NEW YORK
state department of
HEALTH

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Commissioner

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Executive Deputy Commissioner

To: Laboratory Directors and Laboratory Staff

From: Robert Rej, Ph.D.

Date: March 1, 2013

Subject: Results of the February 4, 2013 Hematology Proficiency Test

Enclosed are results from the hematology proficiency testing survey shipped February 4, 2013. Five samples were distributed for each test category:

Routine Blood Counts   (B71, B72, B73, B74, B75)

Routine Coagulation   (C71, C72, C73, C74, C75 - APTT, PT/INR and Fibrinogen assays)

Cell Identification   (371, 372, 373, 374, 375)

Evaluation of Proficiency Test Results:

Outlined below is a description of the process used to evaluate your laboratory's proficiency test results. A summary of your laboratory's performance for the three most recent surveys is also included with this report.

Target Value: When possible, targets utilized are derived from all-participant mean values calculated by a robust statistical technique. In some cases, however, it is recognized that reagent, and/or instrument specific targets may be required and "peer group" specific targets are used where appropriate. An asterisk placed adjacent to the manufacturer name or instrument name indicates that a peer group was used in establishing targets and acceptable ranges.

Not Gradable: Results for graded analytes for a few laboratories using unique instrument, reagent, or instrument/reagent combinations were considered "not gradable". For these laboratories pass credit (100%) has been issued. Since the laboratory is unable to participate in the NYS hematology proficiency test event as a graded participant, it is the responsibility of the laboratory to establish alternate means to verify the accuracy and precision of the test system for any ungraded analyte(s).

Acceptable Range: Represents limits established using criteria specified by CLIA '88 regulations, allowing for rounding to appropriate significant digits. Results falling within this range are scored as 100%. Any result exceeding these limits is considered unsatisfactory and receives a score of 0%.

Range Plots: The range plots graphically represent the relative distance of all results reported by your laboratory from the target value. Any result exceeding the high or low limit by >20% of the acceptable range is indicated by an asterisk (*).

Analyte Score: Scores for both individual samples and overall analyte performance are provided. Laboratories must achieve an overall analyte score >80% in order to meet performance criteria for that analyte.

Statistical Summary: Also enclosed is a statistical summary of participant data for the survey specimens. Mean and standard deviation (1 SD) values shown on the attached sheets are calculated by a robust statistical technique that does not assume a Gaussian distribution. Please note that standard deviation values are not used to determine acceptable ranges; CLIA '88 regulations established percentage limits for cellular and coagulation analytes.

Cellular Hematology (CBC): Results for individual instruments, where the number of laboratories using those systems is three or greater, are provided.

Coagulation: Results for individual instrument and reagent systems as well as instrument/reagent combinations, where the number of laboratories using those systems is three or greater, are provided.

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.

So that this analysis can be as complete as possible, please review all future testings carefully and properly identify reagent and instrument systems used.

If you have any questions regarding these reports or wish to obtain an additional copy, please contact the Hematology Laboratory at (518) 474-9878. You may also contact us by E-mail: heme@wadsworth.org

World Wide Web: Results from this proficiency test event and selected previous proficiency test events are available on the Hematology and Clinical Chemistry web page at: http://www.wadsworth.org/chemheme

Summary of Participant Responses
Mean ± One Standard Deviation

White Cell Count (x10^9/L)

Specimen: B71	Specimen: B72	Specimen: B73	Specimen: B74	Specimen: B75	Number	[Code] Instrument
4.29 ± 0.22	24.79 ± 1.15	9.28 ± 0.41	16.44 ± 0.80	5.24 ± 0.22	n = 417	[---] All Methods & Instruments
						<Instruments>
4.25 ± 0.19	25.29 ± 0.92	9.25 ± 0.36	16.07 ± 0.69	5.14 ± 0.10	n = 3	[ABG] Abbott Cell Dyn 1700
4.34 ± 0.10	25.95 ± 1.53	9.24 ± 0.26	16.84 ± 0.62	5.11 ± 0.20	n = 3	[ABJ] Abbott Cell Dyn 1800
4.37 ± 0.09	25.38 ± 0.44	9.35 ± 0.12	16.28 ± 0.04	5.43 ± 0.09	n = 4	[ABK] Abbott Cell Dyn 3200
4.33 ± 0.08	24.84 ± 0.65	9.28 ± 0.27	16.35 ± 0.29	5.39 ± 0.13	n = 12	[ABM] Abbott Cell Dyn 3700
4.30 ± 0.14	25.00 ± 0.59	9.32 ± 0.21	16.94 ± 0.35	5.32 ± 0.17	n = 12	[ABS] Abbott Cell Dyn Sapphire
4.35 ± 0.12	25.06 ± 0.62	9.34 ± 0.28	16.63 ± 0.30	5.41 ± 0.20	n = 19	[ABT] Abbott Cell Dyn Ruby
4.37 ± 0.09	23.98 ± 0.27	8.95 ± 0.12	15.84 ± 0.18	5.04 ± 0.18	n = 4	[ABU] Abbott Cell Dyn Emerald
4.06 ± 0.17	23.91 ± 0.61	8.83 ± 0.34	15.90 ± 0.40	4.90 ± 0.22	n = 19	[BTD] Siemens Advia 120
3.95 ± 0.15	23.62 ± 0.81	8.74 ± 0.28	15.83 ± 0.50	4.83 ± 0.18	n = 30	[BTE] Siemens Advia 2120
4.45 ± 0.09	24.95 ± 0.81	9.43 ± 0.19	16.68 ± 0.49	5.33 ± 0.09	n = 31	[CUL] Coulter UniCel DxH 800
4.24 ± 0.06	25.07 ± 0.45	9.08 ± 0.14	16.56 ± 0.26	5.11 ± 0.06	n = 6	[CUS] Coulter ACT 5 diff
4.41 ± 0.10	25.77 ± 0.44	9.47 ± 0.17	17.06 ± 0.30	5.33 ± 0.09	n = 22	[CUT] Coulter ACT series,not ACT5 diff
4.54 ± 0.17	27.51 ± 0.83	9.65 ± 0.27	18.38 ± 0.47	5.39 ± 0.13	n = 10	[CUW] Coulter HMX
4.34 ± 0.13	24.57 ± 0.45	9.56 ± 0.15	16.28 ± 0.41	5.29 ± 0.10	n = 58	[CUX] Coulter LH750,755
4.36 ± 0.15	24.55 ± 0.38	9.59 ± 0.22	16.33 ± 0.44	5.30 ± 0.11	n = 18	[CUY] Coulter LH 780
4.59 ± 0.13	27.73 ± 0.56	9.68 ± 0.12	18.58 ± 0.41	5.48 ± 0.17	n = 18	[CUZ] Coulter LH500
4.23 ± 0.22	25.62 ± 1.05	9.25 ± 0.32	16.99 ± 0.79	5.15 ± 0.19	n = 6	[ROB] ABX Pentra series
4.45 ± 0.08	25.32 ± 0.44	9.31 ± 0.18	17.01 ± 0.26	5.24 ± 0.19	n = 5	[ROC] ABX Micro
4.13 ± 0.09	23.68 ± 0.15	8.90 ± 0.18	15.95 ± 0.27	4.97 ± 0.08	n = 4	[SYB] Sysmex KX-21N
4.03 ± 0.14	22.97 ± 0.59	8.60 ± 0.18	15.07 ± 0.23	4.84 ± 0.10	n = 3	[SYG] Sysmex POCHi
4.02 ± 0.16	23.57 ± 0.92	8.81 ± 0.25	15.66 ± 0.51	5.09 ± 0.19	n = 24	[SYO] Sysmex XE2100
4.20 ± 0.15	24.28 ± 0.70	9.02 ± 0.42	15.89 ± 0.79	5.12 ± 0.21	n = 5	[SYL] Sysmex XE 2100C
4.08 ± 0.08	23.57 ± 0.31	8.72 ± 0.20	15.57 ± 0.21	5.08 ± 0.09	n = 7	[SYQ] Sysmex XE 2100D(Blood Center Only)
4.11 ± 0.16	23.86 ± 0.63	8.83 ± 0.29	15.72 ± 0.63	5.16 ± 0.21	n = 29	[SYA] Sysmex XE 5000
4.26 ± 0.11	25.20 ± 0.53	9.30 ± 0.22	16.68 ± 0.48	5.23 ± 0.12	n = 24	[SYI] Sysmex XT-1800i,XT-2000i
4.28 ± 0.15	25.12 ± 0.76	9.12 ± 0.19	16.31 ± 0.29	5.15 ± 0.20	n = 10	[SYV] Sysmex XT 4000i
4.37 ± 0.14	25.74 ± 0.55	9.55 ± 0.19	17.20 ± 0.33	5.34 ± 0.14	n = 23	[SYP] Sysmex XS-1000i,XS-1000iAL

