Hematology Proficiency Test Program

Statistical Summary – June 2014 (Event 14-2)

This statistical report summarizes participant data for the Hematology proficiency survey shipped 9 June 2014.

Five test samples were distributed to participants for each test category:
Routine Blood Counts (B91, B92, B93, B94, B95)
Routine Coagulation (C91, C92, C93, C94, C95)
Cell Identification (391, 392, 393, 394, 395)

Results for individual instrument and reagent systems where the number of laboratories using those systems is three or greater are provided. Mean and Standard Deviation (± 1 SD) values are calculated by a robust statistical technique that does not assume a Gaussian distribution.

Disclaimer:
Note: The use of brand and/or trade names in this report does not constitute an endorsement of the products on the part of the Wadsworth Center or the New York State Department of Health.

Should you have any questions regarding this report, please contact the Hematology Section at (518) 474-9878.

HEALTH.NY.GOV
facebook.com/NYSDOH
twitter.com/HealthNYGov

White Cell Count   (x10^9/L)

Specimen: B91	Specimen: B92	Specimen: B93	Specimen: B94	Specimen: B95	Number	[Code] Instrument
21.31 ± 1.06	2.99 ± 0.20	9.47 ± 0.43	2.93 ± 0.19	17.91 ± 0.80	n = 413	[---] All Methods & Instruments
						<Instruments>
20.42 ± 1.40	2.95 ± 0.19	9.10 ± 0.54	3.15 ± 0.27	17.42 ± 0.77	n = 3	[ABJ] Abbott Cell Dyn 1800
21.20 ± 0.66	3.04 ± 0.12	9.40 ± 0.10	2.96 ± 0.10	18.01 ± 0.11	n = 5	[ABK] Abbott Cell Dyn 3200
21.29 ± 0.43	3.02 ± 0.10	9.37 ± 0.20	2.90 ± 0.00	17.74 ± 0.34	n = 12	[ABM] Abbott Cell Dyn 3700
21.28 ± 0.48	3.01 ± 0.08	9.43 ± 0.19	2.94 ± 0.09	17.69 ± 0.35	n = 11	[ABS] Abbott Cell Dyn Sapphire
21.19 ± 0.44	3.04 ± 0.09	9.44 ± 0.25	2.95 ± 0.08	18.01 ± 0.43	n = 21	[ABT] Abbott Cell Dyn Ruby
20.82 ± 0.97	2.79 ± 0.13	9.23 ± 0.37	2.72 ± 0.11	16.84 ± 0.64	n = 14	[BTD] Siemens Advia 120
20.62 ± 0.91	2.75 ± 0.11	9.02 ± 0.32	2.69 ± 0.10	16.73 ± 0.53	n = 32	[BTE] Siemens Advia 2120
21.76 ± 0.41	3.10 ± 0.08	9.71 ± 0.26	3.03 ± 0.09	18.60 ± 0.39	n = 49	[CUL] Coulter UniCel DxH 800
21.40 ± 0.92	2.86 ± 0.10	9.43 ± 0.43	2.93 ± 0.07	17.95 ± 0.69	n = 7	[CUS] Coulter ACT 5 diff
22.10 ± 0.65	3.23 ± 0.10	9.75 ± 0.28	3.41 ± 0.12	18.55 ± 0.53	n = 15	[CUT] Coulter ACT series,not ACT5 diff
23.36 ± 0.65	3.26 ± 0.12	9.81 ± 0.22	3.62 ± 0.09	19.04 ± 0.43	n = 9	[CUW] Coulter HMX
21.83 ± 0.62	3.21 ± 0.09	9.76 ± 0.19	3.04 ± 0.08	18.41 ± 0.33	n = 37	[CUX] Coulter LH750,755
21.88 ± 0.52	3.17 ± 0.09	9.79 ± 0.17	3.03 ± 0.09	18.27 ± 0.37	n = 18	[CUY] Coulter LH 780
23.35 ± 0.62	3.30 ± 0.10	9.88 ± 0.19	3.64 ± 0.21	19.17 ± 0.61	n = 16	[CUZ] Coulter LH500
20.75 ± 0.62	2.85 ± 0.08	9.32 ± 0.11	2.88 ± 0.08	17.63 ± 0.21	n = 5	[ROB] ABX Pentra series
21.01 ± 0.30	2.98 ± 0.04	9.22 ± 0.04	3.17 ± 0.09	17.30 ± 0.34	n = 4	[ROC] ABX Micro
19.93 ± 0.87	2.86 ± 0.12	9.07 ± 0.37	2.85 ± 0.11	17.53 ± 0.54	n = 28	[SYA] Sysmex XE 5000
21.04 ± 0.31	2.85 ± 0.07	9.41 ± 0.30	2.84 ± 0.07	17.62 ± 0.36	n = 14	[SYC] Sysmex XN-series
21.34 ± 0.64	2.86 ± 0.10	9.36 ± 0.21	2.80 ± 0.11	17.73 ± 0.32	n = 21	[SYI] Sysmex XT-2000i,XT-1800i
20.77 ± 0.80	2.92 ± 0.11	9.59 ± 0.37	2.89 ± 0.05	17.73 ± 0.43	n = 5	[SYL] Sysmex XE 2100C
20.20 ± 0.69	2.92 ± 0.02	9.05 ± 0.29	2.87 ± 0.08	17.24 ± 0.55	n = 3	[SYN] Sysmex XE 2100DC
19.81 ± 0.59	2.82 ± 0.09	8.95 ± 0.30	2.83 ± 0.11	17.27 ± 0.56	n = 19	[SYO] Sysmex XE2100
21.96 ± 0.63	3.01 ± 0.08	9.74 ± 0.27	3.00 ± 0.15	18.15 ± 0.55	n = 26	[SYP] Sysmex XS-1000i,XS-1000iAL
19.40 ± 0.47	2.75 ± 0.14	8.86 ± 0.20	2.77 ± 0.14	16.98 ± 0.48	n = 7	[SYQ] Sysmex XE 2100D(Blood Center)
21.12 ± 0.55	2.83 ± 0.08	9.38 ± 0.39	2.83 ± 0.10	17.67 ± 0.53	n = 18	[SYV] Sysmex XT 4000i

Summary of Participant Responses
Mean ± One Standard Deviation

Red Cell Count   (**x10^{12}/L**)

