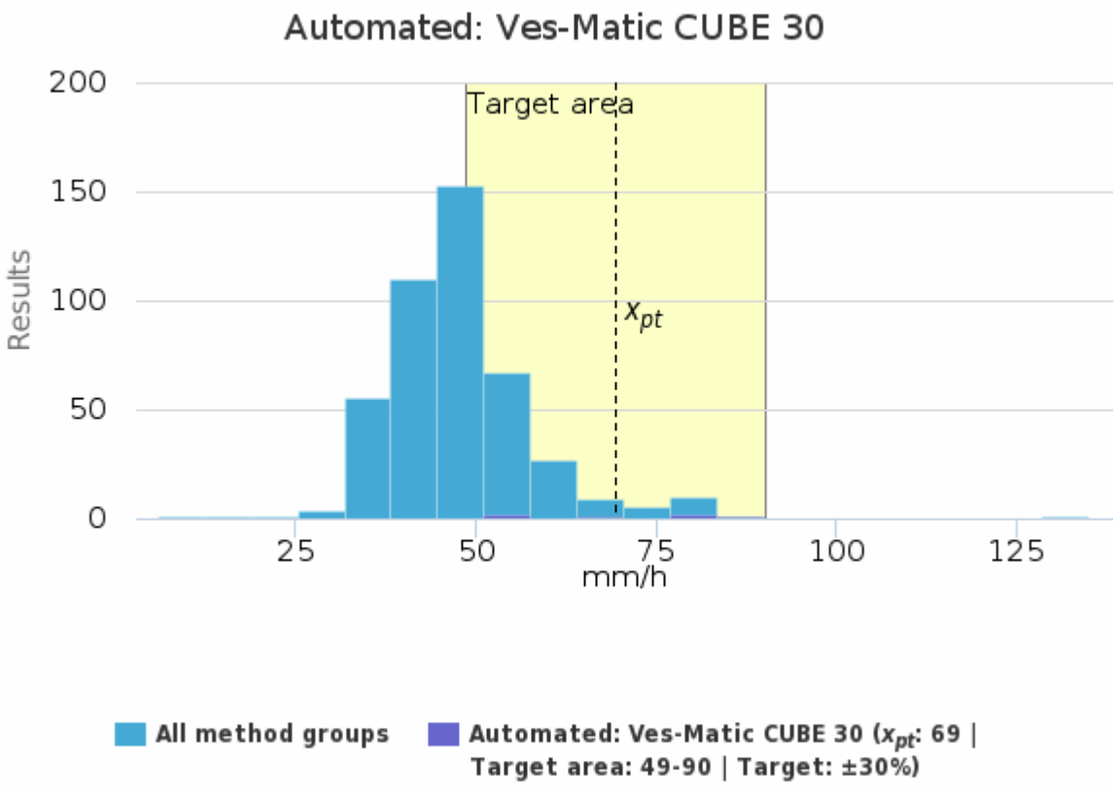


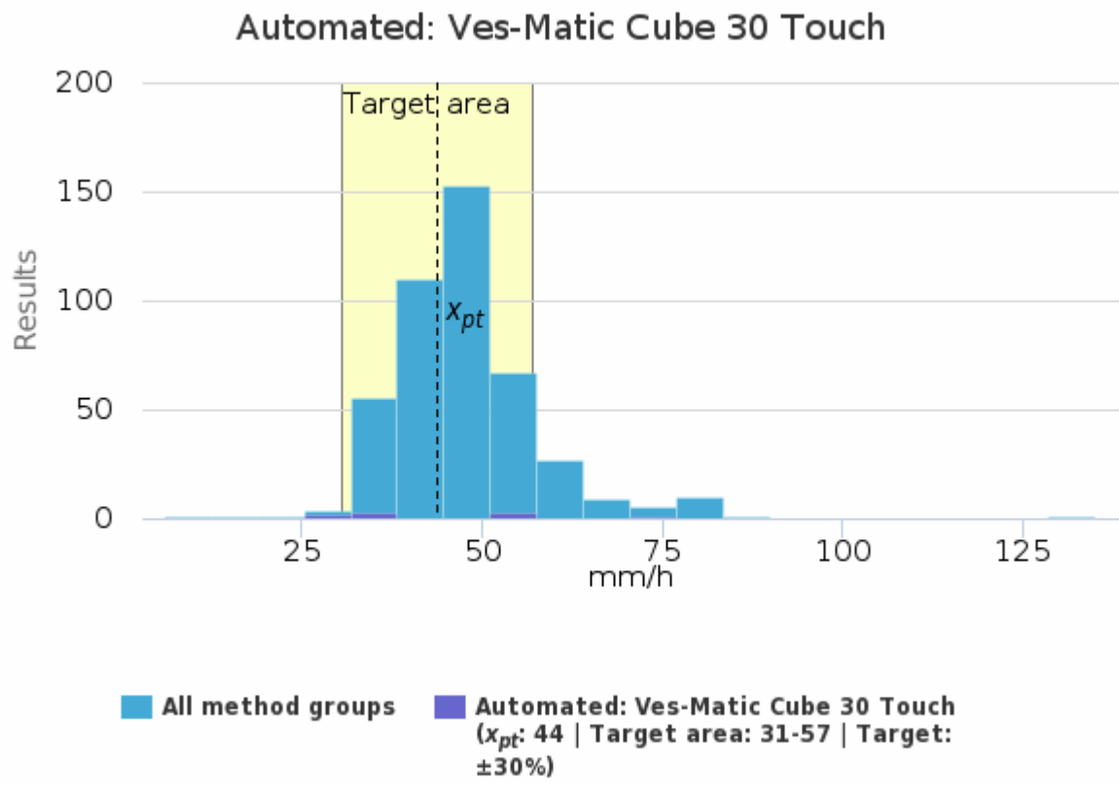


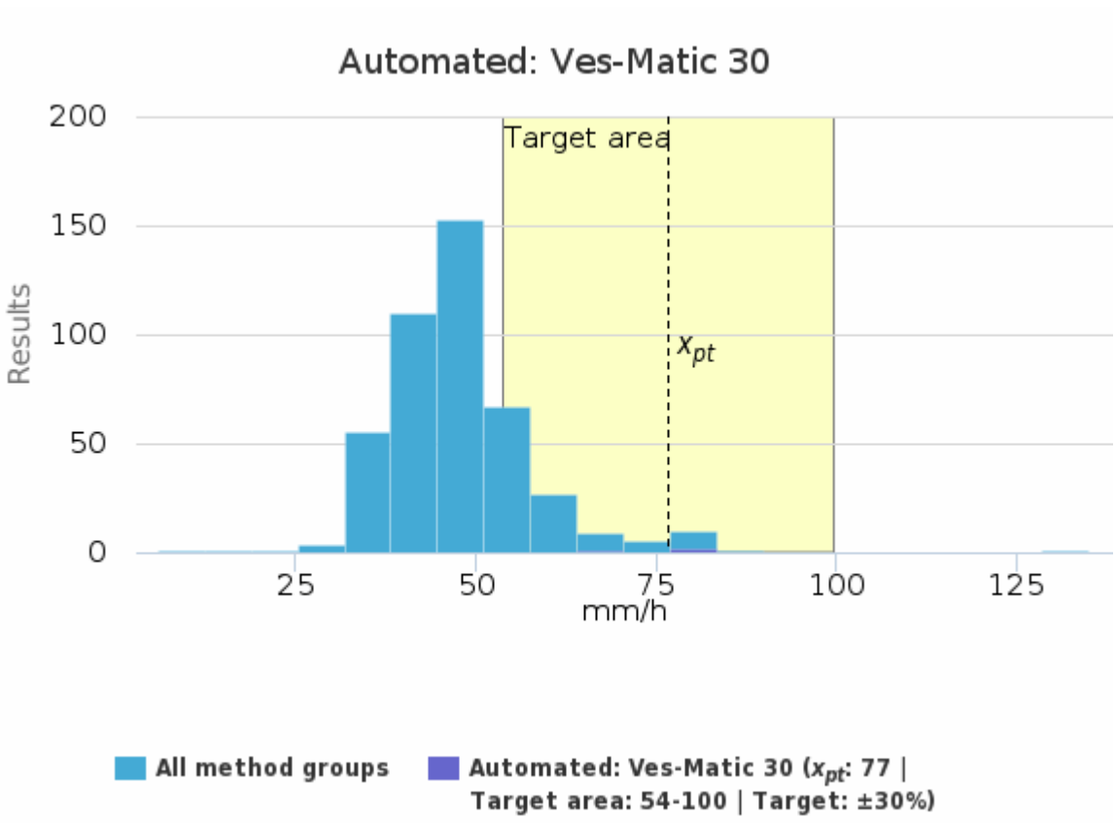


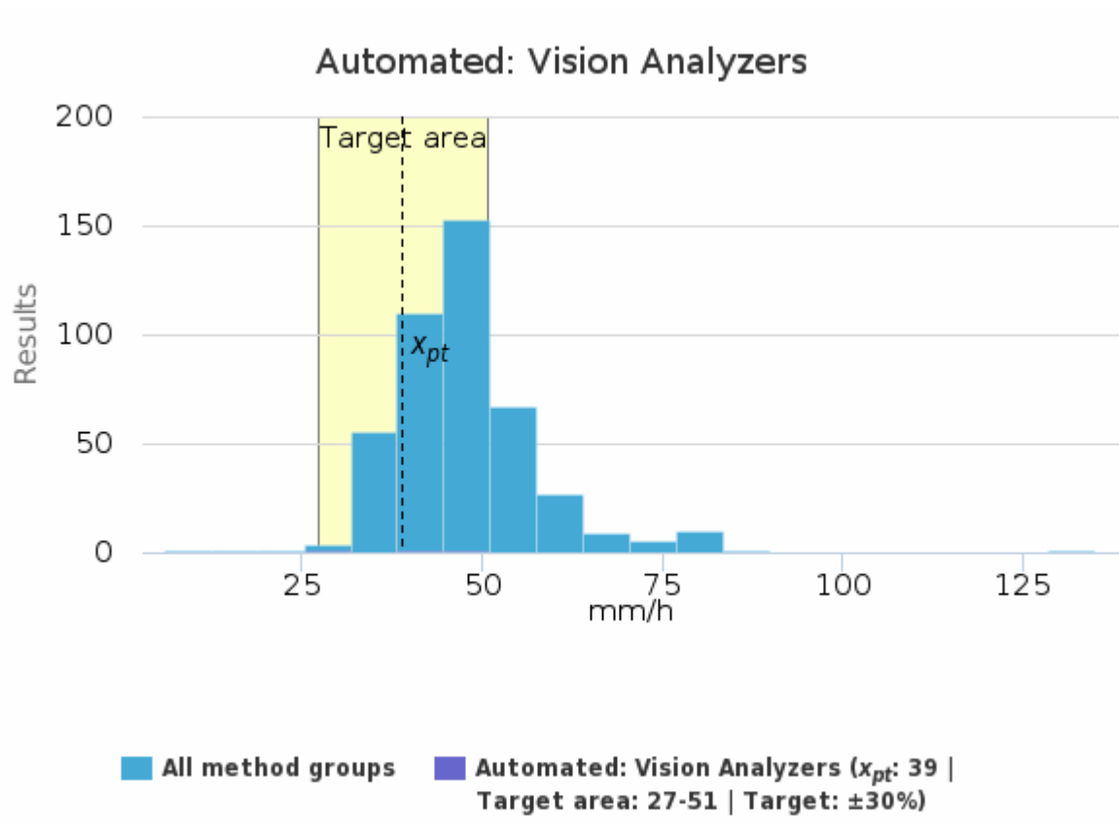


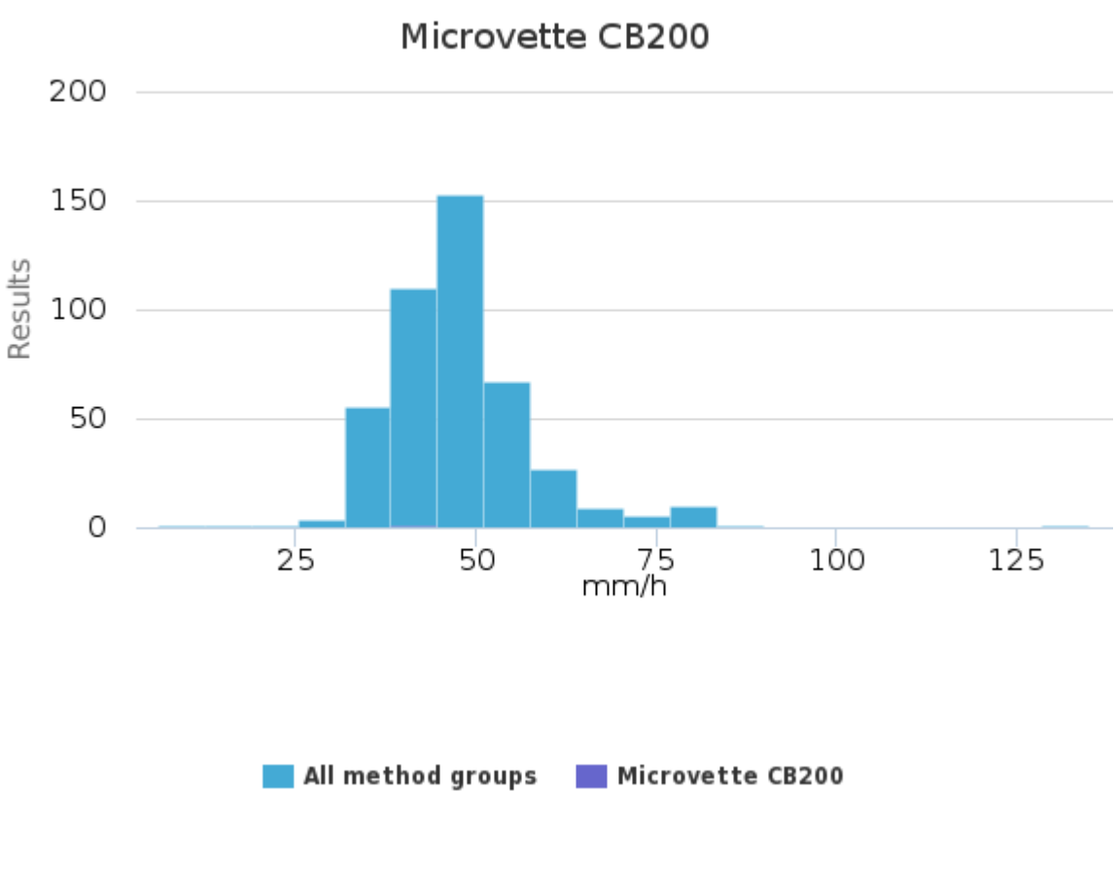
Erythrocyte sedimentation rate, March, 1-2023