Summary of Participant Responses
Mean ± One Standard Deviation

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

Specimen: B71	Specimen: B72	Specimen: B73	Specimen: B74	Specimen: B75	Number	[Code] Instrument
4.158 ± 0.091	4.550 ± 0.083	4.619 ± 0.085	4.944 ± 0.089	3.146 ± 0.075	n = 417	[---] All Methods & Instruments
						<Instruments>
4.207 ± 0.041	4.727 ± 0.005	4.700 ± 0.100	5.050 ± 0.064	3.225 ± 0.019	n = 3	[ABG] Abbott Cell Dyn 1700
4.155 ± 0.045	4.554 ± 0.115	4.660 ± 0.126	4.891 ± 0.083	3.189 ± 0.029	n = 3	[ABJ] Abbott Cell Dyn 1800
4.205 ± 0.070	4.554 ± 0.068	4.667 ± 0.044	4.987 ± 0.067	3.194 ± 0.065	n = 4	[ABK] Abbott Cell Dyn 3200
4.211 ± 0.076	4.556 ± 0.094	4.672 ± 0.067	4.984 ± 0.092	3.206 ± 0.064	n = 12	[ABM] Abbott Cell Dyn 3700
4.282 ± 0.062	4.705 ± 0.065	4.785 ± 0.065	5.162 ± 0.068	3.248 ± 0.032	n = 12	[ABS] Abbott Cell Dyn Sapphire
4.211 ± 0.070	4.638 ± 0.087	4.702 ± 0.073	5.094 ± 0.091	3.191 ± 0.048	n = 19	[ABT] Abbott Cell Dyn Ruby
3.924 ± 0.111	4.424 ± 0.061	4.405 ± 0.093	4.747 ± 0.106	2.951 ± 0.092	n = 4	[ABU] Abbott Cell Dyn Emerald
4.166 ± 0.079	4.566 ± 0.078	4.628 ± 0.082	4.957 ± 0.102	3.180 ± 0.068	n = 19	[BTD] Siemens Advia 120
4.195 ± 0.100	4.595 ± 0.100	4.645 ± 0.095	4.994 ± 0.094	3.183 ± 0.062	n = 31	[BTE] Siemens Advia 2120
4.106 ± 0.054	4.457 ± 0.068	4.534 ± 0.047	4.863 ± 0.066	3.093 ± 0.045	n = 31	[CUL] Coulter UniCel DxH 800
4.145 ± 0.085	4.611 ± 0.113	4.627 ± 0.083	4.977 ± 0.111	3.100 ± 0.050	n = 6	[CUS] Coulter ACT 5 diff
4.064 ± 0.113	4.473 ± 0.107	4.534 ± 0.088	4.858 ± 0.099	3.064 ± 0.071	n = 21	[CUT] Coulter ACT series,not ACT5 diff
4.143 ± 0.092	4.565 ± 0.079	4.605 ± 0.088	4.942 ± 0.107	3.155 ± 0.070	n = 10	[CUW] Coulter HMX
4.097 ± 0.038	4.531 ± 0.041	4.576 ± 0.036	4.908 ± 0.040	3.090 ± 0.028	n = 58	[CUX] Coulter LH750,755
4.103 ± 0.033	4.521 ± 0.040	4.571 ± 0.039	4.897 ± 0.039	3.087 ± 0.019	n = 18	[CUY] Coulter LH 780
4.114 ± 0.097	4.553 ± 0.065	4.588 ± 0.068	4.952 ± 0.074	3.140 ± 0.051	n = 18	[CUZ] Coulter LH500
4.117 ± 0.077	4.554 ± 0.082	4.587 ± 0.052	4.974 ± 0.080	3.069 ± 0.018	n = 6	[ROB] ABX Pentra series
4.180 ± 0.161	4.615 ± 0.097	4.689 ± 0.134	5.063 ± 0.144	3.140 ± 0.081	n = 5	[ROC] ABX Micro
4.095 ± 0.046	4.457 ± 0.027	4.577 ± 0.042	4.910 ± 0.029	3.123 ± 0.025	n = 4	[SYB] Sysmex KX-21N
4.245 ± 0.027	4.606 ± 0.062	4.692 ± 0.024	4.973 ± 0.051	3.160 ± 0.000	n = 3	[SYG] Sysmex POCHi
4.220 ± 0.066	4.566 ± 0.051	4.673 ± 0.044	4.945 ± 0.059	3.217 ± 0.031	n = 24	[SYO] Sysmex XE2100
4.225 ± 0.048	4.564 ± 0.030	4.666 ± 0.049	4.958 ± 0.060	3.198 ± 0.043	n = 5	[SYL] Sysmex XE 2100C
4.259 ± 0.025	4.620 ± 0.048	4.693 ± 0.043	4.965 ± 0.019	3.239 ± 0.026	n = 7	[SYQ] Sysmex XE 2100D(Blood Center Only)
4.205 ± 0.043	4.575 ± 0.055	4.653 ± 0.050	4.938 ± 0.060	3.194 ± 0.035	n = 29	[SYA] Sysmex XE 5000
4.182 ± 0.047	4.536 ± 0.041	4.641 ± 0.044	4.952 ± 0.049	3.171 ± 0.043	n = 24	[SYI] Sysmex XT-1800i,XT-2000i
4.228 ± 0.051	4.582 ± 0.042	4.670 ± 0.034	5.000 ± 0.042	3.199 ± 0.040	n = 10	[SYV] Sysmex XT 4000i
4.103 ± 0.044	4.521 ± 0.042	4.592 ± 0.057	4.955 ± 0.048	3.085 ± 0.036	n = 23	[SYP] Sysmex XS-1000i,XS-1000iAL

Summary of Participant Responses
Mean ± One Standard Deviation

Hemoglobin (g/dL)

Specimen: B71	Specimen: B72	Specimen: B73	Specimen: B74	Specimen: B75	Number	[Code] Instrument
12.04 ± 0.20	13.82 ± 0.32	13.69 ± 0.21	15.11 ± 0.28	9.56 ± 0.20	n = 426	[---] All Methods & Instruments
						<Instruments>
14.45 ± 0.36	16.43 ± 0.05	16.25 ± 0.45	18.78 ± 0.41	11.22 ± 0.15	n = 3	[HQB] HemoCue Donor Hb Checker
11.99 ± 0.26	13.52 ± 0.20	13.28 ± 0.46	14.81 ± 0.44	9.59 ± 0.34	n = 4	[HQC] HemoCue Hb201+/B-Hb
12.13 ± 0.14	14.50 ± 0.09	13.93 ± 0.05	15.55 ± 0.19	9.65 ± 0.19	n = 3	[ABG] Abbott Cell Dyn 1700
11.97 ± 0.32	14.22 ± 0.41	13.88 ± 0.24	15.30 ± 0.00	9.50 ± 0.09	n = 3	[ABJ] Abbott Cell Dyn 1800
12.37 ± 0.16	14.48 ± 0.20	13.98 ± 0.04	15.52 ± 0.13	9.83 ± 0.09	n = 4	[ABK] Abbott Cell Dyn 3200
12.14 ± 0.10	14.21 ± 0.14	13.79 ± 0.13	15.51 ± 0.17	9.76 ± 0.09	n = 12	[ABM] Abbott Cell Dyn 3700
12.49 ± 0.19	14.25 ± 0.16	14.13 ± 0.18	15.48 ± 0.21	9.91 ± 0.13	n = 12	[ABS] Abbott Cell Dyn Sapphire
12.09 ± 0.20	14.12 ± 0.30	13.70 ± 0.21	15.31 ± 0.27	9.64 ± 0.14	n = 19	[ABT] Abbott Cell Dyn Ruby
11.90 ± 0.08	13.98 ± 0.20	13.80 ± 0.17	15.22 ± 0.31	9.50 ± 0.30	n = 4	[ABU] Abbott Cell Dyn Emerald
12.24 ± 0.21	14.13 ± 0.22	13.86 ± 0.22	15.29 ± 0.28	9.85 ± 0.16	n = 19	[BTD] Siemens Advia 120
12.17 ± 0.31	14.12 ± 0.27	13.88 ± 0.23	15.29 ± 0.25	9.84 ± 0.20	n = 31	[BTE] Siemens Advia 2120
12.04 ± 0.19	13.54 ± 0.19	13.57 ± 0.19	14.80 ± 0.23	9.57 ± 0.14	n = 31	[CUL] Coulter UniCel DxH 800
12.01 ± 0.15	13.90 ± 0.19	13.62 ± 0.17	15.15 ± 0.12	9.49 ± 0.12	n = 6	[CUS] Coulter ACT 5 diff
11.87 ± 0.26	13.80 ± 0.34	13.57 ± 0.30	15.06 ± 0.33	9.42 ± 0.19	n = 21	[CUT] Coulter ACT series,not ACT5 diff
12.06 ± 0.17	14.15 ± 0.25	13.82 ± 0.24	15.34 ± 0.21	9.64 ± 0.19	n = 10	[CUW] Coulter HMX
12.01 ± 0.14	13.75 ± 0.19	13.64 ± 0.14	15.04 ± 0.15	9.51 ± 0.12	n = 58	[CUX] Coulter LH750,755
12.01 ± 0.07	13.78 ± 0.17	13.64 ± 0.13	15.05 ± 0.17	9.50 ± 0.00	n = 18	[CUY] Coulter LH 780
12.14 ± 0.16	14.09 ± 0.17	13.70 ± 0.19	15.34 ± 0.20	9.65 ± 0.11	n = 18	[CUZ] Coulter LH500
11.83 ± 0.10	13.81 ± 0.06	13.58 ± 0.12	15.16 ± 0.14	9.35 ± 0.14	n = 6	[ROB] ABX Pentra series
12.14 ± 0.15	13.91 ± 0.18	13.78 ± 0.13	15.38 ± 0.08	9.65 ± 0.16	n = 5	[ROC] ABX Micro
12.23 ± 0.09	13.93 ± 0.09	13.87 ± 0.16	15.38 ± 0.04	9.70 ± 0.08	n = 4	[SYB] Sysmex KX-21N
12.00 ± 0.00	13.80 ± 0.09	13.63 ± 0.05	15.13 ± 0.05	9.50 ± 0.00	n = 3	[SYG] Sysmex POCHi
11.95 ± 0.14	13.57 ± 0.16	13.59 ± 0.14	14.93 ± 0.17	9.47 ± 0.11	n = 24	[SYO] Sysmex XE2100
12.07 ± 0.12	13.63 ± 0.14	13.70 ± 0.09	14.98 ± 0.14	9.59 ± 0.11	n = 6	[SYL] Sysmex XE 2100C
12.06 ± 0.06	13.57 ± 0.10	13.62 ± 0.14	14.93 ± 0.05	9.50 ± 0.11	n = 6	[SYQ] Sysmex XE 2100D(Blood Center Only)
11.99 ± 0.12	13.61 ± 0.11	13.61 ± 0.15	14.94 ± 0.15	9.52 ± 0.07	n = 29	[SYA] Sysmex XE 5000
12.10 ± 0.12	13.61 ± 0.16	13.67 ± 0.17	14.99 ± 0.15	9.48 ± 0.17	n = 24	[SYI] Sysmex XT-1800i,XT-2000i
11.99 ± 0.16	13.60 ± 0.12	13.63 ± 0.14	14.87 ± 0.20	9.38 ± 0.06	n = 10	[SYV] Sysmex XT 4000i
11.93 ± 0.10	13.69 ± 0.11	13.61 ± 0.13	15.14 ± 0.17	9.38 ± 0.09	n = 23	[SYP] Sysmex XS-1000i,XS-1000iAL

