



Andrew M. Cuomo  
Governor

## Department of Health

Howard A. Zucker, M.D., J.D.  
Commissioner

Sally Dreslin, M.S., R.N.  
Executive Deputy Commissioner

### **Endocrinology Proficiency Test Program**

#### **Statistical Summary – May 2016 (Event 16-2)**

This statistical report summarizes participant data for the five Endocrinology proficiency survey specimens shipped 2 May 2016. Test specimens E41-E45 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 participants 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 ( $\pm 1$  SD) values are calculated by a robust statistical technique that does not assume a Gaussian distribution.

#### 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.

Should you have any questions regarding this report, please contact the Endocrinology Section at (518) 474-6706 or email: [clinchem@wadsworth.org](mailto:clinchem@wadsworth.org)

## Statistical Summary (Mean and Standard Deviation)

## Thyroxin (T4, µg/dL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
2.21 ± 0.52	8.18 ± 1.06	6.81 ± 0.86	14.82 ± 1.83	10.40 ± 1.33	n = 110	All Methods & Instruments
2.20	8.10	6.80	14.86	10.40	n = 110	Median value, All Methods & Instruments
<Instruments>						
2.35 ± 0.50	6.47 ± 0.60	5.54 ± 0.44	11.82 ± 0.46	8.14 ± 0.59	n = 10	Abbott Architect i System
2.07 ± 0.25	8.29 ± 0.73	7.06 ± 0.68	14.78 ± 1.32	11.01 ± 0.74	n = 12	Beckman Coulter ACCESS
2.23 ± 0.31	8.00 ± 0.18	6.55 ± 0.27	16.60 ± 0.45	9.95 ± 0.36	n = 3	Beckman Coulter AU Chemistry System
2.04 ± 0.25	7.64 ± 0.47	6.85 ± 0.29	14.58 ± 0.71	10.94 ± 0.67	n = 5	Beckman Coulter UniCel DxI 600
1.93 ± 0.35	7.54 ± 0.56	6.42 ± 0.71	14.68 ± 0.69	10.53 ± 0.54	n = 8	Beckman Coulter UniCel DxI 800
2.33 ± 0.13	8.21 ± 0.48	7.22 ± 0.24	15.46 ± 0.54	10.76 ± 0.48	n = 8	Ortho Vitros 5600
2.51 ± 0.11	8.28 ± 0.22	6.75 ± 0.09	14.87 ± 0.26	10.38 ± 0.24	n = 8	Roche cobas e601
2.53 ± 0.05	8.14 ± 0.10	6.57 ± 0.05	14.82 ± 0.49	10.25 ± 0.27	n = 3	Roche MODULAR E
1.71 ± 0.34	7.79 ± 0.37	6.23 ± 0.29	12.80 ± 0.57	9.16 ± 0.32	n = 13	Siemens ADVIA Centaur
2.58 ± 0.55	9.30 ± 0.31	7.47 ± 0.37	16.21 ± 0.37	11.25 ± 0.48	n = 5	Siemens Dimension EXL
2.66 ± 0.75	9.89 ± 0.75	8.13 ± 0.82	17.08 ± 0.69	12.02 ± 0.60	n = 19	Siemens Dimension Vista
1.44 ± 0.43	7.91 ± 0.35	5.90 ± 0.46	15.60 ± 2.07	8.82 ± 0.06	n = 3	Siemens Immulite 1000
1.68 ± 0.23	7.67 ± 1.38	6.52 ± 0.49	13.65 ± 0.22	9.20 ± 1.07	n = 5	Siemens Immulite 2000
2.53 ± 0.05	7.97 ± 0.14	7.10 ± 0.27	14.96 ± 0.73	10.70 ± 0.27	n = 3	Tosoh Bioscience
2.21 ± 0.39	8.00 ± 0.58	6.72 ± 0.62	14.95 ± 1.32	10.29 ± 1.05	n = 14	Mean of Above Means
<Reagents>						
2.35 ± 0.50	6.47 ± 0.60	5.54 ± 0.44	11.82 ± 0.46	8.14 ± 0.59	n = 10	Abbott
2.03 ± 0.29	7.88 ± 0.71	6.82 ± 0.67	14.65 ± 0.96	10.82 ± 0.68	n = 25	Beckman Coulter
2.23 ± 0.31	8.00 ± 0.18	6.55 ± 0.27	16.60 ± 0.45	9.95 ± 0.36	n = 3	Microgenics DRI
2.34 ± 0.12	8.25 ± 0.46	7.26 ± 0.21	15.46 ± 0.49	10.75 ± 0.45	n = 9	Ortho Clinical Diagnostics
2.52 ± 0.10	8.20 ± 0.21	6.71 ± 0.14	14.85 ± 0.40	10.30 ± 0.30	n = 13	Roche Elecsys/Modular E/e601/e411
1.71 ± 0.34	7.79 ± 0.37	6.23 ± 0.29	12.80 ± 0.57	9.16 ± 0.32	n = 13	Siemens ADVIA/ADVIS Centaur
2.62 ± 0.67	9.68 ± 0.73	7.87 ± 0.84	16.87 ± 0.84	11.85 ± 0.74	n = 22	Siemens Dimension
2.93 ± 0.67	9.84 ± 0.73	8.20 ± 0.18	16.63 ± 0.05	11.60 ± 0.36	n = 3	Siemens Dimension LOCI
1.61 ± 0.33	7.84 ± 1.05	6.29 ± 0.57	13.82 ± 1.35	8.97 ± 0.75	n = 8	Siemens Immulite
2.27 ± 0.42	8.17 ± 0.95	6.79 ± 0.82	14.93 ± 1.78	10.20 ± 1.25	n = 9	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

