

Endocrinology Proficiency Test – September 2012

Enclosed is a statistical summary of participant data for the five endocrinology proficiency survey specimens (E81, E82, E83, E84, and E85) shipped 9 September 2012. Test specimens were prepared by the quantitative transfer of constituents to a pooled human serum base. This material was subsequently sterile-filtered, dispensed into aliquots, stored at – 80°C and distributed to each participant for analysis. 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 shown on the attached sheets are calculated by a robust statistical technique that does not assume a Gaussian distribution. These statistical reports are also available on the internet at: <http://www.wadsworth.org/chemheme>

Disclaimer

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.

Outlined below is a description of the process utilized in the evaluation of your laboratory's proficiency test results.

Target value

In general, targets utilized are derived from all-participant mean values calculated by robust statistical technique. In some cases, however, it is recognized that method, reagent, and/or instrument specific targets may be required and "peer group" specific targets are used where appropriate. Should an alternate target be required to evaluate your laboratory's data, an asterisk will be placed adjacent to the method, reagent, and/or instrument listing(s) corresponding to the peer group utilized.

In evaluation on CDC Educational challenge samples for testosterone and vitamin D, single target value, derived from measurements using CDC LC-MS/MS reference method, was used. The samples #1 and #2 were prepared from authentic human serum of a male and a female single healthy donor, respectively. The serum samples were stored at –80°C before shipment on ice via overnight delivery.

Acceptable ranges

Limits of acceptable performance were 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%. Laboratories must achieve an overall analyte score $\geq 80\%$ in order to meet performance criteria for that analyte.

Range plots

Plots show relative distance of your laboratory's results (represented by an "x") from the target for each sample analyzed. Any result exceeding the high or low limit by $> 20\%$ of the acceptable range is also indicated by a "x" symbol.

Should you have any questions regarding this report, please contact the Endocrinology Section at (518) 474-6930.

Statistical Summary (Mean and Standard Deviation)

Thyroxin (T4, µg/dL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
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2.62 ± 0.59	7.05 ± 0.93	8.81 ± 1.13	10.04 ± 1.05	12.73 ± 1.35	n = 235	All Methods & Instruments
2.60	6.90	8.70	9.90	12.50	n = 235	Median value, All Methods & Instruments
						<Instruments>
3.07 ± 0.23	5.99 ± 0.20	7.61 ± 0.26	9.08 ± 0.34	12.32 ± 0.51	n = 17	Abbott Architect i System
2.33 ± 0.20	8.05 ± 0.70	10.02 ± 0.76	10.54 ± 0.80	13.41 ± 1.00	n = 17	Beckman Coulter ACCESS
2.77 ± 0.20	6.62 ± 0.26	8.51 ± 0.32	10.07 ± 0.26	12.73 ± 0.65	n = 9	Beckman Coulter AU Chemistry System
2.37 ± 0.31	8.63 ± 0.51	10.54 ± 0.79	11.19 ± 0.87	13.76 ± 0.75	n = 17	Beckman Coulter UniCel DxI 800
2.44 ± 0.16	6.51 ± 0.41	8.63 ± 0.60	9.41 ± 0.88	12.61 ± 0.91	n = 14	Ortho Vitros 5600
2.46 ± 0.16	6.64 ± 0.39	8.88 ± 0.46	9.58 ± 0.38	12.92 ± 0.49	n = 9	Ortho Vitros Eci/ECiQ
3.02 ± 0.17	6.00 ± 0.34	7.34 ± 0.40	9.13 ± 0.26	11.27 ± 0.58	n = 7	Roche cobas e601
3.03 ± 0.23	6.05 ± 0.45	7.37 ± 0.68	8.74 ± 0.47	11.10 ± 0.64	n = 3	Roche Elecsys
3.04 ± 0.56	6.32 ± 0.60	7.91 ± 0.51	9.39 ± 0.37	11.70 ± 0.58	n = 4	Roche MODULAR D/P
3.19 ± 0.14	6.34 ± 0.31	7.67 ± 0.33	9.46 ± 0.35	11.84 ± 0.44	n = 13	Roche MODULAR E
2.14 ± 0.36	7.07 ± 0.41	8.57 ± 0.50	9.68 ± 0.49	11.77 ± 0.58	n = 53	Siemens ADVIA Centaur
2.43 ± 0.23	6.73 ± 0.77	8.62 ± 0.86	10.40 ± 0.46	13.54 ± 0.39	n = 3	Siemens Dimension EXL
2.66 ± 0.35	6.98 ± 0.26	8.72 ± 0.43	10.72 ± 0.41	13.83 ± 0.72	n = 7	Siemens Dimension RxL
3.70 ± 0.40	8.23 ± 0.55	10.33 ± 0.71	12.08 ± 0.66	15.23 ± 0.75	n = 29	Siemens Dimension Vista
2.02 ± 0.31	6.69 ± 0.42	8.77 ± 0.30	10.22 ± 0.69	13.19 ± 1.26	n = 6	Siemens Immulite 1000
2.24 ± 0.18	7.00 ± 0.53	8.95 ± 0.73	10.28 ± 0.54	12.74 ± 0.84	n = 13	Siemens Immulite 2000
2.59 ± 0.19	7.05 ± 0.46	8.33 ± 0.41	9.91 ± 0.33	12.73 ± 0.45	n = 5	Tosoh Bioscience
2.64 ± 0.44	6.75 ± 0.69	8.55 ± 0.92	9.90 ± 0.77	12.70 ± 1.01	n = 17	Mean of Above Means
						<Reagents>
3.03 ± 0.25	6.02 ± 0.23	7.66 ± 0.35	9.12 ± 0.38	12.26 ± 0.54	n = 19	Abbott
2.34 ± 0.27	8.36 ± 0.71	10.30 ± 0.82	10.86 ± 0.87	13.61 ± 0.88	n = 35	Beckman Coulter
2.90 ± 0.63	6.36 ± 0.71	7.76 ± 0.62	9.35 ± 0.46	11.57 ± 0.69	n = 3	Microgenics CEDIA
2.77 ± 0.20	6.62 ± 0.26	8.51 ± 0.32	10.07 ± 0.26	12.73 ± 0.65	n = 9	Microgenics DRI
2.45 ± 0.16	6.56 ± 0.40	8.73 ± 0.56	9.47 ± 0.68	12.75 ± 0.75	n = 23	Ortho Clinical Diagnostics
3.14 ± 0.18	6.25 ± 0.36	7.59 ± 0.42	9.34 ± 0.42	11.67 ± 0.57	n = 27	Roche Elecsys/Modular E/e601/e411
2.14 ± 0.36	7.07 ± 0.41	8.57 ± 0.50	9.68 ± 0.49	11.77 ± 0.58	n = 53	Siemens ADVIA/ADVIA Centaur
3.41 ± 0.65	7.86 ± 0.85	9.88 ± 1.01	11.64 ± 0.96	14.84 ± 1.04	n = 35	Siemens Dimension
3.93 ± 0.42	8.22 ± 0.34	10.66 ± 0.61	12.12 ± 0.68	15.04 ± 0.60	n = 4	Siemens Dimension LOCI
2.19 ± 0.26	6.89 ± 0.52	8.86 ± 0.60	10.27 ± 0.60	12.84 ± 0.96	n = 19	Siemens Immulite
2.63 ± 0.20	7.10 ± 0.51	8.44 ± 0.40	9.96 ± 0.42	12.82 ± 0.49	n = 4	Tosoh ST AIA
2.77 ± 0.53	6.96 ± 0.80	8.73 ± 1.05	10.04 ± 0.93	12.77 ± 1.13	n = 11	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Free T4 (ng/dL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
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0.49 ± 0.10	1.90 ± 0.27	2.15 ± 0.30	2.20 ± 0.30	2.98 ± 0.42	n = 258	All Methods & Instruments
0.50	1.92	2.20	2.20	3.00	n = 258	Median value, All Methods & Instruments
<Instruments>						
0.54 ± 0.05	1.39 ± 0.06	1.56 ± 0.09	1.82 ± 0.12	2.42 ± 0.15	n = 17	Abbott Architect i System
0.42 ± 0.04	2.01 ± 0.08	2.26 ± 0.11	2.09 ± 0.10	2.75 ± 0.11	n = 18	Beckman Coulter ACCESS
0.45 ± 0.05	2.03 ± 0.05	2.44 ± 0.10	2.16 ± 0.10	2.90 ± 0.09	n = 3	Beckman Coulter UniCel DxI 600
0.43 ± 0.07	1.97 ± 0.14	2.25 ± 0.15	2.09 ± 0.17	2.86 ± 0.16	n = 16	Beckman Coulter UniCel DxI 800
0.43 ± 0.05	1.83 ± 0.14	2.17 ± 0.14	2.43 ± 0.14	3.40 ± 0.09	n = 3	bioMerieux Vidas
0.50 ± 0.00	3.47 ± 0.16	4.25 ± 0.20	3.97 ± 0.18	5.58 ± 0.22	n = 16	Ortho Vitros 5600
0.51 ± 0.04	3.59 ± 0.15	4.34 ± 0.12	4.05 ± 0.12	5.70 ± 0.12	n = 8	Ortho Vitros ECI/ECiQ
0.51 ± 0.03	2.04 ± 0.10	2.26 ± 0.05	2.60 ± 0.09	3.62 ± 0.06	n = 3	Roche cobas e411
0.50 ± 0.00	2.07 ± 0.07	2.28 ± 0.08	2.58 ± 0.09	3.57 ± 0.15	n = 9	Roche cobas e601
0.50 ± 0.01	2.03 ± 0.04	2.24 ± 0.04	2.58 ± 0.08	3.62 ± 0.12	n = 4	Roche Elecsys
0.50 ± 0.00	2.03 ± 0.07	2.27 ± 0.10	2.55 ± 0.08	3.59 ± 0.15	n = 16	Roche MODULAR E
0.55 ± 0.06	1.89 ± 0.09	2.14 ± 0.10	2.21 ± 0.09	2.93 ± 0.12	n = 64	Siemens ADVIA Centaur
0.31 ± 0.07	1.71 ± 0.10	1.93 ± 0.08	1.96 ± 0.07	2.80 ± 0.09	n = 7	Siemens Dimension EXL
0.32 ± 0.10	2.05 ± 0.32	2.43 ± 0.25	2.33 ± 0.29	3.48 ± 0.45	n = 9	Siemens Dimension RxL
0.34 ± 0.07	1.61 ± 0.12	1.80 ± 0.12	1.87 ± 0.09	2.65 ± 0.11	n = 33	Siemens Dimension Vista
0.18 ± 0.03	1.95 ± 0.25	2.32 ± 0.30	2.22 ± 0.22	3.28 ± 0.22	n = 5	Siemens Dimension Xpand
0.53 ± 0.05	2.27 ± 0.23	2.53 ± 0.14	2.55 ± 0.19	3.36 ± 0.26	n = 3	Siemens Immulite 1000
0.54 ± 0.06	2.32 ± 0.13	2.63 ± 0.10	2.47 ± 0.13	3.30 ± 0.16	n = 15	Siemens Immulite 2000
0.42 ± 0.04	2.45 ± 0.06	2.97 ± 0.18	2.90 ± 0.12	4.02 ± 0.10	n = 4	Tosoh Bioscience
0.47 ± 0.08	1.99 ± 0.23	2.27 ± 0.27	2.32 ± 0.32	3.22 ± 0.48	n = 19	Mean of Above Means
<Reagents>						
0.54 ± 0.06	1.40 ± 0.05	1.56 ± 0.09	1.81 ± 0.12	2.40 ± 0.17	n = 18	Abbott
0.43 ± 0.06	2.00 ± 0.11	2.27 ± 0.14	2.10 ± 0.13	2.81 ± 0.15	n = 37	Beckman Coulter
0.43 ± 0.05	1.83 ± 0.14	2.17 ± 0.14	2.43 ± 0.14	3.40 ± 0.09	n = 3	bioMerieux Vitek
0.50 ± 0.00	3.51 ± 0.16	4.29 ± 0.17	4.00 ± 0.17	5.62 ± 0.19	n = 24	Ortho Clinical Diagnostics
0.50 ± 0.00	2.05 ± 0.07	2.28 ± 0.09	2.57 ± 0.09	3.60 ± 0.14	n = 33	Roche Elecsys/Modular E/e601/e411
0.55 ± 0.06	1.89 ± 0.09	2.14 ± 0.10	2.22 ± 0.10	2.94 ± 0.12	n = 65	Siemens ADVIA/ADVIA Centaur
0.31 ± 0.12	1.95 ± 0.28	2.30 ± 0.32	2.22 ± 0.28	3.28 ± 0.44	n = 17	Siemens Dimension
0.33 ± 0.07	1.61 ± 0.12	1.81 ± 0.12	1.88 ± 0.09	2.66 ± 0.12	n = 37	Siemens Dimension LOCI
0.54 ± 0.06	2.31 ± 0.15	2.61 ± 0.11	2.48 ± 0.14	3.31 ± 0.18	n = 18	Siemens Immulite
0.44 ± 0.05	2.42 ± 0.05	2.90 ± 0.18	2.85 ± 0.11	4.04 ± 0.12	n = 3	Tosoh ST AIA
0.46 ± 0.09	1.95 ± 0.34	2.23 ± 0.39	2.29 ± 0.36	3.17 ± 0.56	n = 10	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

T3-Uptake (%)