Summary of Participant Responses
Mean ± One Standard Deviation

Hematocrit (%)

Specimen: B71	Specimen: B72	Specimen: B73	Specimen: B74	Specimen: B75	Number	[Code] Instrument
34.72 ± 1.66	38.84 ± 1.88	39.12 ± 1.82	42.67 ± 2.05	28.24 ± 1.50	n = 421	[---] All Methods & Instruments
						\<Instruments\>
32.50 ± 1.22	37.31 ± 0.90	36.45 ± 1.23	39.79 ± 1.96	25.30 ± 0.82	n = 4	[MHC] Microhematocrit
35.87 ± 0.51	41.23 ± 0.05	41.00 ± 0.90	45.02 ± 0.59	28.94 ± 0.67	n = 3	[ABG] Abbott Cell Dyn 1700
36.27 ± 0.67	40.59 ± 0.98	41.33 ± 1.05	44.51 ± 0.85	29.71 ± 0.37	n = 3	[ABJ] Abbott Cell Dyn 1800
30.55 ± 0.63	33.70 ± 0.39	34.38 ± 0.15	36.95 ± 0.56	24.39 ± 0.37	n = 4	[ABK] Abbott Cell Dyn 3200
36.91 ± 0.84	40.86 ± 0.79	41.58 ± 0.75	45.27 ± 0.69	29.88 ± 0.62	n = 12	[ABM] Abbott Cell Dyn 3700
33.46 ± 0.64	37.58 ± 0.65	37.99 ± 0.62	41.62 ± 0.58	27.01 ± 0.40	n = 12	[ABS] Abbott Cell Dyn Sapphire
30.92 ± 0.66	34.73 ± 1.01	34.99 ± 0.81	38.24 ± 0.87	24.68 ± 0.57	n = 19	[ABT] Abbott Cell Dyn Ruby
34.20 ± 1.11	39.71 ± 0.95	39.11 ± 1.30	42.95 ± 1.47	27.68 ± 1.16	n = 4	[ABU] Abbott Cell Dyn Emerald
31.47 ± 0.87	35.58 ± 1.12	35.79 ± 1.02	39.08 ± 1.09	25.40 ± 0.71	n = 19	[BTD] Siemens Advia 120
31.55 ± 0.92	35.76 ± 0.96	35.82 ± 0.90	39.19 ± 0.93	25.40 ± 0.60	n = 31	[BTE] Siemens Advia 2120
35.97 ± 0.50	40.25 ± 0.53	40.48 ± 0.40	44.45 ± 0.60	28.93 ± 0.41	n = 31	[CUL] Coulter UniCel DxH 800
33.01 ± 1.02	38.29 ± 1.10	37.72 ± 1.00	41.48 ± 1.05	26.38 ± 0.88	n = 6	[CUS] Coulter ACT 5 diff
35.09 ± 1.05	39.63 ± 0.96	39.75 ± 0.84	43.28 ± 0.86	28.15 ± 0.71	n = 21	[CUT] Coulter ACT series,not ACT5 diff
35.51 ± 0.76	40.08 ± 0.97	40.11 ± 0.70	43.81 ± 0.79	28.64 ± 0.75	n = 10	[CUW] Coulter HMX
35.30 ± 0.38	40.22 ± 0.48	40.16 ± 0.43	44.12 ± 0.47	28.37 ± 0.35	n = 57	[CUX] Coulter LH750,755
35.29 ± 0.38	40.10 ± 0.56	40.13 ± 0.53	44.06 ± 0.58	28.28 ± 0.27	n = 19	[CUY] Coulter LH 780
35.04 ± 0.83	39.81 ± 0.58	39.85 ± 0.60	44.00 ± 0.80	28.52 ± 0.48	n = 18	[CUZ] Coulter LH500
32.80 ± 0.40	37.82 ± 0.73	37.48 ± 0.57	41.48 ± 0.88	26.24 ± 0.46	n = 6	[ROB] ABX Pentra series
35.01 ± 1.45	39.48 ± 0.85	39.84 ± 1.19	43.65 ± 1.14	27.96 ± 0.68	n = 5	[ROC] ABX Micro
32.40 ± 0.49	35.78 ± 0.28	36.54 ± 0.45	39.85 ± 0.28	26.88 ± 0.04	n = 4	[SYB] Sysmex KX-21N
35.54 ± 0.26	38.77 ± 0.60	39.30 ± 0.09	42.28 ± 0.24	29.17 ± 0.23	n = 3	[SYG] Sysmex POCHi
35.34 ± 0.67	38.75 ± 0.47	39.51 ± 0.54	42.53 ± 0.53	29.30 ± 0.40	n = 24	[SYO] Sysmex XE2100
33.52 ± 0.55	36.66 ± 0.52	37.04 ± 0.64	41.06 ± 0.59	27.69 ± 0.41	n = 5	[SYL] Sysmex XE 2100C
35.72 ± 0.28	39.34 ± 0.53	39.66 ± 0.44	42.88 ± 0.27	29.55 ± 0.31	n = 7	[SYQ] Sysmex XE 2100D(Blood Center Only)
35.24 ± 0.50	38.84 ± 0.47	39.43 ± 0.50	42.54 ± 0.53	29.14 ± 0.38	n = 29	[SYA] Sysmex XE 5000
34.80 ± 0.36	38.09 ± 0.60	38.85 ± 0.52	41.91 ± 0.53	29.21 ± 0.43	n = 24	[SYI] Sysmex XT-1800i,XT-2000i
35.25 ± 0.46	38.43 ± 0.52	39.01 ± 0.47	42.41 ± 0.54	29.63 ± 0.41	n = 10	[SYV] Sysmex XT 4000i
34.44 ± 0.45	38.16 ± 0.55	38.58 ± 0.58	42.16 ± 0.56	28.50 ± 0.34	n = 23	[SYP] Sysmex XS-1000i,XS-1000iAL

Summary of Participant Responses
Mean ± One Standard Deviation

Platelet Count (x10^9/L)

Specimen: B71	Specimen: B72	Specimen: B73	Specimen: B74	Specimen: B75	Number	[Code] Instrument
167.8 ± 15.59	726.4 ± 60.44	222.4 ± 18.75	555.4 ± 47.22	80.4 ± 8.30	n = 418	[---] All Methods & Instruments
						<Instruments>
189.8 ± 10.29	808.5 ± 39.61	251.1 ± 13.79	634.0 ± 42.03	83.3 ± 9.73	n = 3	[ABG] Abbott Cell Dyn 1700
179.5 ± 2.74	782.7 ± 14.12	238.7 ± 2.26	612.3 ± 2.26	88.3 ± 5.86	n = 3	[ABJ] Abbott Cell Dyn 1800
184.1 ± 7.06	753.8 ± 26.50	242.4 ± 9.29	595.7 ± 28.90	100.8 ± 2.80	n = 4	[ABK] Abbott Cell Dyn 3200
186.1 ± 6.33	785.9 ± 28.80	247.0 ± 8.06	615.3 ± 24.07	90.6 ± 4.08	n = 12	[ABM] Abbott Cell Dyn 3700
174.8 ± 9.00	729.5 ± 27.43	229.4 ± 7.35	547.8 ± 24.95	86.4 ± 5.10	n = 12	[ABS] Abbott Cell Dyn Sapphire
190.8 ± 7.16	783.0 ± 28.65	248.1 ± 8.96	604.5 ± 22.50	102.7 ± 6.65	n = 19	[ABT] Abbott Cell Dyn Ruby
190.8 ± 0.41	776.1 ± 34.29	237.7 ± 11.51	580.5 ± 29.49	97.6 ± 6.24	n = 4	[ABU] Abbott Cell Dyn Emerald
188.4 ± 10.79	813.4 ± 25.45	247.3 ± 13.17	611.2 ± 20.71	92.2 ± 5.62	n = 19	[BTD] Siemens Advia 120
184.6 ± 11.60	810.3 ± 54.10	245.8 ± 18.18	614.9 ± 38.18	89.6 ± 9.13	n = 30	[BTE] Siemens Advia 2120
160.7 ± 4.07	690.7 ± 19.19	209.0 ± 5.04	528.1 ± 11.73	76.1 ± 2.15	n = 31	[CUL] Coulter UniCel DxH 800
183.9 ± 10.14	788.4 ± 36.21	235.2 ± 12.31	603.9 ± 21.83	85.7 ± 4.60	n = 6	[CUS] Coulter ACT 5 diff
162.8 ± 7.23	716.8 ± 23.40	214.4 ± 8.87	551.4 ± 19.42	77.2 ± 5.06	n = 22	[CUT] Coulter ACT series,not ACT5 diff
158.6 ± 5.98	687.9 ± 22.24	206.8 ± 6.59	519.0 ± 19.80	75.9 ± 2.91	n = 10	[CUW] Coulter HMX
163.0 ± 4.38	693.9 ± 22.33	213.7 ± 5.73	528.3 ± 16.27	78.9 ± 2.75	n = 58	[CUX] Coulter LH750,755
165.4 ± 3.99	704.5 ± 22.56	217.1 ± 5.97	533.8 ± 15.69	81.0 ± 1.95	n = 18	[CUY] Coulter LH 780
158.1 ± 8.01	713.5 ± 29.38	208.7 ± 9.76	544.3 ± 22.28	76.8 ± 3.19	n = 18	[CUZ] Coulter LH500
180.8 ± 5.07	767.9 ± 32.42	235.1 ± 13.67	597.6 ± 14.69	86.1 ± 4.72	n = 6	[ROB] ABX Pentra series
178.9 ± 8.60	758.1 ± 36.45	235.1 ± 11.52	585.6 ± 22.01	89.2 ± 9.31	n = 6	[ROC] ABX Micro
171.7 ± 3.89	791.8 ± 18.05	231.0 ± 7.05	608.1 ± 18.44	76.6 ± 3.54	n = 4	[SYB] Sysmex KX-21N
166.4 ± 6.14	767.0 ± 24.28	230.5 ± 5.43	589.8 ± 11.16	74.8 ± 2.36	n = 3	[SYG] Sysmex POCHi
146.6 ± 4.67	646.6 ± 27.96	204.3 ± 7.32	496.5 ± 19.42	71.5 ± 2.93	n = 24	[SYO] Sysmex XE2100
158.5 ± 3.05	698.6 ± 17.05	220.2 ± 7.55	539.3 ± 24.53	77.0 ± 3.59	n = 5	[SYL] Sysmex XE 2100C
181.8 ± 2.57	813.0 ± 13.96	239.8 ± 5.60	603.9 ± 10.88	87.6 ± 3.07	n = 7	[SYQ] Sysmex XE 2100D(Blood Center Only)
146.7 ± 4.45	638.1 ± 20.05	202.1 ± 9.04	489.8 ± 19.26	71.2 ± 2.56	n = 29	[SYA] Sysmex XE 5000
171.7 ± 6.98	753.4 ± 20.07	232.3 ± 6.74	578.7 ± 14.51	81.9 ± 2.40	n = 24	[SYI] Sysmex XT-1800i,XT-2000i
177.5 ± 5.78	751.3 ± 18.92	234.5 ± 8.46	586.7 ± 20.30	81.7 ± 4.04	n = 10	[SYV] Sysmex XT 4000i
161.9 ± 6.77	729.7 ± 15.73	220.8 ± 5.88	560.1 ± 15.48	76.3 ± 2.25	n = 23	[SYP] Sysmex XS-1000i,XS-1000iAL