## Free T4 (ng/dL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
0.37 ± 0.05	1.28 ± 0.17	1.00 ± 0.11	2.78 ± 0.60	1.71 ± 0.27	n = 135	All Methods & Instruments
0.39	1.24	1.00	2.75	1.72	n = 135	Median value, All Methods & Instruments
						<Instruments>
0.42 ± 0.03	1.14 ± 0.02	0.92 ± 0.03	2.12 ± 0.11	1.41 ± 0.03	n = 12	Abbott Architect i System
0.32 ± 0.05	1.13 ± 0.05	0.83 ± 0.05	2.28 ± 0.11	1.46 ± 0.08	n = 11	Beckman Coulter ACCESS
0.38 ± 0.07	1.11 ± 0.03	0.88 ± 0.06	2.40 ± 0.21	1.45 ± 0.08	n = 6	Beckman Coulter UniCel DxI 600
0.29 ± 0.03	1.16 ± 0.07	0.87 ± 0.07	2.51 ± 0.18	1.54 ± 0.07	n = 8	Beckman Coulter UniCel DxI 800
0.30 ± 0.00	1.53 ± 0.10	1.12 ± 0.09	5.26 ± 0.22	3.17 ± 0.20	n = 9	Ortho Vitros 5600
0.30 ± 0.01	1.49 ± 0.04	1.08 ± 0.02	5.09 ± 0.08	3.09 ± 0.08	n = 3	Ortho Vitros ECI/ECiQ
0.39 ± 0.01	1.50 ± 0.01	1.11 ± 0.03	3.71 ± 0.19	2.08 ± 0.07	n = 8	Roche cobas e601
0.40 ± 0.01	1.52 ± 0.06	1.10 ± 0.01	3.68 ± 0.04	2.07 ± 0.06	n = 3	Roche MODULAR E
0.37 ± 0.04	1.32 ± 0.08	1.04 ± 0.07	3.07 ± 0.18	1.88 ± 0.11	n = 15	Siemens ADVIA Centaur
0.39 ± 0.02	1.23 ± 0.02	1.00 ± 0.03	2.71 ± 0.06	1.72 ± 0.05	n = 11	Siemens Dimension EXL
0.40 ± 0.01	1.23 ± 0.04	1.00 ± 0.03	2.72 ± 0.09	1.71 ± 0.04	n = 26	Siemens Dimension Vista
0.33 ± 0.12	1.00 ± 0.09	0.76 ± 0.08	2.16 ± 0.18	1.32 ± 0.15	n = 3	Siemens Dimension Xpand
0.34 ± 0.05	1.38 ± 0.03	1.10 ± 0.00	2.84 ± 0.07	1.78 ± 0.11	n = 8	Siemens Immulite 2000
0.30 ± 0.03	1.51 ± 0.05	1.18 ± 0.04	4.30 ± 0.11	2.60 ± 0.01	n = 3	Tosoh Bioscience
0.35 ± 0.05	1.31 ± 0.20	1.01 ± 0.13	3.06 ± 1.01	1.84 ± 0.55	n = 14	Mean of Above Means
						<Reagents>
0.42 ± 0.03	1.14 ± 0.02	0.92 ± 0.03	2.12 ± 0.11	1.41 ± 0.03	n = 12	Abbott
0.32 ± 0.06	1.13 ± 0.05	0.86 ± 0.06	2.37 ± 0.19	1.48 ± 0.09	n = 25	Beckman Coulter
0.30 ± 0.00	1.52 ± 0.09	1.11 ± 0.08	5.21 ± 0.20	3.14 ± 0.17	n = 12	Ortho Clinical Diagnostics
0.39 ± 0.01	1.50 ± 0.01	1.10 ± 0.01	3.67 ± 0.10	2.08 ± 0.06	n = 14	Roche Elecsys/Modular E/e601/e411
0.37 ± 0.04	1.33 ± 0.10	1.05 ± 0.07	3.08 ± 0.21	1.89 ± 0.13	n = 16	Siemens ADVIA/ADVIS Centaur
0.35 ± 0.09	1.09 ± 0.13	0.80 ± 0.10	2.26 ± 0.24	1.38 ± 0.19	n = 5	Siemens Dimension
0.40 ± 0.01	1.23 ± 0.04	1.00 ± 0.02	2.72 ± 0.08	1.71 ± 0.05	n = 36	Siemens Dimension LOCI
0.36 ± 0.05	1.36 ± 0.05	1.10 ± 0.00	2.84 ± 0.08	1.79 ± 0.10	n = 10	Siemens Immulite
0.36 ± 0.04	1.28 ± 0.17	1.00 ± 0.12	2.75 ± 0.67	1.68 ± 0.28	n = 8	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

## T3-Uptake (%)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
29.53 ± 4.48	35.61 ± 4.71	33.28 ± 4.74	40.84 ± 5.06	36.48 ± 4.64	n = 69	All Methods & Instruments
29.00	36.00	33.00	41.90	37.00	n = 69	Median value, All Methods & Instruments
28.06 ± 1.00	31.48 ± 0.80	29.24 ± 0.77	33.41 ± 0.58	30.67 ± 1.16	n = 5	<Instruments>
34.58 ± 1.21	39.34 ± 1.67	38.64 ± 1.41	43.76 ± 1.49	40.29 ± 1.64	n = 9	Abbott Architect i System
26.74 ± 2.26	33.00 ± 2.70	30.74 ± 2.26	39.88 ± 2.05	35.00 ± 1.80	n = 3	Beckman Coulter ACCESS
37.59 ± 1.63	42.81 ± 1.64	40.47 ± 1.51	47.01 ± 1.57	42.45 ± 0.66	n = 7	Beckman Coulter AU Chemistry System
31.04 ± 1.46	35.96 ± 2.30	34.12 ± 1.86	42.49 ± 1.35	38.38 ± 2.32	n = 4	Beckman Coulter UniCel DxI 800
25.12 ± 0.78	31.10 ± 1.09	29.42 ± 1.53	35.19 ± 1.01	31.84 ± 1.27	n = 7	Ortho Vitros 5600
29.14 ± 1.27	36.14 ± 1.27	33.58 ± 1.33	41.46 ± 1.07	36.76 ± 0.80	n = 5	Siemens ADVIA Centaur
28.93 ± 1.59	36.82 ± 1.97	33.06 ± 2.56	42.79 ± 2.39	37.04 ± 2.02	n = 14	Siemens Dimension EXL
25.31 ± 2.03	28.99 ± 1.26	27.34 ± 1.19	32.75 ± 0.69	28.99 ± 1.54	n = 5	Siemens Dimension Vista
29.12 ± 3.96	34.89 ± 4.33	32.63 ± 4.31	40.06 ± 5.08	35.78 ± 4.57	n = 9	Siemens Immulite 2000
28.06 ± 1.00	31.48 ± 0.80	29.24 ± 0.77	33.41 ± 0.58	30.67 ± 1.16	n = 5	Mean of Above Means
35.57 ± 2.00	41.12 ± 2.50	39.29 ± 1.60	44.99 ± 2.18	41.24 ± 1.78	n = 18	<Reagents>
30.67 ± 1.43	35.41 ± 2.19	33.56 ± 1.97	42.08 ± 1.42	37.80 ± 2.30	n = 5	Roche Elecsys/Modular E/e601/e411
29.81 ± 0.57	35.99 ± 0.80	34.23 ± 0.60	41.69 ± 0.52	37.55 ± 0.45	n = 3	Siemens ADVIA/ADvia Centaur
25.12 ± 0.78	31.10 ± 1.09	29.42 ± 1.53	35.19 ± 1.01	31.84 ± 1.27	n = 7	Ortho Clinical Diagnostics
28.98 ± 1.51	36.62 ± 1.81	33.21 ± 2.23	42.29 ± 2.18	36.94 ± 1.67	n = 19	Siemens Dimension
24.54 ± 1.95	28.94 ± 1.03	27.09 ± 1.14	32.29 ± 1.02	28.65 ± 1.33	n = 7	Siemens Immulite
28.71 ± 3.46	34.25 ± 4.06	32.07 ± 3.91	39.00 ± 5.22	35.04 ± 4.65	n = 7	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