Specimen: E81 -----	Specimen: E82 -----	Specimen: E83 -----	Specimen: E84 -----	Specimen: E85 -----	Number -----	Instrument or Reagent System -----
28.67 ± 4.02 28.30	46.31 ± 7.75 47.00	45.25 ± 8.50 45.00	40.27 ± 4.51 40.00	40.96 ± 5.55 41.60	n = 146 n = 146	All Methods & Instruments Median value, All Methods & Instruments
<Instruments>						
26.64 ± 1.75	41.84 ± 2.66	36.77 ± 2.24	35.13 ± 2.26	31.85 ± 2.22	n = 9	Abbott Architect i System
37.73 ± 2.22	49.95 ± 2.50	48.17 ± 3.06	43.82 ± 3.11	44.77 ± 2.80	n = 13	Beckman Coulter ACCESS
23.63 ± 1.47	46.00 ± 2.06	44.97 ± 2.42	40.50 ± 1.31	41.99 ± 0.96	n = 9	Beckman Coulter AU Chemistry System
37.99 ± 2.44	49.30 ± 2.17	47.96 ± 2.84	44.27 ± 2.39	43.51 ± 1.60	n = 12	Beckman Coulter UniCel DxI 800
29.51 ± 0.91	58.61 ± 2.13	56.57 ± 2.79	46.83 ± 1.58	49.40 ± 2.50	n = 8	Ortho Vitros 5600
28.69 ± 0.48	59.21 ± 1.56	57.92 ± 1.48	46.46 ± 1.01	49.57 ± 1.67	n = 6	Ortho Vitros Eci/ECiQ
23.48 ± 0.98	47.03 ± 1.17	45.67 ± 1.29	41.75 ± 1.07	42.38 ± 0.82	n = 4	Roche MODULAR D/P
32.06 ± 0.57	38.99 ± 0.41	38.23 ± 0.60	38.17 ± 0.27	38.81 ± 0.47	n = 4	Roche MODULAR E
27.77 ± 1.38	52.98 ± 3.25	53.67 ± 2.39	41.87 ± 2.54	44.20 ± 2.67	n = 29	Siemens ADVIA Centaur
27.15 ± 0.41	39.21 ± 1.46	38.31 ± 0.90	36.85 ± 0.41	36.61 ± 1.64	n = 4	Siemens Dimension EXL
28.64 ± 1.09	40.64 ± 2.05	39.10 ± 1.83	38.16 ± 2.27	38.36 ± 2.52	n = 5	Siemens Dimension RxL
27.80 ± 1.29	39.29 ± 1.91	38.65 ± 1.80	37.32 ± 1.86	37.55 ± 1.75	n = 21	Siemens Dimension Vista
27.43 ± 1.02	40.76 ± 2.40	37.77 ± 1.66	36.30 ± 1.71	34.13 ± 0.88	n = 5	Siemens Immulite 1000
28.99 ± 1.05	37.30 ± 1.87	34.71 ± 1.17	34.50 ± 1.25	33.56 ± 0.64	n = 12	Siemens Immulite 2000
22.42 ± 1.14	44.33 ± 1.23	47.32 ± 2.60	39.57 ± 2.33	41.15 ± 2.46	n = 3	Tosoh Bioscience
28.02 ± 3.90	44.96 ± 7.01	43.87 ± 7.69	39.92 ± 4.09	40.44 ± 5.46	n = 15	Mean of Above Means
<Reagents>						
26.64 ± 1.75	41.84 ± 2.66	36.77 ± 2.24	35.13 ± 2.26	31.85 ± 2.22	n = 9	Abbott
37.74 ± 2.33	49.61 ± 2.34	48.04 ± 2.88	44.07 ± 2.71	43.99 ± 2.29	n = 26	Beckman Coulter
23.13 ± 0.82	46.75 ± 1.00	45.57 ± 1.54	41.02 ± 1.37	42.25 ± 0.84	n = 10	Microgenics CEDIA
29.07 ± 0.89	58.84 ± 1.90	57.18 ± 2.39	46.60 ± 1.28	49.46 ± 2.16	n = 14	Ortho Clinical Diagnostics
32.33 ± 0.74	38.85 ± 0.45	38.29 ± 0.52	38.23 ± 0.26	38.71 ± 0.47	n = 5	Roche Elecsys/Modular E/e601/e411
27.77 ± 1.38	52.98 ± 3.25	53.67 ± 2.39	41.87 ± 2.54	44.20 ± 2.67	n = 29	Siemens ADVIA/ADVIA Centaur
27.89 ± 1.23	39.52 ± 1.89	38.76 ± 1.65	37.41 ± 1.87	37.58 ± 1.98	n = 28	Siemens Dimension
28.50 ± 1.30	38.18 ± 2.43	35.37 ± 1.85	34.91 ± 1.59	33.73 ± 0.77	n = 17	Siemens Immulite
22.42 ± 1.14	44.33 ± 1.23	47.32 ± 2.60	39.57 ± 2.33	41.15 ± 2.46	n = 3	Tosoh ST AIA
27.94 ± 4.14	45.02 ± 6.92	44.23 ± 7.91	39.71 ± 3.94	40.37 ± 5.43	n = 9	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

T Uptake (Unit)

Specimen: E81 -----	Specimen: E82 -----	Specimen: E83 -----	Specimen: E84 -----	Specimen: E85 -----	Number -----	Instrument or Reagent System -----
1.140 ± 0.088	0.960 ± 0.377	0.886 ± 0.074	0.956 ± 0.198	0.909 ± 0.025	n = 19	All Methods & Instruments
1.150	0.900	0.900	0.900	0.920	n = 19	Median value, All Methods & Instruments
<Instruments>						
1.163 ± 0.016	0.628 ± 0.020	0.783 ± 0.020	0.820 ± 0.032	0.936 ± 0.029	n = 4	Abbott Architect i System
1.175 ± 0.035	0.900 ± 0.000	0.915 ± 0.024	0.909 ± 0.014	0.900 ± 0.023	n = 7	Roche MODULAR E
0.958 ± 0.046	1.812 ± 0.046	1.804 ± 0.085	1.438 ± 0.074	1.532 ± 0.077	n = 4	Siemens ADVIA Centaur
1.110 ± 0.108	1.069 ± 0.554	1.120 ± 0.494	1.028 ± 0.297	1.090 ± 0.315	n = 3	Mean of Above Means
<Reagents>						
1.163 ± 0.016	0.628 ± 0.020	0.783 ± 0.020	0.820 ± 0.032	0.936 ± 0.029	n = 4	Abbott
1.161 ± 0.035	0.899 ± 0.012	0.902 ± 0.004	0.910 ± 0.017	0.902 ± 0.018	n = 11	Roche Elecsys/Modular E/e601/e411
0.958 ± 0.046	1.812 ± 0.046	1.804 ± 0.085	1.438 ± 0.074	1.532 ± 0.077	n = 4	Siemens ADVIA/ADVIA Centaur
1.105 ± 0.104	1.069 ± 0.554	1.115 ± 0.496	1.028 ± 0.297	1.091 ± 0.314	n = 3	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Triiodothyronine (T3, ng/dL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
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59.4 ± 11.24	137.6 ± 20.62	156.3 ± 32.00	178.6 ± 19.24	173.7 ± 21.29	n = 190	All Methods & Instruments
59.0	143.0	159.0	181.8	177.0	n = 190	Median value, All Methods & Instruments
<Instruments>						
58.0 ± 6.57	105.8 ± 6.19	114.6 ± 5.39	158.4 ± 8.32	147.4 ± 4.96	n = 13	Abbott Architect i System
63.0 ± 4.60	111.3 ± 6.76	120.7 ± 11.27	151.6 ± 3.87	147.2 ± 6.95	n = 3	Abbott AxSym
57.6 ± 5.45	110.3 ± 7.26	117.2 ± 5.94	150.9 ± 9.00	142.5 ± 10.71	n = 11	Beckman Coulter ACCESS
60.8 ± 1.54	107.9 ± 5.72	111.1 ± 2.05	154.5 ± 4.53	139.7 ± 8.57	n = 3	Beckman Coulter UniCel DxI 600
58.4 ± 5.94	105.9 ± 13.73	111.1 ± 10.31	145.7 ± 11.19	137.1 ± 11.07	n = 16	Beckman Coulter UniCel DxI 800
64.6 ± 2.30	144.8 ± 4.12	154.7 ± 4.89	190.5 ± 6.16	181.4 ± 4.14	n = 10	Ortho Vitros 5600
66.3 ± 2.47	147.0 ± 4.60	158.4 ± 8.65	192.5 ± 10.48	186.3 ± 6.17	n = 4	Ortho Vitros ECI/ECiQ
82.8 ± 5.31	146.4 ± 6.66	166.0 ± 5.24	183.0 ± 5.71	182.5 ± 6.50	n = 7	Roche cobas e601
87.9 ± 2.94	157.5 ± 2.74	182.0 ± 5.36	194.6 ± 3.42	192.2 ± 2.76	n = 3	Roche Elecsys
82.3 ± 4.33	149.7 ± 5.29	171.9 ± 7.20	187.9 ± 7.60	185.5 ± 7.10	n = 14	Roche MODULAR E
55.7 ± 6.20	148.0 ± 10.46	185.9 ± 13.02	183.9 ± 12.84	179.3 ± 12.05	n = 60	Siemens ADVIA Centaur
38.7 ± 14.77	119.6 ± 15.38	135.0 ± 13.66	176.7 ± 13.11	158.1 ± 23.81	n = 3	Siemens Dimension RxL
59.2 ± 10.49	130.2 ± 8.99	139.6 ± 9.43	183.2 ± 11.37	172.6 ± 10.92	n = 15	Siemens Dimension Vista
48.5 ± 0.54	141.0 ± 2.28	146.6 ± 8.16	190.6 ± 8.77	188.3 ± 6.75	n = 5	Siemens Immulite 1000
50.3 ± 5.28	146.5 ± 6.10	153.9 ± 6.73	190.0 ± 9.70	192.3 ± 9.72	n = 13	Siemens Immulite 2000
58.9 ± 4.95	126.0 ± 6.72	138.7 ± 6.62	162.4 ± 17.56	161.1 ± 9.84	n = 4	Tosoh Bioscience
60.9 ± 12.02	131.7 ± 19.86	143.8 ± 26.01	176.0 ± 18.60	169.3 ± 21.65	n = 16	Mean of Above Means
<Reagents>						
59.1 ± 6.55	106.8 ± 6.77	115.2 ± 6.57	156.9 ± 8.30	147.5 ± 5.41	n = 16	Abbott
58.4 ± 5.43	107.4 ± 11.66	113.7 ± 8.76	148.8 ± 10.23	139.4 ± 11.15	n = 30	Beckman Coulter
65.1 ± 2.50	145.4 ± 4.37	155.3 ± 5.91	191.2 ± 7.51	182.8 ± 5.49	n = 14	Ortho Clinical Diagnostics
83.6 ± 5.01	150.5 ± 6.86	172.0 ± 8.51	187.5 ± 7.78	186.3 ± 7.58	n = 27	Roche Elecsys/Modular E/e601/e411
55.5 ± 6.34	148.0 ± 10.31	185.8 ± 12.88	183.6 ± 12.76	179.1 ± 11.92	n = 61	Siemens ADVIA/ADVIA Centaur
55.5 ± 14.63	129.1 ± 11.40	137.9 ± 10.80	181.0 ± 10.96	169.8 ± 13.40	n = 16	Siemens Dimension
50.1 ± 4.83	144.6 ± 6.84	152.1 ± 7.62	190.2 ± 9.46	191.0 ± 9.03	n = 18	Siemens Immulite
60.6 ± 5.58	125.3 ± 7.75	138.9 ± 8.08	158.5 ± 19.84	162.6 ± 11.79	n = 3	Tosoh ST AIA
57.9 ± 4.60	133.3 ± 18.18	146.1 ± 25.30	175.9 ± 17.54	171.2 ± 18.68	n = 8	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Free T-3 (pg/mL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
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1.95 ± 0.29	4.58 ± 0.76	4.47 ± 0.97	5.41 ± 0.71	5.12 ± 0.84	n = 132	All Methods & Instruments
1.95	4.80	4.80	5.40	5.10	n = 132	Median value, All Methods & Instruments
						<Instruments>
1.73 ± 0.31	3.83 ± 0.25	3.74 ± 0.17	5.50 ± 0.25	5.11 ± 0.23	n = 10	Abbott Architect i System
2.02 ± 0.12	4.25 ± 0.29	4.04 ± 0.23	5.33 ± 0.37	4.92 ± 0.30	n = 5	Beckman Coulter ACCESS
1.92 ± 0.23	3.94 ± 0.31	3.74 ± 0.35	4.79 ± 0.37	4.49 ± 0.21	n = 13	Beckman Coulter UniCel DxI 800
1.17 ± 0.14	6.70 ± 0.12	6.40 ± 0.17	7.76 ± 0.46	8.18 ± 0.56	n = 4	Ortho Vitros 5600
1.72 ± 0.57	7.81 ± 0.97	7.67 ± 0.96	8.89 ± 1.04	9.69 ± 1.05	n = 4	Ortho Vitros ECI/ECiQ
1.90 ± 0.09	5.05 ± 0.19	5.20 ± 0.18	6.65 ± 0.27	6.63 ± 0.14	n = 3	Roche cobas e601
1.91 ± 0.14	5.00 ± 0.17	5.16 ± 0.14	6.62 ± 0.24	6.54 ± 0.14	n = 12	Roche MODULAR E
1.97 ± 0.10	4.87 ± 0.17	4.92 ± 0.15	5.34 ± 0.20	5.10 ± 0.17	n = 48	Siemens ADVIA Centaur
0.69 ± 0.10	4.70 ± 0.18	3.54 ± 0.26	5.72 ± 0.20	5.48 ± 0.22	n = 11	Siemens Dimension Vista
2.42 ± 0.27	2.91 ± 0.36	2.82 ± 0.28	4.57 ± 0.43	3.84 ± 0.34	n = 12	Siemens Immulite 2000
1.84 ± 0.38	4.72 ± 1.27	4.57 ± 1.39	5.94 ± 1.28	5.75 ± 1.65	n = 10	Mean of Above Means
						<Reagents>
1.73 ± 0.31	3.83 ± 0.25	3.74 ± 0.17	5.50 ± 0.25	5.11 ± 0.23	n = 10	Abbott
1.95 ± 0.22	4.02 ± 0.32	3.81 ± 0.33	4.90 ± 0.42	4.56 ± 0.28	n = 20	Beckman Coulter
1.30 ± 0.23	6.98 ± 0.42	6.78 ± 0.58	8.21 ± 0.85	8.84 ± 1.07	n = 8	Ortho Clinical Diagnostics
1.91 ± 0.13	5.02 ± 0.16	5.16 ± 0.15	6.63 ± 0.24	6.57 ± 0.15	n = 17	Roche Elecsys/Modular E/e601/e411
1.97 ± 0.10	4.87 ± 0.16	4.92 ± 0.15	5.33 ± 0.20	5.09 ± 0.17	n = 48	Siemens ADVIA/ADVIA Centaur
0.69 ± 0.11	4.67 ± 0.17	3.50 ± 0.21	5.70 ± 0.19	5.45 ± 0.20	n = 10	Siemens Dimension LOCI
2.39 ± 0.28	2.91 ± 0.36	2.85 ± 0.27	4.60 ± 0.41	3.81 ± 0.33	n = 14	Siemens Immulite
1.77 ± 0.50	4.49 ± 1.12	4.26 ± 1.24	5.62 ± 1.04	5.34 ± 1.35	n = 7	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Thyrotropin (TSH, $\mu\text{U/mL}$)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
-----	-----	-----	-----	-----	-----	-----
0.54 $\pm$ 0.06	1.28 $\pm$ 0.17	4.25 $\pm$ 0.55	2.34 $\pm$ 0.28	3.67 $\pm$ 0.45	n = 296	All Methods & Instruments
0.51	1.30	4.30	2.31	3.70	n = 296	Median value, All Methods & Instruments
<Instruments>						
0.47 $\pm$ 0.04	1.06 $\pm$ 0.05	3.69 $\pm$ 0.17	1.95 $\pm$ 0.07	3.15 $\pm$ 0.10	n = 18	Abbott Architect i System
0.50 $\pm$ 0.00	1.16 $\pm$ 0.08	3.71 $\pm$ 0.31	2.10 $\pm$ 0.10	3.32 $\pm$ 0.21	n = 23	Beckman Coulter ACCESS
0.50 $\pm$ 0.00	1.13 $\pm$ 0.05	3.55 $\pm$ 0.19	2.03 $\pm$ 0.14	3.18 $\pm$ 0.15	n = 3	Beckman Coulter UniCel DxI 600
0.50 $\pm$ 0.00	1.15 $\pm$ 0.10	3.69 $\pm$ 0.24	2.09 $\pm$ 0.12	3.38 $\pm$ 0.25	n = 17	Beckman Coulter UniCel DxI 800
0.50 $\pm$ 0.00	1.17 $\pm$ 0.05	3.25 $\pm$ 0.19	2.08 $\pm$ 0.24	2.90 $\pm$ 0.27	n = 3	bioMerieux Vidas
0.50 $\pm$ 0.01	1.29 $\pm$ 0.04	5.18 $\pm$ 0.19	2.56 $\pm$ 0.09	4.38 $\pm$ 0.16	n = 16	Ortho Vitros 5600
0.50 $\pm$ 0.00	1.32 $\pm$ 0.05	5.39 $\pm$ 0.14	2.59 $\pm$ 0.09	4.53 $\pm$ 0.22	n = 11	Ortho Vitros Eci/ECiQ
0.61 $\pm$ 0.02	1.44 $\pm$ 0.04	4.44 $\pm$ 0.05	2.52 $\pm$ 0.03	3.85 $\pm$ 0.05	n = 4	Roche cobas e411
0.60 $\pm$ 0.01	1.45 $\pm$ 0.05	4.36 $\pm$ 0.09	2.53 $\pm$ 0.06	3.79 $\pm$ 0.09	n = 12	Roche cobas e601
0.60 $\pm$ 0.00	1.45 $\pm$ 0.05	4.39 $\pm$ 0.13	2.55 $\pm$ 0.06	3.83 $\pm$ 0.10	n = 7	Roche Elecsys
0.60 $\pm$ 0.00	1.46 $\pm$ 0.05	4.38 $\pm$ 0.08	2.52 $\pm$ 0.04	3.80 $\pm$ 0.06	n = 18	Roche MODULAR E
0.50 $\pm$ 0.00	1.25 $\pm$ 0.07	4.25 $\pm$ 0.20	2.29 $\pm$ 0.12	3.57 $\pm$ 0.14	n = 65	Siemens ADVIA Centaur
0.65 $\pm$ 0.05	1.54 $\pm$ 0.09	4.86 $\pm$ 0.22	2.76 $\pm$ 0.15	4.28 $\pm$ 0.22	n = 14	Siemens Dimension EXL
0.46 $\pm$ 0.04	1.06 $\pm$ 0.06	3.73 $\pm$ 0.19	1.94 $\pm$ 0.11	3.14 $\pm$ 0.10	n = 10	Siemens Dimension RxL
0.60 $\pm$ 0.00	1.43 $\pm$ 0.07	4.72 $\pm$ 0.20	2.60 $\pm$ 0.10	4.11 $\pm$ 0.14	n = 36	Siemens Dimension Vista
0.47 $\pm$ 0.04	1.05 $\pm$ 0.06	3.81 $\pm$ 0.21	2.00 $\pm$ 0.10	3.22 $\pm$ 0.15	n = 5	Siemens Dimension Xpand
0.54 $\pm$ 0.05	1.09 $\pm$ 0.09	3.97 $\pm$ 0.24	2.05 $\pm$ 0.17	3.40 $\pm$ 0.35	n = 7	Siemens Immulite 1000
0.55 $\pm$ 0.05	1.20 $\pm$ 0.09	3.83 $\pm$ 0.25	2.19 $\pm$ 0.13	3.43 $\pm$ 0.24	n = 18	Siemens Immulite 2000
0.64 $\pm$ 0.08	1.41 $\pm$ 0.11	4.84 $\pm$ 0.19	2.66 $\pm$ 0.30	4.05 $\pm$ 0.23	n = 4	Tosoh Bioscience
0.54 $\pm$ 0.07	1.27 $\pm$ 0.18	4.18 $\pm$ 0.61	2.31 $\pm$ 0.30	3.63 $\pm$ 0.49	n = 19	Mean of Above Means
<Reagents>						
0.47 $\pm$ 0.04	1.05 $\pm$ 0.06	3.67 $\pm$ 0.17	1.95 $\pm$ 0.07	3.16 $\pm$ 0.12	n = 20	Abbott
0.50 $\pm$ 0.00	1.15 $\pm$ 0.09	3.69 $\pm$ 0.28	2.09 $\pm$ 0.12	3.33 $\pm$ 0.23	n = 43	Beckman Coulter
0.50 $\pm$ 0.00	1.17 $\pm$ 0.05	3.25 $\pm$ 0.19	2.08 $\pm$ 0.24	2.90 $\pm$ 0.27	n = 3	bioMerieux Vitek
0.50 $\pm$ 0.00	1.30 $\pm$ 0.05	5.28 $\pm$ 0.22	2.57 $\pm$ 0.09	4.43 $\pm$ 0.19	n = 27	Ortho Clinical Diagnostics
0.60 $\pm$ 0.00	1.46 $\pm$ 0.05	4.39 $\pm$ 0.09	2.53 $\pm$ 0.05	3.81 $\pm$ 0.08	n = 42	Roche Elecsys/Modular E/e601/e411
0.53 $\pm$ 0.05	1.29 $\pm$ 0.08	4.17 $\pm$ 0.21	2.33 $\pm$ 0.13	3.57 $\pm$ 0.17	n = 37	Siemens ADVIA/ADVIA Centaur
0.47 $\pm$ 0.05	1.06 $\pm$ 0.06	3.76 $\pm$ 0.20	1.96 $\pm$ 0.11	3.17 $\pm$ 0.13	n = 17	Siemens Dimension
0.60 $\pm$ 0.00	1.45 $\pm$ 0.08	4.75 $\pm$ 0.20	2.62 $\pm$ 0.13	4.14 $\pm$ 0.17	n = 48	Siemens Dimension LOCI
0.55 $\pm$ 0.05	1.17 $\pm$ 0.10	3.87 $\pm$ 0.25	2.16 $\pm$ 0.15	3.43 $\pm$ 0.28	n = 25	Siemens Immulite
0.50 $\pm$ 0.01	1.22 $\pm$ 0.04	4.33 $\pm$ 0.13	2.26 $\pm$ 0.08	3.57 $\pm$ 0.11	n = 28	Siemens TSH-3
0.66 $\pm$ 0.10	1.43 $\pm$ 0.14	4.76 $\pm$ 0.10	2.71 $\pm$ 0.37	3.98 $\pm$ 0.24	n = 3	Tosoh AIA
0.53 $\pm$ 0.06	1.25 $\pm$ 0.15	4.15 $\pm$ 0.60	2.29 $\pm$ 0.29	3.57 $\pm$ 0.46	n = 11	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Vitamin B12 (pg/mL)