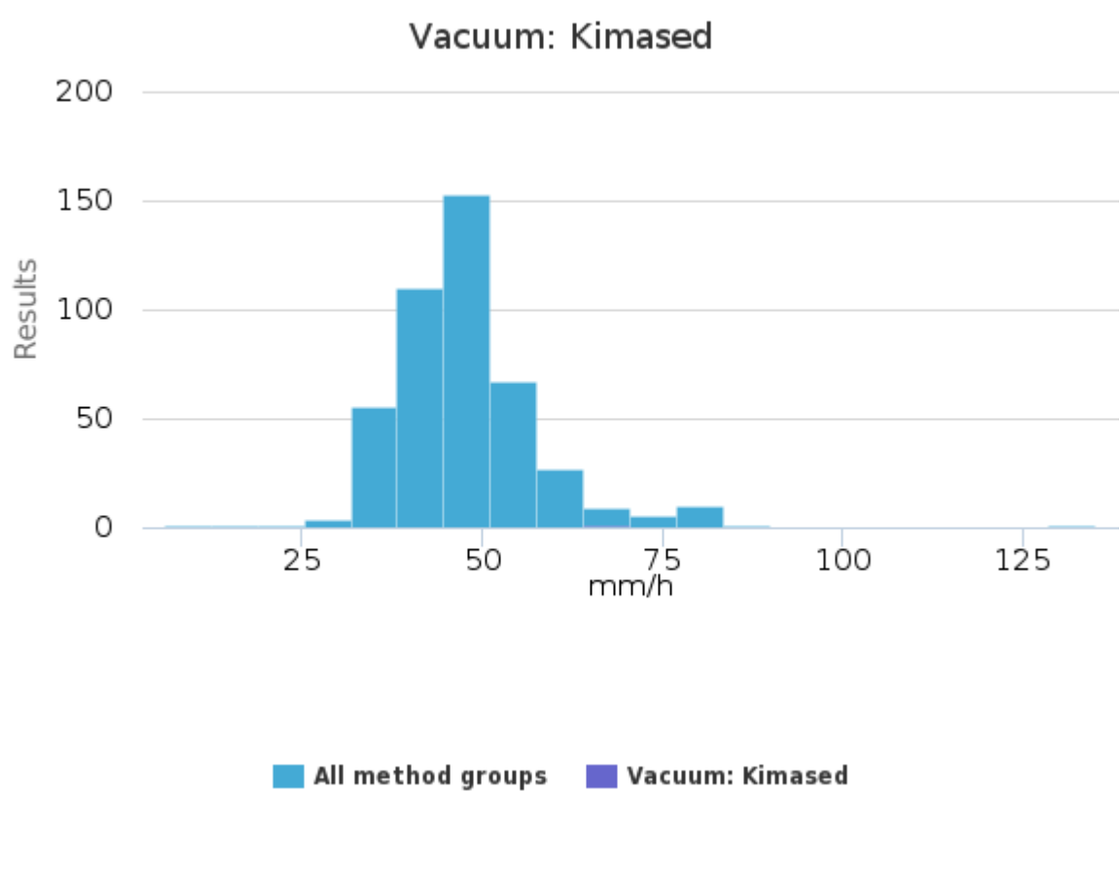




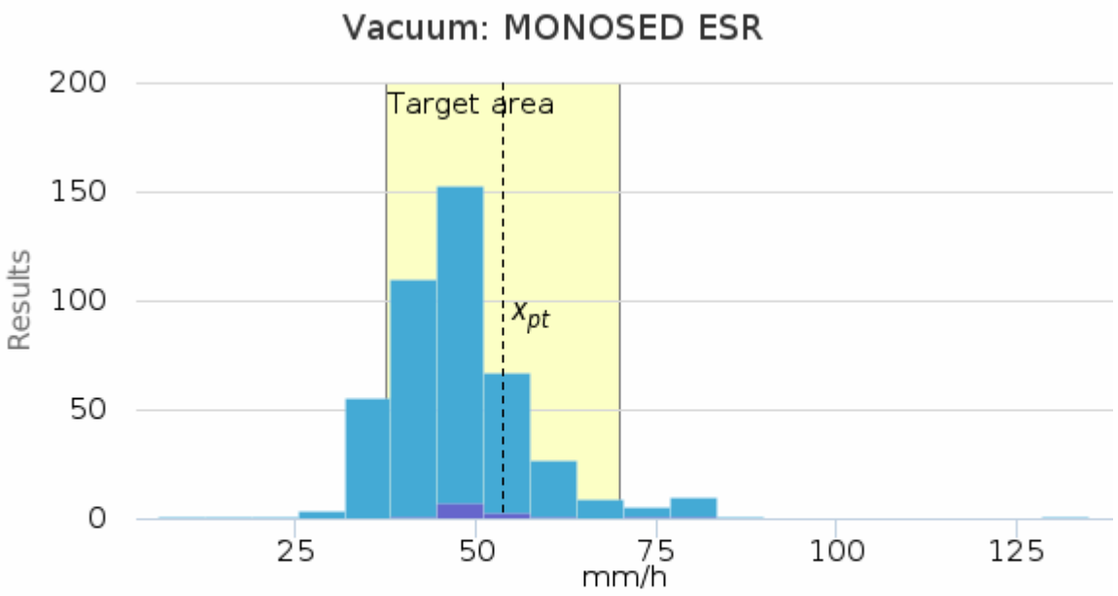


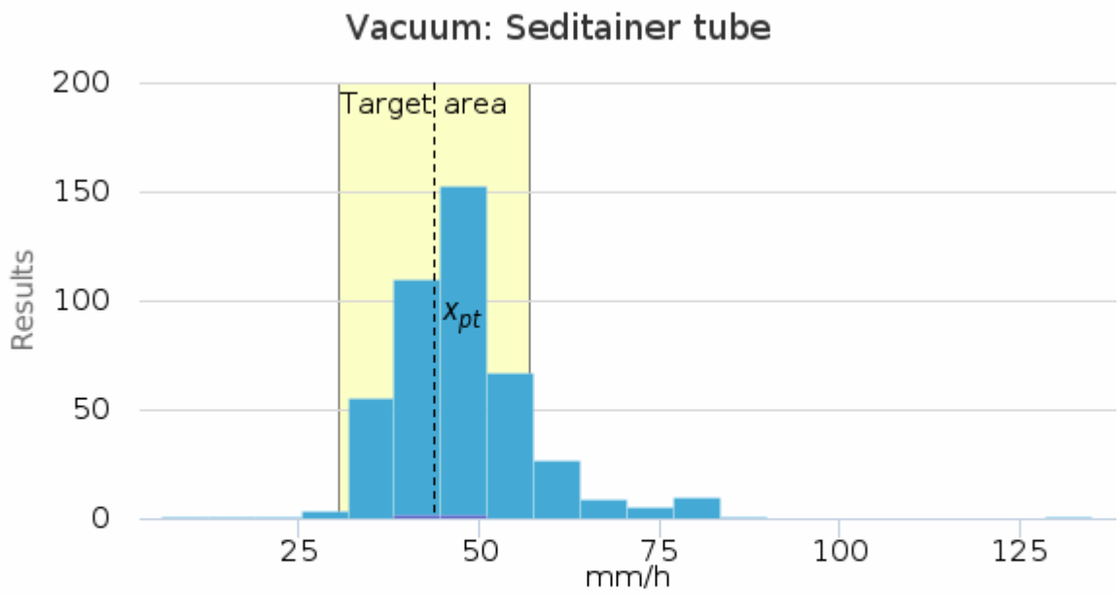