Specimen: B91	Specimen: B92	Specimen: B93	Specimen: B94	Specimen: B95	Number	[Code] Instrument
4.948 ± 0.087	3.130 ± 0.064	4.609 ± 0.077	2.099 ± 0.053	3.114 ± 0.069	n = 414	[---] All Methods & Instruments
						<Instruments>
4.900 ± 0.036	3.170 ± 0.063	4.551 ± 0.037	2.213 ± 0.042	3.192 ± 0.032	n = 3	[ABJ] Abbott Cell Dyn 1800
5.003 ± 0.140	3.172 ± 0.015	4.626 ± 0.018	2.140 ± 0.015	3.113 ± 0.038	n = 5	[ABK] Abbott Cell Dyn 3200
4.949 ± 0.074	3.148 ± 0.045	4.626 ± 0.093	2.123 ± 0.028	3.101 ± 0.034	n = 11	[ABM] Abbott Cell Dyn 3700
5.157 ± 0.090	3.213 ± 0.066	4.754 ± 0.093	2.164 ± 0.054	3.210 ± 0.073	n = 11	[ABS] Abbott Cell Dyn Sapphire
5.126 ± 0.104	3.151 ± 0.070	4.675 ± 0.095	2.110 ± 0.039	3.116 ± 0.083	n = 21	[ABT] Abbott Cell Dyn Ruby
4.975 ± 0.089	3.141 ± 0.031	4.593 ± 0.053	2.174 ± 0.026	3.154 ± 0.042	n = 14	[BTD] Siemens Advia 120
4.976 ± 0.103	3.169 ± 0.049	4.613 ± 0.101	2.182 ± 0.041	3.182 ± 0.059	n = 33	[BTE] Siemens Advia 2120
4.913 ± 0.072	3.105 ± 0.047	4.560 ± 0.065	2.059 ± 0.035	3.073 ± 0.049	n = 49	[CUL] Coulter UniCel DxH 800
4.946 ± 0.083	3.105 ± 0.057	4.596 ± 0.076	2.103 ± 0.034	3.120 ± 0.040	n = 7	[CUS] Coulter ACT 5 diff
4.947 ± 0.147	3.105 ± 0.065	4.577 ± 0.134	2.089 ± 0.046	3.087 ± 0.058	n = 15	[CUT] Coulter ACT series,not ACT5 diff
4.991 ± 0.073	3.160 ± 0.046	4.590 ± 0.060	2.084 ± 0.029	3.145 ± 0.059	n = 9	[CUW] Coulter HMX
4.938 ± 0.058	3.097 ± 0.034	4.599 ± 0.049	2.081 ± 0.022	3.089 ± 0.035	n = 37	[CUX] Coulter LH750,755
4.941 ± 0.064	3.102 ± 0.019	4.591 ± 0.036	2.069 ± 0.018	3.085 ± 0.029	n = 18	[CUY] Coulter LH 780
5.028 ± 0.087	3.164 ± 0.062	4.618 ± 0.067	2.114 ± 0.044	3.156 ± 0.066	n = 16	[CUZ] Coulter LH500
4.918 ± 0.075	3.015 ± 0.071	4.553 ± 0.071	1.993 ± 0.008	3.029 ± 0.069	n = 5	[ROB] ABX Pentra series
4.955 ± 0.079	3.038 ± 0.034	4.530 ± 0.069	2.072 ± 0.039	3.009 ± 0.053	n = 4	[ROC] ABX Micro
4.909 ± 0.063	3.177 ± 0.039	4.636 ± 0.046	2.121 ± 0.028	3.161 ± 0.034	n = 28	[SYA] Sysmex XE 5000
4.986 ± 0.065	3.086 ± 0.027	4.644 ± 0.055	2.055 ± 0.027	3.078 ± 0.036	n = 14	[SYC] Sysmex XN-series
4.921 ± 0.045	3.133 ± 0.049	4.624 ± 0.061	2.085 ± 0.025	3.098 ± 0.042	n = 21	[SYI] Sysmex XT-2000i,XT-1800i
4.959 ± 0.031	3.184 ± 0.017	4.657 ± 0.059	2.145 ± 0.016	3.146 ± 0.044	n = 5	[SYL] Sysmex XE 2100C
4.911 ± 0.029	3.160 ± 0.045	4.633 ± 0.005	2.127 ± 0.005	3.158 ± 0.015	n = 3	[SYN] Sysmex XE 2100DC
4.908 ± 0.042	3.188 ± 0.038	4.639 ± 0.056	2.129 ± 0.032	3.169 ± 0.042	n = 19	[SYO] Sysmex XE2100
4.935 ± 0.032	3.064 ± 0.034	4.576 ± 0.035	2.039 ± 0.029	3.034 ± 0.037	n = 26	[SYP] Sysmex XS-1000i,XS-1000iAL
4.905 ± 0.038	3.194 ± 0.026	4.638 ± 0.020	2.140 ± 0.030	3.183 ± 0.027	n = 7	[SYQ] Sysmex XE 2100D(Blood Center)
4.942 ± 0.071	3.158 ± 0.033	4.660 ± 0.064	2.098 ± 0.024	3.129 ± 0.040	n = 18	[SYV] Sysmex XT 4000i

Summary of Participant Responses
Mean ± One Standard Deviation

Hemoglobin (g/dL)

Specimen: B91	Specimen: B92	Specimen: B93	Specimen: B94	Specimen: B95	Number	[Code] Instrument
15.26 ± 0.35	8.75 ± 0.18	13.55 ± 0.22	6.54 ± 0.17	9.70 ± 0.25	n = 421	[---] All Methods & Instruments
						\<Instruments\>
15.63 ± 0.41	8.73 ± 0.23	13.62 ± 0.41	6.66 ± 0.10	9.96 ± 0.10	n = 3	[ABJ] Abbott Cell Dyn 1800
15.90 ± 0.08	9.13 ± 0.17	13.98 ± 0.57	6.91 ± 0.08	10.37 ± 0.18	n = 5	[ABK] Abbott Cell Dyn 3200
15.75 ± 0.23	8.97 ± 0.15	13.83 ± 0.24	6.86 ± 0.12	10.14 ± 0.18	n = 12	[ABM] Abbott Cell Dyn 3700
15.77 ± 0.19	9.12 ± 0.09	14.01 ± 0.16	6.80 ± 0.04	10.03 ± 0.08	n = 11	[ABS] Abbott Cell Dyn Sapphire
15.92 ± 0.32	8.92 ± 0.22	13.84 ± 0.20	6.69 ± 0.13	10.03 ± 0.22	n = 21	[ABT] Abbott Cell Dyn Ruby
15.51 ± 0.38	8.97 ± 0.14	13.69 ± 0.24	6.71 ± 0.09	9.90 ± 0.10	n = 14	[BTD] Siemens Advia 120
15.49 ± 0.26	9.05 ± 0.19	13.64 ± 0.26	6.75 ± 0.15	10.07 ± 0.24	n = 33	[BTE] Siemens Advia 2120
14.95 ± 0.19	8.67 ± 0.11	13.46 ± 0.14	6.54 ± 0.10	9.62 ± 0.14	n = 49	[CUL] Coulter UniCel DxH 800
15.20 ± 0.28	8.63 ± 0.14	13.47 ± 0.25	6.47 ± 0.11	9.62 ± 0.17	n = 7	[CUS] Coulter ACT 5 diff
15.23 ± 0.28	8.59 ± 0.21	13.41 ± 0.31	6.53 ± 0.14	9.65 ± 0.17	n = 15	[CUT] Coulter ACT series,not ACT5 diff
15.48 ± 0.30	8.79 ± 0.13	13.56 ± 0.23	6.61 ± 0.08	9.96 ± 0.13	n = 9	[CUW] Coulter HMX
15.16 ± 0.15	8.71 ± 0.09	13.45 ± 0.09	6.49 ± 0.08	9.58 ± 0.11	n = 37	[CUX] Coulter LH750,755
15.10 ± 0.18	8.72 ± 0.10	13.43 ± 0.11	6.50 ± 0.08	9.58 ± 0.07	n = 18	[CUY] Coulter LH 780
15.60 ± 0.22	8.84 ± 0.08	13.55 ± 0.16	6.70 ± 0.08	9.96 ± 0.14	n = 16	[CUZ] Coulter LH500
> 19.00	< 10.50	16.17 ± 0.14	< 10.50	11.58 ± 0.15	n = 3	[HQB] HemoCue Donor Hb Checker
14.86 ± 0.23	8.83 ± 0.15	13.67 ± 0.16	6.52 ± 0.04	9.61 ± 0.11	n = 4	[HQC] HemoCue Hb201+/B-Hb
15.25 ± 0.06	8.52 ± 0.16	13.62 ± 0.21	6.34 ± 0.14	9.64 ± 0.15	n = 5	[ROB] ABX Pentra series
15.33 ± 0.16	8.65 ± 0.06	13.40 ± 0.08	6.55 ± 0.22	9.57 ± 0.08	n = 4	[ROC] ABX Micro
15.04 ± 0.17	8.72 ± 0.11	13.49 ± 0.14	6.45 ± 0.07	9.57 ± 0.11	n = 28	[SYA] Sysmex XE 5000
15.32 ± 0.16	8.61 ± 0.09	13.56 ± 0.12	6.37 ± 0.10	9.56 ± 0.13	n = 14	[SYC] Sysmex XN-series
15.13 ± 0.20	8.68 ± 0.12	13.57 ± 0.14	6.41 ± 0.09	9.60 ± 0.11	n = 21	[SYI] Sysmex XT-2000i,XT-1800i
15.22 ± 0.17	8.72 ± 0.07	13.57 ± 0.11	6.42 ± 0.07	9.56 ± 0.08	n = 6	[SYL] Sysmex XE 2100C
15.00 ± 0.18	8.60 ± 0.09	13.30 ± 0.09	6.40 ± 0.09	9.50 ± 0.09	n = 3	[SYN] Sysmex XE 2100DC
15.09 ± 0.18	8.69 ± 0.07	13.40 ± 0.15	6.46 ± 0.07	9.57 ± 0.10	n = 19	[SYO] Sysmex XE2100
15.44 ± 0.17	8.69 ± 0.12	13.65 ± 0.11	6.41 ± 0.08	9.58 ± 0.11	n = 26	[SYP] Sysmex XS-1000i,XS-1000iAL
15.09 ± 0.11	8.80 ± 0.00	13.60 ± 0.16	6.47 ± 0.07	9.62 ± 0.09	n = 6	[SYQ] Sysmex XE 2100D(Blood Center)
15.05 ± 0.15	8.68 ± 0.09	13.55 ± 0.13	6.36 ± 0.07	9.55 ± 0.12	n = 18	[SYV] Sysmex XT 4000i