Specimen: E81 -----	Specimen: E82 -----	Specimen: E83 -----	Specimen: E84 -----	Specimen: E85 -----	Number -----	Instrument or Reagent System -----
412.6 ± 49.15 414.0	301.6 ± 37.99 302.0	233.0 ± 34.10 234.0	469.3 ± 63.23 478.0	401.4 ± 50.96 402.0	n = 221 n = 221	All Methods & Instruments Median value, All Methods & Instruments
<Instruments>						
473.9 ± 40.41	341.2 ± 20.71	271.2 ± 19.36	520.1 ± 28.89	450.3 ± 36.88	n = 12	Abbott Architect i System
434.1 ± 27.45	304.6 ± 16.21	233.7 ± 20.28	505.1 ± 10.97	411.7 ± 5.97	n = 3	Abbott AxSym
376.5 ± 31.48	293.1 ± 26.21	223.7 ± 14.94	423.5 ± 25.79	367.0 ± 19.24	n = 19	Beckman Coulter ACCESS
334.1 ± 8.76	260.5 ± 10.34	213.1 ± 10.70	399.5 ± 19.48	331.4 ± 19.90	n = 5	Beckman Coulter UniCel DxI 600
345.3 ± 14.44	267.8 ± 18.02	207.6 ± 11.03	384.3 ± 30.85	335.9 ± 17.77	n = 19	Beckman Coulter UniCel DxI 800
397.2 ± 25.21	334.9 ± 24.00	271.4 ± 20.75	497.2 ± 35.16	420.5 ± 24.32	n = 13	Ortho Vitros 5600
427.0 ± 29.37	347.8 ± 7.63	275.9 ± 12.05	496.9 ± 27.39	425.7 ± 25.37	n = 12	Ortho Vitros Eci/EciQ
488.6 ± 33.53	285.7 ± 24.17	228.4 ± 11.28	528.0 ± 41.19	451.6 ± 38.47	n = 4	Roche cobas e411
459.0 ± 18.36	334.7 ± 13.91	262.9 ± 11.69	523.8 ± 19.05	446.4 ± 17.23	n = 10	Roche cobas e601
441.9 ± 16.10	323.1 ± 8.77	250.2 ± 8.33	503.6 ± 12.10	430.2 ± 9.31	n = 15	Roche MODULAR E
405.3 ± 36.47	283.0 ± 30.45	212.4 ± 27.32	440.6 ± 43.82	379.1 ± 33.45	n = 77	Siemens ADVIA Centaur
453.8 ± 28.39	349.0 ± 42.00	262.7 ± 35.34	510.6 ± 47.14	430.9 ± 31.98	n = 3	Siemens ADVIA Centaur CP
465.4 ± 19.27	333.9 ± 11.40	259.3 ± 9.91	561.0 ± 21.78	489.5 ± 25.77	n = 4	Siemens Immulite 1000
420.2 ± 26.44	291.8 ± 21.59	219.9 ± 16.85	525.8 ± 26.95	441.2 ± 23.74	n = 15	Siemens Immulite 2000
465.6 ± 24.64	476.9 ± 53.54	344.3 ± 28.39	614.5 ± 65.94	503.0 ± 36.01	n = 4	Tosoh Bioscience
430.4 ± 45.71	312.1 ± 33.38	244.2 ± 30.07	498.6 ± 58.62	423.8 ± 48.76	n = 15	Mean of Above Means
<Reagents>						
465.1 ± 42.27	334.0 ± 26.69	265.2 ± 23.96	516.1 ± 26.41	440.4 ± 36.28	n = 15	Abbott
355.0 ± 27.53	276.9 ± 25.46	215.6 ± 15.39	403.8 ± 34.11	348.6 ± 25.34	n = 43	Beckman Coulter
410.7 ± 31.24	341.3 ± 19.24	274.4 ± 17.22	497.8 ± 31.95	422.9 ± 24.63	n = 25	Ortho Clinical Diagnostics
455.4 ± 25.59	325.8 ± 17.19	253.3 ± 15.48	515.2 ± 23.24	439.4 ± 18.98	n = 33	Roche Elecsys/Modular E/e601/e411
407.2 ± 37.01	284.6 ± 31.90	214.0 ± 28.86	442.6 ± 44.95	381.1 ± 34.50	n = 81	Siemens ADVIA/ADVIA Centaur
429.5 ± 31.64	301.1 ± 27.51	228.2 ± 23.41	533.7 ± 30.76	449.2 ± 30.45	n = 19	Siemens Immulite
465.6 ± 24.64	476.9 ± 53.54	344.3 ± 28.39	614.5 ± 65.94	503.0 ± 36.01	n = 4	Tosoh AIA
430.7 ± 37.71	311.3 ± 28.06	249.5 ± 39.12	502.7 ± 63.60	427.5 ± 47.45	n = 7	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Folic Acid (ng/mL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
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1.09 ± 0.50	1.43 ± 0.60	3.12 ± 1.09	10.16 ± 2.06	5.62 ± 1.00	n = 225	All Methods & Instruments
1.00	1.40	3.10	10.00	5.50	n = 225	Median value, All Methods & Instruments
1.35 ± 0.40	1.50 ± 0.20	3.61 ± 0.35	11.99 ± 0.71	6.14 ± 0.57	n = 11	<Instruments> Abbott Architect i System
1.34 ± 0.16	1.79 ± 0.20	4.30 ± 0.37	11.90 ± 0.77	6.55 ± 0.42	n = 19	Beckman Coulter ACCESS
1.37 ± 0.14	1.80 ± 0.18	4.22 ± 0.15	11.56 ± 0.26	6.54 ± 0.10	n = 3	Beckman Coulter UniCel DxI 600
1.43 ± 0.29	1.81 ± 0.24	4.15 ± 0.26	11.23 ± 0.75	6.32 ± 0.33	n = 19	Beckman Coulter UniCel DxI 800
1.07 ± 0.18	1.58 ± 0.25	3.06 ± 0.27	10.16 ± 0.82	5.25 ± 0.60	n = 13	Ortho Vitros 5600
0.84 ± 0.15	1.39 ± 0.15	2.95 ± 0.25	10.39 ± 1.39	5.20 ± 0.52	n = 12	Ortho Vitros Eci/ECiQ
2.08 ± 0.69	1.96 ± 0.74	3.18 ± 0.32	8.54 ± 0.56	5.45 ± 0.19	n = 3	Roche cobas e411
2.08 ± 0.35	2.47 ± 0.49	3.99 ± 0.47	8.92 ± 0.72	5.79 ± 0.56	n = 10	Roche cobas e601
2.11 ± 0.28	2.55 ± 0.27	3.96 ± 0.33	9.05 ± 0.62	6.06 ± 0.41	n = 13	Roche MODULAR E
0.84 ± 0.17	1.09 ± 0.20	2.49 ± 0.39	10.18 ± 1.32	5.10 ± 0.51	n = 65	Siemens ADVIA Centaur
0.50 ± 0.00	0.50 ± 0.00	1.02 ± 0.19	3.75 ± 0.27	1.91 ± 0.22	n = 27	Siemens Dimension Vista
1.23 ± 0.08	1.84 ± 0.19	4.26 ± 0.48	12.08 ± 1.07	6.78 ± 0.97	n = 4	Siemens Immulite 1000
1.00 ± 0.00	1.28 ± 0.17	3.17 ± 0.24	9.88 ± 0.35	5.76 ± 0.32	n = 14	Siemens Immulite 2000
1.23 ± 0.35	2.14 ± 0.45	3.87 ± 0.47	9.21 ± 0.64	6.35 ± 0.43	n = 4	Tosoh Bioscience
1.29 ± 0.48	1.72 ± 0.50	3.63 ± 0.68	10.36 ± 1.38	5.96 ± 0.59	n = 14	Mean of Above Means
1.38 ± 0.36	1.56 ± 0.27	3.66 ± 0.36	12.03 ± 0.78	6.22 ± 0.56	n = 13	<Reagents> Abbott
1.37 ± 0.19	1.80 ± 0.21	4.21 ± 0.31	11.57 ± 0.79	6.44 ± 0.37	n = 41	Beckman Coulter
0.96 ± 0.21	1.47 ± 0.23	3.00 ± 0.27	10.20 ± 1.05	5.24 ± 0.57	n = 25	Ortho Clinical Diagnostics
2.11 ± 0.35	2.48 ± 0.41	3.87 ± 0.47	8.92 ± 0.67	5.92 ± 0.49	n = 30	Roche Elecsys/Modular E/e601/e411
0.84 ± 0.17	1.09 ± 0.20	2.48 ± 0.40	10.17 ± 1.34	5.09 ± 0.52	n = 67	Siemens ADVIA/ADVIA Centaur
0.50 ± 0.00	0.50 ± 0.00	1.02 ± 0.19	3.75 ± 0.27	1.91 ± 0.22	n = 27	Siemens Dimension LOCI
1.00 ± 0.00	1.40 ± 0.32	3.30 ± 0.41	9.94 ± 0.45	5.81 ± 0.42	n = 18	Siemens Immulite
1.23 ± 0.35	2.14 ± 0.45	3.87 ± 0.47	9.21 ± 0.64	6.35 ± 0.43	n = 4	Tosoh AIA
1.13 ± 0.42	1.57 ± 0.58	3.38 ± 0.82	10.22 ± 1.18	5.90 ± 0.53	n = 8	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Cortisol (µg/dL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
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3.07 ± 0.30	10.78 ± 1.37	24.66 ± 3.31	15.77 ± 1.95	12.56 ± 1.63	n = 157	All Methods & Instruments
3.10	10.70	24.70	15.80	12.60	n = 157	Median value, All Methods & Instruments
<Instruments>						
3.10 ± 0.05	9.05 ± 0.32	20.38 ± 0.59	13.64 ± 0.41	10.78 ± 0.41	n = 9	Abbott Architect i System
3.11 ± 0.19	10.50 ± 0.56	24.14 ± 1.45	15.23 ± 0.94	11.76 ± 0.72	n = 6	Beckman Coulter ACCESS
2.81 ± 0.29	10.19 ± 0.66	23.98 ± 1.32	14.68 ± 0.41	11.46 ± 0.26	n = 3	Beckman Coulter UniCel DxI 600
3.03 ± 0.19	10.48 ± 0.83	24.28 ± 1.56	14.31 ± 0.89	11.22 ± 0.90	n = 16	Beckman Coulter UniCel DxI 800
3.64 ± 0.76	10.27 ± 1.59	23.31 ± 2.87	15.45 ± 1.82	13.50 ± 1.95	n = 4	LC/MS/MS
2.36 ± 0.13	8.89 ± 0.35	20.21 ± 0.77	12.78 ± 0.36	10.53 ± 0.31	n = 8	Ortho Vitros 5600
2.66 ± 0.15	9.58 ± 0.73	21.19 ± 1.65	13.75 ± 0.98	11.17 ± 0.82	n = 6	Ortho Vitros Eci/ECiQ
2.98 ± 0.08	9.78 ± 0.56	22.78 ± 0.98	15.60 ± 0.62	12.69 ± 0.51	n = 5	Roche cobas e601
3.02 ± 0.06	10.10 ± 0.14	22.54 ± 0.59	15.69 ± 0.32	12.80 ± 0.22	n = 3	Roche Elecsys
2.94 ± 0.17	9.80 ± 0.39	22.65 ± 0.95	15.60 ± 0.90	12.59 ± 0.72	n = 11	Roche MODULAR E
3.08 ± 0.19	11.26 ± 0.76	25.63 ± 1.48	16.37 ± 0.95	12.95 ± 0.82	n = 55	Siemens ADVIA Centaur
3.35 ± 0.28	12.79 ± 0.48	26.54 ± 0.75	17.60 ± 0.65	14.56 ± 0.98	n = 3	Siemens ADVIA Centaur CP
3.50 ± 0.35	12.11 ± 0.30	30.46 ± 1.11	18.86 ± 1.60	15.75 ± 0.68	n = 4	Siemens Immulite 1000
3.49 ± 0.30	12.68 ± 0.51	30.37 ± 1.55	18.89 ± 1.23	15.40 ± 1.17	n = 18	Siemens Immulite 2000
3.08 ± 0.33	10.40 ± 1.22	23.74 ± 2.93	15.47 ± 1.80	12.52 ± 1.67	n = 14	Mean of Above Means
<Reagents>						
3.10 ± 0.05	9.05 ± 0.32	20.38 ± 0.59	13.64 ± 0.41	10.78 ± 0.41	n = 9	Abbott
3.03 ± 0.22	10.44 ± 0.75	24.20 ± 1.50	14.57 ± 0.93	11.39 ± 0.82	n = 25	Beckman Coulter
3.64 ± 0.76	10.27 ± 1.59	23.31 ± 2.87	15.45 ± 1.82	13.50 ± 1.95	n = 4	In-House
2.48 ± 0.21	9.13 ± 0.59	20.42 ± 1.01	13.01 ± 0.61	10.67 ± 0.42	n = 14	Ortho Clinical Diagnostics
2.95 ± 0.14	9.84 ± 0.43	22.64 ± 0.95	15.58 ± 0.72	12.65 ± 0.58	n = 21	Roche Elecsys/Modular E/e601/e411
3.08 ± 0.20	11.34 ± 0.82	25.71 ± 1.46	16.47 ± 1.00	13.00 ± 0.86	n = 59	Siemens ADVIA/ADVIA Centaur
3.48 ± 0.30	12.55 ± 0.56	30.39 ± 1.45	18.89 ± 1.31	15.48 ± 1.10	n = 22	Siemens Immulite
3.12 ± 0.36	10.26 ± 1.18	23.42 ± 3.07	15.20 ± 1.81	12.37 ± 1.65	n = 7	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Insulin (μU/mL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
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13.45 ± 6.66	289.83 ±102.39	92.70 ± 61.97	106.24 ± 42.94	353.88 ±113.33	n = 100	All Methods & Instruments
14.70	300.00	100.70	105.00	334.40	n = 100	Median value, All Methods & Instruments
<Instruments>						
14.38 ± 0.48	296.18 ± 17.42	97.39 ± 3.65	101.31 ± 3.20	380.00 ± 12.16	n = 7	Abbott Architect i System
13.04 ± 0.65	302.11 ± 11.02	95.35 ± 2.88	99.61 ± 4.29	320.63 ± 15.53	n = 3	Beckman Coulter UniCel DxI 600
14.54 ± 0.22	295.13 ± 12.16	97.39 ± 3.68	103.16 ± 5.91	335.22 ± 28.55	n = 7	Beckman Coulter UniCel DxI 800
16.96 ± 0.45	359.81 ± 4.54	125.87 ± 1.13	125.33 ± 2.47	439.77 ± 4.80	n = 4	Roche cobas e601
17.36 ± 0.74	355.83 ± 12.53	121.78 ± 4.42	124.89 ± 3.36	441.40 ± 12.05	n = 5	Roche Elecsys
17.03 ± 0.74	354.48 ± 11.77	123.74 ± 3.41	124.31 ± 3.93	434.22 ± 12.74	n = 10	Roche MODULAR E
20.10 ± 0.98	391.71 ± 54.60	163.99 ± 5.57	167.41 ± 6.23	470.95 ±104.15	n = 19	Siemens ADVIA Centaur
5.31 ± 1.69	170.89 ± 26.22	19.98 ± 5.65	68.49 ± 11.06	251.14 ± 26.15	n = 5	Siemens Immulite 1000
5.09 ± 1.44	176.89 ± 28.25	20.35 ± 5.39	61.71 ± 7.91	250.81 ± 27.52	n = 29	Siemens Immulite 2000
17.90 ± 0.46	353.94 ± 24.76	128.08 ± 5.58	122.88 ± 2.31	401.24 ± 58.43	n = 3	Tosoh Bioscience
15.00 ± 4.69	316.89 ± 71.23	105.28 ± 42.96	109.89 ± 28.97	377.60 ± 81.33	n = 10	Mean of Above Means
<Reagents>						
14.38 ± 0.48	296.18 ± 17.42	97.39 ± 3.65	101.31 ± 3.20	380.00 ± 12.16	n = 7	Abbott
14.16 ± 0.91	297.67 ± 11.57	97.23 ± 3.82	102.12 ± 5.34	326.30 ± 26.28	n = 12	Beckman Coulter
17.08 ± 0.67	357.00 ± 10.22	124.06 ± 3.45	124.94 ± 3.18	438.02 ± 10.59	n = 21	Roche Elecsys/Modular E/e601/e411
20.10 ± 0.99	394.08 ± 50.60	163.90 ± 5.68	167.07 ± 6.36	476.27 ±101.20	n = 21	Siemens ADVIA/ADVIA Centaur
4.86 ± 1.17	173.03 ± 28.39	19.38 ± 5.09	60.77 ± 7.33	247.94 ± 27.47	n = 30	Siemens Immulite
8.1 ± 1.8	192.8 ± 11.5	26.0 ± 2.2	75.8 ± 3.4	268.0 ± 14.9	n = 4	Siemens Immulite-Insulin lot# > 400
17.90 ± 0.46	353.94 ± 24.76	128.08 ± 5.58	122.88 ± 2.31	401.24 ± 58.43	n = 3	Tosoh ST AIA
15.80 ± 4.20	322.94 ± 67.88	110.73 ± 42.41	112.88 ± 32.44	383.67 ± 78.01	n = 6	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Free Estriol (ng/mL)