Summary of Participant Responses
Mean ± One Standard Deviation

Prothrombin Time (seconds)

Specimen: C71	Specimen: C72	Specimen: C73	Specimen: C74	Specimen: C75	Number	[Code] Instrument or Reagent
29.66 ± 3.48	29.69 ± 3.59	10.73 ± 0.72	11.10 ± 0.59	51.14 ± 8.18	n = 314	[---] All Methods & Instruments
						<Instruments>
28.02 ± 0.84	28.00 ± 1.01	9.97 ± 0.14	10.89 ± 0.21	46.43 ± 2.03	n = 19	[BEB] Siemens BCS,BCSXP
31.98 ± 1.24	31.77 ± 1.08	12.63 ± 0.49	12.80 ± 0.28	58.37 ± 3.04	n = 29	[DGC] Diagnostica Stago STA Compact
31.66 ± 1.07	31.46 ± 1.27	12.86 ± 0.52	13.15 ± 0.51	56.32 ± 2.90	n = 15	[DGD] Diagnostica Stago STA-R, STA-R Ev
21.79 ± 1.18	21.68 ± 1.15	10.92 ± 0.49	11.56 ± 0.43	31.29 ± 2.40	n = 16	[ILA] IL ACL(All models except 810,ELIT
32.31 ± 5.05	32.34 ± 5.12	11.19 ± 0.35	11.20 ± 0.36	55.78 ± 11.45	n = 27	[ILC] IL ACL Futura/Advance
29.05 ± 4.41	29.13 ± 4.49	10.79 ± 0.36	11.07 ± 0.51	49.57 ± 10.36	n = 35	[ILD] IL ACL(ELITE,ELITE PRO,8/9/10000)
32.09 ± 1.73	32.44 ± 1.83	10.83 ± 0.38	10.89 ± 0.40	56.32 ± 3.46	n = 61	[ILE] IL ACL TOP Series (ACLTOP,ACLTOP C
28.28 ± 1.28	27.83 ± 1.49	10.16 ± 0.26	10.71 ± 0.28	47.46 ± 2.87	n = 35	[SYW] Sysmex CA500/CA600 series
27.66 ± 1.03	27.83 ± 0.92	10.36 ± 0.22	10.99 ± 0.27	46.83 ± 2.13	n = 53	[SYX] Sysmex CA 1500
27.86 ± 0.78	27.93 ± 0.79	10.57 ± 0.23	11.15 ± 0.22	46.41 ± 1.25	n = 16	[SYY] Sysmex CA 7000
						<Reagents>
31.95 ± 1.09	31.72 ± 1.03	12.72 ± 0.48	12.89 ± 0.37	57.86 ± 2.92	n = 44	[TA3] STA Neoplastine CL+
27.89 ± 1.05	27.88 ± 1.02	10.27 ± 0.30	10.92 ± 0.30	46.84 ± 2.24	n = 123	[TD2] Siemens Innovin
21.58 ± 1.06	21.50 ± 1.04	10.86 ± 0.36	11.46 ± 0.51	31.49 ± 2.21	n = 33	[TJ2] HemosIL PT-Fibrinogen
32.08 ± 1.91	32.30 ± 1.99	10.90 ± 0.40	10.96 ± 0.40	56.13 ± 3.96	n = 104	[TJ8] HemosIL RecombiPlasTin 2G
						<Reagent & Instrument>
31.98 ± 1.24	31.77 ± 1.08	12.63 ± 0.49	12.80 ± 0.28	58.37 ± 3.04	n = 29	[TA3]&[DGC] STA Neoplastin & Diagnostica
31.78 ± 0.95	31.62 ± 1.03	12.88 ± 0.45	13.17 ± 0.44	56.76 ± 2.51	n = 13	[TA3]&[DGD] STA Neoplastin & Diagnostica
28.02 ± 0.84	28.00 ± 1.01	9.97 ± 0.14	10.89 ± 0.21	46.43 ± 2.03	n = 19	[TD2]&[BEB] Siemens Innovi & Siemens BCS
28.28 ± 1.28	27.83 ± 1.49	10.16 ± 0.26	10.71 ± 0.28	47.46 ± 2.87	n = 35	[TD2]&[SYW] Siemens Innovi & Sysmex CA50
27.66 ± 1.04	27.85 ± 0.92	10.36 ± 0.22	10.99 ± 0.27	46.84 ± 2.16	n = 52	[TD2]&[SYX] Siemens Innovi & Sysmex CA 1
27.86 ± 0.78	27.93 ± 0.79	10.57 ± 0.23	11.15 ± 0.22	46.41 ± 1.25	n = 16	[TD2]&[SYY] Siemens Innovi & Sysmex CA 7
21.79 ± 1.18	21.68 ± 1.15	10.92 ± 0.49	11.56 ± 0.43	31.29 ± 2.40	n = 16	[TJ2]&[ILA] HemosIL PT-Fib & IL ACL(All
21.21 ± 1.02	21.28 ± 1.02	10.73 ± 0.19	10.90 ± 0.29	32.85 ± 1.98	n = 6	[TJ2]&[ILC] HemosIL PT-Fib & IL ACL Futu
21.50 ± 0.88	21.42 ± 0.88	10.99 ± 0.35	11.70 ± 0.28	31.01 ± 1.66	n = 9	[TJ2]&[ILD] HemosIL PT-Fib & IL ACL(ELIT
33.63 ± 1.28	33.72 ± 1.34	11.27 ± 0.20	11.28 ± 0.30	59.36 ± 3.97	n = 19	[TJ8]&[ILC] HemosIL Recomb & IL ACL Futu
30.73 ± 1.60	30.85 ± 1.53	10.72 ± 0.34	10.88 ± 0.36	53.53 ± 2.86	n = 26	[TJ8]&[ILD] HemosIL Recomb & IL ACL(ELIT
32.14 ± 1.72	32.48 ± 1.85	10.84 ± 0.39	10.89 ± 0.40	56.38 ± 3.44	n = 58	[TJ8]&[ILE] HemosIL Recomb & IL ACL TOP

Summary of Participant Responses
Mean ± One Standard Deviation

Act Partial Thromboplastin Time (seconds)