T Uptake (Unit)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
1.185 ± 0.082	1.013 ± 0.036	1.080 ± 0.027	0.845 ± 0.057	0.977 ± 0.028	n = 7	All Methods & Instruments
1.150	1.010	1.070	0.810	0.960	n = 7	Median value, All Methods & Instruments
1.118 ± 0.049	0.990 ± 0.036	1.068 ± 0.024	0.893 ± 0.014	0.989 ± 0.029	n = 3	<Instruments>
1.248 ± 0.015	1.035 ± 0.019	1.088 ± 0.024	0.796 ± 0.010	0.965 ± 0.019	n = 3	Abbott Architect i System
1.183 ± 0.074	1.012 ± 0.026	1.078 ± 0.011	0.845 ± 0.055	0.977 ± 0.014	n = 2	Roche cobas e601
1.118 ± 0.049	0.990 ± 0.036	1.068 ± 0.024	0.893 ± 0.014	0.989 ± 0.029	n = 3	Mean of Above Means
1.248 ± 0.015	1.035 ± 0.019	1.088 ± 0.024	0.796 ± 0.010	0.965 ± 0.019	n = 3	<Reagents>
1.183 ± 0.074	1.012 ± 0.026	1.078 ± 0.011	0.845 ± 0.055	0.977 ± 0.014	n = 2	Abbott Elecsys/Modular E/e601/e411
						Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

## Triiodothyronine (T3, ng/dL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
35.1 ± 7.33	112.4 ± 11.33	88.8 ± 11.37	167.7 ± 19.30	116.4 ± 16.26	n = 80	All Methods & Instruments
34.0	113.0	88.0	172.0	118.0	n = 80	Median value, All Methods & Instruments
						<Instruments>
40.2 ± 1.51	112.1 ± 6.06	85.6 ± 2.68	162.8 ± 9.79	111.1 ± 3.46	n = 9	Abbott Architect i System
32.5 ± 2.20	101.3 ± 2.93	77.3 ± 6.28	144.8 ± 4.46	96.3 ± 3.90	n = 7	Beckman Coulter ACCESS
39.5 ± 6.49	106.8 ± 9.67	79.5 ± 7.75	152.4 ± 10.48	101.1 ± 10.03	n = 6	Beckman Coulter UniCel DxI 600
29.2 ± 3.45	99.0 ± 8.58	75.6 ± 6.25	141.8 ± 9.28	94.5 ± 5.86	n = 7	Beckman Coulter UniCel DxI 800
53.3 ± 3.00	125.6 ± 6.61	107.6 ± 2.77	181.3 ± 2.92	131.6 ± 3.28	n = 6	Ortho Vitros 5600
32.5 ± 4.77	119.1 ± 7.54	96.6 ± 4.97	182.6 ± 7.87	129.2 ± 4.41	n = 5	Roche cobas e601
34.8 ± 4.21	122.9 ± 6.23	98.8 ± 7.78	186.2 ± 15.66	131.7 ± 10.29	n = 3	Roche MODULAR E
31.9 ± 4.04	115.3 ± 4.59	93.7 ± 5.73	179.3 ± 8.09	126.7 ± 7.22	n = 23	Siemens ADVIA Centaur
40.0 ± 0.00	88.5 ± 9.06	74.4 ± 9.05	138.2 ± 11.90	96.9 ± 12.45	n = 5	Siemens Immulite 2000
35.7 ± 5.74	110.7 ± 12.20	87.2 ± 12.24	163.5 ± 20.53	113.1 ± 17.49	n = 9	Mean of Above Means
						<Reagents>
40.2 ± 1.51	112.1 ± 6.06	85.6 ± 2.68	162.8 ± 9.79	111.1 ± 3.46	n = 9	Abbott
32.5 ± 5.86	102.7 ± 7.91	77.3 ± 6.90	146.1 ± 9.17	96.7 ± 6.70	n = 20	Beckman Coulter
54.1 ± 3.47	126.9 ± 6.72	107.1 ± 2.77	180.8 ± 2.75	132.5 ± 4.29	n = 7	Ortho Clinical Diagnostics
33.1 ± 4.36	120.3 ± 6.63	97.0 ± 5.56	182.4 ± 9.62	129.0 ± 5.92	n = 9	Roche Elecsys/Modular E/e601/e411
31.7 ± 4.33	115.6 ± 4.86	93.3 ± 5.71	179.2 ± 7.60	126.2 ± 6.91	n = 25	Siemens ADVIA/ADVIS Centaur
40.0 ± 0.00	93.2 ± 11.35	77.3 ± 8.77	146.0 ± 16.24	102.3 ± 13.65	n = 7	Siemens Immulite
37.1 ± 7.12	112.4 ± 11.86	89.2 ± 11.64	166.9 ± 17.47	116.7 ± 15.26	n = 6	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

## Free T3 (pg/mL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
0.99 ± 0.21	3.27 ± 0.28	2.41 ± 0.21	5.27 ± 0.55	3.26 ± 0.28	n = 68	All Methods & Instruments
1.00	3.29	2.40	5.30	3.20	n = 68	Median value, All Methods & Instruments
						<Instruments>
1.11 ± 0.12	3.19 ± 0.31	2.47 ± 0.23	5.13 ± 0.29	3.26 ± 0.28	n = 9	Abbott Architect i System
1.20 ± 0.00	2.99 ± 0.09	2.34 ± 0.06	4.84 ± 0.05	3.05 ± 0.11	n = 5	Beckman Coulter ACCESS
1.24 ± 0.10	3.10 ± 0.09	2.38 ± 0.15	4.82 ± 0.24	3.08 ± 0.15	n = 3	Beckman Coulter UniCel DxI 600
1.06 ± 0.18	2.68 ± 0.13	1.99 ± 0.16	4.25 ± 0.11	2.84 ± 0.13	n = 4	Beckman Coulter UniCel DxI 800
0.75 ± 0.03	3.47 ± 0.18	2.51 ± 0.14	6.84 ± 0.32	3.71 ± 0.16	n = 3	Ortho Vitros 5600
0.95 ± 0.12	3.32 ± 0.12	2.46 ± 0.13	5.40 ± 0.16	3.34 ± 0.14	n = 15	Siemens ADVIA Centaur
0.74 ± 0.07	3.25 ± 0.09	2.27 ± 0.12	5.41 ± 0.15	3.24 ± 0.10	n = 13	Siemens Dimension Vista
1.45 ± 0.37	3.55 ± 0.36	2.51 ± 0.24	4.89 ± 0.16	3.08 ± 0.11	n = 6	Siemens Immulite 2000
1.06 ± 0.24	3.21 ± 0.26	2.41 ± 0.12	5.02 ± 0.47	3.17 ± 0.23	n = 8	Mean of Above Means
						<Reagents>
1.11 ± 0.12	3.19 ± 0.31	2.47 ± 0.23	5.13 ± 0.29	3.26 ± 0.28	n = 9	Abbott
1.19 ± 0.14	2.93 ± 0.20	2.26 ± 0.21	4.66 ± 0.33	2.98 ± 0.17	n = 12	Beckman Coulter
0.77 ± 0.04	3.39 ± 0.21	2.45 ± 0.17	6.68 ± 0.41	3.67 ± 0.14	n = 4	Ortho Clinical Diagnostics
1.00 ± 0.00	3.63 ± 0.08	2.70 ± 0.00	6.20 ± 0.01	3.73 ± 0.06	n = 5	Roche Elecsys/Modular E/e601/e411
0.95 ± 0.12	3.32 ± 0.12	2.46 ± 0.13	5.40 ± 0.16	3.34 ± 0.14	n = 15	Siemens ADVIA/ADVIS Centaur
0.75 ± 0.06	3.24 ± 0.10	2.28 ± 0.13	5.42 ± 0.15	3.23 ± 0.10	n = 11	Siemens Dimension LOCI
1.39 ± 0.37	3.63 ± 0.40	2.50 ± 0.21	4.94 ± 0.20	2.98 ± 0.28	n = 7	Siemens Immulite
1.01 ± 0.23	3.34 ± 0.24	2.44 ± 0.14	5.42 ± 0.69	3.30 ± 0.30	n = 7	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