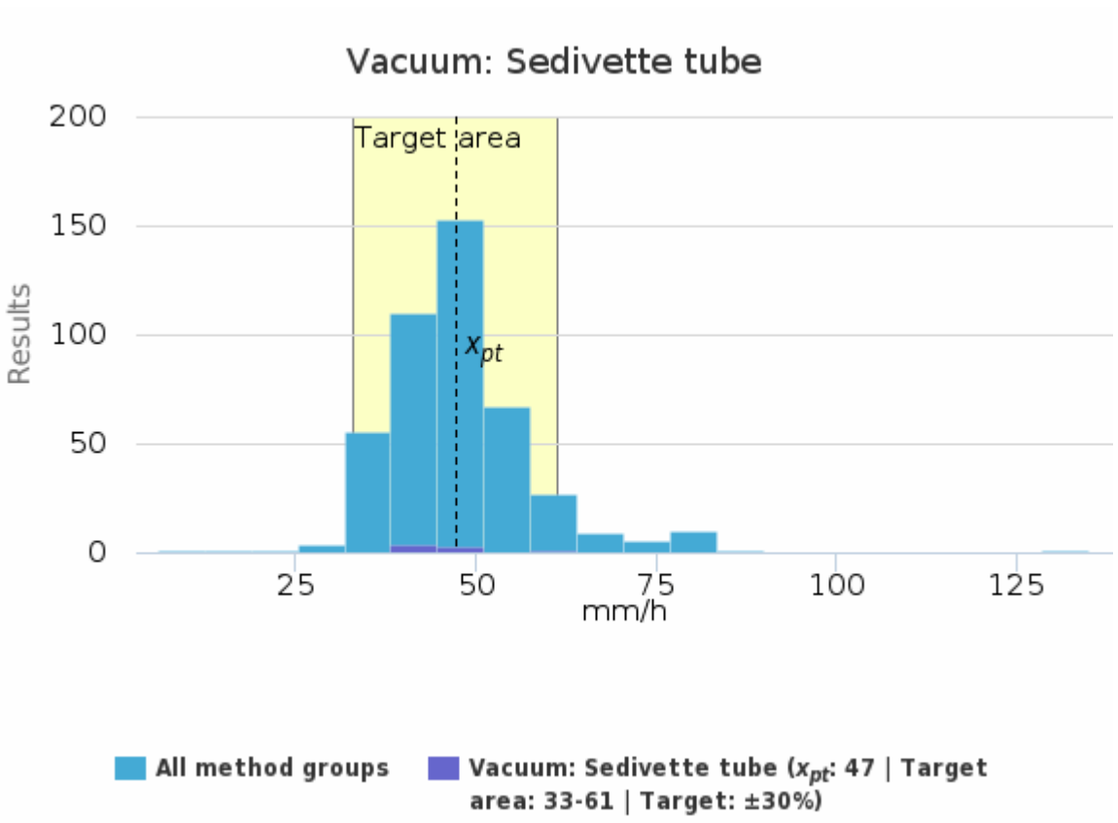


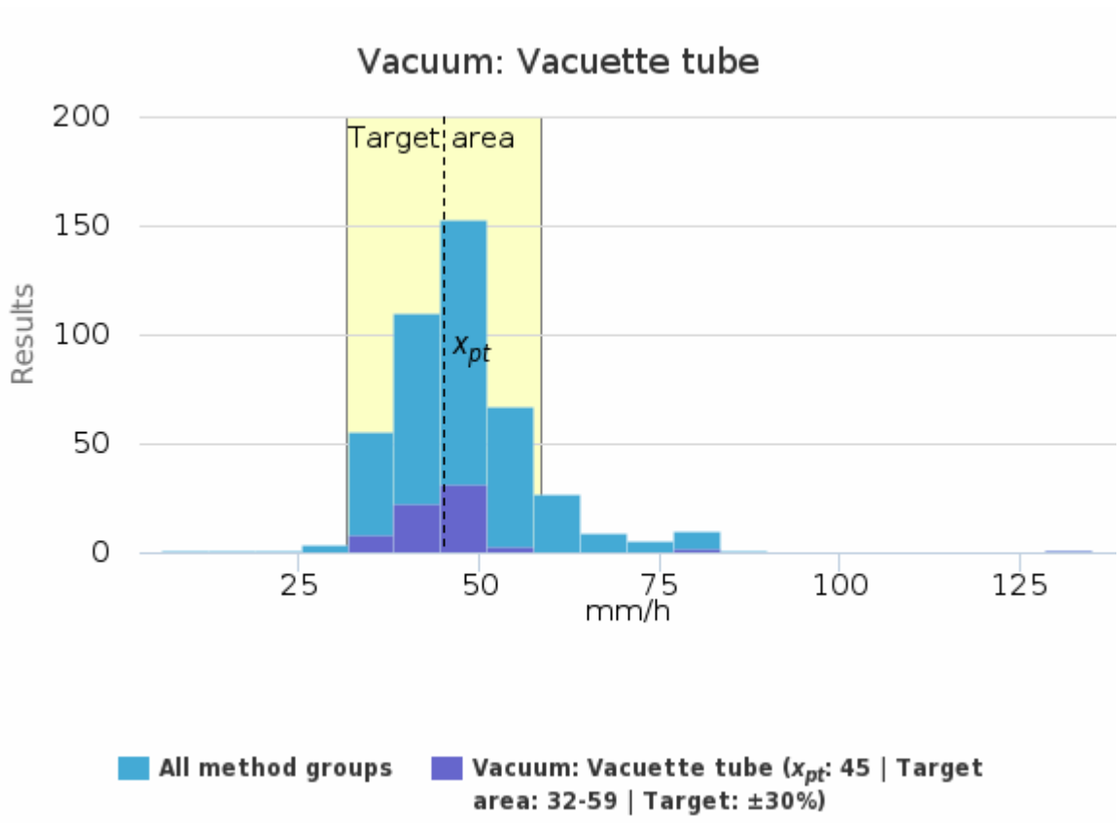


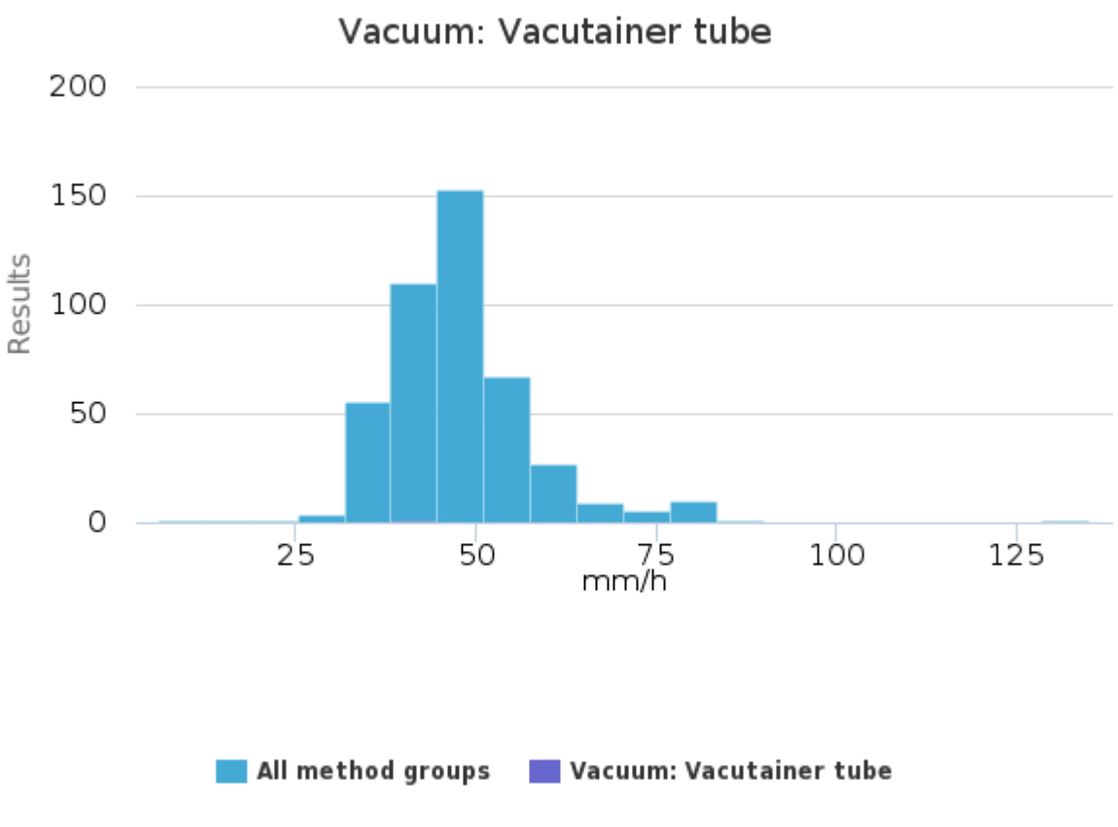
Erythrocyte sedimentation rate, March, 1-2023