Summary of Participant Responses
Mean ± One Standard Deviation

Hematocrit (%)

Specimen: B91	Specimen: B92	Specimen: B93	Specimen: B94	Specimen: B95	Number	[Code] Instrument
42.77 ± 2.02	25.69 ± 1.40	38.88 ± 1.79	18.71 ± 0.93	27.51 ± 1.36	n = 418	[---] All Methods & Instruments
						<Instruments>
44.45 ± 0.54	26.83 ± 0.32	39.83 ± 0.34	20.24 ± 0.39	28.99 ± 0.37	n = 3	[ABJ] Abbott Cell Dyn 1800
38.38 ± 1.36	22.97 ± 0.52	34.87 ± 0.33	16.56 ± 0.43	24.08 ± 0.31	n = 5	[ABK] Abbott Cell Dyn 3200
45.84 ± 0.99	27.29 ± 0.46	41.63 ± 1.10	20.05 ± 0.45	29.06 ± 0.51	n = 12	[ABM] Abbott Cell Dyn 3700
41.99 ± 0.77	24.66 ± 0.65	37.84 ± 0.77	17.99 ± 0.46	26.39 ± 0.64	n = 11	[ABS] Abbott Cell Dyn Sapphire
38.54 ± 1.09	22.36 ± 0.68	34.74 ± 0.97	16.07 ± 0.41	23.55 ± 0.83	n = 21	[ABT] Abbott Cell Dyn Ruby
39.49 ± 1.20	22.82 ± 0.52	35.38 ± 0.68	17.20 ± 0.37	24.93 ± 0.58	n = 14	[BTD] Siemens Advia 120
39.45 ± 1.21	22.94 ± 0.68	35.44 ± 1.03	17.24 ± 0.48	25.16 ± 0.74	n = 33	[BTE] Siemens Advia 2120
44.50 ± 0.67	26.41 ± 0.43	40.01 ± 0.58	19.16 ± 0.33	28.46 ± 0.45	n = 49	[CUL] Coulter UniCel DxH 800
41.32 ± 0.91	23.79 ± 0.52	37.12 ± 0.67	17.31 ± 0.21	26.12 ± 0.56	n = 7	[CUS] Coulter ACT 5 diff
43.95 ± 1.29	25.96 ± 0.59	39.34 ± 1.18	18.97 ± 0.42	27.84 ± 0.52	n = 15	[CUT] Coulter ACT series,not ACT5 diff
44.19 ± 0.59	26.27 ± 0.25	39.36 ± 0.65	18.76 ± 0.16	28.21 ± 0.57	n = 9	[CUW] Coulter HMX
43.97 ± 0.60	25.81 ± 0.33	39.63 ± 0.50	18.78 ± 0.24	27.87 ± 0.32	n = 37	[CUX] Coulter LH750,755
43.99 ± 0.82	25.90 ± 0.33	39.68 ± 0.44	18.71 ± 0.24	27.86 ± 0.36	n = 18	[CUY] Coulter LH 780
44.27 ± 0.78	26.17 ± 0.54	39.47 ± 0.59	18.93 ± 0.35	28.16 ± 0.68	n = 16	[CUZ] Coulter LH500
39.33 ± 2.47	23.15 ± 0.41	35.84 ± 1.27	16.85 ± 0.41	24.85 ± 0.41	n = 4	[MHC] Microhematocrit
41.90 ± 0.67	24.28 ± 0.32	37.69 ± 0.56	17.63 ± 0.21	26.47 ± 0.41	n = 5	[ROB] ABX Pentra series
43.68 ± 0.64	25.26 ± 0.34	38.88 ± 0.60	18.48 ± 0.37	26.70 ± 0.32	n = 4	[ROC] ABX Micro
42.61 ± 0.61	26.40 ± 0.48	39.34 ± 0.49	19.07 ± 0.36	28.01 ± 0.42	n = 28	[SYA] Sysmex XE 5000
42.86 ± 0.55	25.32 ± 0.27	39.05 ± 0.44	18.30 ± 0.26	27.02 ± 0.42	n = 14	[SYC] Sysmex XN-series
42.23 ± 0.51	26.43 ± 0.34	39.11 ± 0.34	19.29 ± 0.27	27.89 ± 0.30	n = 21	[SYI] Sysmex XT-2000i,XT-1800i
40.67 ± 1.02	24.99 ± 0.53	36.83 ± 0.55	18.40 ± 0.35	26.55 ± 0.41	n = 5	[SYL] Sysmex XE 2100C
40.18 ± 1.25	24.72 ± 1.12	36.59 ± 1.16	18.25 ± 0.54	26.70 ± 0.92	n = 3	[SYN] Sysmex XE 2100DC
42.59 ± 0.63	26.45 ± 0.43	39.47 ± 0.56	19.17 ± 0.33	28.07 ± 0.49	n = 19	[SYO] Sysmex XE2100
42.66 ± 0.49	26.06 ± 0.26	38.99 ± 0.43	19.01 ± 0.18	27.36 ± 0.30	n = 26	[SYP] Sysmex XS-1000i,XS-1000iAL
42.79 ± 0.24	26.66 ± 0.38	39.63 ± 0.32	19.38 ± 0.17	28.25 ± 0.29	n = 7	[SYQ] Sysmex XE 2100D(Blood Center)
42.48 ± 0.56	26.77 ± 0.27	39.48 ± 0.51	19.46 ± 0.26	28.16 ± 0.39	n = 18	[SYV] Sysmex XT 4000i

Summary of Participant Responses
Mean ± One Standard Deviation

Platelet Count   (x10^9/L)