## Thyrotropin (TSH, µU/mL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
7.35 ± 0.40	5.58 ± 0.41	9.63 ± 0.63	2.06 ± 0.17	3.31 ± 0.26	n = 164	All Methods & Instruments
7.40	5.60	9.70	2.04	3.30	n = 164	Median value, All Methods & Instruments
<Instruments>						
6.84 ± 0.26	5.23 ± 0.20	8.84 ± 0.31	1.78 ± 0.08	2.97 ± 0.13	n = 12	Abbott Architect i System
7.41 ± 0.63	5.54 ± 0.47	9.83 ± 0.70	2.01 ± 0.11	3.32 ± 0.24	n = 16	Beckman Coulter ACCESS
7.57 ± 0.66	5.70 ± 0.49	9.68 ± 1.04	1.98 ± 0.16	3.41 ± 0.32	n = 9	Beckman Coulter UniCel DxI 600
7.43 ± 0.38	5.72 ± 0.25	9.95 ± 0.56	1.97 ± 0.06	3.30 ± 0.17	n = 8	Beckman Coulter UniCel DxI 800
9.98 ± 0.27	7.54 ± 0.16	13.15 ± 0.33	2.30 ± 0.10	4.10 ± 0.15	n = 10	Ortho Vitros 5600
7.37 ± 0.27	5.64 ± 0.18	9.33 ± 0.32	2.21 ± 0.07	3.38 ± 0.11	n = 5	Roche cobas e411
7.42 ± 0.15	5.74 ± 0.06	9.29 ± 0.18	2.22 ± 0.03	3.43 ± 0.06	n = 9	Roche cobas e601
7.39 ± 0.08	5.76 ± 0.10	9.30 ± 0.09	2.20 ± 0.00	3.38 ± 0.04	n = 3	Roche MODULAR E
7.38 ± 0.41	5.88 ± 0.40	9.89 ± 0.61	2.04 ± 0.14	3.36 ± 0.21	n = 18	Siemens ADVIA Centaur
7.38 ± 0.32	5.45 ± 0.36	9.94 ± 0.44	2.09 ± 0.12	3.31 ± 0.17	n = 18	Siemens Dimension EXL
7.27 ± 0.21	5.38 ± 0.19	9.73 ± 0.30	2.02 ± 0.04	3.23 ± 0.08	n = 28	Siemens Dimension Vista
6.94 ± 0.25	5.14 ± 0.24	8.53 ± 0.52	1.78 ± 0.06	2.85 ± 0.05	n = 3	Siemens Dimension Xpand
7.68 ± 0.37	5.73 ± 0.16	9.22 ± 0.23	2.09 ± 0.14	3.37 ± 0.09	n = 4	Siemens Immulite 1000
7.74 ± 0.36	5.84 ± 0.28	9.91 ± 0.51	2.12 ± 0.20	3.30 ± 0.16	n = 10	Siemens Immulite 2000
8.04 ± 0.93	6.09 ± 0.35	9.96 ± 0.25	2.15 ± 0.11	3.73 ± 0.34	n = 3	Tosoh Bioscience
7.42 ± 0.27	5.65 ± 0.25	9.58 ± 0.44	2.08 ± 0.15	3.33 ± 0.16	n = 15	Mean of Above Means
<Reagents>						
6.84 ± 0.26	5.23 ± 0.20	8.84 ± 0.31	1.78 ± 0.08	2.97 ± 0.13	n = 12	Abbott
7.45 ± 0.57	5.63 ± 0.43	9.84 ± 0.79	1.99 ± 0.12	3.34 ± 0.24	n = 33	Beckman Coulter
9.90 ± 0.30	7.48 ± 0.20	13.06 ± 0.35	2.29 ± 0.10	4.07 ± 0.15	n = 12	Ortho Clinical Diagnostics
7.40 ± 0.17	5.71 ± 0.12	9.31 ± 0.19	2.21 ± 0.04	3.40 ± 0.08	n = 20	Roche Elecsys/Modular E/e601/e411
7.57 ± 0.53	6.00 ± 0.48	10.14 ± 0.72	2.08 ± 0.18	3.43 ± 0.23	n = 12	Siemens ADVIA/ADVISIA Centaur
7.11 ± 0.31	5.41 ± 0.64	8.82 ± 0.69	1.82 ± 0.10	2.96 ± 0.19	n = 5	Siemens Dimension
7.30 ± 0.26	5.40 ± 0.24	9.79 ± 0.37	2.03 ± 0.08	3.25 ± 0.10	n = 45	Siemens Dimension LOCI
7.71 ± 0.37	5.80 ± 0.25	9.66 ± 0.59	2.11 ± 0.18	3.34 ± 0.13	n = 14	Siemens Immulite
7.16 ± 0.18	5.67 ± 0.16	9.51 ± 0.36	2.00 ± 0.07	3.23 ± 0.10	n = 7	Siemens TSH-3
7.33 ± 0.27	5.61 ± 0.25	9.51 ± 0.47	2.04 ± 0.16	3.27 ± 0.22	n = 9	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