Specimen: C71	Specimen: C72	Specimen: C73	Specimen: C74	Specimen: C75	Number	[Code] Instrument or Reagent
56.61 ± 6.00	56.43 ± 5.65	29.41 ± 1.96	28.46 ± 2.30	81.98 ± 10.59	n = 310	[---] All Methods & Instruments
						<Instruments>
51.55 ± 1.12	51.23 ± 1.53	25.77 ± 0.74	25.96 ± 0.59	71.52 ± 1.97	n = 20	[BEB] Siemens BCS,BCSXP
55.26 ± 1.36	55.50 ± 0.64	31.83 ± 0.05	28.90 ± 0.73	78.63 ± 1.69	n = 3	[DGB] Diagnostica Stago STA
55.85 ± 2.30	55.39 ± 1.94	31.49 ± 0.75	29.55 ± 0.73	78.04 ± 2.99	n = 27	[DGC] Diagnostica Stago STA Compact
53.16 ± 1.95	52.82 ± 1.56	31.36 ± 0.82	29.06 ± 1.00	75.12 ± 3.39	n = 13	[DGD] Diagnostica Stago STA-R, STA-R Evo
55.82 ± 9.51	54.37 ± 7.30	27.66 ± 1.06	26.98 ± 1.74	79.62 ± 12.20	n = 18	[ILA] IL ACL(All models except 810,ELITE
64.61 ± 1.84	63.87 ± 1.75	29.86 ± 1.47	29.82 ± 2.23	95.48 ± 2.41	n = 26	[ILC] IL ACL Futura/Advance
59.42 ± 6.88	59.69 ± 6.59	27.88 ± 0.95	28.23 ± 1.49	88.62 ± 11.78	n = 32	[ILD] IL ACL(ELITE,ELITE PRO,8/9/10000)
62.25 ± 1.52	61.74 ± 1.38	30.69 ± 1.24	31.29 ± 1.21	92.16 ± 2.75	n = 62	[ILE] IL ACL TOP Series (ACLTOP,ACLTOP C
51.88 ± 1.62	52.32 ± 1.70	28.24 ± 0.74	26.53 ± 0.64	74.56 ± 3.08	n = 35	[SYW] Sysmex CA500/CA600 series
54.30 ± 1.67	54.03 ± 1.36	29.30 ± 0.77	27.37 ± 0.62	77.66 ± 3.27	n = 54	[SYX] Sysmex CA 1500
53.36 ± 1.38	53.27 ± 0.81	29.08 ± 0.35	27.28 ± 0.50	75.35 ± 1.84	n = 14	[SYY] Sysmex CA 7000
						<Reagents>
55.01 ± 2.47	54.64 ± 2.12	31.51 ± 0.77	29.37 ± 0.74	77.21 ± 3.08	n = 39	[AA2] Diagnostica Stago STA PTT-Auto
56.82 ± 2.41	57.27 ± 2.38	33.09 ± 2.72	30.64 ± 2.53	81.59 ± 3.35	n = 3	[AA3] Diagnostica Stago PTT-LA
75.73 ± 11.99	75.18 ± 12.04	30.85 ± 1.14	28.10 ± 1.37	112.20 ± 20.70	n = 4	[AD2] Siemens Actin
95.19 ± 4.37	94.87 ± 2.93	28.47 ± 1.00	27.11 ± 0.85	120.94 ± 13.79	n = 4	[AD3] Siemens Actin FS
53.07 ± 2.01	53.11 ± 1.85	28.63 ± 1.33	26.90 ± 0.83	75.66 ± 3.75	n = 113	[AD4] Siemens Actin FSL
49.81 ± 1.48	50.59 ± 1.71	27.95 ± 1.34	26.29 ± 1.06	72.82 ± 3.28	n = 29	[AJ3] HemosIL Test APTT-SP
51.11 ± 7.30	51.11 ± 3.20	25.77 ± 3.11	25.44 ± 2.60	67.56 ± 14.59	n = 3	[AK3] Trin Bio TriniCLOT aPTTS (Platelin
62.95 ± 2.14	62.47 ± 2.04	29.91 ± 1.76	30.64 ± 1.52	93.35 ± 3.74	n = 108	[AO4] HemosIL SynthASil
						<Reagent & Instrument>
55.26 ± 1.36	55.50 ± 0.64	31.83 ± 0.05	28.90 ± 0.73	78.63 ± 1.69	n = 3	[AA2]&[DGB] Diagnostica St & Diagnostica
55.91 ± 2.44	55.35 ± 2.02	31.50 ± 0.82	29.59 ± 0.75	77.86 ± 3.07	n = 25	[AA2]&[DGC] Diagnostica St & Diagnostica
53.13 ± 1.79	52.83 ± 1.55	31.42 ± 0.80	29.07 ± 0.59	75.14 ± 3.09	n = 11	[AA2]&[DGD] Diagnostica St & Diagnostica
97.08 ± 3.41	95.98 ± 2.66	28.86 ± 0.91	27.45 ± 0.45	126.19 ± 7.59	n = 3	[AD3]&[SYX] Siemens Actin & Sysmex CA 1
51.54 ± 1.12	51.23 ± 1.51	25.77 ± 0.73	25.96 ± 0.59	71.51 ± 1.96	n = 17	[AD4]&[BEB] Siemens Actin & Siemens BCS
51.88 ± 1.62	52.32 ± 1.70	28.24 ± 0.72	26.51 ± 0.64	74.56 ± 3.08	n = 34	[AD4]&[SYW] Siemens Actin & Sysmex CA50
54.34 ± 1.68	54.03 ± 1.39	29.30 ± 0.75	27.34 ± 0.64	77.76 ± 3.28	n = 48	[AD4]&[SYX] Siemens Actin & Sysmex CA 1
53.36 ± 1.38	53.27 ± 0.81	29.08 ± 0.35	27.28 ± 0.50	75.35 ± 1.84	n = 14	[AD4]&[SYY] Siemens Actin & Sysmex CA 7
49.92 ± 1.42	50.65 ± 1.57	27.80 ± 1.17	26.07 ± 0.80	72.31 ± 3.23	n = 13	[AJ3]&[ILA] HemosIL Test A & IL ACL(All
49.15 ± 2.74	49.05 ± 2.81	26.83 ± 1.93	24.83 ± 1.18	71.28 ± 4.85	n = 5	[AJ3]&[ILC] HemosIL Test A & IL ACL Futu
50.00 ± 1.18	50.60 ± 0.60	28.20 ± 0.60	26.82 ± 0.63	73.73 ± 2.20	n = 10	[AJ3]&[ILD] HemosIL Test A & IL ACL(ELIT
66.58 ± 0.70	65.72 ± 2.70	27.46 ± 0.88	29.00 ± 0.59	96.57 ± 4.12	n = 5	[AO4]&[ILA] HemosIL SynthA & IL ACL(All
64.62 ± 1.47	63.81 ± 1.35	30.29 ± 0.84	30.62 ± 0.86	95.42 ± 1.97	n = 19	[AO4]&[ILC] HemosIL SynthA & IL ACL Futu
63.19 ± 2.58	62.95 ± 2.54	27.66 ± 1.06	28.94 ± 1.14	94.99 ± 5.23	n = 22	[AO4]&[ILD] HemosIL SynthA & IL ACL(ELIT
62.25 ± 1.52	61.74 ± 1.38	30.69 ± 1.26	31.31 ± 1.17	92.16 ± 2.74	n = 61	[AO4]&[ILE] HemosIL SynthA & IL ACL TOP

Summary of Participant Responses
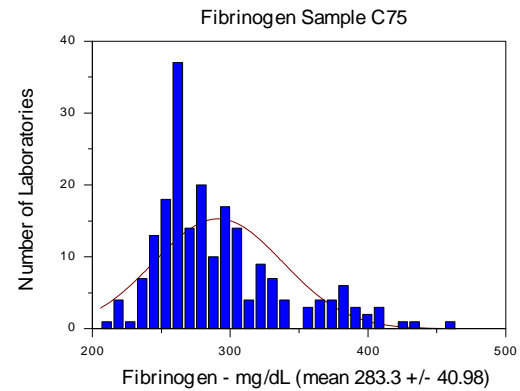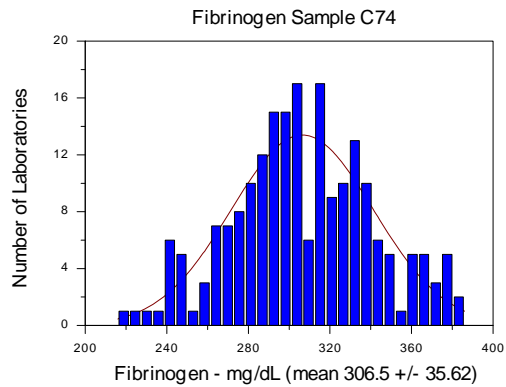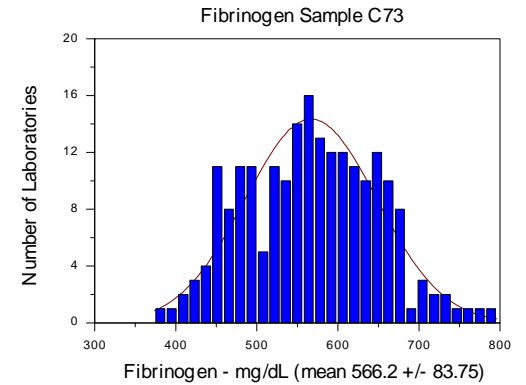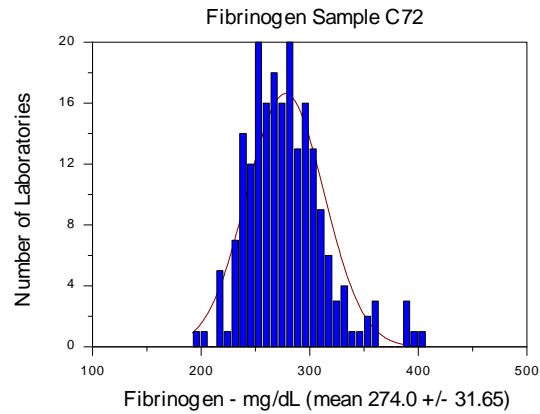**Mean ± One Standard Deviation**

Fibrinogen (mg/dL)