Specimen: B91	Specimen: B92	Specimen: B93	Specimen: B94	Specimen: B95	Number	[Code] Instrument
557.1 ± 32.03	96.0 ± 7.63	229.8 ± 13.62	437.2 ± 26.42	424.9 ± 23.32	n = 414	[---] All Methods & Instruments
						<Instruments>
600.8 ± 9.60	98.1 ± 6.08	244.8 ± 11.38	442.5 ± 18.97	443.7 ± 6.73	n = 3	[ABJ] Abbott Cell Dyn 1800
563.7 ± 25.04	112.9 ± 1.13	242.9 ± 28.15	427.5 ± 7.32	436.3 ± 4.96	n = 5	[ABK] Abbott Cell Dyn 3200
576.6 ± 27.31	101.6 ± 5.52	244.0 ± 10.94	463.2 ± 22.25	446.7 ± 26.13	n = 12	[ABM] Abbott Cell Dyn 3700
568.6 ± 15.73	103.4 ± 2.73	242.6 ± 7.49	435.0 ± 8.71	428.2 ± 14.08	n = 11	[ABS] Abbott Cell Dyn Sapphire
582.1 ± 35.17	114.2 ± 9.47	248.2 ± 13.08	421.2 ± 23.31	422.4 ± 23.83	n = 21	[ABT] Abbott Cell Dyn Ruby
556.3 ± 6.73	109.5 ± 4.61	233.8 ± 8.77	461.5 ± 22.57	431.5 ± 9.09	n = 3	[ABU] Abbott Cell Dyn Emerald
571.8 ± 24.83	98.3 ± 8.69	230.8 ± 15.64	461.0 ± 27.72	449.6 ± 23.97	n = 14	[BTD] Siemens Advia 120
575.1 ± 37.55	98.2 ± 7.98	232.5 ± 14.55	464.4 ± 31.73	446.7 ± 31.87	n = 32	[BTE] Siemens Advia 2120
548.9 ± 13.45	94.7 ± 3.29	225.9 ± 6.53	421.1 ± 13.17	418.9 ± 11.29	n = 49	[CUL] Coulter UniCel DxH 800
581.1 ± 22.04	104.9 ± 6.04	238.7 ± 6.67	488.6 ± 14.63	461.2 ± 15.01	n = 7	[CUS] Coulter ACT 5 diff
552.4 ± 18.80	92.8 ± 4.68	221.9 ± 6.62	428.6 ± 17.32	416.4 ± 17.10	n = 15	[CUT] Coulter ACT series,not ACT5 diff
529.3 ± 14.34	94.1 ± 4.59	215.9 ± 11.07	420.4 ± 15.40	409.4 ± 17.52	n = 9	[CUW] Coulter HMX
546.3 ± 18.32	97.0 ± 3.03	225.3 ± 5.69	435.1 ± 11.08	414.7 ± 8.79	n = 37	[CUX] Coulter LH750,755
540.6 ± 14.94	99.1 ± 3.71	226.0 ± 5.94	433.9 ± 8.64	412.3 ± 8.65	n = 18	[CUY] Coulter LH 780
564.1 ± 25.92	94.2 ± 4.21	220.1 ± 10.91	441.0 ± 19.46	428.3 ± 23.55	n = 16	[CUZ] Coulter LH500
566.8 ± 16.22	101.0 ± 3.77	238.2 ± 3.40	463.7 ± 14.36	451.8 ± 15.99	n = 5	[ROB] ABX Pentra series
581.4 ± 28.95	102.6 ± 10.27	243.2 ± 10.32	486.8 ± 24.93	459.0 ± 22.13	n = 4	[ROC] ABX Micro
502.7 ± 21.10	86.8 ± 2.63	215.3 ± 8.07	406.9 ± 12.55	400.0 ± 12.82	n = 28	[SYA] Sysmex XE 5000
563.3 ± 11.24	91.6 ± 3.40	232.8 ± 6.88	411.4 ± 7.81	407.9 ± 8.15	n = 14	[SYC] Sysmex XN-series
578.8 ± 12.90	97.9 ± 4.25	239.0 ± 8.58	452.2 ± 12.18	441.1 ± 11.54	n = 21	[SYI] Sysmex XT-2000i,XT-1800i
541.6 ± 30.21	89.0 ± 2.61	225.7 ± 2.65	434.7 ± 15.20	419.9 ± 15.01	n = 5	[SYL] Sysmex XE 2100C
530.9 ± 22.12	86.7 ± 4.22	223.2 ± 12.34	427.1 ± 16.16	416.9 ± 16.32	n = 3	[SYN] Sysmex XE 2100DC
502.5 ± 19.16	86.9 ± 3.27	214.1 ± 7.57	409.5 ± 14.46	402.2 ± 15.01	n = 19	[SYO] Sysmex XE2100
561.0 ± 12.74	91.5 ± 4.03	229.6 ± 7.35	453.0 ± 8.39	430.5 ± 6.61	n = 26	[SYP] Sysmex XS-1000i,XS-1000iAL
593.5 ± 10.46	102.8 ± 3.45	245.6 ± 4.87	481.0 ± 11.15	473.9 ± 6.59	n = 7	[SYQ] Sysmex XE 2100D(Blood Center)
575.6 ± 12.96	100.4 ± 5.07	242.3 ± 6.07	458.7 ± 11.73	444.7 ± 11.08	n = 18	[SYV] Sysmex XT 4000i

Summary of Participant Responses
Mean ± One Standard Deviation

Prothrombin Time   (seconds)