Specimen: E81 -----	Specimen: E82 -----	Specimen: E83 -----	Specimen: E84 -----	Specimen: E85 -----	Number -----	Instrument or Reagent System -----
0.08 ± 0.05 0.10	1.51 ± 0.31 1.50	1.81 ± 0.65 1.44	1.42 ± 0.33 1.40	1.71 ± 0.62 1.41	n = 17 n = 17	All Methods & Instruments Median value, All Methods & Instruments
0.19 ± 0.40 0.09 ± 0.02 0.14 ± 0.06	1.35 ± 0.06 1.88 ± 0.27 1.61 ± 0.31	1.31 ± 0.06 2.24 ± 0.14 1.77 ± 0.53	1.22 ± 0.10 1.77 ± 0.15 1.50 ± 0.32	1.29 ± 0.11 2.19 ± 0.22 1.74 ± 0.51	n = 4 n = 5 n = 2	<Instruments> Beckman Coulter UniCel DxI 800 Siemens Immulite 2000 Mean of Above Means
0.06 ± 0.04 0.09 ± 0.02 0.07 ± 0.02	1.32 ± 0.07 1.81 ± 0.29 1.57 ± 0.28	1.33 ± 0.09 2.23 ± 0.13 1.78 ± 0.52	1.19 ± 0.12 1.72 ± 0.18 1.45 ± 0.30	1.27 ± 0.12 2.17 ± 0.20 1.72 ± 0.51	n = 7 n = 6 n = 2	<Reagents> Beckman Coulter Siemens Immulite Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Estradiol (pg/mL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
-----	-----	-----	-----	-----	-----	-----
31.9 ± 10.89	194.5 ± 34.85	149.3 ± 39.66	58.8 ± 17.85	70.7 ± 19.13	n = 162	All Methods & Instruments
31.0	186.0	138.0	57.0	73.0	n = 162	Median value, All Methods & Instruments
<Instruments>						
45.2 ± 2.07	164.8 ± 7.10	123.6 ± 5.11	57.4 ± 3.96	69.2 ± 3.89	n = 11	Abbott Architect i System
34.1 ± 9.56	225.0 ± 21.71	185.6 ± 16.30	58.4 ± 7.79	76.6 ± 13.50	n = 6	Beckman Coulter ACCESS
23.5 ± 5.84	225.0 ± 27.99	183.8 ± 24.46	58.3 ± 8.31	77.6 ± 6.10	n = 4	Beckman Coulter UniCel DxI 600
28.1 ± 10.62	215.9 ± 29.07	181.4 ± 21.25	42.2 ± 13.71	65.1 ± 8.58	n = 10	Beckman Coulter UniCel DxI 800
31.9 ± 7.55	153.5 ± 22.90	100.9 ± 17.33	41.9 ± 6.46	49.1 ± 11.40	n = 4	LC/MS/MS
18.7 ± 1.37	177.0 ± 16.42	144.5 ± 33.81	53.9 ± 16.52	72.3 ± 16.84	n = 3	Ortho Vitros 5600
12.2 ± 1.54	164.7 ± 12.17	142.2 ± 17.95	51.6 ± 6.14	71.8 ± 9.43	n = 3	Ortho Vitros ECI/ECiQ
45.8 ± 3.47	181.1 ± 7.98	135.9 ± 5.43	68.1 ± 1.46	78.8 ± 4.95	n = 7	Roche cobas e601
46.4 ± 5.01	189.5 ± 9.38	140.4 ± 5.84	68.8 ± 8.12	82.2 ± 7.26	n = 4	Roche Elecsys
46.7 ± 4.61	185.2 ± 10.01	138.4 ± 8.29	70.6 ± 5.71	81.9 ± 7.23	n = 9	Roche MODULAR E
33.4 ± 5.31	178.4 ± 8.68	124.9 ± 8.89	45.6 ± 4.95	54.1 ± 5.26	n = 45	Siemens ADVIA Centaur
33.2 ± 3.40	196.0 ± 7.45	127.2 ± 7.31	50.0 ± 1.14	48.8 ± 4.09	n = 4	Siemens ADVIA Centaur CP
27.5 ± 0.90	178.7 ± 6.79	76.4 ± 2.94	20.5 ± 7.11	20.4 ± 5.52	n = 4	Siemens Dimension Vista
20.0 ± 0.00	249.8 ± 20.00	205.4 ± 18.26	75.0 ± 8.79	83.9 ± 9.58	n = 10	Siemens Immulite 1000
23.2 ± 4.97	236.6 ± 16.68	192.1 ± 16.42	80.1 ± 9.49	91.1 ± 8.72	n = 28	Siemens Immulite 2000
31.2 ± 11.31	192.7 ± 29.50	146.8 ± 36.46	57.1 ± 14.54	71.6 ± 15.03	n = 15	Mean of Above Means
<Reagents>						
45.2 ± 2.07	164.8 ± 7.10	123.6 ± 5.11	57.4 ± 3.96	69.2 ± 3.89	n = 11	Abbott
28.7 ± 10.02	220.7 ± 26.26	183.5 ± 20.83	51.4 ± 13.96	70.4 ± 10.56	n = 20	Beckman Coulter
31.9 ± 7.55	153.5 ± 22.90	100.9 ± 17.33	41.9 ± 6.46	49.1 ± 11.40	n = 4	In-House
15.4 ± 3.96	170.2 ± 15.90	143.7 ± 26.19	52.9 ± 11.86	72.3 ± 13.18	n = 6	Ortho Clinical Diagnostics
46.2 ± 4.28	184.1 ± 9.12	137.4 ± 6.75	69.3 ± 4.94	80.2 ± 6.02	n = 23	Roche Elecsys/Modular E/e601/e411
33.4 ± 5.07	180.1 ± 10.08	126.3 ± 8.65	46.6 ± 4.80	53.6 ± 5.63	n = 36	Siemens ADVIA Centaur Enhanced Estr
32.8 ± 5.11	178.0 ± 7.63	121.8 ± 6.08	44.3 ± 4.89	53.5 ± 4.83	n = 12	Siemens ADVIA/ADVIA Centaur
27.1 ± 0.64	176.3 ± 7.94	76.8 ± 3.67	17.8 ± 6.54	21.5 ± 6.09	n = 3	Siemens Dimension LOCI
22.3 ± 4.26	239.7 ± 18.13	195.4 ± 17.46	78.7 ± 9.59	89.5 ± 9.76	n = 38	Siemens Immulite
31.3 ± 9.65	180.4 ± 23.94	132.6 ± 35.94	51.7 ± 15.79	64.0 ± 18.61	n = 9	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Testosterone (ng/dL)