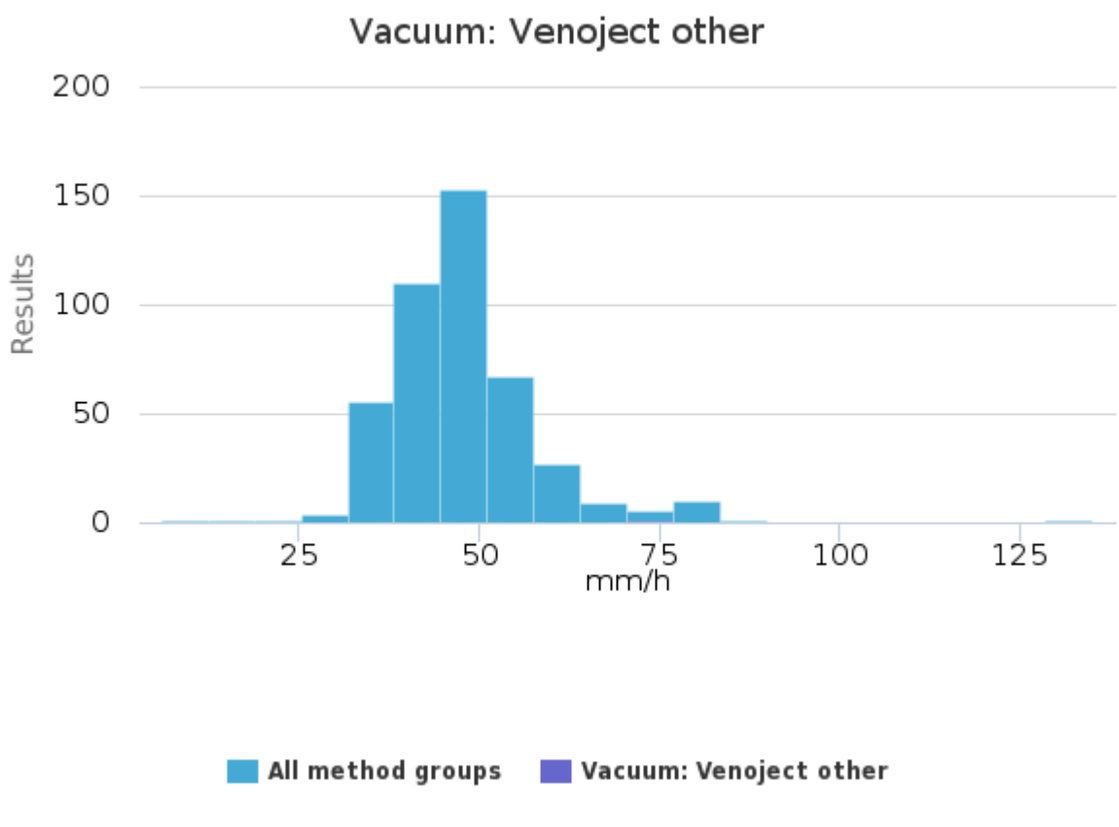




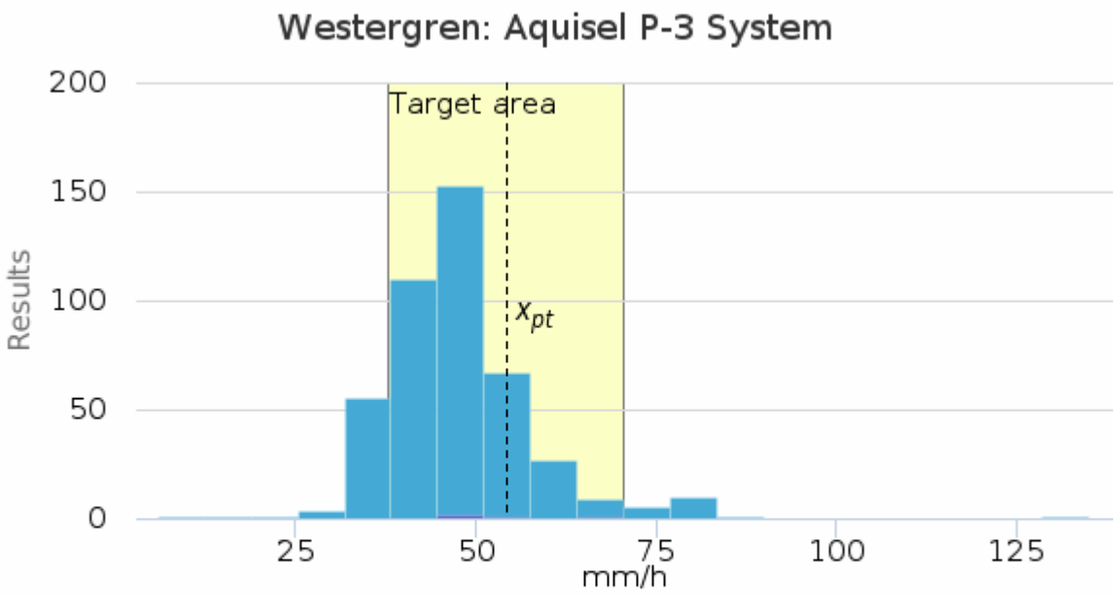


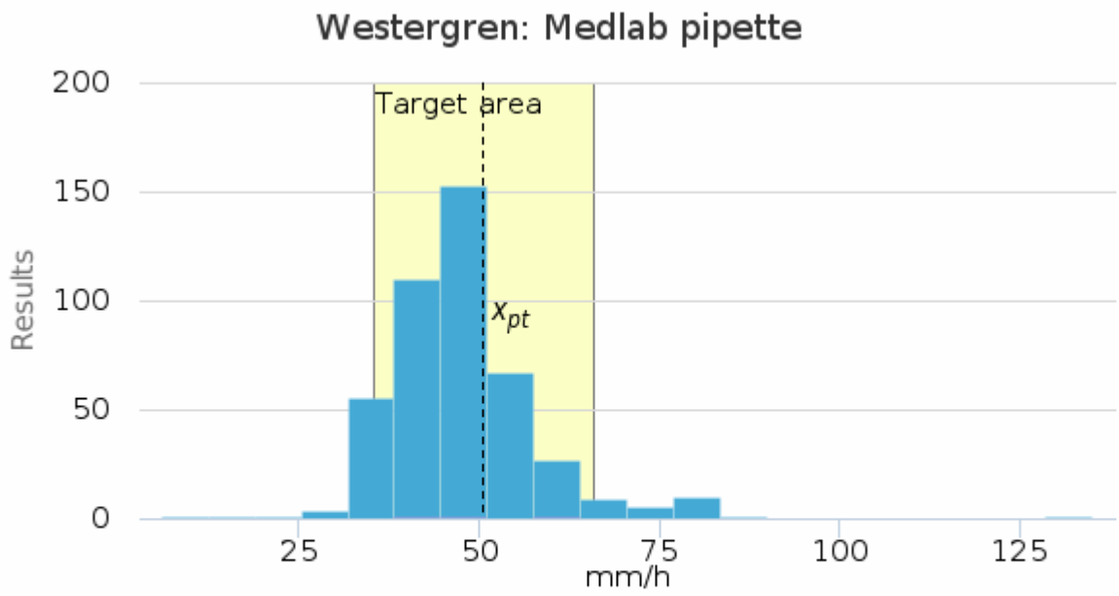


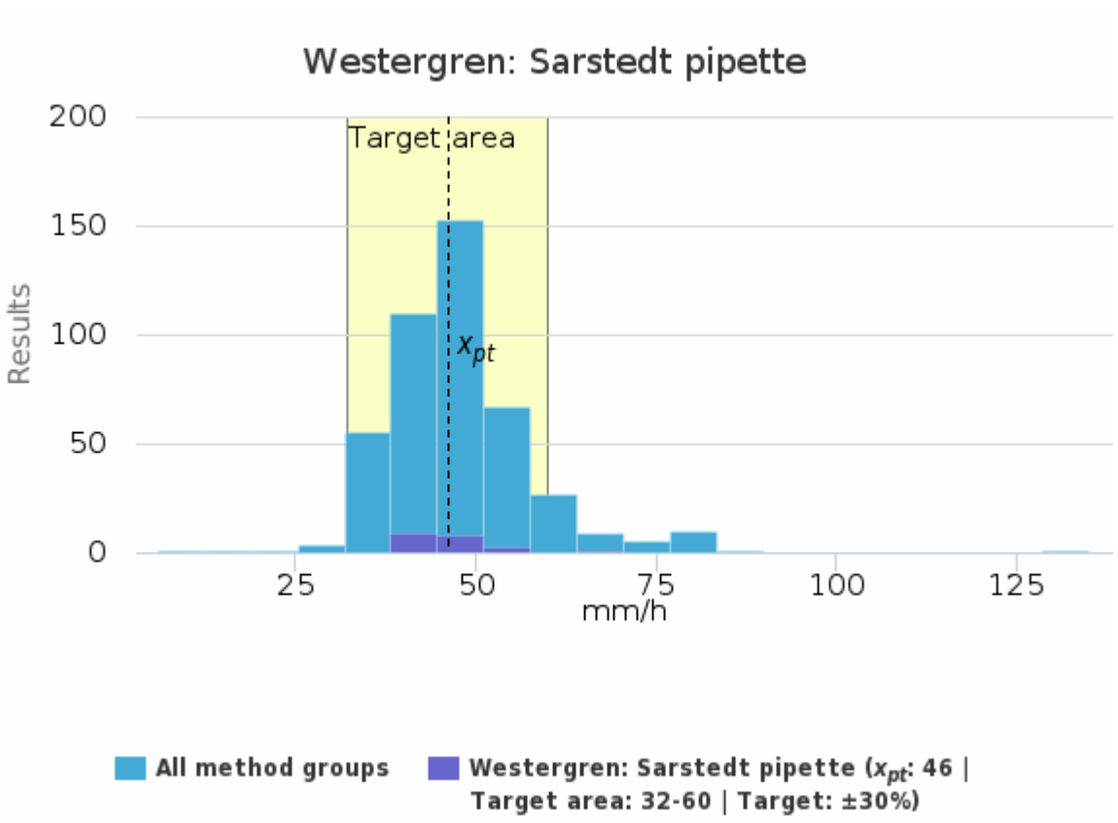


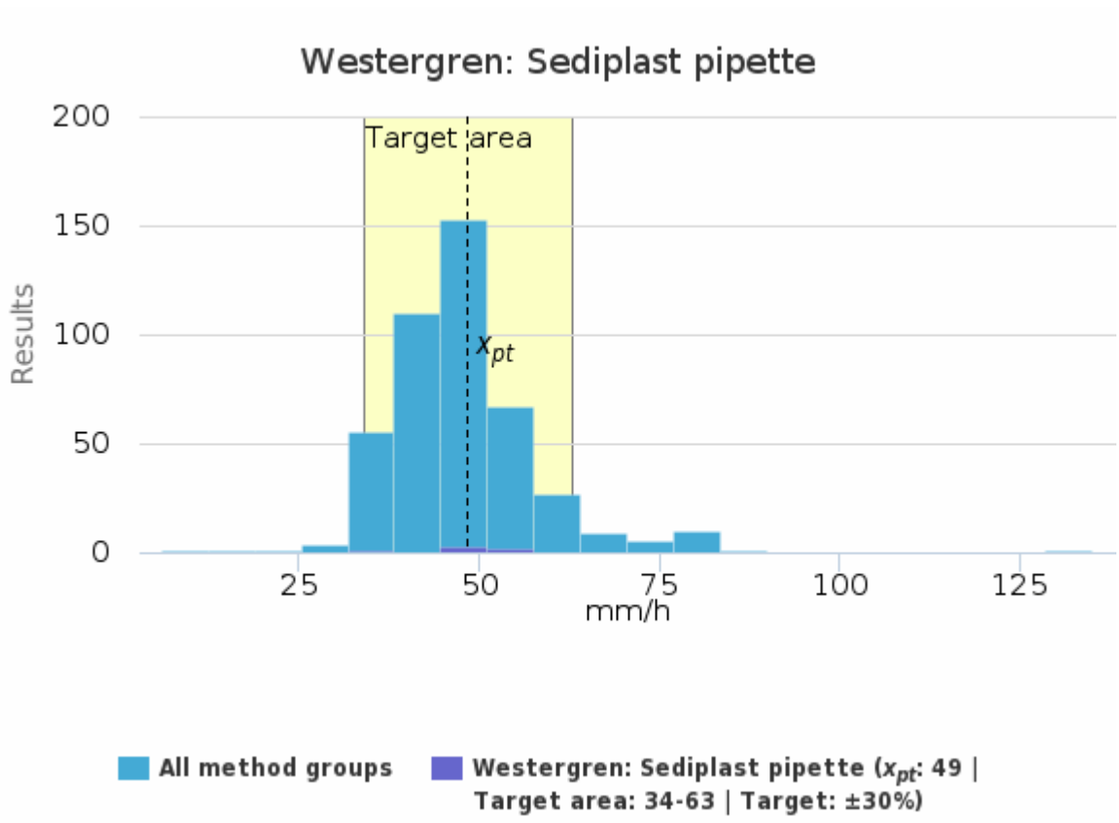


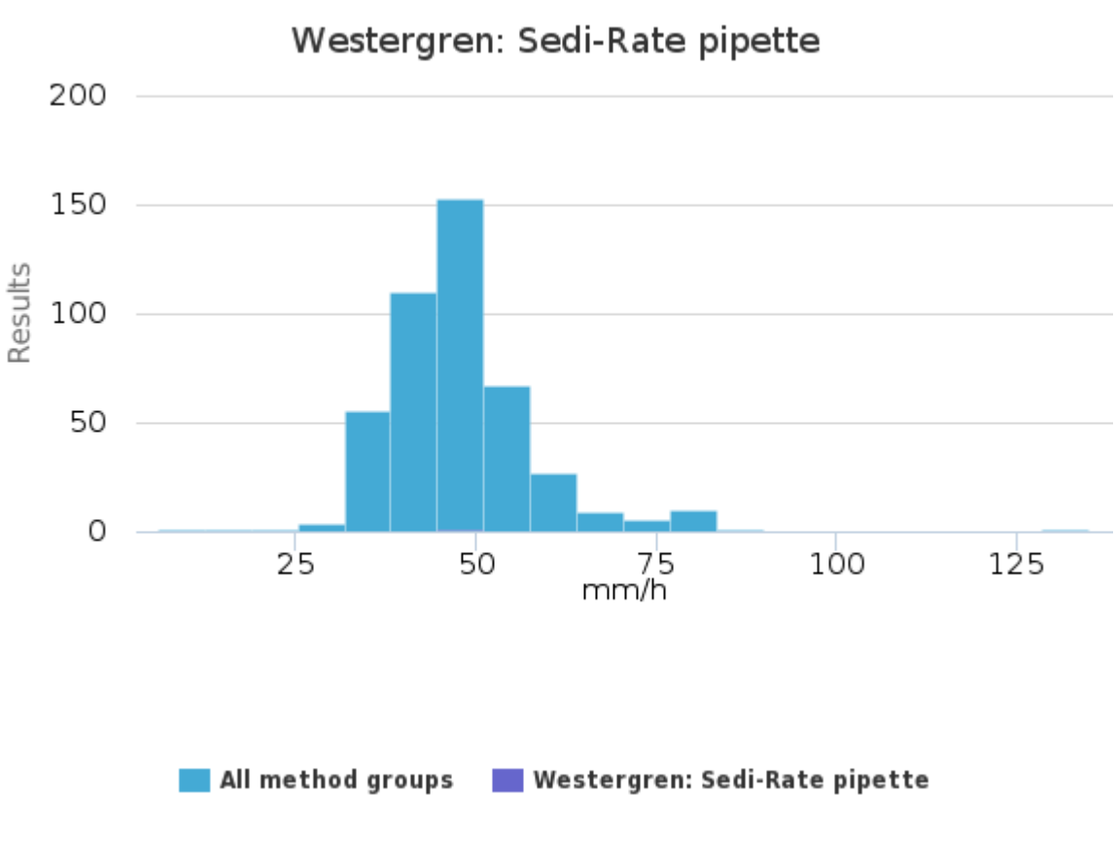
Erythrocyte sedimentation rate, March, 1-2023