Specimen: C91	Specimen: C92	Specimen: C93	Specimen: C94	Specimen: C95	Number	[Code] Instrument or Reagent
12.02 ± 0.89	10.99 ± 0.52	28.74 ± 3.60	28.80 ± 3.64	48.19 ± 7.30	n = 322	[---] All Methods & Instruments
						<Instruments>
11.05 ± 0.28	10.82 ± 0.24	26.32 ± 1.15	26.30 ± 1.07	43.23 ± 2.14	n = 19	[BEB] Siemens BCS,BCSXP
13.71 ± 0.21	12.64 ± 0.32	31.82 ± 1.00	31.67 ± 0.87	54.81 ± 2.44	n = 29	[DGC] Diagnostica Stago STA Compact
14.16 ± 0.38	13.08 ± 0.35	32.30 ± 0.99	32.35 ± 0.74	53.67 ± 1.75	n = 16	[DGD] Diagnostica Stago STA-R, STA-R Ev
11.80 ± 0.30	11.55 ± 0.33	20.28 ± 0.57	20.53 ± 0.47	29.70 ± 1.01	n = 15	[ILA] IL ACL(All except810,ELITE,EPRO,8
12.31 ± 0.83	11.02 ± 0.53	28.16 ± 7.01	28.43 ± 7.06	45.81 ± 13.87	n = 13	[ILC] IL ACL Futura/Advance
11.98 ± 0.31	10.99 ± 0.25	28.14 ± 4.20	28.32 ± 4.23	46.95 ± 9.54	n = 31	[ILD] IL ACL(ELITE,ELITE PRO,8/9/10000)
12.39 ± 0.34	11.03 ± 0.32	31.02 ± 1.52	31.22 ± 1.61	52.89 ± 3.06	n = 85	[ILE] IL ACL TOP Series(ACLTOP,ACLTOP C
11.40 ± 0.29	10.56 ± 0.27	26.84 ± 1.09	26.82 ± 1.19	44.28 ± 2.51	n = 38	[SYW] Sysmex CA500/CA600 series
11.38 ± 0.25	10.77 ± 0.20	26.31 ± 1.07	26.35 ± 1.05	42.99 ± 1.97	n = 49	[SYX] Sysmex CA 1500
11.75 ± 0.28	11.07 ± 0.21	27.12 ± 1.06	27.15 ± 1.25	44.84 ± 2.19	n = 19	[SYY] Sysmex CA 7000
						<Reagents>
13.84 ± 0.34	12.77 ± 0.39	32.02 ± 1.00	31.92 ± 0.89	54.52 ± 2.33	n = 44	[TA3] STA Neoplastine CL+
11.39 ± 0.34	10.76 ± 0.28	26.61 ± 1.20	26.60 ± 1.21	43.67 ± 2.35	n = 128	[TD2] Siemens Innovin
11.66 ± 0.35	11.34 ± 0.46	20.23 ± 0.72	20.47 ± 0.69	29.40 ± 1.10	n = 26	[TJ2] HemosIL PT-Fibrinogen
12.36 ± 0.37	11.04 ± 0.31	30.89 ± 1.55	31.11 ± 1.64	52.61 ± 2.99	n = 116	[TJ8] HemosIL RecombiPlasTin 2G
						<Reagent & Instrument>
13.71 ± 0.21	12.64 ± 0.32	31.82 ± 1.00	31.67 ± 0.87	54.81 ± 2.44	n = 29	[TA3]&[DGC] STA Neoplastin & Diagnostic
14.20 ± 0.28	13.09 ± 0.31	32.37 ± 0.92	32.37 ± 0.62	53.72 ± 1.72	n = 14	[TA3]&[DGD] STA Neoplastin & Diagnostic
11.05 ± 0.28	10.82 ± 0.24	26.32 ± 1.15	26.30 ± 1.07	43.23 ± 2.14	n = 19	[TD2]&[BEB] Siemens Innovi & Siemens BC
11.40 ± 0.29	10.56 ± 0.27	26.84 ± 1.09	26.82 ± 1.19	44.28 ± 2.51	n = 38	[TD2]&[SYW] Siemens Innovi & Sysmex CA5
11.38 ± 0.25	10.77 ± 0.20	26.31 ± 1.07	26.35 ± 1.05	42.99 ± 1.97	n = 49	[TD2]&[SYX] Siemens Innovi & Sysmex CA
11.75 ± 0.28	11.07 ± 0.21	27.12 ± 1.06	27.15 ± 1.25	44.84 ± 2.19	n = 19	[TD2]&[SYY] Siemens Innovi & Sysmex CA
11.79 ± 0.30	11.50 ± 0.24	20.28 ± 0.57	20.53 ± 0.47	29.70 ± 1.01	n = 13	[TJ2]&[ILA] HemosIL PT-Fib & IL ACL(All
11.30 ± 0.35	10.41 ± 0.33	19.84 ± 0.86	19.88 ± 0.95	29.08 ± 1.60	n = 5	[TJ2]&[ILC] HemosIL PT-Fib & IL ACL Fut
11.61 ± 0.26	11.33 ± 0.23	20.37 ± 0.77	20.61 ± 0.62	29.21 ± 0.92	n = 8	[TJ2]&[ILD] HemosIL PT-Fib & IL ACL(ELI
12.83 ± 0.16	11.34 ± 0.19	32.51 ± 1.36	32.98 ± 1.12	55.01 ± 2.03	n = 8	[TJ8]&[ILC] HemosIL Recomb & IL ACL Fut
12.07 ± 0.23	10.91 ± 0.18	29.79 ± 1.01	30.00 ± 1.06	50.65 ± 1.98	n = 23	[TJ8]&[ILD] HemosIL Recomb & IL ACL(ELI
12.40 ± 0.33	11.04 ± 0.32	31.05 ± 1.49	31.25 ± 1.58	52.94 ± 2.99	n = 84	[TJ8]&[ILE] HemosIL Recomb & IL ACL TOP

INR   (International Normalized Ratio)

Specimen: C91	Specimen: C92	Specimen: C93	Specimen: C94	Specimen: C95	Number	[Code] Instrument or Reagent
1.090 ± 0.054	1.000 ± 0.047	2.700 ± 0.293	2.713 ± 0.296	4.632 ± 0.865	n = 325	[---] All Methods & Instruments
						\<Instruments>
1.051 ± 0.054	1.014 ± 0.038	2.627 ± 0.096	2.635 ± 0.084	4.225 ± 0.150	n = 18	[BEB] Siemens BCS,BCSXP
1.075 ± 0.038	0.963 ± 0.045	3.197 ± 0.176	3.178 ± 0.151	6.504 ± 0.463	n = 29	[DGC] Diagnostica Stago STA Compact
1.098 ± 0.034	0.999 ± 0.015	3.179 ± 0.201	3.202 ± 0.170	6.194 ± 0.402	n = 16	[DGD] Diagnostica Stago STA-R, STA-R Ev
1.026 ± 0.093	0.972 ± 0.069	2.923 ± 0.248	2.998 ± 0.209	5.984 ± 0.567	n = 15	[ILA] IL ACL(All except810,ELITE,EPRO,8
1.099 ± 0.068	0.960 ± 0.075	2.862 ± 0.157	2.875 ± 0.135	5.128 ± 0.814	n = 13	[ILC] IL ACL Futura/Advance
1.077 ± 0.080	0.987 ± 0.059	2.767 ± 0.202	2.785 ± 0.198	4.796 ± 0.408	n = 31	[ILD] IL ACL(ELITE,ELITE PRO,8/9/10000)
1.116 ± 0.049	1.001 ± 0.037	2.765 ± 0.154	2.780 ± 0.156	4.695 ± 0.292	n = 86	[ILE] IL ACL TOP Series(ACLTOP,ACLTOP C
1.098 ± 0.035	1.018 ± 0.044	2.513 ± 0.125	2.512 ± 0.125	4.088 ± 0.275	n = 39	[SYW] Sysmex CA500/CA600 series
1.082 ± 0.039	1.017 ± 0.039	2.427 ± 0.128	2.425 ± 0.126	3.907 ± 0.244	n = 51	[SYX] Sysmex CA 1500
1.100 ± 0.000	1.015 ± 0.034	2.515 ± 0.100	2.519 ± 0.120	4.153 ± 0.233	n = 19	[SYY] Sysmex CA 7000
						\<Reagents>
1.082 ± 0.038	0.972 ± 0.047	3.195 ± 0.176	3.187 ± 0.158	6.398 ± 0.441	n = 44	[TA3] STA Neoplastine CL+
1.085 ± 0.041	1.016 ± 0.041	2.488 ± 0.142	2.491 ± 0.141	4.040 ± 0.281	n = 129	[TD2] Siemens Innovin
1.007 ± 0.084	0.940 ± 0.085	2.907 ± 0.278	2.975 ± 0.274	6.024 ± 0.587	n = 26	[TJ2] HemosIL PT-Fibrinogen
1.115 ± 0.048	1.000 ± 0.036	2.769 ± 0.148	2.785 ± 0.150	4.703 ± 0.288	n = 117	[TJ8] HemosIL RecombiPlasTin 2G
						\<Reagent & Instrument>
1.075 ± 0.038	0.963 ± 0.045	3.197 ± 0.176	3.178 ± 0.151	6.504 ± 0.463	n = 29	[TA3]&[DGC] STA Neoplastin & Diagnostic
1.101 ± 0.022	0.997 ± 0.022	3.206 ± 0.168	3.224 ± 0.143	6.235 ± 0.331	n = 14	[TA3]&[DGD] STA Neoplastin & Diagnostic
1.051 ± 0.054	1.014 ± 0.038	2.627 ± 0.096	2.635 ± 0.084	4.225 ± 0.150	n = 18	[TD2]&[BEB] Siemens Innovi & Siemens BC
1.097 ± 0.034	1.017 ± 0.044	2.510 ± 0.126	2.510 ± 0.127	4.083 ± 0.279	n = 38	[TD2]&[SYW] Siemens Innovi & Sysmex CA5
1.082 ± 0.039	1.017 ± 0.039	2.427 ± 0.128	2.425 ± 0.126	3.907 ± 0.244	n = 51	[TD2]&[SYX] Siemens Innovi & Sysmex CA
1.100 ± 0.000	1.015 ± 0.034	2.515 ± 0.100	2.519 ± 0.120	4.153 ± 0.233	n = 19	[TD2]&[SYY] Siemens Innovi & Sysmex CA
1.009 ± 0.079	0.960 ± 0.064	2.877 ± 0.235	2.967 ± 0.219	6.061 ± 0.546	n = 13	[TJ2]&[ILA] HemosIL PT-Fib & IL ACL(All
1.007 ± 0.016	0.874 ± 0.065	2.950 ± 0.189	2.983 ± 0.228	6.077 ± 0.362	n = 5	[TJ2]&[ILC] HemosIL PT-Fib & IL ACL Fut
0.984 ± 0.100	0.953 ± 0.112	2.928 ± 0.377	2.983 ± 0.354	5.895 ± 0.761	n = 8	[TJ2]&[ILD] HemosIL PT-Fib & IL ACL(ELI
1.127 ± 0.028	1.001 ± 0.033	2.820 ± 0.112	2.850 ± 0.087	4.682 ± 0.280	n = 8	[TJ8]&[ILC] HemosIL Recomb & IL ACL Fut
1.098 ± 0.054	0.996 ± 0.040	2.744 ± 0.133	2.757 ± 0.139	4.694 ± 0.271	n = 23	[TJ8]&[ILD] HemosIL Recomb & IL ACL(ELI
1.117 ± 0.048	1.001 ± 0.036	2.768 ± 0.152	2.783 ± 0.154	4.701 ± 0.286	n = 85	[TJ8]&[ILE] HemosIL Recomb & IL ACL TOP