## Vitamin B12 (pg/mL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
489.1 ± 95.14	614.7 ± 87.20	478.1 ± 72.74	565.0 ± 83.97	447.4 ± 64.23	n = 116	All Methods & Instruments
497.0	616.0	481.0	565.0	451.0	n = 116	Median value, All Methods & Instruments
601.5 ± 32.22	667.8 ± 35.15	521.8 ± 33.06	614.2 ± 31.19	492.8 ± 20.30	n = 9	<Instruments>
410.2 ± 35.24	528.4 ± 31.94	411.1 ± 25.12	495.2 ± 35.25	381.8 ± 18.44	n = 12	Abbott Architect i System
378.1 ± 21.15	494.4 ± 42.57	381.6 ± 15.51	464.0 ± 35.02	362.1 ± 37.17	n = 8	Beckman Coulter ACCESS
375.7 ± 23.72	489.5 ± 24.11	359.9 ± 12.63	454.3 ± 29.93	352.5 ± 15.02	n = 9	Beckman Coulter UniCel DxI 600
518.2 ± 42.24	706.9 ± 46.72	521.0 ± 29.43	660.0 ± 35.21	491.7 ± 29.56	n = 9	Beckman Coulter UniCel DxI 800
564.6 ± 13.80	664.9 ± 24.78	532.3 ± 18.13	624.3 ± 20.71	499.7 ± 19.33	n = 7	Ortho Vitros 5600
424.4 ± 36.75	591.8 ± 42.36	451.8 ± 35.95	542.4 ± 42.45	422.2 ± 29.38	n = 23	Roche cobas e601
528.7 ± 17.84	616.1 ± 18.45	483.1 ± 20.80	547.8 ± 17.45	454.0 ± 14.62	n = 18	Siemens ADVIA Centaur
643.5 ± 23.96	745.7 ± 53.30	590.0 ± 20.87	727.4 ± 61.17	513.2 ± 30.52	n = 7	Siemens Dimension Vista
530.6 ± 52.25	729.0 ± 54.29	581.7 ± 40.85	665.5 ± 65.77	551.0 ± 48.08	n = 4	Siemens Immulite 2000
497.8 ± 98.38	626.5 ± 98.56	485.9 ± 82.53	579.1 ± 95.56	454.5 ± 71.34	n = 10	Tosoh Bioscience
601.5 ± 32.22	667.8 ± 35.15	521.8 ± 33.06	614.2 ± 31.19	492.8 ± 20.30	n = 9	Mean of Above Means
388.0 ± 30.01	506.4 ± 37.33	387.4 ± 30.64	474.0 ± 37.57	367.3 ± 28.61	n = 29	<Reagents>
519.0 ± 48.18	705.1 ± 54.18	522.9 ± 33.83	658.4 ± 40.36	490.0 ± 31.04	n = 11	Abbott
570.4 ± 19.84	665.4 ± 19.42	532.4 ± 14.47	622.5 ± 27.05	498.2 ± 26.06	n = 12	Beckman Coulter ACCESS
425.8 ± 35.19	594.6 ± 41.08	456.6 ± 38.09	546.7 ± 42.69	425.5 ± 30.30	n = 25	Ortho Clinical Diagnostics
527.5 ± 17.45	613.8 ± 16.76	482.8 ± 20.71	548.8 ± 19.40	453.9 ± 14.45	n = 18	Roche Elecsys/Modular E/e601/e411
643.5 ± 23.96	745.7 ± 53.30	590.0 ± 20.87	727.4 ± 61.17	513.2 ± 30.52	n = 7	Siemens ADVIA/ADVIS Centaur
530.6 ± 52.25	729.0 ± 54.29	581.7 ± 40.85	665.5 ± 65.77	551.0 ± 48.08	n = 4	Siemens Dimension LOCI
530.2 ± 83.34	660.5 ± 75.41	514.5 ± 63.23	609.5 ± 79.32	479.4 ± 53.08	n = 8	Tosoh AIA
						Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

## Folic Acid (ng/mL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
2.35 ± 0.60	8.07 ± 1.78	1.25 ± 0.40	12.53 ± 2.75	20.40 ± 4.11	n = 116	All Methods & Instruments
2.40	8.12	1.23	12.80	20.00	n = 116	Median value, All Methods & Instruments
						<Instruments>
2.32 ± 0.55	7.95 ± 0.82	1.36 ± 0.32	13.59 ± 1.07	22.35 ± 4.00	n = 9	Abbott Architect i System
2.33 ± 0.19	7.93 ± 0.23	1.42 ± 0.25	12.94 ± 0.55	23.42 ± 0.64	n = 12	Beckman Coulter ACCESS
2.47 ± 0.14	8.25 ± 0.29	1.45 ± 0.21	13.19 ± 0.37	22.17 ± 1.37	n = 7	Beckman Coulter UniCel DxI 600
2.42 ± 0.15	8.41 ± 0.49	1.40 ± 0.18	13.08 ± 0.77	22.24 ± 1.51	n = 9	Beckman Coulter UniCel DxI 800
2.02 ± 0.16	6.53 ± 0.23	1.57 ± 0.13	11.96 ± 0.95	20.00 ± 0.00	n = 9	Ortho Vitros 5600
3.72 ± 0.17	8.83 ± 0.74	2.63 ± 0.29	12.76 ± 0.68	19.77 ± 0.44	n = 7	Roche cobas e601
2.63 ± 0.29	10.11 ± 1.21	1.01 ± 0.21	14.81 ± 1.76	24.00 ± 0.00	n = 23	Siemens ADVIA Centaur
1.63 ± 0.15	5.69 ± 0.25	0.92 ± 0.14	7.87 ± 0.39	13.63 ± 0.87	n = 22	Siemens Dimension Vista
2.51 ± 0.28	9.12 ± 0.84	1.15 ± 0.09	14.63 ± 3.21	21.19 ± 2.21	n = 7	Siemens Immulite 2000
3.13 ± 0.31	9.07 ± 0.34	2.20 ± 0.46	11.00 ± 0.51	14.45 ± 1.24	n = 3	Tosoh Bioscience
2.46 ± 0.50	8.31 ± 1.20	1.41 ± 0.44	13.03 ± 1.39	20.96 ± 3.19	n = 10	Mean of Above Means
						<Reagents>
2.32 ± 0.55	7.95 ± 0.82	1.36 ± 0.32	13.59 ± 1.07	22.35 ± 4.00	n = 9	Abbott
2.40 ± 0.17	8.14 ± 0.40	1.42 ± 0.22	13.06 ± 0.59	22.82 ± 1.23	n = 28	Beckman Coulter
1.99 ± 0.17	6.50 ± 0.23	1.55 ± 0.13	11.94 ± 0.89	20.00 ± 0.00	n = 10	Ortho Clinical Diagnostics
3.75 ± 0.21	8.92 ± 0.66	2.69 ± 0.28	12.81 ± 0.70	20.00 ± 0.00	n = 11	Roche Elecsys/Modular E/e601/e411
2.66 ± 0.30	10.15 ± 1.21	1.03 ± 0.22	14.96 ± 1.77	24.00 ± 0.00	n = 25	Siemens ADVIA/ADVIS Centaur
1.63 ± 0.18	5.71 ± 0.23	0.93 ± 0.12	7.93 ± 0.39	13.75 ± 0.91	n = 22	Siemens Dimension LOCI
2.51 ± 0.28	9.12 ± 0.84	1.15 ± 0.09	14.63 ± 3.21	21.19 ± 2.21	n = 7	Siemens Immulite
3.13 ± 0.31	9.07 ± 0.34	2.20 ± 0.46	11.00 ± 0.51	14.45 ± 1.24	n = 3	Tosoh AIA
2.50 ± 0.62	8.31 ± 1.43	1.45 ± 0.56	12.82 ± 1.96	20.24 ± 3.67	n = 8	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