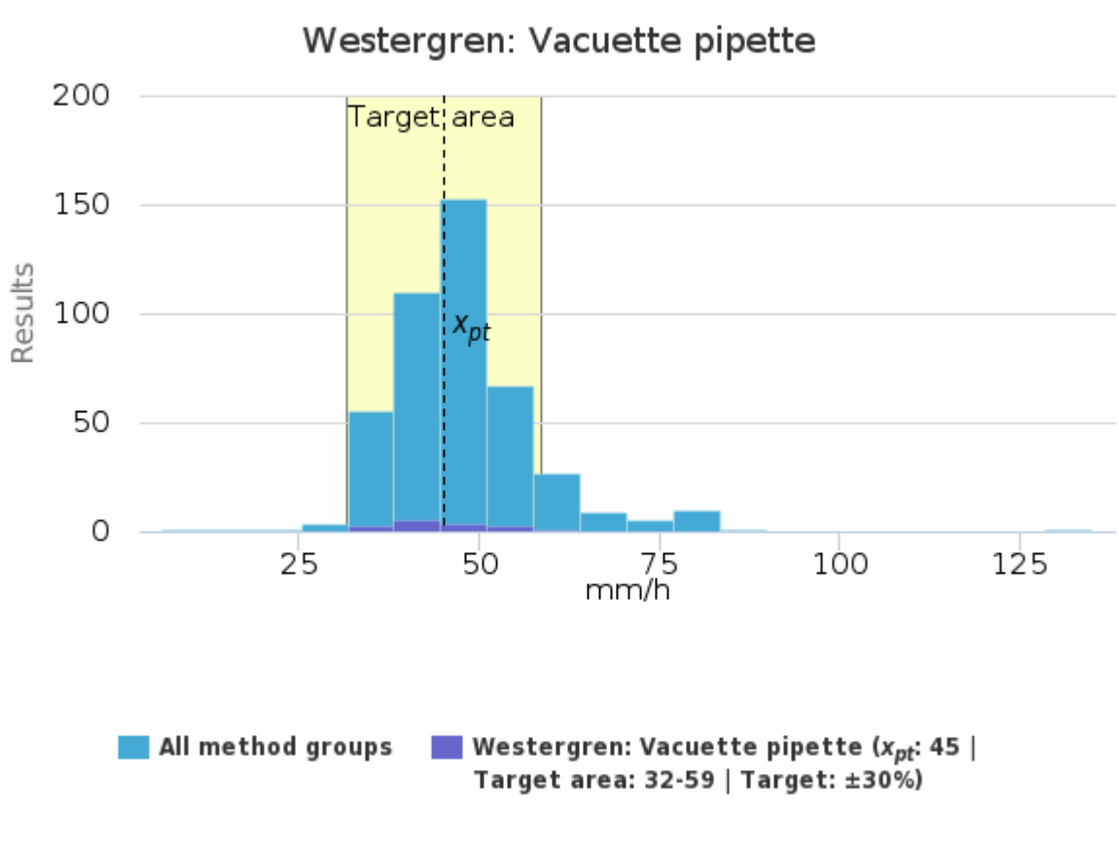




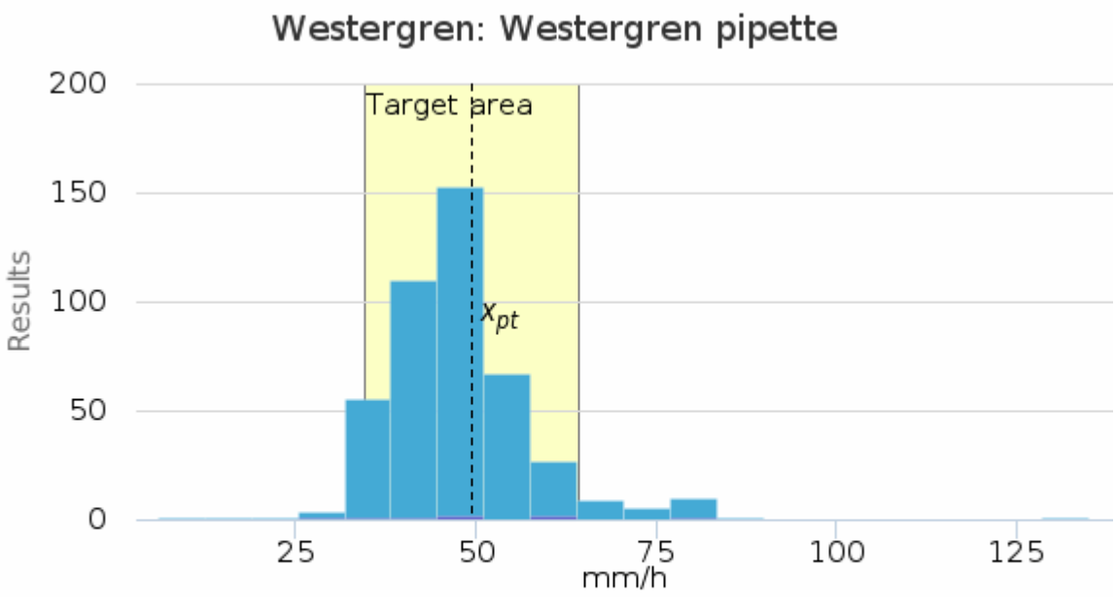








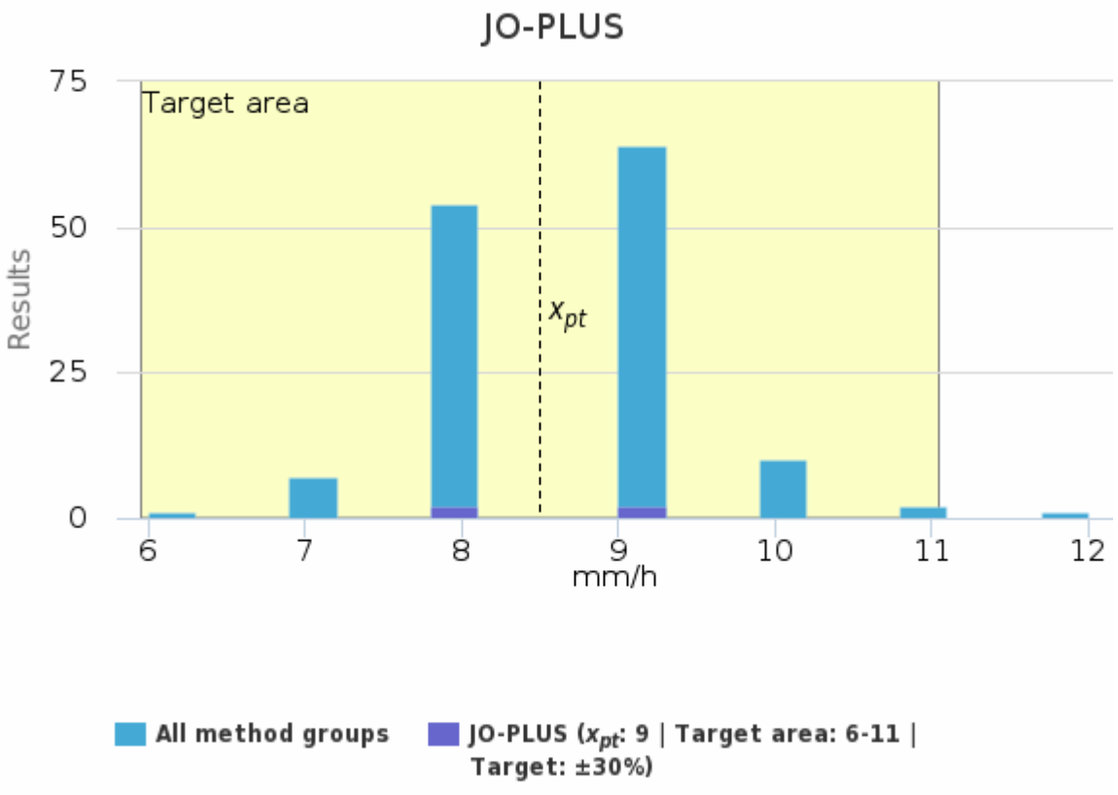
Erythrocyte sedimentation rate, March, 1-2023