Summary of Participant Responses
Mean ± One Standard Deviation

Act Partial Thromboplastin Time (seconds)

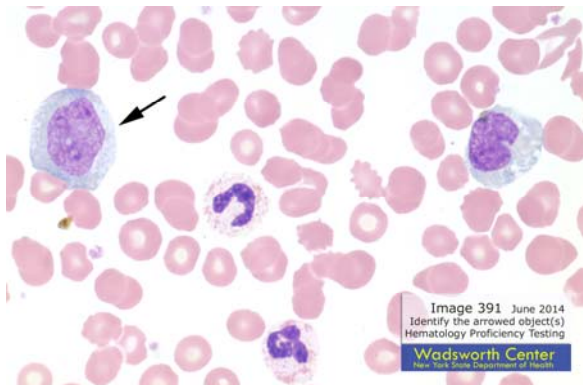| Specimen: C91	Specimen: C92	Specimen: C93	Specimen: C94	Specimen: C95	Number	[Code] Instrument or Reagent
31.53 ± 2.39	28.64 ± 2.86	53.74 ± 7.25	54.08 ± 7.27	80.42 ± 10.17	n = 314	[---] All Methods & Instruments
						\<Instruments\>
26.86 ± 0.95	24.99 ± 0.98	46.90 ± 1.57	47.38 ± 1.76	69.44 ± 2.98	n = 20	[BEB] Siemens BCS,BCSXP
33.75 ± 1.26	30.11 ± 0.96	51.84 ± 1.83	51.98 ± 1.70	76.69 ± 2.90	n = 27	[DGC] Diagnostica Stago STA Compact
33.67 ± 1.01	29.79 ± 0.61	49.81 ± 1.46	49.86 ± 1.75	73.66 ± 2.74	n = 16	[DGD] Diagnostica Stago STA-R, STA-R Ev
29.96 ± 1.19	27.73 ± 1.00	47.56 ± 1.34	47.99 ± 1.50	72.18 ± 1.27	n = 15	[ILA] IL ACL(All except810,ELITE,EPRO,8
31.95 ± 1.11	30.55 ± 0.78	62.28 ± 1.66	62.52 ± 1.36	93.34 ± 3.36	n = 13	[ILC] IL ACL Futura/Advance
29.28 ± 1.21	28.83 ± 1.34	58.18 ± 6.98	58.59 ± 6.66	85.97 ± 10.45	n = 31	[ILD] IL ACL(ELITE,ELITE PRO,8/9/10000)
33.28 ± 1.00	31.56 ± 1.02	61.19 ± 1.53	61.52 ± 1.78	90.50 ± 2.41	n = 85	[ILE] IL ACL TOP Series(ACLTOP,ACLTOP C
29.90 ± 1.02	25.46 ± 1.01	47.46 ± 2.46	47.61 ± 2.19	72.15 ± 3.76	n = 34	[SYW] Sysmex CA500/CA600 series
30.89 ± 1.35	26.35 ± 0.97	49.56 ± 1.93	49.68 ± 1.83	75.62 ± 3.07	n = 50	[SYX] Sysmex CA 1500
31.18 ± 1.13	26.70 ± 0.85	49.98 ± 1.55	49.98 ± 1.74	74.98 ± 1.79	n = 17	[SYY] Sysmex CA 7000
						\<Reagents\>
33.51 ± 1.00	29.97 ± 0.77	50.89 ± 1.75	51.07 ± 1.72	75.35 ± 3.03	n = 37	[AA2] Diagnostica Stago STA PTT-Auto
35.54 ± 1.91	31.08 ± 2.08	54.41 ± 2.67	54.85 ± 2.50	81.18 ± 4.16	n = 6	[AA3] Diagnostica Stago PTT-LA
28.20 ± 1.40	25.20 ± 0.89	86.20 ± 4.38	85.79 ± 4.62	124.63 ± 8.58	n = 4	[AD3] Siemens Actin FS
30.19 ± 1.83	25.96 ± 1.16	48.64 ± 2.34	48.81 ± 2.24	73.69 ± 3.97	n = 116	[AD4] Siemens Actin FSL
30.42 ± 1.32	27.72 ± 0.59	47.79 ± 1.23	48.35 ± 1.30	72.77 ± 1.52	n = 23	[AJ3] HemosIL Test APTT-SP
32.56 ± 1.96	31.01 ± 1.47	61.41 ± 1.95	61.74 ± 1.93	91.10 ± 3.41	n = 119	[AO4] HemosIL SynthASil
						\<Reagent & Instrument\>
33.51 ± 1.11	30.08 ± 0.86	51.53 ± 1.64	51.67 ± 1.48	76.32 ± 2.42	n = 22	[AA2]&[DGC] Diagnostica St & Diagnostic
33.56 ± 0.86	29.79 ± 0.61	49.81 ± 1.45	49.87 ± 1.75	73.66 ± 2.74	n = 14	[AA2]&[DGD] Diagnostica St & Diagnostic
35.05 ± 1.31	30.49 ± 1.40	53.64 ± 2.25	54.16 ± 2.12	80.21 ± 3.98	n = 5	[AA3]&[DGC] Diagnostica St & Diagnostic
28.73 ± 1.14	25.49 ± 1.08	85.65 ± 5.02	84.43 ± 4.70	127.49 ± 9.99	n = 3	[AD3]&[SYX] Siemens Actin & Sysmex CA
26.86 ± 0.95	24.99 ± 0.98	46.90 ± 1.57	47.37 ± 1.75	69.41 ± 2.91	n = 18	[AD4]&[BEB] Siemens Actin & Siemens BC
29.90 ± 1.00	25.41 ± 0.94	47.46 ± 2.46	47.60 ± 2.19	72.15 ± 3.76	n = 33	[AD4]&[SYW] Siemens Actin & Sysmex CA5
31.01 ± 1.26	26.40 ± 0.94	49.56 ± 1.93	49.68 ± 1.83	75.63 ± 3.06	n = 47	[AD4]&[SYX] Siemens Actin & Sysmex CA
31.18 ± 1.13	26.70 ± 0.85	49.98 ± 1.55	49.98 ± 1.74	74.98 ± 1.79	n = 17	[AD4]&[SYY] Siemens Actin & Sysmex CA
30.26 ± 1.16	27.63 ± 0.50	47.43 ± 1.39	47.86 ± 1.40	72.06 ± 1.38	n = 10	[AJ3]&[ILA] HemosIL Test A & IL ACL(All
30.23 ± 1.21	28.22 ± 1.24	48.30 ± 1.17	48.73 ± 1.30	73.61 ± 1.43	n = 10	[AJ3]&[ILD] HemosIL Test A & IL ACL(ELI
29.47 ± 0.70	29.00 ± 1.05	59.73 ± 11.38	61.31 ± 7.79	91.63 ± 11.45	n = 4	[AO4]&[ILA] HemosIL SynthA & IL ACL(All
32.15 ± Fut	30.47 ± 0.78	62.49 ± 1.59	62.64 ± 1.42	93.48 ± 3.51	n = 11	[AO4]&[ILC] HemosIL SynthA & IL ACL Fut
28.87 ± 1.04	29.05 ± 1.22	61.78 ± 3.11	61.99 ± 2.42	91.73 ± 6.39	n = 21	[AO4]&[ILD] HemosIL SynthA & IL ACL(ELI
33.31 ± 1.01	31.57 ± 1.02	61.19 ± 1.54	61.47 ± 1.74	90.46 ± 2.41	n = 82	[AO4]&[ILE] HemosIL SynthA & IL ACL TOP