Specimen: C71	Specimen: C72	Specimen: C73	Specimen: C74	Specimen: C75	Number	[Code] Instrument or Reagent
275.8 ± 28.46	274.0 ± 31.65	566.2 ± 83.75	306.5 ± 35.62	283.3 ± 40.98	n = 208	[---] All Methods & Instruments
						<Instruments>
300.1 ± 18.25	300.0 ± 20.62	620.0 ± 63.30	335.9 ± 25.61	325.0 ± 29.18	n = 20	[BEB] Siemens BCS,BCSXP
282.9 ± 16.35	287.5 ± 19.16	623.7 ± 42.34	326.3 ± 21.20	289.9 ± 15.89	n = 25	[DGC] Diagnostica Stago STA Compact
270.6 ± 11.81	273.4 ± 10.19	582.5 ± 29.66	304.3 ± 13.85	273.9 ± 11.54	n = 13	[DGD] Diagnostica Stago STA-R, STA-R Evo
383.8 ± 10.43	387.3 ± 16.16	644.7 ± 13.82	357.5 ± 19.86	366.8 ± 37.79	n = 4	[ILA] IL ACL(All models except 810,ELITE
315.6 ± 30.84	310.0 ± 29.50	483.3 ± 70.78	272.3 ± 41.66	375.7 ± 47.51	n = 22	[ILC] IL ACL Futura/Advance
291.3 ± 38.86	294.0 ± 38.07	685.1 ±102.81	334.9 ± 22.56	311.8 ± 51.04	n = 8	[ILD] IL ACL(ELITE,ELITE PRO,8/9/10000)
277.6 ± 23.22	271.2 ± 28.00	597.7 ± 62.86	316.5 ± 35.11	282.9 ± 31.31	n = 54	[ILE] IL ACL TOP Series (ACLTOP,ACLTOP C
261.6 ± 14.26	249.1 ± 20.96	517.9 ± 56.69	289.5 ± 32.32	260.6 ± 11.41	n = 5	[SYW] Sysmex CA500/CA600 series
250.3 ± 15.28	247.8 ± 14.18	496.9 ± 44.06	284.9 ± 18.41	254.8 ± 15.17	n = 40	[SYX] Sysmex CA 1500
252.3 ± 13.11	251.0 ± 14.35	503.2 ± 51.76	288.4 ± 7.59	256.1 ± 12.04	n = 12	[SYY] Sysmex CA 7000
						<Reagents>
377.6 ± 16.92	375.0 ± 21.88	635.1 ± 29.54	362.8 ± 20.38	391.4 ± 28.85	n = 10	[TJ2] HemosIL PT-Fibrinogen
300.9 ± 17.93	299.3 ± 21.31	533.1 ± 76.28	310.3 ± 52.91	337.2 ± 43.78	n = 33	[TJ8] HemosIL RecombiPlasTin 2G
278.3 ± 16.00	282.1 ± 17.92	609.7 ± 45.27	317.4 ± 22.25	283.8 ± 17.19	n = 39	[FA4] Stago STA-Fibrinogen 5
300.3 ± 18.10	299.6 ± 21.20	633.8 ± 50.40	340.6 ± 24.08	330.8 ± 24.80	n = 17	[FB2] Siemens Multifibren U
252.5 ± 16.17	249.3 ± 16.35	500.7 ± 46.84	287.0 ± 18.60	256.8 ± 15.37	n = 60	[FD2] Siemens Fibrinogen Determination
276.2 ± 15.67	268.0 ± 22.13	629.1 ±104.66	311.8 ± 23.60	273.3 ± 23.06	n = 25	[FJ2] HemosIL Fibrinogen C,XL
280.7 ± 4.96	273.0 ± 10.00	527.3 ± 8.64	298.1 ± 7.95	268.7 ± 10.56	n = 3	[FM1] Kamiya K-Assay Fibrinogen
260.1 ± 20.58	256.1 ± 21.14	605.6 ± 46.11	293.4 ± 26.46	263.8 ± 19.06	n = 18	[FO3] HemosIL QFA(bovine)
						<Reagent & Instrument>
383.8 ± 10.43	387.3 ± 16.16	644.7 ± 13.82	357.5 ± 19.86	366.8 ± 37.79	n = 4	[TJ2]&[ILA] HemosIL PT-Fib & IL ACL(All
387.7 ± 17.73	382.2 ± 14.15	616.0 ± 38.24	357.1 ± 16.16	418.8 ± 22.23	n = 3	[TJ2]&[ILC] HemosIL PT-Fib & IL ACL Futu
313.8 ± 19.74	309.5 ± 14.69	453.9 ± 29.07	252.4 ± 13.28	380.0 ± 23.48	n = 13	[TJ8]&[ILC] HemosIL Recomb & IL ACL Futu
294.4 ± 14.88	290.7 ± 20.70	578.6 ± 42.79	343.9 ± 25.31	311.6 ± 23.11	n = 20	[TJ8]&[ILE] HemosIL Recomb & IL ACL TOP
282.9 ± 16.35	287.5 ± 19.16	623.7 ± 42.34	326.3 ± 21.20	289.9 ± 15.89	n = 25	[FA4]&[DGC] Stago STA-Fibr & Diagnostica
270.6 ± 11.81	273.4 ± 10.19	582.5 ± 29.66	304.3 ± 13.85	273.9 ± 11.54	n = 13	[FA4]&[DGD] Stago STA-Fibr & Diagnostica
300.3 ± 18.10	299.6 ± 21.20	633.8 ± 50.40	340.6 ± 24.08	330.8 ± 24.80	n = 17	[FB2]&[BEB] Siemens Multif & Siemens BCS
298.9 ± 19.27	302.5 ± 17.12	517.7 ± 46.13	308.5 ± 15.50	283.8 ± 11.53	n = 3	[FD2]&[BEB] Siemens Fibrin & Siemens BCS
261.6 ± 14.26	249.1 ± 20.96	517.9 ± 56.69	289.5 ± 32.32	260.6 ± 11.41	n = 5	[FD2]&[SYW] Siemens Fibrin & Sysmex CA50
250.3 ± 15.28	247.8 ± 14.18	496.9 ± 44.06	284.9 ± 18.41	254.8 ± 15.17	n = 40	[FD2]&[SYX] Siemens Fibrin & Sysmex CA 1
252.3 ± 13.11	251.0 ± 14.35	503.2 ± 51.76	288.4 ± 7.59	256.1 ± 12.04	n = 12	[FD2]&[SYY] Siemens Fibrin & Sysmex CA 7
290.9 ± 12.75	277.7 ± 13.23	535.8 ± 89.54	312.9 ± 30.76	280.8 ± 29.67	n = 3	[FJ2]&[ILC] HemosIL Fibrin & IL ACL Futu
277.0 ± 13.12	279.9 ± 14.85	717.6 ± 64.61	327.1 ± 13.45	292.3 ± 21.79	n = 6	[FJ2]&[ILD] HemosIL Fibrin & IL ACL(ELIT
273.1 ± 15.40	260.7 ± 22.25	609.1 ± 94.69	305.2 ± 21.63	265.9 ± 17.35	n = 16	[FJ2]&[ILE] HemosIL Fibrin & IL ACL TOP
258.5 ± 19.96	254.6 ± 21.02	607.0 ± 48.23	291.7 ± 26.82	264.9 ± 16.35	n = 17	[FO3]&[ILE] HemosIL QFA(bo & IL ACL TOP

Summary of Participant Responses
### Mean ± One Standard Deviation

INR (International Normalized Ratio)