Cortisol ( $\mu\text{g/dL}$ )

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
3.61 ± 0.44	7.31 ± 0.85	8.24 ± 1.05	15.90 ± 1.99	24.86 ± 3.26	n = 71	All Methods & Instruments
3.60	7.30	8.20	15.80	24.60	n = 71	Median value, All Methods & Instruments
						<Instruments>
3.95 ± 0.20	7.24 ± 0.18	8.11 ± 0.20	14.43 ± 0.55	21.94 ± 0.50	n = 7	Abbott Architect i System
3.52 ± 0.18	7.18 ± 0.25	7.94 ± 0.39	15.53 ± 0.47	24.41 ± 1.00	n = 6	Beckman Coulter ACCESS
3.44 ± 0.11	6.61 ± 0.46	7.02 ± 0.57	14.44 ± 0.81	22.71 ± 1.39	n = 6	Beckman Coulter UniCel DxI 600
3.22 ± 0.23	6.63 ± 0.33	7.29 ± 0.33	14.55 ± 0.79	22.40 ± 1.46	n = 6	Beckman Coulter UniCel DxI 800
2.87 ± 0.17	5.87 ± 0.28	7.02 ± 0.29	13.10 ± 0.60	21.09 ± 0.78	n = 6	Ortho Vitros 5600
3.75 ± 0.32	7.77 ± 0.64	8.89 ± 0.75	17.78 ± 1.47	27.39 ± 2.29	n = 21	Siemens ADVIA Centaur
3.63 ± 0.53	7.21 ± 0.84	7.97 ± 0.42	15.48 ± 0.86	23.41 ± 1.31	n = 6	Siemens Immulite 2000
3.51 ± 0.34	6.97 ± 0.58	7.72 ± 0.67	14.88 ± 1.26	22.97 ± 1.72	n = 7	Mean of Above Means
						<Reagents>
3.95 ± 0.20	7.24 ± 0.18	8.11 ± 0.20	14.43 ± 0.55	21.94 ± 0.50	n = 7	Abbott
3.38 ± 0.25	6.81 ± 0.44	7.42 ± 0.58	14.89 ± 0.88	23.20 ± 1.60	n = 18	Beckman Coulter
2.87 ± 0.17	5.87 ± 0.28	7.02 ± 0.29	13.10 ± 0.60	21.09 ± 0.78	n = 6	Ortho Clinical Diagnostics
3.62 ± 0.08	8.29 ± 0.12	9.27 ± 0.20	17.51 ± 0.52	28.54 ± 0.75	n = 7	Roche Elecsys/Modular E/e601/e411
3.77 ± 0.31	7.80 ± 0.63	8.85 ± 0.74	17.76 ± 1.41	27.42 ± 2.21	n = 22	Siemens ADVIA/ADVIS Centaur
3.76 ± 0.50	7.26 ± 0.69	8.32 ± 0.77	15.82 ± 0.97	24.29 ± 2.20	n = 8	Siemens Immulite
3.62 ± 0.34	7.25 ± 0.78	8.18 ± 0.84	15.58 ± 1.81	24.26 ± 2.98	n = 6	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

Insulin ( $\mu$ U/mL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
17.38 ± 3.89	94.76 ± 24.19	40.54 ± 8.44	38.06 ± 8.27	144.13 ± 35.17	n = 39	All Methods & Instruments
16.10	85.70	38.00	35.00	132.00	n = 39	Median value, All Methods & Instruments
16.36 ± 0.47	86.55 ± 1.53	37.82 ± 1.10	34.16 ± 0.82	129.07 ± 1.94	n = 5	<Instruments>
15.88 ± 0.67	85.67 ± 5.32	36.95 ± 1.62	34.46 ± 1.51	130.01 ± 6.36	n = 3	Abbott Architect i System
14.60 ± 0.09	83.31 ± 0.56	35.47 ± 1.14	33.25 ± 0.63	130.84 ± 2.18	n = 3	Beckman Coulter ACCESS
15.31 ± 1.02	85.78 ± 2.17	37.08 ± 3.69	33.43 ± 2.98	132.00 ± 10.38	n = 5	Beckman Coulter UniCel DxI 600
23.22 ± 1.63	150.75 ± 8.54	54.01 ± 1.67	51.47 ± 1.77	210.41 ± 8.04	n = 7	Beckman Coulter UniCel DxI 800
13.79 ± 1.07	77.05 ± 1.98	32.20 ± 1.48	31.02 ± 2.21	111.86 ± 4.18	n = 6	Siemens ADVIA Centaur
15.22 ± 0.99	84.48 ± 3.13	36.27 ± 1.93	33.48 ± 1.16	130.47 ± 1.18	n = 6	Siemens Immulite 2000
						Mean of Above Means
16.36 ± 0.47	86.55 ± 1.53	37.82 ± 1.10	34.16 ± 0.82	129.07 ± 1.94	n = 5	<Reagents>
15.22 ± 0.90	84.27 ± 2.34	35.97 ± 1.59	33.67 ± 2.09	130.84 ± 7.13	n = 11	Abbott
20.42 ± 0.21	105.80 ± 1.91	45.55 ± 0.92	42.72 ± 0.83	161.72 ± 2.04	n = 4	Beckman Coulter
23.22 ± 1.63	150.75 ± 8.54	54.01 ± 1.67	51.47 ± 1.77	210.41 ± 8.04	n = 7	Roche Elecsys/Modular E/e601/e411
13.33 ± 1.32	78.26 ± 2.91	32.18 ± 1.54	31.18 ± 2.30	110.59 ± 4.48	n = 5	Siemens ADVIA/ADVIS Centaur
17.51 ± 3.93	95.63 ± 24.68	40.42 ± 8.27	37.78 ± 7.88	143.96 ± 35.64	n = 5	Siemens Immulite-Insulin lot# > 400
						Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

## Free Estriol (ng/mL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
0.07 ± 0.04	0.09 ± 0.08	0.12 ± 0.15	0.07 ± 0.04	0.10 ± 0.11	n = 3	All Methods & Instruments
0.07	0.07	0.07	0.07	0.07	n = 3	Median value, All Methods & Instruments
< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	n = 1	<Instruments>
< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	n = 1	Beckman Coulter UniCel DxI 800
< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	n = 1	LC/MS/MS
					n = 1	Siemens Immulite 2000