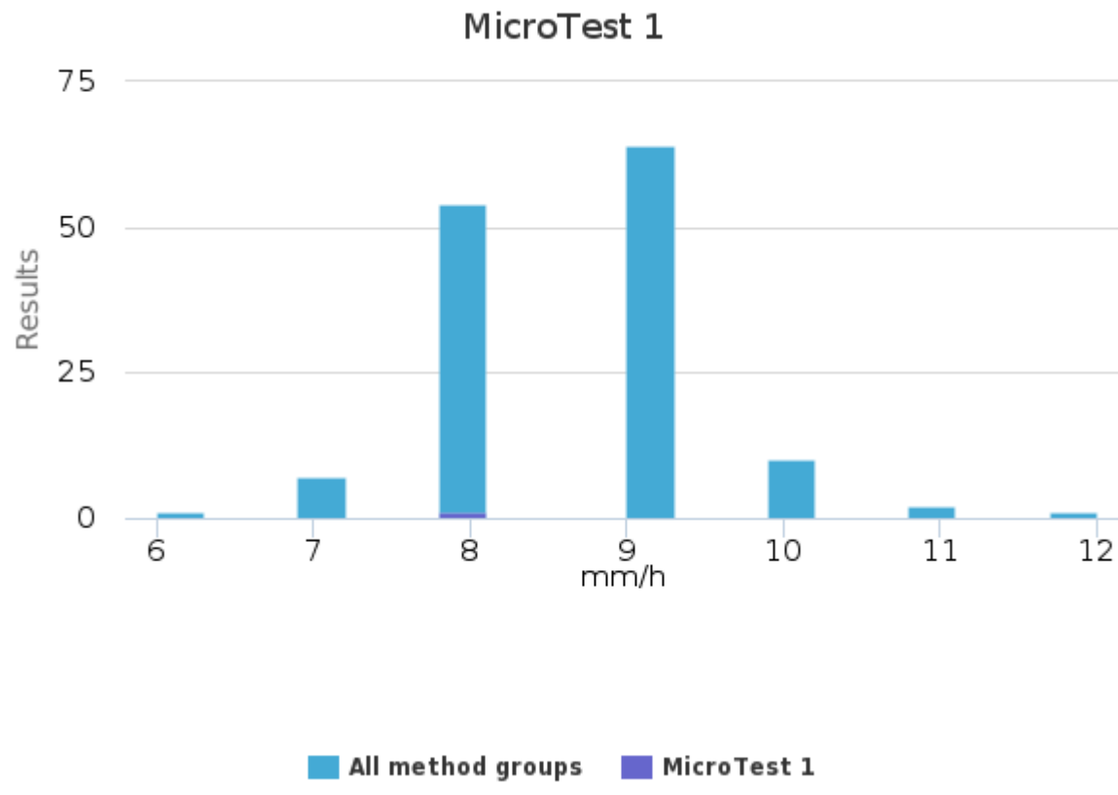


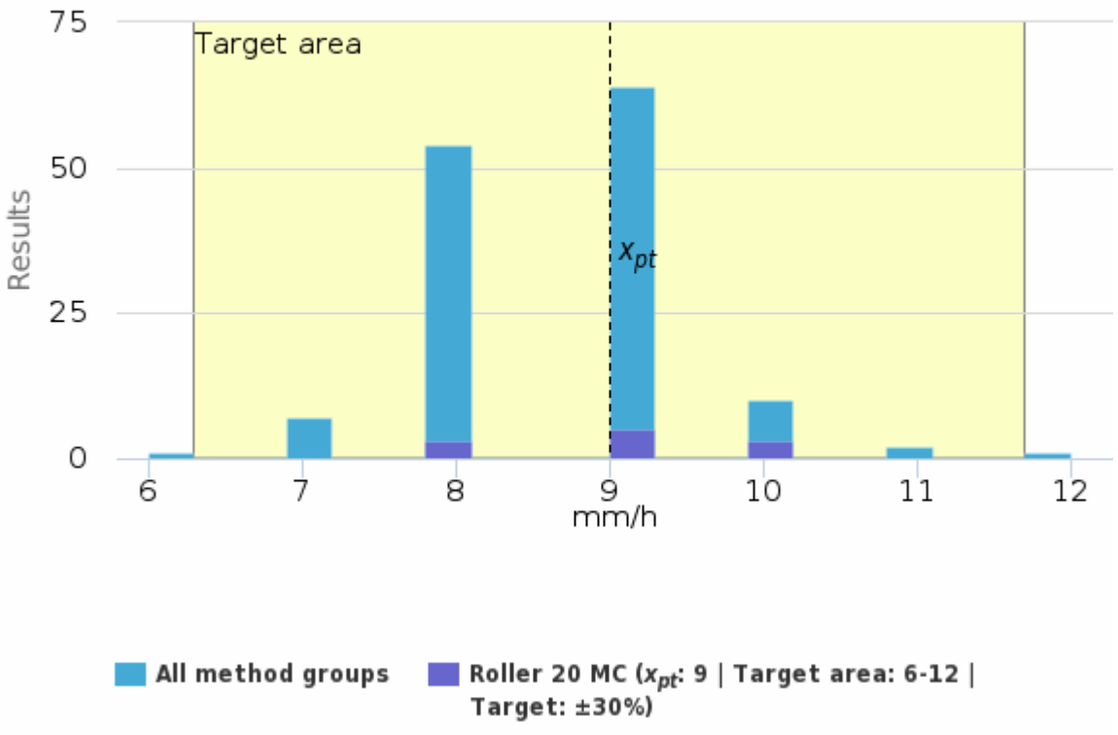
Sample S002 | Sedimentation rate, mm/h

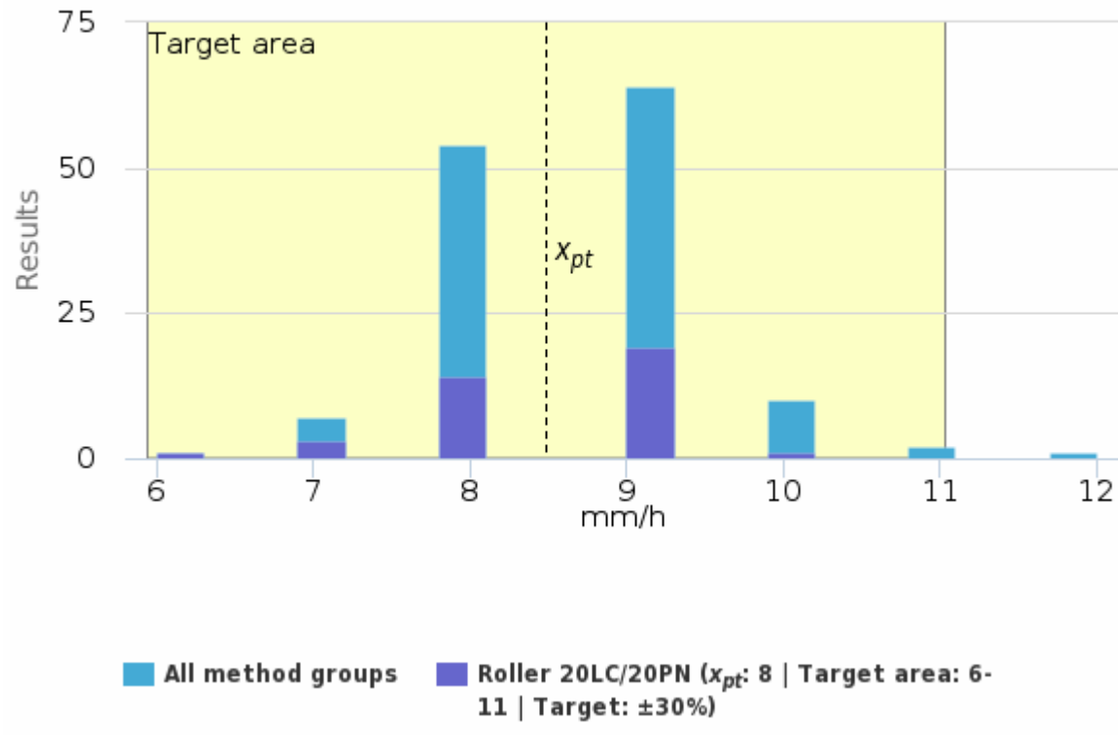
Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
JO-PLUS	9	9	<1	6.8	<1	8	9	-	4
MicroTest 1	-	-	-	-	-	8	8	-	1
Roller 20 MC	9	9	<1	8.6	<1	8	10	-	11
Roller 20LC/20PN	8	9	<1	8.2	<1	7	10	1	38
Test 1	9	9	<1	9.2	<1	7	11	1	85
All	**9**	**9**	**<1**	**8.8**	**<1**	**7**	**11**	**2**	**139**

Sample S002 | Sedimentation rate, mm/h| histogram summaries in LabScala

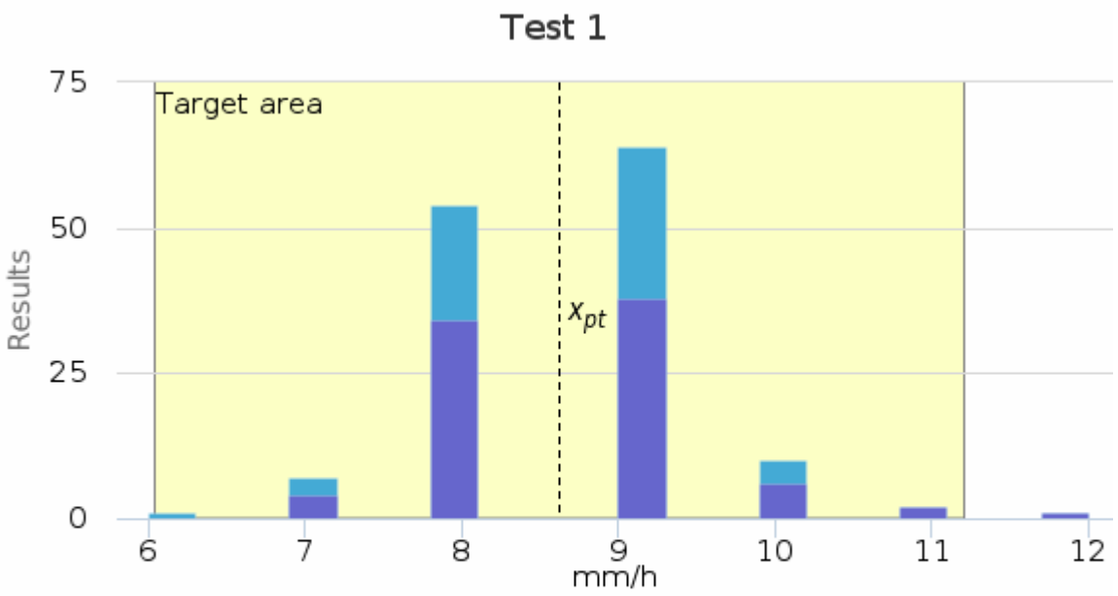








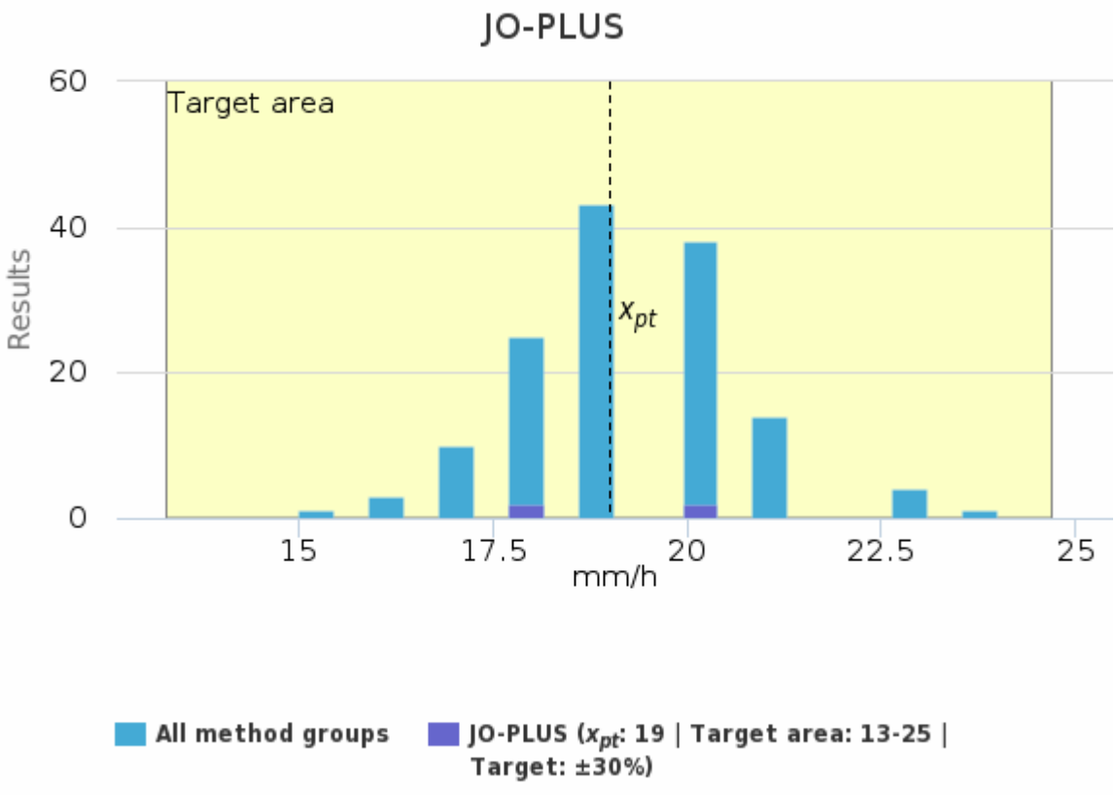
Erythrocyte sedimentation rate, March, 1-2023