Specimen: E81 -----	Specimen: E82 -----	Specimen: E83 -----	Specimen: E84 -----	Specimen: E85 -----	Number -----	Instrument or Reagent System -----
263.84 ± 41.75 257.00 287,294	210.49 ± 32.08 206.00 168,166	27.30 ± 9.15 26.30 12.2,11.8	275.71 ± 26.45 272.00 265,258	346.68 ± 40.66 346.00 356,366	n = 143 n = 143 n = 2	All Methods & Instruments Median value, All Methods & Instruments [---] Results of LC_MS_MS measurement*
						<Instruments>
240.38 ± 22.01	191.73 ± 19.01	15.11 ± 4.84	250.15 ± 12.78	263.95 ± 45.17	n = 3	Abbott AxSym
272.17 ± 5.37	193.16 ± 4.02	22.17 ± 1.90	269.20 ± 7.74	311.01 ± 9.51	n = 6	Beckman Coulter ACCESS
258.50 ± 17.37	185.54 ± 11.93	20.33 ± 3.17	251.22 ± 17.35	292.87 ± 16.06	n = 12	Beckman Coulter UniCel DxI 800
269.64 ± 4.06	191.18 ± 17.87	13.68 ± 4.99	281.70 ± 19.31	340.32 ± 18.26	n = 5	Gamma Counter
335.99 ± 25.10	194.07 ± 21.29	15.50 ± 3.87	290.57 ± 23.59	358.75 ± 32.90	n = 6	LC/MS/MS
233.50 ± 13.57	227.25 ± 19.64	35.76 ± 5.46	259.19 ± 17.01	385.04 ± 35.21	n = 3	Ortho Vitros 5600
224.14 ± 11.34	218.28 ± 12.92	31.62 ± 2.53	259.66 ± 7.52	388.69 ± 16.75	n = 4	Ortho Vitros ECi/ECiQ
314.96 ± 14.14	219.65 ± 10.90	24.26 ± 3.60	289.95 ± 12.46	360.66 ± 16.62	n = 5	Roche cobas e601
342.82 ± 9.29	232.50 ± 4.35	26.69 ± 1.07	305.66 ± 9.78	382.82 ± 6.93	n = 7	Roche Elecsys
334.74 ± 16.28	225.42 ± 13.33	26.05 ± 3.18	294.18 ± 16.41	363.80 ± 17.18	n = 12	Roche MODULAR E
251.02 ± 23.00	194.86 ± 16.08	28.56 ± 8.13	267.95 ± 21.09	349.05 ± 33.80	n = 45	Siemens ADVIA Centaur
262.77 ± 17.83	327.57 ± 46.40	34.60 ± 1.77	321.32 ± 44.91	414.78 ± 29.88	n = 4	Siemens Immulite 1000
233.97 ± 19.91	274.12 ± 32.96	38.88 ± 8.08	282.25 ± 26.67	335.63 ± 31.14	n = 24	Siemens Immulite 2000
271.47 ± 43.81	209.22 ± 24.11	25.60 ± 8.44	277.68 ± 21.71	353.11 ± 40.11	n = 13	Mean of Above Means
						<Reagents>
240.38 ± 22.01	191.73 ± 19.01	15.11 ± 4.84	250.15 ± 12.78	263.95 ± 45.17	n = 3	Abbott
263.43 ± 15.35	188.96 ± 9.48	21.19 ± 2.95	256.69 ± 16.63	299.17 ± 15.88	n = 20	Beckman Coulter
335.99 ± 25.10	194.07 ± 21.29	15.50 ± 3.87	290.57 ± 23.59	358.75 ± 32.90	n = 6	In-House
228.21 ± 13.29	222.24 ± 17.09	32.99 ± 4.52	260.87 ± 11.28	389.28 ± 24.25	n = 7	Ortho Clinical Diagnostics
336.06 ± 17.81	227.84 ± 12.63	26.21 ± 2.94	296.84 ± 16.17	370.60 ± 18.04	n = 25	Roche Elecsys/Modular E/e601/e411
251.02 ± 23.00	194.86 ± 16.08	28.56 ± 8.13	267.95 ± 21.09	349.05 ± 33.80	n = 45	Siemens ADVIA/ADVIA Centaur
269.64 ± 4.06	191.18 ± 17.87	13.68 ± 4.99	281.70 ± 19.31	340.32 ± 18.26	n = 5	Siemens Coat-A-Count
237.66 ± 21.85	279.96 ± 38.65	38.04 ± 7.53	286.31 ± 32.15	345.01 ± 40.52	n = 28	Siemens Immulite
264.74 ± 41.07	200.96 ± 18.54	23.60 ± 9.19	274.00 ± 17.83	344.38 ± 36.83	n = 8	Mean of Above Means

*The analyses on these specimens were performed in duplicate measurement using the HPLC-tandem mass spectrometry reference method at Clinical Chemistry Branch (CCB), Division of Laboratory Sciences (DLS), Centers for Disease Control and Prevention, Atlanta, Georgia.

Statistical Summary (Mean and Standard Deviation)

Testosterone (ng/dL)

CDC Educational challenge samples[#]

Sample #1		Sample #2			
496.0, 500.0		15.4, 15.7		n= 2	Results of LC_MS_MS measurement*
532.0	± 54.1	19.5	± 4.5	n= 5	LC-MS/MS
502.8	± 16.5	25.3	± 0.7	n= 3	Abbott AxSym
478.5	± 22.1	26.8	± 2.9	n= 6	Beckman ACCESS
439.7	± 25.1	27.5	± 4.3	n= 3	Beckman UniCel DxL 600
417.4	± 56.6	24.6	± 5.3	n= 11	Beckman UniCel DxL 800
431.9	± 39.8	20.8	± 6.4	n= 39	Siemens ADVIA Centaur
422.5	± 97.6	21.8	± 15.8	n= 3	Siemens ADVIA Centaur CP
485.0	± 34.9	15.8	± 3.1	n= 4	Siemens Coat-A-Count
388.0	± 40.8	< 20.0		n= 21	Siemens Immulite 2000
361.0	± 3.6	< 20.0		n= 3	Siemens Immulite 1000
395.2	± 47.5	9.3	± 2.3	n= 6	Ortho Clinical Diagnostics (Eci + Vitro 5600)
511.6	± 39.0	13.7	± 3.3	n= 4	"Roche Cobas e401,e601-2"
505.3	± 28.1	12.7	± 2.7	n= 10	Roche Modular E
519.3	± 19.1	15.2	± 2.1	n= 8	Roche Elecsys
392.0		31.0		n= 1	MP Biomedical

*The analyses on these specimens were performed in duplicate measurement using the HPLC-tandem mass spectrometry reference method at Clinical Chemistry Branch (CCB), Division of Laboratory Sciences (DLS), Centers for Disease Control and Prevention, Atlanta, Georgia.

[#] Two CDC Educational challenge samples were prepared from authentic human serum of a male and a female single healthy donor, respectively. The serum samples were stored at -80°C before shipment on ice via overnight delivery.

Statistical Summary (Mean and Standard Deviation)