## Statistical Summary (Mean and Standard Deviation)

## Estradiol (pg/mL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
24.5 ± 6.74	87.0 ± 18.38	103.8 ± 19.65	31.9 ± 8.14	144.5 ± 24.39	n = 77	All Methods & Instruments
25.0	91.0	106.5	33.0	148.0	n = 77	Median value, All Methods & Instruments
						<Instruments>
35.4 ± 4.25	96.2 ± 5.85	118.2 ± 4.29	39.1 ± 5.57	157.5 ± 5.83	n = 5	Abbott Architect i System
18.6 ± 3.21	86.4 ± 8.97	103.8 ± 11.54	32.7 ± 5.74	151.4 ± 10.36	n = 4	Beckman Coulter ACCESS
20.8 ± 2.05	76.5 ± 14.36	92.3 ± 18.59	32.3 ± 5.73	129.3 ± 29.81	n = 5	Beckman Coulter UniCel DxI 600
19.9 ± 4.47	72.8 ± 8.05	102.2 ± 3.82	24.4 ± 4.62	129.9 ± 15.02	n = 5	Beckman Coulter UniCel DxI 800
27.3 ± 0.90	95.8 ± 1.96	112.2 ± 1.96	35.0 ± 2.28	155.0 ± 4.01	n = 4	Roche cobas e601
29.3 ± 4.11	100.3 ± 6.91	115.3 ± 7.61	39.6 ± 5.63	157.5 ± 8.55	n = 18	Siemens ADVIA Centaur
29.7 ± 5.36	102.3 ± 4.89	117.9 ± 9.46	31.6 ± 4.32	161.5 ± 11.50	n = 6	Siemens Dimension Vista
20.0 ± 0.00	64.8 ± 8.13	82.6 ± 9.01	23.2 ± 4.60	120.0 ± 9.08	n = 11	Siemens Immulite 2000
23.6 ± 2.56	64.5 ± 5.09	69.8 ± 3.63	28.1 ± 3.71	100.1 ± 7.17	n = 3	Tosoh Bioscience
24.5 ± 5.76	84.7 ± 15.78	103.4 ± 16.47	31.9 ± 5.83	142.3 ± 20.97	n = 9	Mean of Above Means
						<Reagents>
35.4 ± 4.25	96.2 ± 5.85	118.2 ± 4.29	39.1 ± 5.57	157.5 ± 5.83	n = 5	Abbott
20.0 ± 3.56	78.5 ± 10.74	98.4 ± 14.52	29.4 ± 6.70	137.5 ± 22.51	n = 14	Beckman Coulter
18.8 ± 12.67	71.6 ± 49.97	84.8 ± 58.87	23.3 ± 15.87	119.3 ± 84.20	n = 3	In-House
12.7 ± 1.25	52.7 ± 3.16	61.8 ± 4.11	21.8 ± 2.36	86.5 ± 5.43	n = 3	Ortho Clinical Diagnostics
25.6 ± 1.95	95.6 ± 1.92	110.8 ± 3.50	33.9 ± 1.82	155.0 ± 3.76	n = 10	Roche Elecsys/Modular E/e601/e411
28.8 ± 3.94	101.4 ± 6.78	115.7 ± 7.16	40.6 ± 5.77	158.1 ± 9.71	n = 12	Siemens ADVIA Centaur Enhanced Estr
29.2 ± 4.70	99.2 ± 6.67	116.1 ± 9.55	38.7 ± 4.78	158.8 ± 7.58	n = 7	Siemens ADVIA/ADVIS Centaur
29.7 ± 5.36	102.3 ± 4.89	117.9 ± 9.46	31.6 ± 4.32	161.5 ± 11.50	n = 6	Siemens Dimension LOCI
20.0 ± 0.00	66.8 ± 8.86	84.2 ± 9.04	23.9 ± 4.48	122.4 ± 10.33	n = 13	Siemens Immulite
24.6 ± 7.08	86.4 ± 18.13	103.3 ± 19.24	31.4 ± 7.55	143.6 ± 23.35	n = 9	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

## Testosterone (ng/dL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
183.0 ± 0.71	435.0 ± 2.12	83.3 ± 0.28	780.0 ± 0.00	93.9 ± 1.20	n = 2	Target value defined using RMP by CDC
138.8 ± 33.23	407.4 ± 60.31	68.9 ± 14.95	734.4 ± 102.22	80.6 ± 15.92	n = 68	All Methods & Instruments
134.4	407.0	69.1	712.0	80.8	n = 68	Median value, All Methods & Instruments
<Instruments>						
208.5 ± 11.47	471.1 ± 32.74	76.3 ± 3.60	907.7 ± 62.63	92.1 ± 3.13	n = 5	Abbott Architect i System
130.6 ± 6.85	368.5 ± 15.07	68.5 ± 4.55	709.6 ± 34.41	80.7 ± 4.94	n = 7	Beckman Coulter ACCESS
125.2 ± 6.75	350.6 ± 8.48	67.0 ± 4.05	650.1 ± 34.49	77.5 ± 3.89	n = 9	Beckman Coulter UniCel DxI 600
125.6 ± 11.08	337.8 ± 16.68	67.0 ± 2.26	614.0 ± 14.61	77.4 ± 4.83	n = 6	Beckman Coulter UniCel DxI 800
167.8 ± 7.70	443.1 ± 38.91	68.3 ± 3.63	751.2 ± 65.02	83.5 ± 4.42	n = 3	Roche cobas e601
160.4 ± 14.29	458.4 ± 50.97	84.8 ± 14.32	791.2 ± 103.01	94.6 ± 21.32	n = 17	Siemens ADVIA Centaur
106.0 ± 12.91	418.2 ± 35.40	51.9 ± 11.16	683.0 ± 41.60	69.7 ± 15.22	n = 8	Siemens Immulite 2000
89.8 ± 8.29	384.8 ± 14.33	37.5 ± 5.81	785.6 ± 20.21	48.5 ± 6.09	n = 4	Tosoh Bioscience
136.3 ± 36.21	403.8 ± 52.53	66.8 ± 13.13	730.5 ± 89.09	80.1 ± 12.07	n = 8	Mean of Above Means
<Reagents>						
208.5 ± 11.47	471.1 ± 32.74	76.3 ± 3.60	907.7 ± 62.63	92.1 ± 3.13	n = 5	Abbott
126.5 ± 8.41	350.9 ± 18.62	67.5 ± 3.73	657.7 ± 49.24	78.4 ± 4.71	n = 22	Beckman Coulter
168.3 ± 5.44	443.9 ± 25.20	69.1 ± 2.46	799.0 ± 54.68	84.6 ± 4.28	n = 6	Roche Elecsys/Modular E/e601/e411
160.4 ± 14.29	458.4 ± 50.97	84.8 ± 14.32	791.2 ± 103.01	94.6 ± 21.32	n = 17	Siemens ADVIA/ADVIS Centaur
104.6 ± 12.55	423.4 ± 35.35	53.0 ± 9.94	690.8 ± 43.97	68.6 ± 13.53	n = 9	Siemens Immulite
153.0 ± 38.49	437.3 ± 40.41	70.6 ± 11.02	766.5 ± 95.34	84.2 ± 10.19	n = 5	Mean of Above Means