Specimen: C71	Specimen: C72	Specimen: C73	Specimen: C74	Specimen: C75	Number	[Code] Instrument or Reagent
2.841 ± 0.248	2.845 ± 0.246	0.972 ± 0.056	1.006 ± 0.053	5.016 ± 0.811	n = 318	[---] All Methods & Instruments
						<Instruments>
2.844 ± 0.128	2.839 ± 0.094	0.900 ± 0.000	1.010 ± 0.042	4.661 ± 0.208	n = 19	[BEB] Siemens BCS,BCSXP
3.157 ± 0.153	3.147 ± 0.154	0.958 ± 0.056	0.977 ± 0.039	6.808 ± 0.472	n = 29	[DGC] Diagnostica Stago STA Compact
3.102 ± 0.166	3.072 ± 0.212	0.980 ± 0.053	0.998 ± 0.060	6.610 ± 0.396	n = 15	[DGD] Diagnostica Stago STA-R, STA-R Evo
3.203 ± 0.238	3.159 ± 0.185	0.887 ± 0.059	0.981 ± 0.044	6.216 ± 0.783	n = 17	[ILA] IL ACL(All models except 810,ELITE
3.003 ± 0.183	3.005 ± 0.183	1.003 ± 0.064	1.000 ± 0.059	5.428 ± 0.631	n = 27	[ILC] IL ACL Futura/Advance
2.852 ± 0.133	2.874 ± 0.157	0.961 ± 0.060	0.989 ± 0.057	5.024 ± 0.289	n = 34	[ILD] IL ACL(ELITE,ELITE PRO,8/9/10000)
2.820 ± 0.171	2.851 ± 0.188	0.984 ± 0.055	0.988 ± 0.048	4.914 ± 0.281	n = 61	[ILE] IL ACL TOP Series (ACLTOP,ACLTOP C
2.761 ± 0.159	2.709 ± 0.167	0.981 ± 0.046	1.042 ± 0.052	4.658 ± 0.330	n = 38	[SYW] Sysmex CA500/CA600 series
2.623 ± 0.121	2.640 ± 0.120	0.985 ± 0.028	1.035 ± 0.042	4.446 ± 0.238	n = 54	[SYX] Sysmex CA 1500
2.609 ± 0.086	2.641 ± 0.097	0.993 ± 0.020	1.004 ± 0.009	4.425 ± 0.154	n = 16	[SYY] Sysmex CA 7000
						<Reagents>
3.147 ± 0.142	3.132 ± 0.154	0.961 ± 0.056	0.981 ± 0.044	6.734 ± 0.439	n = 44	[TA3] STA Neoplastine CL+
2.687 ± 0.157	2.688 ± 0.147	0.976 ± 0.044	1.031 ± 0.046	4.528 ± 0.279	n = 126	[TD2] Siemens Innovin
3.113 ± 0.284	3.088 ± 0.258	0.901 ± 0.065	0.974 ± 0.058	6.141 ± 0.806	n = 33	[TJ2] HemosIL PT-Fibrinogen
2.858 ± 0.156	2.882 ± 0.169	0.990 ± 0.052	0.994 ± 0.049	4.978 ± 0.292	n = 104	[TJ8] HemosIL RecombiPlasTin 2G
						<Reagent & Instrument>
3.157 ± 0.153	3.147 ± 0.154	0.958 ± 0.056	0.977 ± 0.039	6.808 ± 0.472	n = 29	[TA3]&[DGC] STA Neoplastin & Diagnostica
3.131 ± 0.124	3.115 ± 0.159	0.973 ± 0.055	0.990 ± 0.059	6.620 ± 0.355	n = 13	[TA3]&[DGD] STA Neoplastin & Diagnostica
2.844 ± 0.128	2.839 ± 0.094	0.900 ± 0.000	1.010 ± 0.042	4.661 ± 0.208	n = 19	[TD2]&[BEB] Siemens Innovi & Siemens BCS
2.761 ± 0.162	2.712 ± 0.170	0.980 ± 0.047	1.041 ± 0.053	4.665 ± 0.335	n = 37	[TD2]&[SYW] Siemens Innovi & Sysmex CA50
2.622 ± 0.122	2.642 ± 0.121	0.986 ± 0.028	1.035 ± 0.043	4.446 ± 0.241	n = 53	[TD2]&[SYX] Siemens Innovi & Sysmex CA 1
2.609 ± 0.086	2.641 ± 0.097	0.993 ± 0.020	1.004 ± 0.009	4.425 ± 0.154	n = 16	[TD2]&[SYY] Siemens Innovi & Sysmex CA 7
3.203 ± 0.238	3.159 ± 0.185	0.887 ± 0.059	0.981 ± 0.044	6.216 ± 0.783	n = 17	[TJ2]&[ILA] HemosIL PT-Fib & IL ACL(All
3.068 ± 0.275	3.087 ± 0.340	0.919 ± 0.043	0.943 ± 0.051	6.597 ± 0.886	n = 6	[TJ2]&[ILC] HemosIL PT-Fib & IL ACL Futu
3.044 ± 0.268	3.011 ± 0.270	0.885 ± 0.079	0.985 ± 0.078	6.026 ± 0.507	n = 8	[TJ2]&[ILD] HemosIL PT-Fib & IL ACL(ELIT
2.968 ± 0.120	2.984 ± 0.121	1.015 ± 0.044	1.012 ± 0.049	5.231 ± 0.407	n = 19	[TJ8]&[ILC] HemosIL Recomb & IL ACL Futu
2.837 ± 0.105	2.857 ± 0.118	0.977 ± 0.047	0.990 ± 0.050	4.959 ± 0.184	n = 26	[TJ8]&[ILD] HemosIL Recomb & IL ACL(ELIT
2.827 ± 0.174	2.855 ± 0.194	0.986 ± 0.055	0.990 ± 0.048	4.922 ± 0.286	n = 58	[TJ8]&[ILE] HemosIL Recomb & IL ACL TOP

Hematology Proficiency Test Event
February 4, 2013
Fibrinogen Data

Fibrinogen Sample C71

Number of Laboratories

Fibrinogen - mg/dL (mean 275.8 +/- 28.46)

Fibrinogen Sample C72

Number of Laboratories

Fibrinogen - mg/dL (mean 274.0 +/- 31.65)

Fibrinogen Sample C73

Number of Laboratories

Fibrinogen - mg/dL (mean 566.2 +/- 83.75)

Fibrinogen Sample C74

Number of Laboratories

Fibrinogen - mg/dL (mean 306.5 +/- 35.62)

Fibrinogen Sample C75

Number of Laboratories

Fibrinogen - mg/dL (mean 283.3 +/- 40.98)
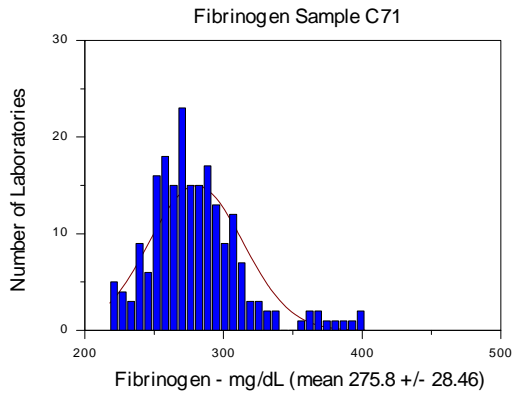
Hematology Proficiency Test Event
February 4, 2013
International Sensitivity Index (ISI) and International Normalized Ratio (INR)

ISI (International Normalized Index)

INR Sample C71

INR Sample C72

INR Sample C73

INR Sample C74

INR Sample C75
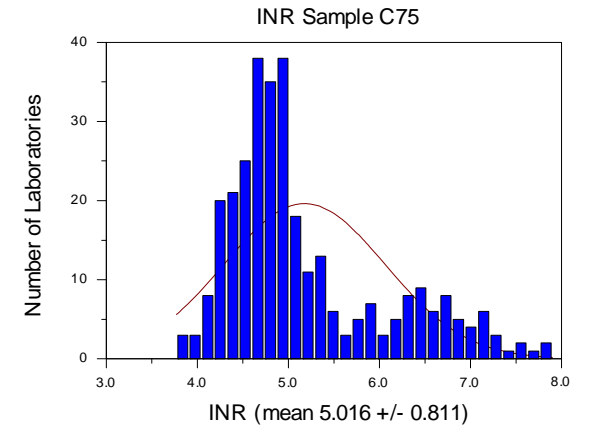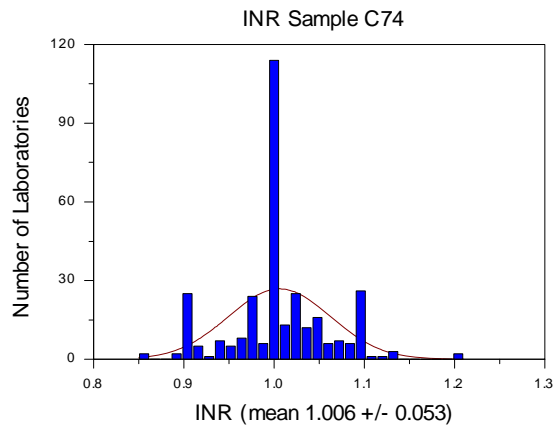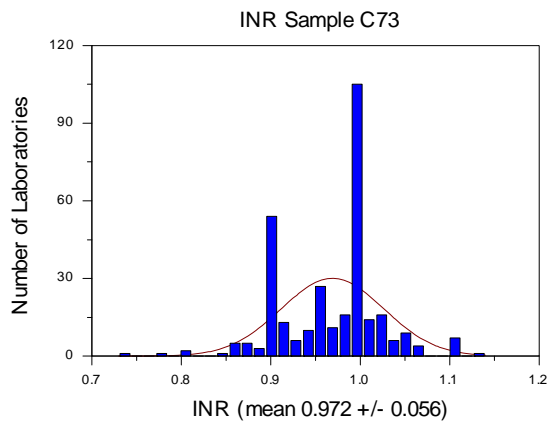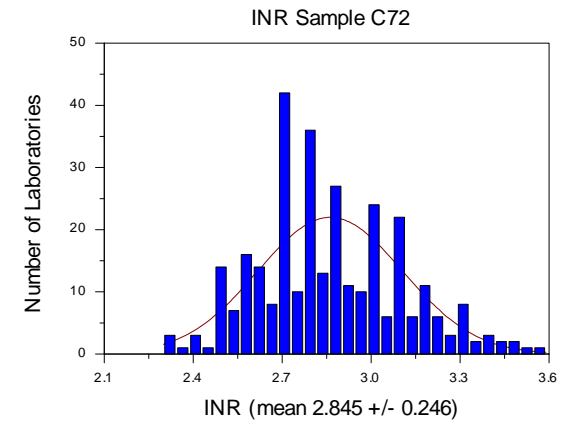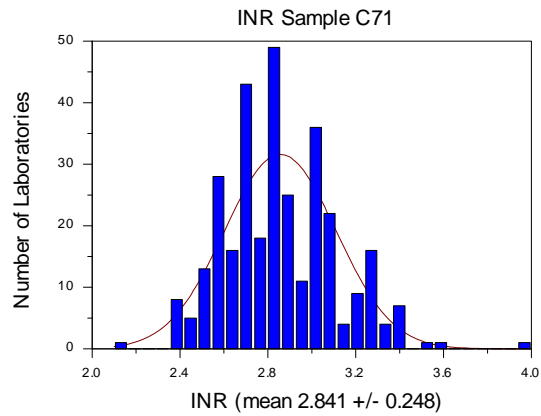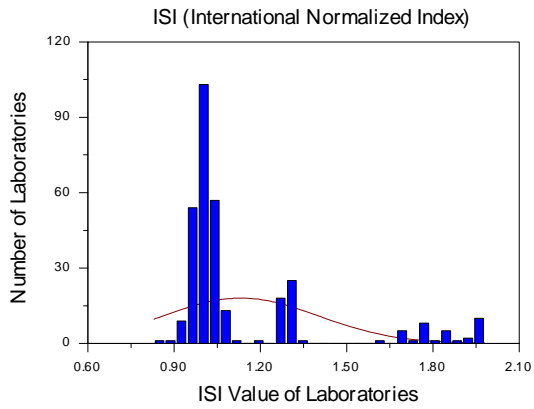
NEW YORK STATE HEMATOLOGY PROFICIENCY TEST PROGRAM