Progesterone (ng/mL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
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12.61 ± 1.86	8.10 ± 0.65	20.51 ± 3.55	19.97 ± 2.38	3.21 ± 0.35	n = 158	All Methods & Instruments
12.30	8.10	21.15	19.90	3.20	n = 158	Median value, All Methods & Instruments
<Instruments>						
14.59 ± 0.67	8.42 ± 0.41	20.50 ± 1.00	21.78 ± 0.81	3.03 ± 0.18	n = 7	Abbott Architect i System
13.28 ± 0.75	8.23 ± 0.60	18.45 ± 0.82	19.26 ± 1.38	3.48 ± 0.32	n = 7	Beckman Coulter ACCESS
13.13 ± 0.25	8.48 ± 0.47	18.38 ± 1.79	20.72 ± 0.95	3.79 ± 0.49	n = 4	Beckman Coulter UniCel DxI 600
13.31 ± 0.98	8.43 ± 0.54	19.26 ± 1.72	20.28 ± 1.65	3.50 ± 0.43	n = 11	Beckman Coulter UniCel DxI 800
13.07 ± 1.95	6.84 ± 1.12	15.73 ± 1.76	20.48 ± 2.34	2.76 ± 0.15	n = 4	LC/MS/MS
8.97 ± 0.31	5.49 ± 0.27	12.59 ± 0.67	14.72 ± 0.70	3.10 ± 0.43	n = 4	Ortho Vitros 5600
9.76 ± 0.67	5.80 ± 0.46	13.23 ± 1.14	14.86 ± 1.02	3.63 ± 0.23	n = 3	Ortho Vitros ECi/ECiQ
16.40 ± 0.36	8.21 ± 0.20	22.90 ± 0.46	23.47 ± 0.69	3.20 ± 0.09	n = 3	Roche cobas e411
16.09 ± 1.35	8.27 ± 0.76	22.61 ± 1.88	22.79 ± 1.94	3.19 ± 0.30	n = 8	Roche cobas e601
16.02 ± 0.06	8.27 ± 0.05	22.13 ± 0.52	22.47 ± 0.34	3.17 ± 0.05	n = 3	Roche Elecsys
15.46 ± 0.37	8.00 ± 0.29	21.97 ± 0.49	21.88 ± 0.53	3.01 ± 0.09	n = 10	Roche MODULAR E
11.84 ± 0.65	8.19 ± 0.51	23.42 ± 1.33	20.15 ± 1.11	3.09 ± 0.24	n = 48	Siemens ADVIA Centaur
12.05 ± 0.27	8.35 ± 0.36	22.78 ± 0.86	20.62 ± 0.87	2.97 ± 0.32	n = 3	Siemens ADVIA Centaur CP
11.88 ± 0.69	7.44 ± 0.64	16.98 ± 2.54	17.24 ± 1.58	3.50 ± 0.44	n = 8	Siemens Immulite 1000
11.81 ± 1.00	7.77 ± 0.61	17.52 ± 1.43	17.81 ± 1.78	3.38 ± 0.31	n = 29	Siemens Immulite 2000
13.22 ± 2.26	8.25 ± 0.22	19.49 ± 3.58	20.20 ± 2.59	3.24 ± 0.28	n = 15	Mean of Above Means
<Reagents>						
14.43 ± 0.92	8.33 ± 0.46	20.25 ± 1.39	21.59 ± 1.13	3.01 ± 0.17	n = 8	Abbott
13.25 ± 0.79	8.39 ± 0.53	18.81 ± 1.56	20.04 ± 1.53	3.54 ± 0.42	n = 22	Beckman Coulter
13.07 ± 1.95	6.84 ± 1.12	15.73 ± 1.76	20.48 ± 2.34	2.76 ± 0.15	n = 4	In-House
9.19 ± 0.47	5.58 ± 0.36	12.75 ± 0.81	14.73 ± 0.82	3.37 ± 0.40	n = 7	Ortho Clinical Diagnostics
15.74 ± 0.61	8.12 ± 0.40	22.16 ± 0.93	22.37 ± 1.18	3.08 ± 0.14	n = 25	Roche Elecsys/Modular E/e601/e411
11.86 ± 0.63	8.20 ± 0.51	23.37 ± 1.30	20.18 ± 1.10	3.08 ± 0.25	n = 51	Siemens ADVIA/ADVIA Centaur
11.29 ± 0.38	7.03 ± 0.62	14.91 ± 1.42	15.91 ± 1.37	3.16 ± 0.37	n = 4	Siemens Immulite Progesterone (LKPG)
11.91 ± 0.95	7.77 ± 0.58	17.63 ± 1.43	17.88 ± 1.68	3.43 ± 0.34	n = 33	Siemens Immulite Progesterone (LKPW)
12.61 ± 1.93	7.68 ± 0.89	18.20 ± 3.70	19.36 ± 2.70	3.18 ± 0.25	n = 8	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Dehydroepiandrosterone sulfate (DHEA-S, µg/dL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
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42.00 ± 8.91	126.62 ± 20.69	161.34 ± 21.18	187.42 ± 21.18	462.17 ± 48.72	n = 78	All Methods & Instruments
40.00	124.00	160.20	187.00	461.00	n = 78	Median value, All Methods & Instruments
<Instruments>						
46.29 ± 3.12	147.37 ± 5.15	168.93 ± 5.65	198.38 ± 7.23	479.55 ± 20.85	n = 4	Abbott Architect i System
52.74 ± 7.67	132.99 ± 9.18	159.37 ± 8.10	209.53 ± 12.66	474.70 ± 44.93	n = 3	Beckman Coulter UniCel DxI 800
53.32 ± 1.48	148.49 ± 7.11	177.72 ± 10.10	194.23 ± 6.16	458.96 ± 15.63	n = 3	Roche Elecsys
55.73 ± 2.91	159.84 ± 4.99	192.43 ± 6.12	202.71 ± 7.40	488.18 ± 13.59	n = 9	Roche MODULAR E
41.22 ± 7.59	104.28 ± 10.22	121.16 ± 13.11	140.51 ± 12.39	317.68 ± 29.08	n = 5	Siemens ADVIA Centaur
38.81 ± 3.05	121.79 ± 8.47	164.86 ± 7.57	183.12 ± 5.57	482.95 ± 25.16	n = 5	Siemens Immulite 1000
36.91 ± 4.14	119.09 ± 11.25	156.42 ± 14.66	181.97 ± 17.65	457.60 ± 44.92	n = 41	Siemens Immulite 2000
46.46 ± 7.88	133.62 ± 19.69	165.46 ± 18.92	193.77 ± 13.97	474.26 ± 12.73	n = 7	Mean of Above Means
<Reagents>						
46.29 ± 3.12	147.37 ± 5.15	168.93 ± 5.65	198.38 ± 7.23	479.55 ± 20.85	n = 4	Abbott
52.11 ± 5.68	132.65 ± 7.04	156.82 ± 6.85	201.33 ± 13.75	442.01 ± 10.92	n = 5	Beckman Coulter
55.42 ± 2.78	158.89 ± 7.05	191.13 ± 7.96	202.30 ± 9.16	485.26 ± 19.31	n = 14	Roche Elecsys/Modular E/e601/e411
41.22 ± 7.59	104.28 ± 10.22	121.16 ± 13.11	140.51 ± 12.39	317.68 ± 29.08	n = 5	Siemens ADVIA/ADVIA Centaur
37.13 ± 4.09	119.41 ± 11.03	157.47 ± 14.25	182.31 ± 16.50	460.89 ± 43.85	n = 46	Siemens Immulite
46.45 ± 7.42	132.74 ± 21.18	160.37 ± 23.23	190.67 ± 20.65	467.86 ± 18.61	n = 5	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Lutropin (LH, mIU/mL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
-----	-----	-----	-----	-----	-----	-----
4.77 ± 0.41	10.73 ± 1.12	143.84 ± 22.78	6.58 ± 0.75	86.22 ± 11.52	n = 196	All Methods & Instruments
4.80	10.90	144.30	6.60	86.40	n = 196	Median value, All Methods & Instruments
<Instruments>						
3.64 ± 0.11	8.69 ± 0.26	111.29 ± 3.29	5.68 ± 0.38	68.98 ± 3.68	n = 11	Abbott Architect i System
4.91 ± 0.33	8.86 ± 0.44	119.14 ± 7.44	5.72 ± 0.21	69.77 ± 3.94	n = 8	Beckman Coulter ACCESS
4.40 ± 0.55	8.19 ± 0.52	109.35 ± 13.52	5.61 ± 0.44	66.25 ± 5.02	n = 3	Beckman Coulter UniCel DxI 600
4.48 ± 0.29	8.53 ± 0.43	111.84 ± 9.17	5.40 ± 0.34	67.59 ± 3.97	n = 17	Beckman Coulter UniCel DxI 800
5.07 ± 0.16	11.36 ± 0.37	176.73 ± 4.79	6.17 ± 0.30	96.19 ± 2.04	n = 9	Ortho Vitros 5600
5.10 ± 0.01	11.70 ± 0.29	184.87 ± 1.13	6.56 ± 0.20	102.27 ± 2.15	n = 5	Ortho Vitros Eci/ECiQ
4.97 ± 0.23	11.18 ± 0.24	134.70 ± 1.72	7.55 ± 0.27	83.18 ± 1.52	n = 3	Roche cobas e411
4.92 ± 0.16	10.98 ± 0.34	133.28 ± 4.92	7.42 ± 0.24	82.73 ± 2.77	n = 10	Roche cobas e601
4.97 ± 0.17	11.16 ± 0.11	133.22 ± 5.34	7.50 ± 0.19	81.81 ± 2.87	n = 6	Roche Elecsys
4.95 ± 0.07	10.97 ± 0.16	134.51 ± 2.66	7.41 ± 0.17	82.32 ± 1.47	n = 10	Roche MODULAR E
4.57 ± 0.24	10.91 ± 0.50	146.73 ± 9.05	6.60 ± 0.34	90.07 ± 5.51	n = 56	Siemens ADVIA Centaur
4.65 ± 0.19	10.87 ± 0.14	148.25 ± 2.43	6.97 ± 0.05	89.51 ± 0.20	n = 3	Siemens ADVIA Centaur CP
5.34 ± 0.10	12.54 ± 0.19	150.00 ± 0.00	7.81 ± 0.16	108.98 ± 1.77	n = 7	Siemens Dimension Vista
5.16 ± 0.20	11.05 ± 0.74	174.42 ± 13.68	6.67 ± 0.28	91.11 ± 5.05	n = 9	Siemens Immulite 1000
4.96 ± 0.26	10.99 ± 0.65	160.61 ± 13.08	6.59 ± 0.42	91.18 ± 6.02	n = 30	Siemens Immulite 2000
4.33 ± 0.05	10.59 ± 0.29	139.63 ± 3.87	6.65 ± 0.19	84.85 ± 1.62	n = 3	Tosoh Bioscience
4.85 ± 0.34	10.69 ± 1.22	140.73 ± 23.87	6.66 ± 0.80	84.73 ± 12.38	n = 16	Mean of Above Means
<Reagents>						
3.64 ± 0.11	8.69 ± 0.26	111.30 ± 3.29	5.73 ± 0.45	69.04 ± 3.78	n = 12	Abbott
4.59 ± 0.39	8.60 ± 0.51	113.63 ± 10.05	5.51 ± 0.36	68.09 ± 4.27	n = 28	Beckman Coulter
5.09 ± 0.14	11.50 ± 0.40	180.22 ± 6.58	6.33 ± 0.34	99.00 ± 4.79	n = 14	Ortho Clinical Diagnostics
4.93 ± 0.14	11.01 ± 0.27	134.11 ± 3.77	7.44 ± 0.21	82.55 ± 2.23	n = 30	Roche Elecsys/Modular E/e601/e411
4.57 ± 0.24	10.90 ± 0.48	146.79 ± 8.70	6.62 ± 0.35	90.02 ± 5.31	n = 59	Siemens ADVIA/ADVIA Centaur
5.34 ± 0.10	12.54 ± 0.19	150.00 ± 0.00	7.81 ± 0.16	108.98 ± 1.77	n = 7	Siemens Dimension LOCI
5.01 ± 0.27	11.01 ± 0.68	163.69 ± 14.48	6.60 ± 0.40	91.18 ± 5.76	n = 39	Siemens Immulite
4.85 ± 0.44	10.70 ± 1.43	142.72 ± 25.18	6.56 ± 0.83	87.02 ± 14.98	n = 7	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Follitropin (FSH, mIU/mL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
-----	-----	-----	-----	-----	-----	-----
9.90 ± 1.23	17.30 ± 4.28	24.02 ± 5.19	22.53 ± 4.14	116.15 ± 26.26	n = 199	All Methods & Instruments
9.70	16.30	24.30	21.60	110.40	n = 199	Median value, All Methods & Instruments
<Instruments>						
8.58 ± 0.41	13.84 ± 0.86	21.08 ± 0.68	18.62 ± 0.69	93.14 ± 4.51	n = 11	Abbott Architect i System
12.06 ± 0.19	16.97 ± 0.44	25.02 ± 1.49	22.82 ± 0.56	112.19 ± 8.12	n = 8	Beckman Coulter ACCESS
12.61 ± 2.47	16.33 ± 1.74	23.51 ± 0.44	20.93 ± 0.42	110.76 ± 9.88	n = 3	Beckman Coulter UniCel DxI 600
11.85 ± 0.86	16.74 ± 1.14	25.15 ± 1.21	22.76 ± 1.29	114.07 ± 6.52	n = 17	Beckman Coulter UniCel DxI 800
11.51 ± 0.29	13.50 ± 0.36	19.49 ± 0.74	18.42 ± 0.44	94.55 ± 3.08	n = 9	Ortho Vitros 5600
11.44 ± 0.56	13.57 ± 0.56	19.49 ± 0.40	18.08 ± 1.02	93.48 ± 5.20	n = 5	Ortho Vitros Eci/ECiQ
9.71 ± 0.29	17.30 ± 0.27	25.45 ± 0.54	22.67 ± 0.42	115.48 ± 2.61	n = 3	Roche cobas e411
9.32 ± 0.36	16.16 ± 0.70	23.53 ± 1.01	21.33 ± 0.88	109.87 ± 4.33	n = 10	Roche cobas e601
9.67 ± 0.14	16.85 ± 0.46	24.79 ± 0.61	22.13 ± 0.60	113.42 ± 3.05	n = 6	Roche Elecsys
9.23 ± 0.27	16.08 ± 0.46	23.12 ± 0.75	21.09 ± 0.67	108.02 ± 3.91	n = 10	Roche MODULAR E
9.57 ± 0.54	23.15 ± 1.22	29.29 ± 1.63	28.24 ± 1.51	151.90 ± 10.00	n = 59	Siemens ADVIA Centaur
8.11 ± 0.85	22.57 ± 1.13	29.73 ± 2.13	26.36 ± 1.69	150.70 ± 7.24	n = 3	Siemens ADVIA Centaur CP
7.53 ± 0.28	14.88 ± 0.58	24.66 ± 1.10	19.80 ± 0.85	105.29 ± 3.34	n = 7	Siemens Dimension Vista
9.55 ± 0.70	13.40 ± 0.69	15.78 ± 0.65	19.35 ± 0.91	91.81 ± 6.33	n = 9	Siemens Immulite 1000
10.12 ± 0.59	13.93 ± 1.06	16.95 ± 1.12	19.72 ± 0.86	95.42 ± 7.15	n = 30	Siemens Immulite 2000
11.82 ± 0.50	16.33 ± 0.77	26.42 ± 1.49	21.65 ± 0.54	104.93 ± 2.75	n = 3	Tosoh Bioscience
10.15 ± 1.59	15.64 ± 1.98	23.54 ± 3.89	21.07 ± 2.38	105.38 ± 11.01	n = 16	Mean of Above Means
<Reagents>						
8.62 ± 0.52	13.95 ± 1.01	21.10 ± 0.80	18.73 ± 0.78	93.06 ± 4.18	n = 12	Abbott
11.93 ± 0.76	16.86 ± 0.98	24.92 ± 1.39	22.54 ± 1.20	113.45 ± 7.19	n = 28	Beckman Coulter
11.52 ± 0.36	13.53 ± 0.43	19.47 ± 0.65	18.36 ± 0.57	94.23 ± 3.93	n = 14	Ortho Clinical Diagnostics
9.38 ± 0.36	16.38 ± 0.71	23.80 ± 1.18	21.53 ± 0.92	110.51 ± 4.73	n = 30	Roche Elecsys/Modular E/e601/e411
9.54 ± 0.57	23.12 ± 1.22	29.30 ± 1.66	28.16 ± 1.56	151.85 ± 9.86	n = 62	Siemens ADVIA/ADVIA Centaur
7.53 ± 0.28	14.88 ± 0.58	24.66 ± 1.10	19.80 ± 0.85	105.29 ± 3.34	n = 7	Siemens Dimension LOCI
10.00 ± 0.67	13.79 ± 1.00	16.64 ± 1.17	19.63 ± 0.89	94.52 ± 7.05	n = 39	Siemens Immulite
9.77 ± 1.52	14.83 ± 1.48	22.85 ± 4.02	20.23 ± 2.07	101.92 ± 10.04	n = 7	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Prolactin (µg/L)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
-----	-----	-----	-----	-----	-----	-----
1.82 ± 0.20	6.44 ± 0.93	7.34 ± 1.11	5.13 ± 0.75	11.66 ± 1.65	n = 175	All Methods & Instruments
1.80	6.40	7.30	5.20	11.50	n = 175	Median value, All Methods & Instruments
<Instruments>						
2.36 ± 0.20	8.69 ± 0.36	9.88 ± 0.48	7.07 ± 0.35	16.31 ± 0.86	n = 8	Abbott Architect i System
1.80 ± 0.00	6.60 ± 0.26	6.96 ± 0.20	5.01 ± 0.22	11.31 ± 0.26	n = 6	Beckman Coulter ACCESS
1.79 ± 0.15	6.33 ± 0.14	6.82 ± 0.32	4.85 ± 0.27	10.89 ± 0.44	n = 3	Beckman Coulter UniCel DxI 600
1.77 ± 0.17	6.23 ± 0.33	6.74 ± 0.40	4.86 ± 0.33	10.72 ± 0.52	n = 17	Beckman Coulter UniCel DxI 800
3.33 ± 0.37	9.18 ± 0.44	7.78 ± 0.38	6.69 ± 0.38	14.22 ± 0.42	n = 8	Ortho Vitros 5600
2.90 ± 0.43	8.91 ± 0.27	7.59 ± 0.23	6.51 ± 0.27	13.64 ± 0.35	n = 4	Ortho Vitros ECI/ECiQ
1.87 ± 0.11	6.89 ± 0.46	8.54 ± 0.55	5.41 ± 0.36	12.97 ± 0.81	n = 7	Roche cobas e601
2.05 ± 0.07	7.20 ± 0.27	9.00 ± 0.22	5.79 ± 0.16	13.64 ± 0.57	n = 7	Roche Elecsys
1.90 ± 0.10	6.96 ± 0.16	8.69 ± 0.32	5.54 ± 0.21	13.03 ± 0.25	n = 8	Roche MODULAR E
1.84 ± 0.13	6.41 ± 0.37	7.46 ± 0.40	5.16 ± 0.25	11.50 ± 0.81	n = 55	Siemens ADVIA Centaur
1.53 ± 0.05	5.90 ± 0.14	6.78 ± 0.22	4.71 ± 0.19	11.20 ± 0.29	n = 9	Siemens Dimension Vista
1.71 ± 0.07	5.78 ± 0.26	6.40 ± 0.19	4.77 ± 0.12	11.09 ± 0.26	n = 5	Siemens Immulite 1000
1.63 ± 0.13	5.19 ± 0.32	5.68 ± 0.30	4.06 ± 0.26	9.56 ± 0.58	n = 25	Siemens Immulite 2000
1.81 ± 0.17	6.81 ± 1.23	7.49 ± 1.18	5.34 ± 0.87	12.17 ± 1.78	n = 13	Mean of Above Means
<Reagents>						
2.34 ± 0.25	8.60 ± 0.45	9.75 ± 0.62	7.00 ± 0.39	15.98 ± 1.23	n = 10	Abbott
1.79 ± 0.16	6.33 ± 0.34	6.82 ± 0.36	4.90 ± 0.31	10.89 ± 0.53	n = 26	Beckman Coulter
3.20 ± 0.45	9.07 ± 0.40	7.71 ± 0.35	6.63 ± 0.35	14.01 ± 0.49	n = 12	Ortho Clinical Diagnostics
1.95 ± 0.13	7.05 ± 0.30	8.77 ± 0.43	5.64 ± 0.29	13.26 ± 0.59	n = 24	Roche Elecsys/Modular E/e601/e411
1.85 ± 0.14	6.42 ± 0.37	7.47 ± 0.42	5.16 ± 0.25	11.50 ± 0.80	n = 58	Siemens ADVIA/ADVIA Centaur
1.53 ± 0.05	5.90 ± 0.14	6.78 ± 0.22	4.71 ± 0.19	11.20 ± 0.29	n = 9	Siemens Dimension LOCI
1.65 ± 0.13	5.29 ± 0.39	5.82 ± 0.42	4.20 ± 0.40	9.88 ± 0.89	n = 31	Siemens Immulite
1.84 ± 0.30	6.85 ± 1.38	7.51 ± 1.28	5.40 ± 1.02	12.23 ± 2.06	n = 7	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Intact Parathyrin (PTH, pg/mL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
-----	-----	-----	-----	-----	-----	-----
2.71 ± 1.53	11.71 ± 3.20	18.79 ± 5.89	6.87 ± 3.05	122.27 ± 26.04	n = 169	All Methods & Instruments
3.00	11.50	17.80	7.00	127.10	n = 169	Median value, All Methods & Instruments
<Instruments>						
3.09 ± 1.59	20.49 ± 1.21	30.68 ± 2.07	12.27 ± 0.61	197.13 ± 8.48	n = 7	Abbott Architect i System
0.14 ± 0.35	9.82 ± 1.15	14.74 ± 2.14	6.12 ± 0.92	97.42 ± 11.54	n = 9	Beckman Coulter ACCESS
1.59 ± 2.03	9.74 ± 1.16	14.52 ± 1.79	5.87 ± 0.71	99.19 ± 8.48	n = 11	Beckman Coulter UniCel DxI 800
3.40 ± 0.00	14.94 ± 1.32	21.07 ± 2.27	10.02 ± 0.77	137.09 ± 13.83	n = 6	Ortho Vitros 5600
3.40 ± 0.00	13.50 ± 0.55	18.23 ± 1.40	8.72 ± 0.68	135.21 ± 13.79	n = 3	Ortho Vitros Eci/ECiQ
3.94 ± 1.53	11.97 ± 1.14	17.39 ± 1.60	7.73 ± 0.74	98.70 ± 7.45	n = 11	Roche cobas e601
3.72 ± 0.18	13.04 ± 1.13	19.07 ± 1.99	8.63 ± 0.63	103.91 ± 9.24	n = 7	Roche Elecsys
2.76 ± 0.68	11.05 ± 1.32	16.28 ± 1.86	7.07 ± 0.90	93.81 ± 9.03	n = 11	Roche MODULAR E
2.10 ± 1.12	9.03 ± 1.63	15.96 ± 1.88	3.05 ± 1.18	136.67 ± 9.05	n = 46	Siemens ADVIA Centaur
1.25 ± 1.43	8.87 ± 3.05	15.25 ± 4.64	3.53 ± 1.78	125.53 ± 19.91	n = 4	Siemens ADVIA Centaur CP
4.45 ± 1.37	13.76 ± 2.65	29.66 ± 9.74	8.77 ± 2.19	136.51 ± 33.18	n = 8	Siemens Immulite 1000
3.00 ± 0.00	14.96 ± 1.58	27.34 ± 3.25	9.20 ± 1.16	135.39 ± 14.67	n = 35	Siemens Immulite 2000
1.00 ± 0.00	11.28 ± 0.15	18.18 ± 1.03	7.03 ± 0.34	109.43 ± 2.51	n = 3	Tosoh Bioscience
2.69 ± 1.30	12.03 ± 2.70	18.93 ± 5.32	7.62 ± 2.44	118.93 ± 22.57	n = 13	Mean of Above Means
<Reagents>						
3.09 ± 1.59	20.49 ± 1.21	30.68 ± 2.07	12.27 ± 0.61	197.13 ± 8.48	n = 7	Abbott
0.52 ± 0.55	9.76 ± 1.10	14.50 ± 1.88	5.97 ± 0.74	98.04 ± 10.36	n = 22	Beckman Coulter
3.40 ± 0.00	14.36 ± 1.31	19.99 ± 2.51	9.59 ± 0.96	136.43 ± 13.96	n = 9	Ortho Clinical Diagnostics
3.47 ± 1.29	11.86 ± 1.33	17.34 ± 1.89	7.70 ± 0.95	97.62 ± 8.94	n = 33	Roche Elecsys/Modular E/e601/e411
2.06 ± 1.17	9.14 ± 1.73	16.09 ± 1.94	3.14 ± 1.32	136.16 ± 9.22	n = 51	Siemens ADVIA/ADVIA Centaur
3.00 ± 0.00	14.83 ± 1.73	27.03 ± 3.61	9.01 ± 1.43	134.66 ± 14.88	n = 37	Siemens Immulite
5.00 ± 0.00	15.06 ± 2.47	35.80 ± 6.65	10.03 ± 1.87	153.92 ± 29.74	n = 5	Siemens Immulite Turbo
3.01 ± 1.25	13.37 ± 3.64	22.56 ± 8.21	8.45 ± 2.82	133.86 ± 31.66	n = 7	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