Fibrinogen (mg/dL)

Specimen: C91	Specimen: C92	Specimen: C93	Specimen: C94	Specimen: C95	Number	[Code] Instrument or Reagent
610.6 ± 89.50	299.7 ± 29.02	288.6 ± 33.39	289.0 ± 31.23	274.0 ± 28.00	n = 210	[---] All Methods & Instruments
						\<Instruments\>
778.5 ± 39.02	343.1 ± 22.56	348.3 ± 28.10	341.0 ± 26.19	323.7 ± 28.20	n = 20	[BEB] Siemens BCS,BCSXP
646.5 ± 36.24	309.6 ± 14.62	291.4 ± 18.32	293.8 ± 14.87	285.1 ± 11.43	n = 26	[DGC] Diagnostica Stago STA Compact
619.8 ± 20.60	300.1 ± 13.09	282.6 ± 11.38	282.4 ± 7.90	270.2 ± 12.94	n = 14	[DGD] Diagnostica Stago STA-R, STA-R Ev
707.3 ± 59.60	326.8 ± 33.17	392.8 ± 26.60	396.3 ± 22.02	359.6 ± 35.71	n = 3	[ILA] IL ACL(All except810,ELITE,EPRO,8
527.8 ± 78.17	273.8 ± 41.54	337.2 ± 38.72	334.7 ± 39.94	349.0 ± 35.32	n = 8	[ILC] IL ACL Futura/Advance
739.4 ± 94.35	323.8 ± 30.25	324.7 ± 46.33	319.5 ± 38.06	309.9 ± 58.73	n = 8	[ILD] IL ACL(ELITE,ELITE PRO,8/9/10000)
623.4 ± 52.82	304.8 ± 25.13	294.2 ± 27.19	294.6 ± 25.93	275.7 ± 23.04	n = 73	[ILE] IL ACL TOP Series(ACLTOP,ACLTOP C
513.6 ± 61.39	285.1 ± 14.75	282.5 ± 17.00	279.5 ± 14.48	257.5 ± 11.08	n = 4	[SYW] Sysmex CA500/CA600 series
529.2 ± 50.41	273.0 ± 12.91	260.0 ± 10.11	262.0 ± 12.11	251.2 ± 13.26	n = 37	[SYX] Sysmex CA 1500
526.0 ± 53.92	283.4 ± 7.09	269.1 ± 7.44	269.3 ± 10.29	258.2 ± 6.26	n = 14	[SYY] Sysmex CA 7000
						\<Reagents\>
673.4 ±104.91	334.4 ± 18.70	395.8 ± 17.64	381.4 ± 33.60	383.4 ± 28.61	n = 7	[TJ2] HemosIL PT-Fibrinogen
597.0 ± 25.50	317.1 ± 13.37	314.2 ± 15.11	311.3 ± 13.60	292.1 ± 12.62	n = 39	[TJ8] HemosIL RecombiPlasTin 2G
635.7 ± 34.06	306.1 ± 14.79	288.0 ± 16.56	288.8 ± 13.40	280.1 ± 14.62	n = 40	[FA4] Stago STA-Fibrinogen 5
779.7 ± 36.04	347.5 ± 19.90	355.1 ± 21.34	347.5 ± 20.26	330.4 ± 22.01	n = 17	[FB2] Siemens Multifibren U
527.7 ± 52.80	277.8 ± 14.43	264.3 ± 12.58	266.2 ± 14.35	254.3 ± 13.35	n = 58	[FD2] Siemens Fibrinogen Determination
680.4 ± 80.70	295.7 ± 25.50	283.1 ± 16.47	285.7 ± 24.16	268.2 ± 17.75	n = 24	[FJ2] HemosIL Fibrinogen C,XL
641.4 ± 50.17	288.5 ± 29.36	274.0 ± 26.86	277.7 ± 27.15	253.7 ± 18.74	n = 21	[FO3] HemosIL QFA(bovine)
						\<Reagent & Instrument\>
489.9 ± 12.14	240.3 ± 6.99	332.9 ± 16.72	330.5 ± 18.58	358.2 ± 17.90	n = 4	[TJ8]&[ILC] HemosIL Recomb & IL ACL Fut
597.9 ± 21.58	317.2 ± 12.99	312.5 ± 13.95	310.1 ± 12.49	291.7 ± 11.60	n = 35	[TJ8]&[ILE] HemosIL Recomb & IL ACL TOP
646.5 ± 36.24	309.6 ± 14.62	291.4 ± 18.32	293.8 ± 14.87	285.1 ± 11.43	n = 26	[FA4]&[DGC] Stago STA-Fibr & Diagnostic
619.8 ± 20.60	300.1 ± 13.09	282.6 ± 11.38	282.4 ± 7.90	270.2 ± 12.94	n = 14	[FA4]&[DGD] Stago STA-Fibr & Diagnostic
779.7 ± 36.04	347.5 ± 19.90	355.1 ± 21.34	347.5 ± 20.26	330.4 ± 22.01	n = 17	[FB2]&[BEB] Siemens Multif & Siemens BC
534.8 ± 58.62	316.1 ± 15.82	298.7 ± 13.70	299.7 ± 11.18	278.0 ± 15.24	n = 3	[FD2]&[BEB] Siemens Fibrin & Siemens BC
513.6 ± 61.39	285.1 ± 14.75	282.5 ± 17.00	279.5 ± 14.48	257.5 ± 11.08	n = 4	[FD2]&[SYW] Siemens Fibrin & Sysmex CA5
529.2 ± 50.41	273.0 ± 12.91	260.0 ± 10.11	262.0 ± 12.11	251.2 ± 13.26	n = 37	[FD2]&[SYX] Siemens Fibrin & Sysmex CA
526.0 ± 53.92	283.4 ± 7.09	269.1 ± 7.44	269.3 ± 10.29	258.2 ± 6.26	n = 14	[FD2]&[SYY] Siemens Fibrin & Sysmex CA
754.4 ± 80.31	313.0 ± 27.61	306.2 ± 29.95	306.6 ± 28.15	288.0 ± 23.47	n = 6	[FJ2]&[ILD] HemosIL Fibrin & IL ACL(ELI
672.4 ± 51.78	291.2 ± 23.54	280.2 ± 11.20	280.8 ± 19.34	265.4 ± 11.42	n = 17	[FJ2]&[ILE] HemosIL Fibrin & IL ACL TOP
640.2 ± 52.86	286.2 ± 28.26	271.7 ± 25.19	276.0 ± 26.66	251.5 ± 14.97	n = 20	[FO3]&[ILE] HemosIL QFA(bo & IL ACL TOP

NEW YORK STATE HEMATOLOGY PROFICIENCY TEST PROGRAM

June 9, 2014

Images on the Hematology and Clinical Chemistry web page: http://www.wadsworth.org/chemheme/cellPT were used to test all laboratories that perform manual white cell differentials. A summary of responses appear below, acceptable responses are shown in shaded areas.