February 4, 2013

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 371
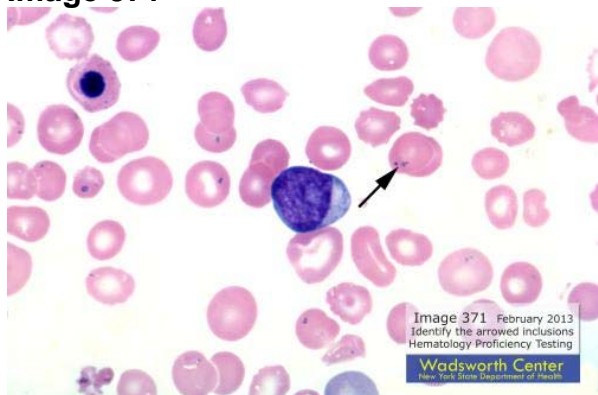
Number of Responses	Percent of Laboratories	Cell type or finding
332	**91.2%**	**Pappenheimer body**
28	7.7%	Howell-Jolly body
4	1.1%	Parasite

The arrowed erythrocyte in Image 371 contains inclusions that are blue-purple in color, irregular in shape and located on the periphery of the cell. They were correctly identified by 332 participants as Pappenheimer bodies. Twenty-eight participants identified the inclusions as Howell-Jolly bodies. While both Howell-Jolly and Pappenheimer bodies may be present in single or multiple forms, Howell-Jolly bodies are round in shape and larger in size compared to those of Pappenheimer bodies.

Alwin Max Pappenheimer first described the iron-containing particles in 1945. "Pappenheimer bodies are formed as the red cell discharges its abnormal iron-containing mitochondria. An autophagosome is created that digests the offending organelles. If the autophagosome is not discharged out of the cytoplasm or removed by the pitting action of the spleen, the inclusions will be visible on Wright-Giemsa stained blood films. Their true nature is confirmed with an iron stain." Glassy, E.F. Color Atlas of Hematology, CAP Northfield, 1998, p.140.

Pappenheimer bodies are observed in megaloblastic anemias, thalassemia, sideroblastic anemia and post-splenectomy. Their presence was observed in this case of myeloproliferative disorder in addition to other telltale signs of anemia including Howell Jolly bodies, target cells, ovalocytes, hypochromasia and polychromasia.
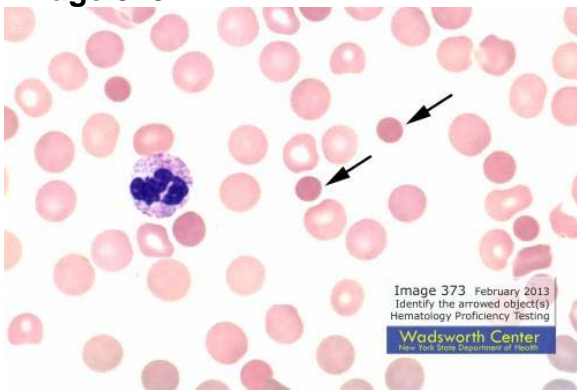
Image 372
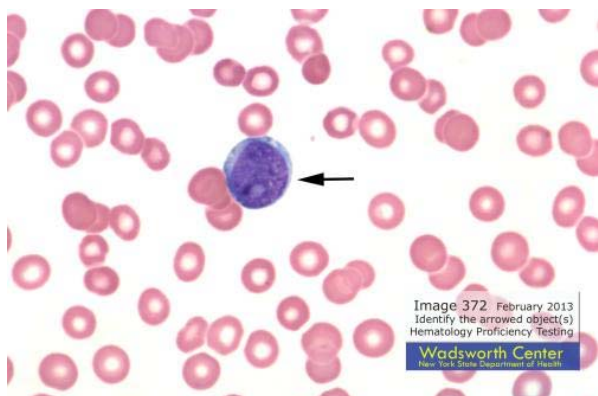
Number of Responses	Percent of Laboratories	Cell type or finding
340	**93.4%**	**Blast cell, not classified**
17	**4.7%**	**Lymphoblast**
1	**0.3%**	**Myeloblast**
3	0.8%	Normal lymphocyte
2	0.5%	Lymphoma/Sézary cell
1	0.3%	Reactive/atypical lymphocyte

The arrowed white blood cell in Image 372 possesses a large nucleus including a pronounced nucleolus and scant cytoplasm. The cell is best identified as a blast cell as 98.4% of participants concur. At the time the sample was obtained from a 75 year-old male the diagnosis was unknown. Identification of a cell as a blast cell from a peripheral smear alone is often very difficult, further studies are indicated for cell lineage identification. For grading purposes, all blast forms were acceptable responses.

Image 373

Number of Responses	Percent of Laboratories	Cell type or finding
363	**99.7%**	**Spherocyte**
1	0.3%	Stomatocyte

The arrowed red blood cells in Image 373 are smaller than many of the surrounding red blood cells and are condensed with no central pallor. The cells were correctly identified by 363 participants as spherocytes.

Image 373 was taken from the peripheral smear of a 39 year-old female who presented with fever, headache, dizziness, right abdominal pain and a history of Thrombotic Thrombocytopenic Purpura (TTP). Expected findings in such a case would be a critically low platelet count and the presence of red cell fragments. The lack of platelets in Image 373 is evident. Fragmented red blood cells are not as obvious in this snapshot image, however, there are numerous spherocytes. Spherocytes form in such a case as this microangiopathic hemolytic anemia when fragmented cells attempt to reconcile to their natural round shape forming cells with decreased surface to cytoplasm ratios. Spherocytes are also observed in hereditary spherocytosis, immune hemolytic anemias and burns.

Image 374
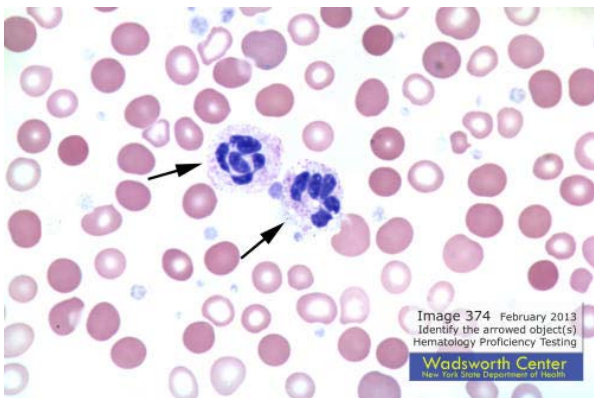
Number of Responses	Percent of Laboratories	Cell type or finding
260	71.4%	Hypersegmentation
57	15.7%	Segmented neutrophil
47	12.9%	Segmented/band neutrophil with toxic granulation

Participant consensus was not achieved in this case. Five distinct nuclear lobes are evident in the arrowed neutrophils in Image 374 and most participants (71.4%) favored identification of the cells as hypersegmented neutrophils. Few references define the criteria for a hypersegmented neutrophil as a neutrophil containing six or more nuclear lobes and whose size is larger compared to the average neutrophil. When assessing whether or not a neutrophil should be classified as hypersegmented, in addition to cell size and quantity of nuclear lobes present, consideration should be given to the appearance of the accompanying red blood cells. The presence of hypersegmented neutrophils is an indisputable finding of megaloblastic states including vitamin B12 and folate deficiency where macrocytes predominate.
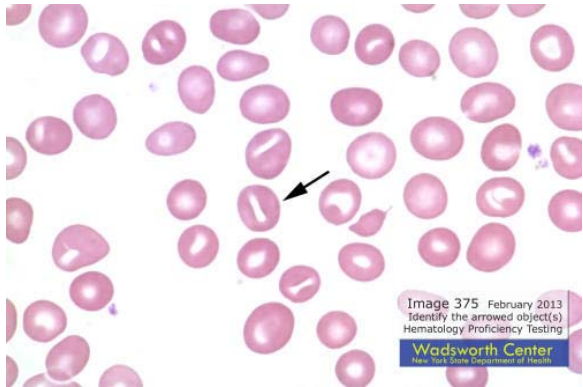
Image 374 was taken from a case of iron deficiency anemia and the findings included hypochromia, microcytes and polychromasia. "Hypersegmented neutrophils may be present in many patients in occasional cells. This feature should only be reported if at least 5% of neutrophils have 5 or more lobes. Reporting hypersegmented neutrophils can be misleading in a case with hypochromic microcytic cells as hypersegmented cells are associated with folate or B12 deficiency and NOT iron deficiency".
Alberta Laboratory Quality Enhancement Program (ALQEP) Morphology Critique 10-07-S
http://www.cpsa.ab.ca/Services/Quality_of_Care_Main/ALQEP/ALQEP_Hematology/Hema_photomicrographs.aspx

The arrowed cells in Image 374 were identified by thirteen percent of participants as segmented/band neutrophils with toxic granulation. Toxic granulation is best described if the neutrophilic granules are large purple or dark blue and appear darker and coarser than normal.

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

Image 375

Image 375 February 2013
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
364	100%	Stomatocyte

The rectangular shape of the central pallor in the arrowed red blood cell of Image 375 is not that of a normal red blood cell. The rod-shaped appearance of the central pallor is characteristic of a stomatocyte as identified by all participants.

This image was obtained from the peripheral blood smear of an 86 year-old male who presented with pancytopenia and later diagnosed with myelodysplastic syndrome. Stomatocytes are found in hereditary spherocytosis, in exposure to certain drugs and as an artifact from improperly prepared peripheral blood smears. In this case, with only a few (less than ten percent) of the red blood cells affected their presence may be considered an artifact of preparation.