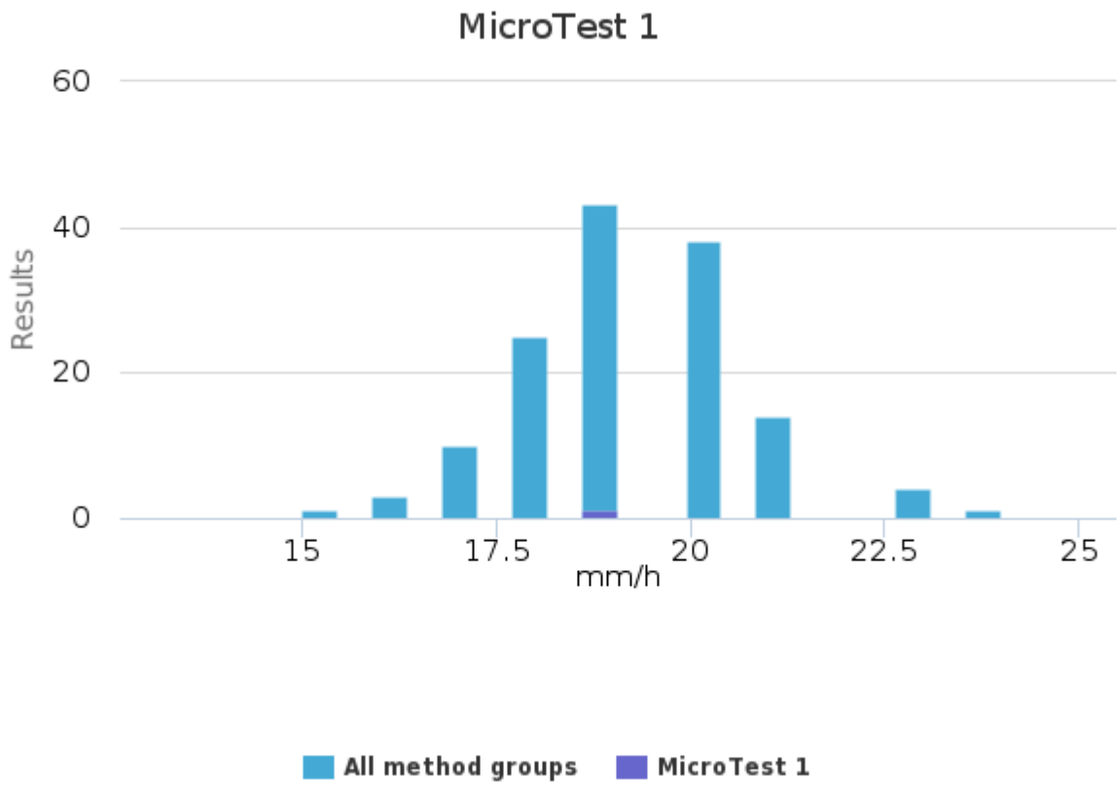


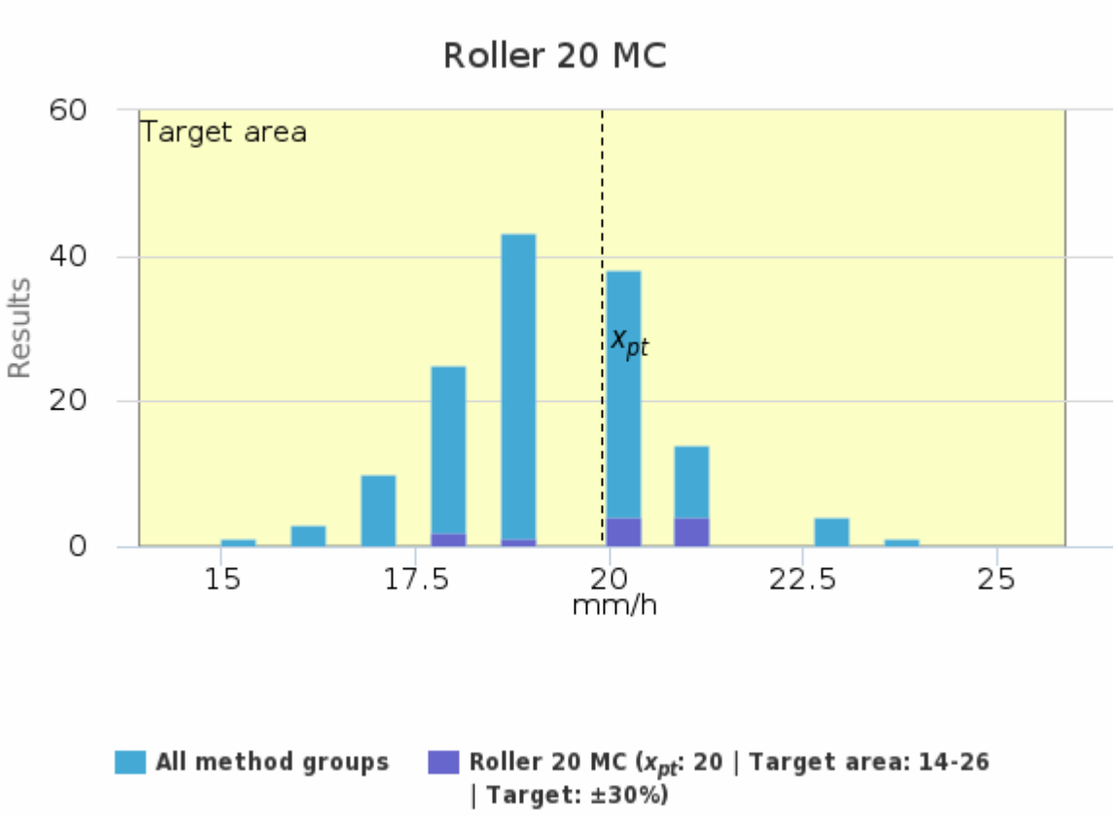
Sample S003 | Sedimentation rate, mm/h

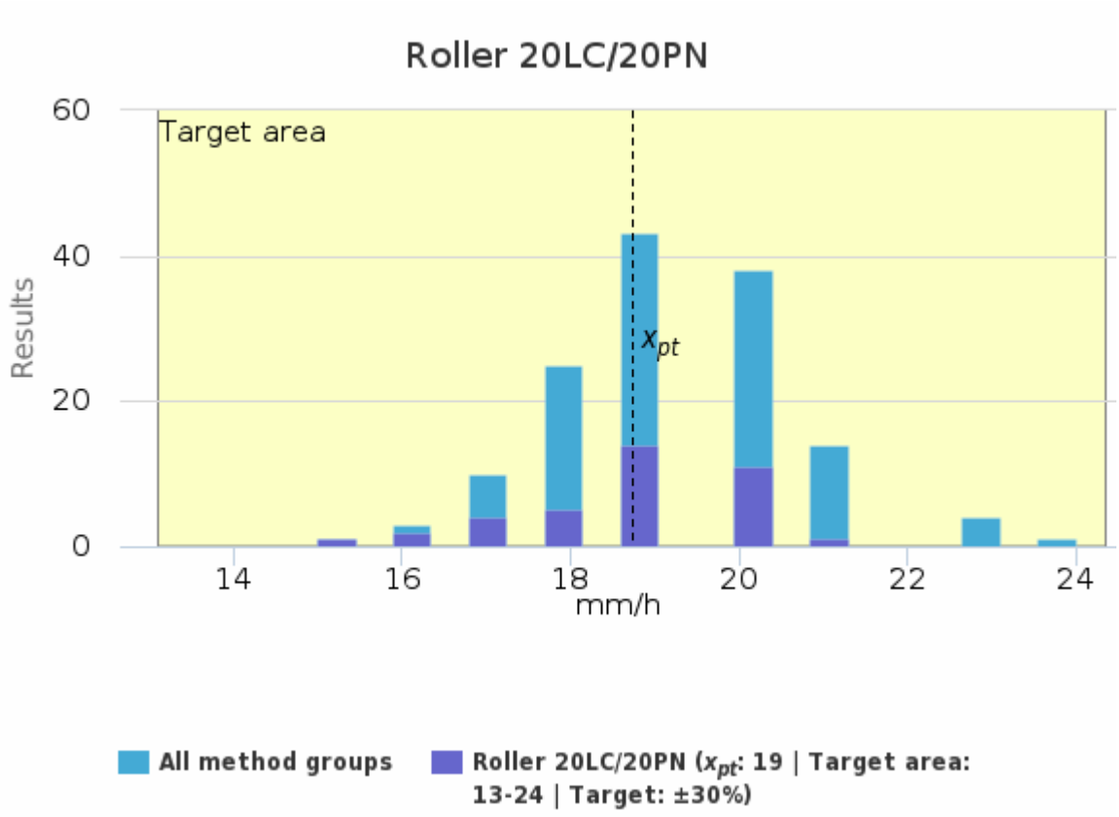
Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
JO-PLUS	19	19	1	6.1	<1	18	20	-	4
MicroTest 1	-	-	-	-	-	19	19	-	1
Roller 20 MC	20	20	1	5.7	<1	18	21	-	11
Roller 20LC/20PN	19	19	1	7.2	<1	15	21	-	38
Test 1	19	19	1	7.3	<1	16	23	1	85
All	**19**	**19**	**1**	**7.2**	**<1**	**15**	**23**	**1**	**139**

Sample S003 | Sedimentation rate, mm/h| histogram summaries in LabScala

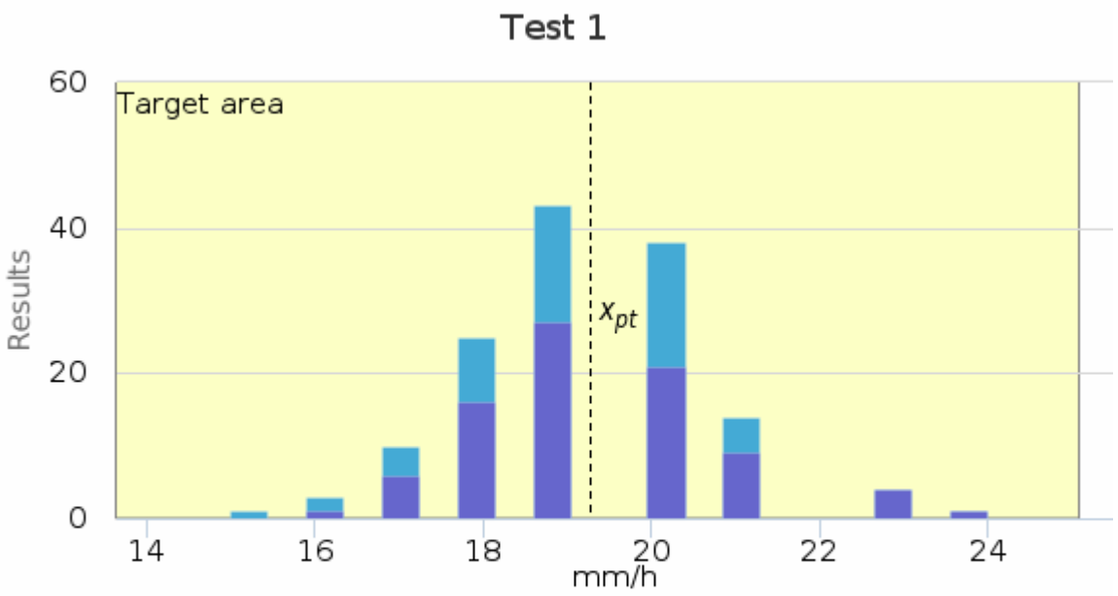








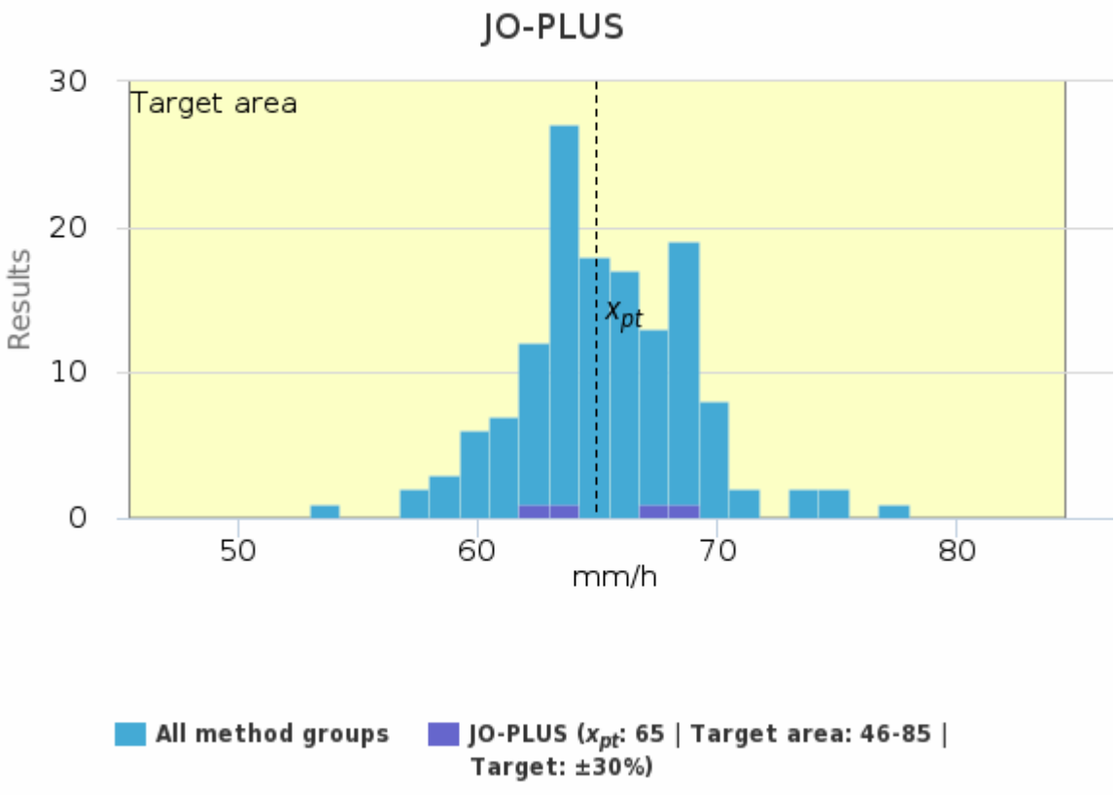
Erythrocyte sedimentation rate, March, 1-2023