Image 391

Image 391 June 2014
Identify the arrowed object(s)
Hematology Proficiency Testing

Wadsworth Center
New York State Department of Health

Number of Responses	Percent of Laboratories	Cell type or finding
263	73.5%	Blast cell, not classified
73	20.4%	Monocyte
16	4.5%	Reactive / Atypical lymphocyte
4	1.1%	Myelocyte
2	0.6%	Promyeloycte

The arrowed white blood cell in Image 391 is large, the cytoplasm is basophilic and the nucleus is oval with distinct nucleoli. The characteristics described strongly support the identification of the cell as a blast cell, as 263 participants concur. The image was taken from the peripheral blood smear of a 92 year-old male diagnosed with chronic myelomonocytic leukemia (CMML). CMML is a disorder of the bone marrow where monocytosis is a predominant finding.

Twenty percent of participants identified the arrowed cell in Image 391 as a monocyte. It can be difficult to distinguish cells of the monocytic lineage both in the peripheral blood and bone marrow. A study published in 2009 by Goasguen *et al* (1) describes the consensus reached by five experts on the morphological evaluation of monocytes and their precursors. The goal of the study was to separate normal and reactive promonocytes from leukemic monoblasts. "The identification of the 2 subtypes most characteristic of acute leukemia (promonocytes and monoblasts) may help distinguish better between FAB AML M5 (a or b), FAB AML M4, and CMML. The identification of immature monoctyes and their distinction from promonocytes is of critical importance in making the distinction between AML and CMML with increased blast cells".

The criteria set forth by the group for the identification of each cell type includes nuclear shape, chromatin and cytoplasm. The attributes of a monocyte include a lobulated/indented nuclear shape, condensed chromatin with no visible nucleolus and gray cytoplasm with occasional azurophilic granule(s) and/or vacuole(s). The arrowed cell in Image 391 lacks the attributes of a monocyte, most notably with the presence of nucleoli, supporting the identification of the cell more favorably as a blast cell rather than a monocyte.

Due to lack of 80% participant consensus, pass credit was issued.

1). Goasguen JE et al (for the International Working Group on Morphology of Myelodysplastic Syndrome IWGM-MDS) Morphological evaluation of monocytes and their precursors. Haematologica 2009;94:994-7. http://www.haematologica.org/content/94/7/994.full.pdf+html.
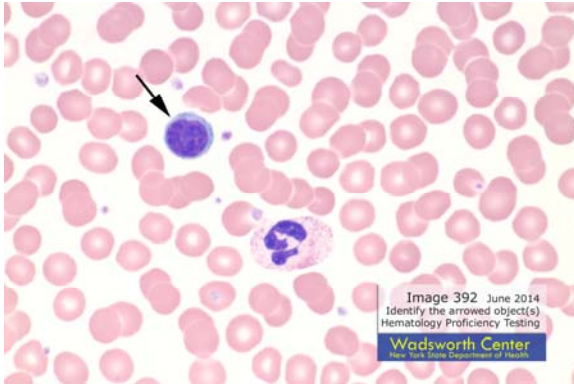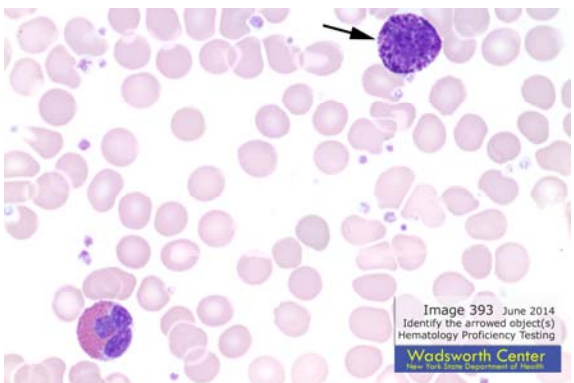
Image 392

Number of Responses	Percent of Laboratories	Cell type or finding
358	100%	Normal lymphocyte

The dark blue compact nucleus and scant cytoplasm of the arrowed white blood cell in Image 392 are characteristics of a normal lymphocyte as identified by all participants. The image was taken from the peripheral blood smear of a 35 year-old asymptomatic male. Twenty-seven percent of the white blood cells present in this case were lymphocytes similar in appearance to the one shown in Image 392.
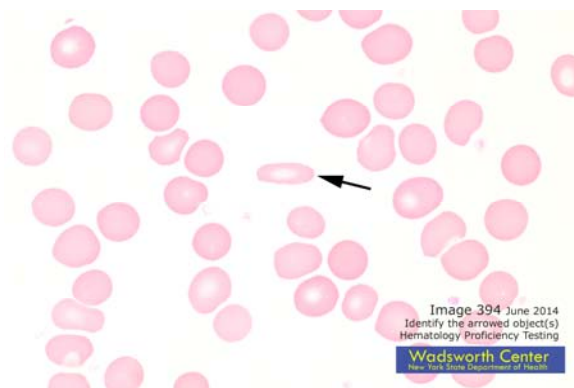

Image 393

Number of Responses	Percent of Laboratories	Cell type or finding
357	99.7%	Basophil
1	0.3%	Basophilic stippling

The coarse and deeply basophilic granules of the arrowed white blood cell in Image 393 are diagnostic of a basophil as 357 participants concur. The image was taken from the peripheral blood smear of a 64 year-old female who, on routine examination, presented with leuko- and thrombo-cytosis. No diagnosis was known at the time the specimen was obtained, however, the increased white blood cells (including five percent blast cells), increased platelet count, basophilia and normal red blood cell count is highly suggestive of chronic myeloid leukemia (CML).
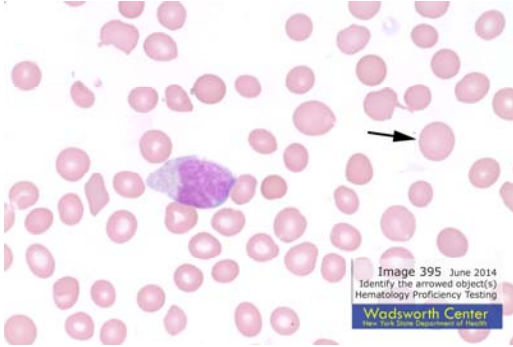

Image 394

Number of Responses	Percent of Laboratories	Cell type or finding
358	100%	Elliptocyte/Ovalocyte

The arrowed red blood cell in Image 394 was recognized by all participants as an elliptocyte/ovalocyte. The image was taken from the peripheral blood smear of a 32 year-old female with sickle cell anemia. Elliptocytes are found in various anemias, as in this case of sickle cell anemia, and in large amounts in hereditary elliptocytosis. "Hereditary elliptocytosis (HE), which is inherited through an autosomal dominant gene, weakens the cytoskeletal structure of red cells, causing them to assume an ellipsoidal shape when they enter the circulation". Kapff, C.T. and Jandle, J.H. Blood: Atlas and Sourcebook of Hematology 2nd Ed. Boston: Little, Brown and Company, 1991, p.44

Image 395

Image 395 June 2014
Identify the arrowed object(s)
Hematology Proficiency Testing
Wadsworth Center
New York State Department of Health

Number of Responses	Percent of Laboratories	Cell type or finding
305	**85.2%**	**Erythrocyte-macrocytic**
34	9.5%	Erythrocyte-normal
19	5.3%	Spherocyte

The arrowed red blood cell in Image 395 is larger than the size of a normal red blood cell and is best classified as erythrocyte-macrocytic. The image was taken from the peripheral blood smear of a 43 year-old male diagnosed with acute myelogenous leukemia (AML). Anemia and thrombocytopenia are expected findings in AML and were present in this case; hemoglobin value of 10.1g/dL and platelet count of 55,000.