25-OH Vitamin D2 (ng/ml)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
-----	-----	-----	-----	-----	-----	-----
2.78 ± 1.63	4.98 ± 0.95	36.19 ± 5.12	29.97 ± 4.00	2.84 ± 1.65	n = 15	All Methods & Instruments
2.50	4.70	35.60	28.50	2.60	n = 15	Median value, All Methods & Instruments
						<Instruments>
2.78 ± 1.63	4.98 ± 0.95	36.19 ± 5.12	29.97 ± 4.00	2.84 ± 1.65	n = 15	LC/MS/MS
						<Reagents>
2.66 ± 1.65	5.06 ± 0.94	36.24 ± 5.43	30.02 ± 4.18	2.72 ± 1.68	n = 14	In-House

CDC Educational challenge samples[#]

Sample #1

0.84 ± n/a
 <4.0 (range: 0.1 - <4.0)

Sample #2

0.90 ± 0.23
 <4.0 (range: 0.1 - <4.0)

Results of LC_MS_MS measurement*
 n = 12 LC/MS/MS

*The analyses on these specimens were performed in multiple measurements using the HPLC-tandem mass spectrometry reference method at Clinical Chemistry Branch (CCB), Division of Laboratory Sciences (DLS), Centers for Disease Control and Prevention, Atlanta, Georgia.

[#]Two CDC Educational challenge samples were prepared from authentic human serum of a male and a female single healthy donor, respectively. The serum samples were stored at -80°C before shipment on ice via overnight delivery.

Statistical Summary (Mean and Standard Deviation)

25-OH Vitamin D3 (ng/mL)

Specimen: E81 -----	Specimen: E82 -----	Specimen: E83 -----	Specimen: E84 -----	Specimen: E85 -----	Number -----	Instrument or Reagent System -----
20.58 ± 2.02 20.40	18.38 ± 1.33 18.30	21.77 ± 2.45 21.60	28.79 ± 2.42 28.50	71.52 ± 6.74 71.00	n = 15 n = 15	All Methods & Instruments Median value, All Methods & Instruments
20.58 ± 2.02	18.38 ± 1.33	21.77 ± 2.45	28.79 ± 2.42	71.52 ± 6.74	n = 15	<Instruments> LC/MS/MS
20.58 ± 2.13	18.35 ± 1.43	21.82 ± 2.61	28.67 ± 2.50	72.16 ± 6.48	n = 14	<Reagents> In-House

CDC Educational challenge samples[#]

Sample #1

43.67 ± 1.82
51.10 ± 5.6

Sample #2

10.06 ± 0.45
11.0 ± 1.5

Results of LC_MS_MS measurement*
n = 12 LC/MS/MS

*The analyses on these specimens were performed in multiple measurements using the HPLC-tandem mass spectrometry reference method at Clinical Chemistry Branch (CCB), Division of Laboratory Sciences (DLS), Centers for Disease Control and Prevention, Atlanta, Georgia.

[#]Two CDC Educational challenge samples were prepared from authentic human serum of a male and a female single healthy donor, respectively. The serum samples were stored at -80°C before shipment on ice via overnight delivery.