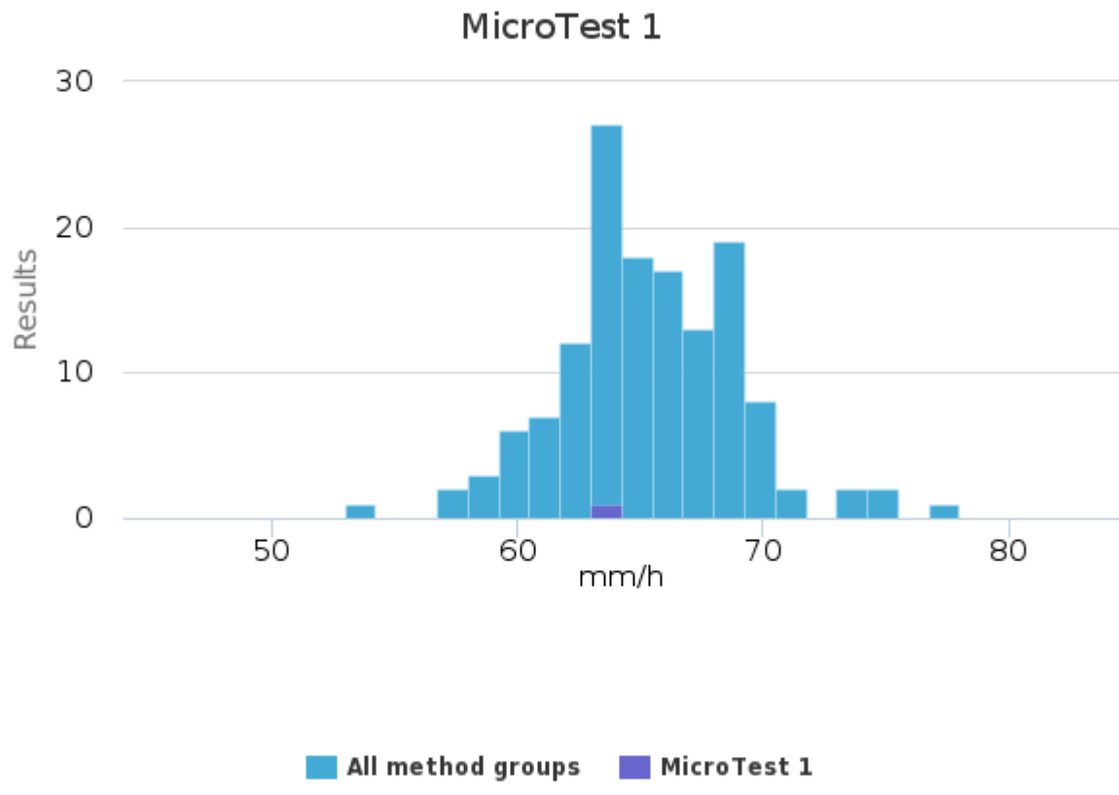


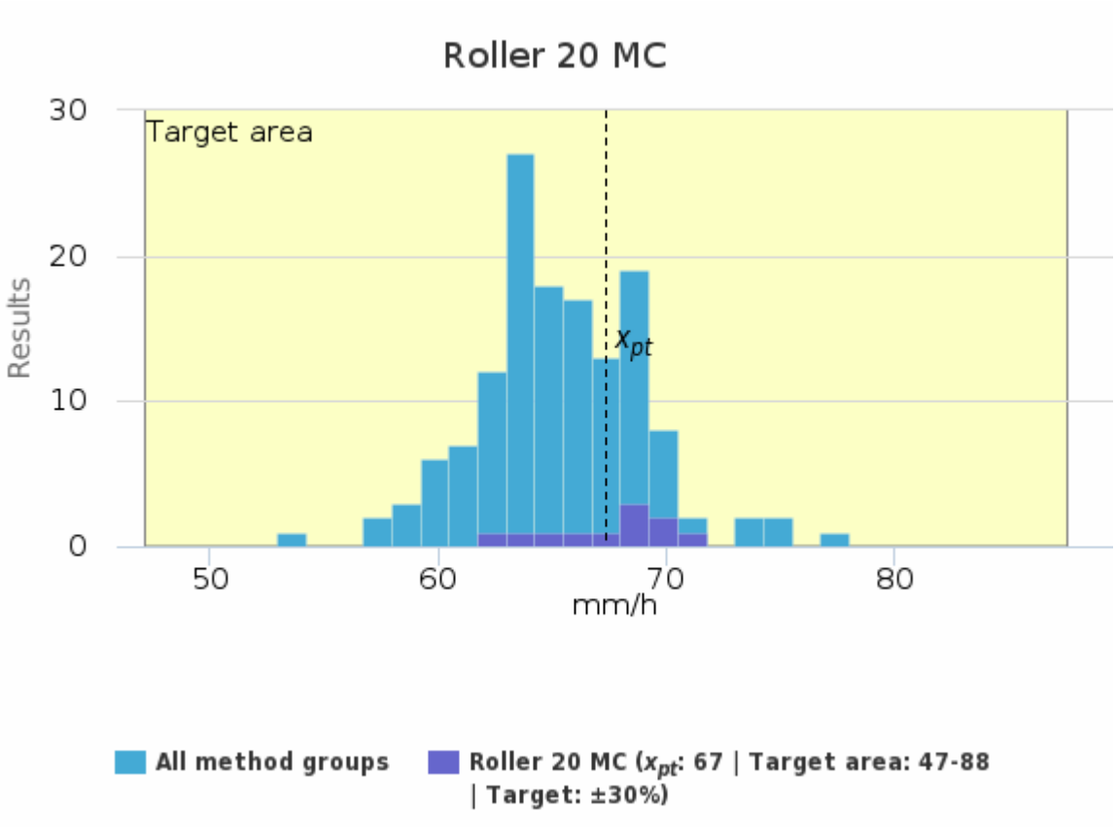
Sample S004 | Sedimentation rate, mm/h

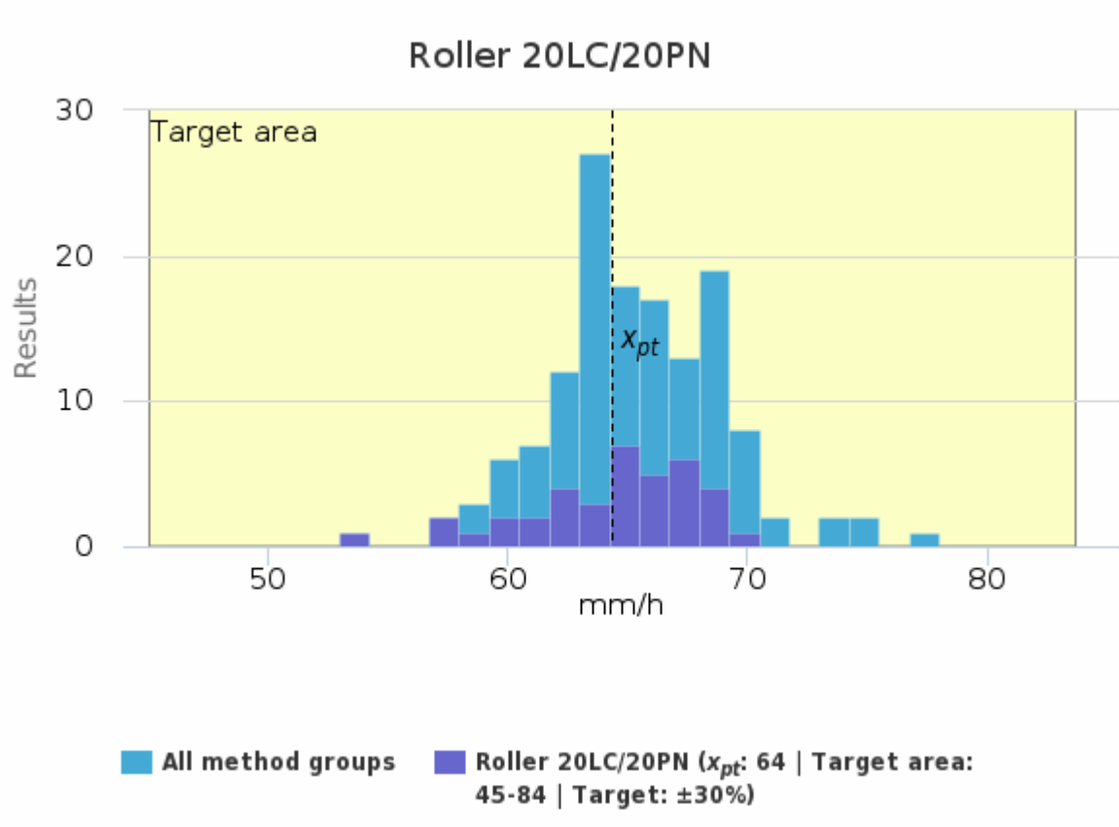
Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
JO-PLUS	65	65	3	4.5	1	62	68	-	4
MicroTest 1	-	-	-	-	-	64	64	-	1
Roller 20 MC	67	69	3	4.5	<1	62	71	-	11
Roller 20LC/20PN	64	65	3	5.1	<1	57	70	1	38
Test 1	65	65	4	5.4	<1	58	75	1	86
All	**65**	**65**	**3**	**5.3**	**<1**	**57**	**75**	**2**	**140**

Sample S004 | Sedimentation rate, mm/h| histogram summaries in LabScala

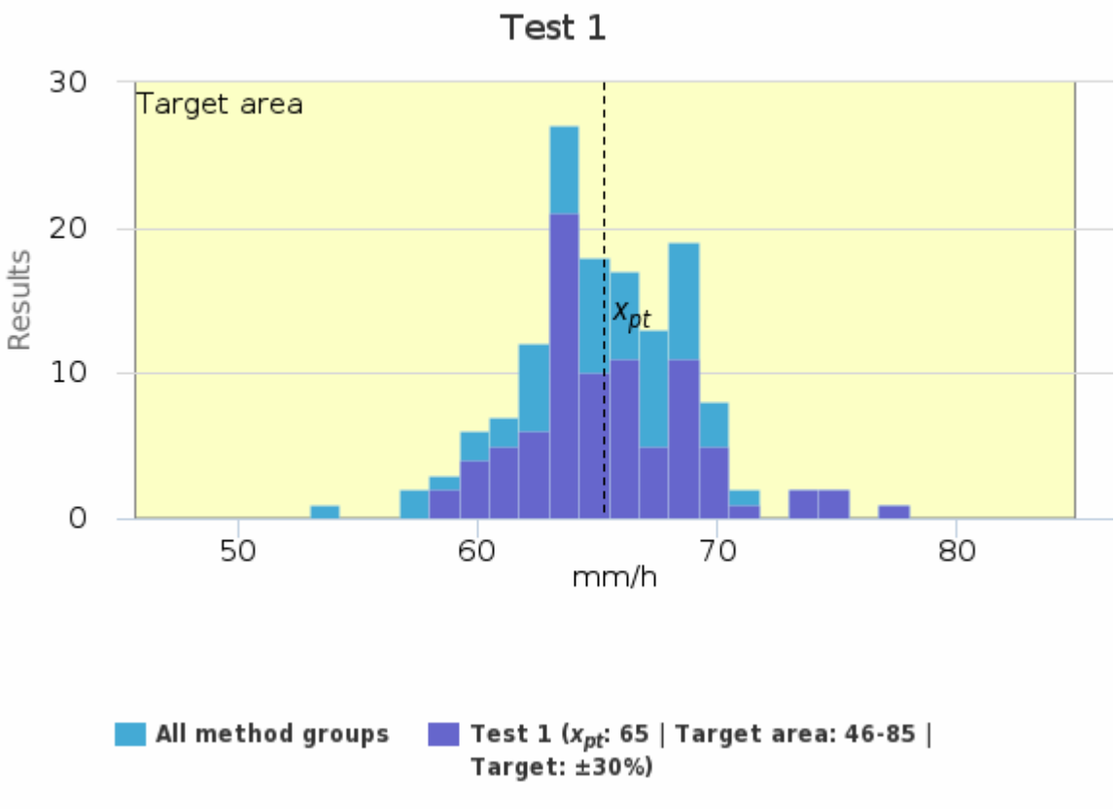








Erythrocyte sedimentation rate, March, 1-2023



Report info

Participants

501 participants from 27 countries.

Report info

Your own result should be compared to others using the same method.
Assigned values (x_{pt}, target values) are means of the results where results deviating more than +/- 3*standard deviation from the median are removed. The standard uncertainty (u) of the assigned value is reported as standard error of the mean (SEM). Additionally, if the measurement uncertainty of the target value is large an automatic text is printed on the report: “The uncertainty of the assigned value is not negligible, and evaluations could be affected.”
In case the client’s result is the only one in the method group, no assigned value will be calculated, no target area shown, and no statistics calculated. In case there are only a few results in the client’s own method group, the result can be compared to all method mean or to a group that is similar to the own method.
Results reported with < or > -signs cannot be included in the statistics.

For information on report interpretation and performance evaluation, please see the " EQAS Interpretation guidelines" LabScala User instructions (top right corner ?Help link).

LABQUALITY

External Quality Assessment Scheme

Erythrocyte Sedimentation Rate
Round 1, 2023

Specimen
Sample S001 (LQ747323011) was composed of mammalian erythrocytes in a plasma-like fluid with preservatives. The control should have been similar in appearance to whole blood after mixing.

Based on the previous tests and the results of this round, the samples are homogeneous, stable, and suitable for the external quality assessment scheme. The materials were sent without temperature control packaging.

Report info
Please see the description of the data analysis on the last page of the laboratory-specific histograms and Numerical Summary reports. It is important to read the Final report first, because it contains important information of the samples and results in each round.

Comments – Expert
The level of the sample was high and over normal range. There were 445 ESR results in this survey.

In the Westergren method group was the average 49.2 mm/h; in the Vacuum method the average 47.5 mm/h and in the Automated method the average 48.9 mm/h. The averages are in Westergren, Vacuum and Automated groups near each other. The Westergren level is the target value (49,2 mm/h). In different groups is still great dispersion between ESR methods in averages and CV's.

The mean values and CV per cents of different method groups were as follows: In Westergren methods the mean value was 49.2 mm/h and CV 18.2 % (n=59), in Vacuum methods 47.5 mm/h and CV 14.9 % (n=96) and in Automated methods 48.9 mm/h and CV 11.9 % (n=290).

All method groups together gave the average 47 mm/h and CV% 18.2 %. Automated methods gave the best and lowest CV 11.9 %.

The methods nearest the target point (49.2 mm/h) are in Westergren group: Sediplast pipet (49 mm/h, n=6); in Vacuum group: Sedivette tube (47 mm/h, n=8) and in Automated group Sed Rate Timer and Screener (48 mm/h, n=5).

The best CV's inside different groups were: In the Westergren method group Sarstedt pipette (CV 10.5 % n=21), in the Vacuum method group Seditainer tube (CV 8.0 % n=4) and in the Automated method group Electa lab (CV 4.7 % n=3).

End of report

2023-03-31

FINAL REPORT

Product no. 2730

Samples sent	2023-02-27
Round closed	2023-03-26
Final report	2023-03-31

Request for correction
Typing errors in laboratory's result forms are on laboratory's responsibility. Labquality accepts responsibility only for result processing. Requests must be notified by writing within three weeks from the date of this letter.

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Quality Management
ISO 9001:2015