Statistical Summary (Mean and Standard Deviation)

25-OH Vitamin D, Total (ng/mL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
-----	-----	-----	-----	-----	-----	-----
24.47 ± 4.15	25.07 ± 7.62	42.85 ± 21.70	40.20 ± 14.22	51.31 ± 16.87	n = 131	All Methods & Instruments
25.10	22.60	32.00	33.80	44.80	n = 131	Median value, All Methods & Instruments
						<Instruments>
19.57 ± 1.25	20.91 ± 1.28	28.17 ± 1.29	31.38 ± 1.26	43.97 ± 2.77	n = 16	Abbott Architect i System
26.47 ± 1.90	22.07 ± 1.65	30.05 ± 2.43	31.93 ± 2.30	39.48 ± 3.14	n = 52	DiaSorin Liaison
20.07 ± 2.42	16.91 ± 1.92	23.40 ± 1.05	40.96 ± 20.36	48.81 ± 27.34	n = 3	Gamma Counter
13.59 ± 1.10	19.80 ± 1.99	38.50 ± 2.76	29.49 ± 0.87	40.01 ± 1.82	n = 5	Immunodiagnostic Systems-iSYS Immun
20.88 ± 1.95	23.23 ± 1.18	58.43 ± 7.76	59.05 ± 5.19	71.19 ± 7.64	n = 13	LC/MS/MS
24.28 ± 3.22	39.92 ± 5.53	80.59 ± 5.73	61.63 ± 6.07	73.40 ± 6.78	n = 25	Siemens ADVIA Centaur
26.01 ± 0.72	31.95 ± 3.90	53.39 ± 8.16	40.64 ± 6.26	60.19 ± 3.64	n = 8	Other/Not listed
21.89 ± 4.27	23.69 ± 7.23	42.75 ± 19.75	40.98 ± 13.12	53.12 ± 14.69	n = 7	Mean of Above Means
						<Reagents>
19.57 ± 1.25	20.91 ± 1.28	28.17 ± 1.29	31.38 ± 1.26	43.97 ± 2.77	n = 16	Abbott
26.45 ± 1.97	22.02 ± 1.54	29.96 ± 2.25	31.83 ± 2.20	39.34 ± 3.16	n = 50	DiaSorin Liaison
21.27 ± 4.43	16.99 ± 2.06	24.45 ± 1.45	30.49 ± 2.11	35.36 ± 4.89	n = 3	DiaSorin Radioimmunoassay
27.03 ± 2.46	31.84 ± 6.43	52.79 ± 9.95	41.18 ± 8.07	58.14 ± 10.71	n = 17	Immunodiagnostic Systems Enzyme Imm
18.08 ± 6.53	22.72 ± 2.21	38.89 ± 3.79	31.76 ± 3.23	42.21 ± 1.27	n = 3	Immunodiagnostic Systems-iSYS chemi
20.89 ± 2.07	23.30 ± 1.29	58.63 ± 8.20	59.03 ± 5.47	71.97 ± 7.53	n = 12	In-House
24.47 ± 3.34	39.82 ± 5.38	80.79 ± 5.60	61.36 ± 6.08	73.31 ± 6.55	n = 26	Siemens ADVIA/ADVIA Centaur
22.46 ± 3.54	24.16 ± 6.92	42.81 ± 19.50	39.45 ± 13.38	51.07 ± 16.00	n = 7	Mean of Above Means

CDC Educational challenge samples[#]

Sample #1

44.51
 45.1 ± 9.1
 43.1 ± 3.8
 51.0 ± 5.3
 40.0 ± 8.6
 55.5 ± 9.8

Sample #2

10.96
 11.9 ± 3.8
 11.9 ± 1.0
 11.4 ± 1.8
 8.1 ± 1.7
 15.2 ± 4.5

Results of LC_MS_MS measurement*

n = 10 Abbott Architect i System
 n = 44 DiaSorin Liaison
 n = 10 LC-MS/MS
 n = 17 Siemens ADVIA Centaur
 n = 11 Immunodiagnostic Systems EIA

*The analyses on these specimens were performed in multiple measurements (CV<5%) using the HPLC-tandem mass spectrometry reference method at Clinical Chemistry Branch (CCB), Division of Laboratory Sciences (DLS), Centers for Disease Control and Prevention, Atlanta, Georgia.

[#]Two CDC Educational challenge samples were prepared from authentic human serum of a male and a female single healthy donor, respectively. The serum samples were stored at -80°C before shipment on ice via overnight delivery.

Statistical Summary (Mean and Standard Deviation)

Intact human Choriogonadotropin (intact hCG, mIU/mL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
-----	-----	-----	-----	-----	-----	-----
53.9 ± 2.58	2.0 ± 0.00	58.2 ± 4.22	2.0 ± 0.43	55.2 ± 2.84	n = 51	All Methods & Instruments
54.0	2.0	58.0	2.0	55.0	n = 51	Median value, All Methods & Instruments
<Instruments>						
53.0 ± 2.69	2.2 ± 1.71	51.7 ± 2.17	2.1 ± 1.76	52.1 ± 1.95	n = 8	Roche cobas e601
54.9 ± 2.44	2.5 ± 0.57	59.3 ± 2.83	2.3 ± 0.69	55.4 ± 1.34	n = 8	Siemens Dimension EXL
54.4 ± 2.21	2.0 ± 0.00	60.0 ± 2.89	2.0 ± 0.40	56.3 ± 2.68	n = 19	Siemens Dimension RxL
53.1 ± 2.12	2.0 ± 0.00	58.2 ± 1.99	2.0 ± 0.00	55.6 ± 1.68	n = 11	Siemens Dimension Xpand
53.8 ± 0.93	2.1 ± 0.21	57.9 ± 3.25	2.1 ± 0.11	55.1 ± 1.60	n = 4	Mean of Above Means
<Reagents>						
53.6 ± 3.03	2.5 ± 2.25	52.2 ± 2.77	2.4 ± 2.34	52.6 ± 2.62	n = 9	Roche Elecsys/Modular E/e601/e411
54.1 ± 2.35	2.0 ± 0.00	59.2 ± 2.72	2.1 ± 0.41	55.8 ± 2.16	n = 38	Siemens Dimension
53.8 ± 0.29	2.2 ± 0.28	55.7 ± 4.00	2.3 ± 0.21	54.2 ± 1.84	n = 2	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Total Beta hCG (mIU/mL)

Specimen: E81	Specimen: E82	Specimen: E83	Specimen: E84	Specimen: E85	Number	Instrument or Reagent System
49.6 ± 14.16	2.2 ± 0.77	60.6 ± 10.01	2.0 ± 0.00	59.1 ± 10.81	n = 250	All Methods & Instruments
50.3	2.0	60.0	2.0	59.0	n = 250	Median value, All Methods & Instruments
<Instruments>						
26.8 ± 2.70	2.2 ± 1.95	47.3 ± 2.04	2.3 ± 1.92	46.6 ± 2.36	n = 22	Abbott Architect i System
38.6 ± 2.16	2.0 ± 0.00	54.6 ± 2.35	1.8 ± 0.34	55.1 ± 2.96	n = 23	Beckman Coulter ACCESS
38.2 ± 1.36	3.5 ± 1.68	55.4 ± 3.33	3.5 ± 1.71	54.6 ± 2.59	n = 4	Beckman Coulter UniCel DxI 600
37.3 ± 3.35	2.0 ± 0.00	53.8 ± 2.03	2.0 ± 0.00	52.8 ± 2.97	n = 17	Beckman Coulter UniCel DxI 800
73.0 ± 2.51	2.6 ± 0.65	66.4 ± 3.35	2.3 ± 0.45	65.4 ± 2.73	n = 16	Ortho Vitros 5600
73.2 ± 4.39	2.4 ± 0.48	65.2 ± 3.52	2.2 ± 0.34	63.7 ± 3.42	n = 13	Ortho Vitros Eci/ECiq
54.1 ± 3.44	2.5 ± 1.23	75.1 ± 3.00	2.5 ± 1.23	73.6 ± 3.54	n = 4	Roche cobas e411
52.3 ± 1.25	2.5 ± 1.23	69.8 ± 0.75	2.4 ± 1.40	69.5 ± 1.72	n = 8	Roche cobas e601
52.5 ± 2.38	1.8 ± 0.15	69.5 ± 1.65	1.6 ± 0.23	69.6 ± 2.62	n = 4	Roche Elecsys
52.0 ± 1.07	2.0 ± 0.00	69.9 ± 1.59	2.0 ± 0.00	69.6 ± 1.55	n = 16	Roche MODULAR E
47.4 ± 2.27	2.6 ± 0.93	54.3 ± 2.72	2.0 ± 0.00	50.6 ± 2.49	n = 54	Siemens ADVIA Centaur
40.7 ± 3.55	2.6 ± 0.51	55.3 ± 3.70	2.0 ± 0.00	51.7 ± 2.55	n = 5	Siemens ADVIA Centaur CP
52.7 ± 1.47	2.0 ± 0.00	67.3 ± 1.44	2.0 ± 0.00	66.1 ± 1.50	n = 38	Siemens Dimension Vista
68.5 ± 5.58	2.1 ± 1.17	73.6 ± 5.67	2.1 ± 1.21	76.0 ± 5.62	n = 5	Siemens Immulite 1000
78.0 ± 4.58	2.5 ± 1.03	93.7 ± 4.44	2.2 ± 0.85	94.8 ± 3.94	n = 15	Siemens Immulite 2000
51.8 ± 15.45	2.3 ± 0.33	63.8 ± 10.76	2.1 ± 0.23	62.9 ± 11.63	n = 15	Mean of Above Means
<Reagents>						
26.8 ± 2.61	2.4 ± 2.02	47.4 ± 1.99	2.5 ± 1.99	46.6 ± 2.30	n = 23	Abbott
38.1 ± 2.60	2.0 ± 0.00	54.3 ± 2.38	1.9 ± 0.18	54.2 ± 3.12	n = 44	Beckman Coulter
73.0 ± 3.34	2.5 ± 0.54	65.9 ± 3.53	2.3 ± 0.41	64.7 ± 3.16	n = 29	Ortho Clinical Diagnostics
52.2 ± 1.33	2.0 ± 0.00	69.9 ± 1.96	2.0 ± 0.00	69.7 ± 2.19	n = 32	Roche Elecsys/Modular E/e601/e411
47.1 ± 2.54	2.6 ± 0.86	54.3 ± 2.83	2.0 ± 0.00	50.7 ± 2.51	n = 59	Siemens ADVIA/ADVIA Centaur
52.8 ± 1.45	2.0 ± 0.00	67.4 ± 1.39	2.0 ± 0.00	66.1 ± 1.46	n = 37	Siemens Dimension LOCI
76.2 ± 6.22	2.4 ± 1.09	90.3 ± 9.36	2.1 ± 0.91	91.5 ± 9.17	n = 20	Siemens Immulite
52.0 ± 17.50	2.3 ± 0.27	62.8 ± 12.97	2.1 ± 0.17	61.7 ± 13.65	n = 7	Mean of Above Means

Statistical Summary (Mean and Standard Deviation)

Qualitative hCG report:

[AB1] Abbott		Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
-----		-----	-----	-----	-----	-----
	Negative	0	10	0	10	0
	Indeterminant	2	0	0	0	0
	Positive	8	0	10	0	10
[AD1] American Diagnostics		Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
-----		-----	-----	-----	-----	-----
	Negative	0	2	0	2	0
	Indeterminant	0	0	0	0	0
	Positive	2	0	2	0	2
[BC1] Beckman Coulter		Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
-----		-----	-----	-----	-----	-----
	Negative	0	29	0	29	0
	Indeterminant	0	0	0	0	0
	Positive	29	0	29	0	29
[CD1] Cardinal Health		Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
-----		-----	-----	-----	-----	-----
	Negative	0	9	0	9	0
	Indeterminant	0	0	0	0	0
	Positive	9	0	9	0	9
[CM1] CEN-MED Elite Plus hCG One Step		Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
-----		-----	-----	-----	-----	-----
	Negative	0	6	0	6	0
	Indeterminant	0	0	0	0	0
	Positive	6	0	6	0	6
[FI1] Fisher		Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
-----		-----	-----	-----	-----	-----
	Negative	1	51	1	51	0
	Indeterminant	0	0	0	0	0
	Positive	50	0	50	0	51
[IM1] Inverness Medical		Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
-----		-----	-----	-----	-----	-----
	Negative	0	4	0	4	0
	Indeterminant	0	0	0	0	0
	Positive	4	0	4	0	4

Statistical Summary (Mean and Standard Deviation)

[JJ1]	Ortho Clinical Diagnostics	Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
	Negative	0	2	0	2	0
	Indeterminant	0	0	0	0	0
	Positive	3	1	3	1	3
[PM1]	Polymedco	Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
	Negative	0	4	0	4	0
	Indeterminant	0	0	0	0	0
	Positive	4	0	4	0	4
[QQ2]	Quidel QuickVue One-Step hCG Combo	Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
	Negative	0	26	0	26	0
	Indeterminant	0	0	0	0	0
	Positive	26	0	26	0	26
[QQ1]	Quidel QuickVue± One-Step hCG Combo	Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
	Negative	0	19	0	19	0
	Indeterminant	0	0	0	0	0
	Positive	19	0	19	0	19
[R03]	Roche Elecsys/Modular E/e601/e411	Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
	Negative	0	8	0	8	0
	Indeterminant	0	0	0	0	0
	Positive	8	0	8	0	8
[GZ1]	Sekisui Diagnostics (Genzyme)	Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
	Negative	0	8	0	8	0
	Indeterminant	0	0	0	0	0
	Positive	8	0	8	0	8
[BY1]	Siemens ADVIA/ADVIA Centaur	Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
	Negative	0	24	0	24	0
	Indeterminant	0	0	0	0	0
	Positive	24	0	24	0	24
[DA5]	Siemens Dimension	Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
	Negative	0	5	0	5	0
	Indeterminant	0	0	0	0	0
	Positive	5	0	5	0	5

Statistical Summary (Mean and Standard Deviation)

[DA6] Siemens Dimension LOCI	Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
Negative	0	5	0	5	0
Indeterminant	0	0	0	0	0
Positive	5	0	5	0	5
[DP5] Siemens Immulite	Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
Negative	0	4	0	4	0
Indeterminant	0	0	0	0	0
Positive	4	0	4	0	4
[SB1] Stanbio	Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
Negative	0	10	0	10	0
Indeterminant	0	0	0	0	0
Positive	10	0	10	0	10
[TR1] TrueMedix	Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
Negative	0	5	0	5	0
Indeterminant	0	0	0	0	0
Positive	5	0	5	0	5
[WP3] Wampole Clearview	Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
Negative	0	2	0	2	0
Indeterminant	0	0	0	0	0
Positive	2	0	2	0	2
[ZZZ] Other/Not listed	Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
Negative	0	6	0	6	0
Indeterminant	0	0	0	0	0
Positive	6	0	6	0	6
[---] All Methods & Instruments	Specimen:E81	Specimen:E82	Specimen:E83	Specimen:E84	Specimen:E85
Negative	1	239	1	239	0
Indeterminant	2	0	0	0	0
Positive	237	1	239	1	240