## Testosterone results (ng/dL) of CDC educational samples

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Number	Instrument or Reagent System
43.5 ± 0.78	160.0 ± 0.00	294.0 ± 0.71	457.0 ± 10.61	534.0 ± 2.83	n = 2	Target value defined using RMP by CDC
60.7 ± 12.8	153.2 ± 13.5	305.1 ± 44.4	457.6 ± 51.8	501.3 ± 69.4	n = 64	All Methods & Instruments
59.7	152.4	301.2	458.9	507.5		Median value, All Methods & Instruments
<Instruments>						
55.2 ± 4.9	169.5 ± 6.9	294.2 ± 25.1	505.0 ± 29.7	596.2 ± 27.8	n = 4	Abbott Architect i System
79.8 ± 4.7	155.4 ± 5.0	307.2 ± 13.3	436.1 ± 21.6	474.4 ± 23.7	n = 7	Beckman Coulter ACCESS
81.5 ± 4.0	152.9 ± 7.2	288.8 ± 8.6	410.5 ± 16.7	429.0 ± 25.5	n = 9	Beckman Coulter UniCel DxI 600
82.2 ± 2.6	151.5 ± 3.9	285.3 ± 10.5	401.6 ± 15.5	427.2 ± 15.0	n = 6	Beckman Coulter UniCel DxI 800
65.0 ± 2.5	165.3 ± 11.2	305.9 ± 15.5	479.0 ± 28.1	521.7 ± 17.8	n = 3	Roche cobas e601
53.4 ± 10.5	144.7 ± 14.1	249.9 ± 38.7	423.8 ± 71.0	422.1 ± 69.3	n = 15	Siemens ADVIA Centaur
39.8 ± 2.7	148.3 ± 11.3	329.6 ± 31.7	438.8 ± 55.9	414.3 ± 32.9	n = 8	Siemens Immulite 2000
59.7 ± 9.6	148.9 ± 9.5	357.3 ± 27.9	533.8 ± 19.5	617.3 ± 76.7	n = 4	Tosoh Bioscience

## Statistical Summary (Mean and Standard Deviation)

## Progesterone (ng/mL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
6.18 ± 1.05	0.31 ± 0.17	8.27 ± 1.09	11.57 ± 1.61	16.28 ± 2.84	n = 77	All Methods & Instruments
6.30	0.30	8.39	11.27	16.46	n = 77	Median value, All Methods & Instruments
						<Instruments>
8.13 ± 0.33	0.11 ± 0.03	9.61 ± 0.29	13.15 ± 0.28	19.10 ± 0.56	n = 4	Abbott Architect i System
6.30 ± 0.35	0.29 ± 0.11	8.51 ± 0.36	12.32 ± 0.53	15.66 ± 1.07	n = 4	Beckman Coulter ACCESS
6.02 ± 0.36	0.20 ± 0.06	8.42 ± 0.54	12.39 ± 0.38	15.79 ± 1.19	n = 5	Beckman Coulter UniCel DxI 600
5.94 ± 0.62	0.29 ± 0.13	8.48 ± 0.50	12.87 ± 0.64	15.35 ± 0.74	n = 5	Beckman Coulter UniCel DxI 800
6.67 ± 0.05	0.50 ± 0.00	9.10 ± 0.27	13.73 ± 0.34	19.92 ± 0.41	n = 3	Roche cobas e411
6.24 ± 0.14	0.42 ± 0.02	8.55 ± 0.37	13.17 ± 0.39	19.01 ± 0.30	n = 3	Roche cobas e601
6.74 ± 0.45	0.33 ± 0.12	8.65 ± 0.51	11.09 ± 0.54	17.33 ± 0.92	n = 18	Siemens ADVIA Centaur
6.37 ± 0.12	0.69 ± 0.02	8.32 ± 0.05	10.95 ± 0.12	15.19 ± 0.60	n = 4	Siemens Dimension Vista
5.70 ± 0.29	0.28 ± 0.06	7.41 ± 0.25	11.13 ± 0.32	15.00 ± 1.09	n = 3	Siemens Immulite 1000
4.91 ± 0.30	0.20 ± 0.00	6.68 ± 0.21	9.57 ± 0.57	12.14 ± 0.36	n = 13	Siemens Immulite 2000
5.41 ± 1.27	0.29 ± 0.08	8.80 ± 1.55	12.43 ± 1.70	17.02 ± 2.31	n = 3	Tosoh Bioscience
6.13 ± 0.69	0.30 ± 0.14	8.53 ± 0.64	12.18 ± 1.21	16.53 ± 2.22	n = 11	Mean of Above Means
						<Reagents>
8.13 ± 0.33	0.11 ± 0.03	9.61 ± 0.29	13.15 ± 0.28	19.10 ± 0.56	n = 4	Abbott
6.09 ± 0.49	0.25 ± 0.11	8.46 ± 0.47	12.52 ± 0.59	15.60 ± 1.03	n = 14	Beckman Coulter
3.57 ± 0.05	0.93 ± 0.05	5.90 ± 0.18	9.67 ± 0.14	11.90 ± 0.09	n = 3	Ortho Clinical Diagnostics
6.47 ± 0.20	0.45 ± 0.05	8.77 ± 0.37	13.53 ± 0.37	19.55 ± 0.51	n = 10	Roche Elecsys/Modular E/e601/e411
6.71 ± 0.43	0.34 ± 0.12	8.61 ± 0.54	11.04 ± 0.55	17.27 ± 0.94	n = 19	Siemens ADVIA/ADVIS Centaur
6.37 ± 0.12	0.69 ± 0.02	8.32 ± 0.05	10.95 ± 0.12	15.19 ± 0.60	n = 4	Siemens Dimension LOCI
5.03 ± 0.42	0.20 ± 0.00	6.76 ± 0.32	9.79 ± 0.85	12.17 ± 0.43	n = 16	Siemens Immulite Progesterone (LKPW)
6.14 ± 1.31	0.39 ± 0.28	8.19 ± 1.21	11.51 ± 1.60	15.88 ± 3.09	n = 7	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

## 17-hydroxyprogesterone (ng/dL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
20.56 ± 13.82	65.29 ± 21.20	42.06 ± 20.96	57.04 ± 23.76	47.01 ± 25.33	n = 3	All Methods & Instruments
13.00	43.00	25.00	41.00	25.00	n = 3	Median value, All Methods & Instruments
<Instruments>						
40.0	90.0	70.0	90.0	80.0	n = 1	Gold Standard Diagnostics, Thunderbolt
13.0	64.0	36.0	47.0	41.0	n = 1	LC-MS/MS
13.0	43.0	25.0	41.0	25.0	n = 1	MP Biomedicals

## Statistical Summary (Mean and Standard Deviation)

## Dehydroepiandrosterone (DHEA, ng/dL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
364.5 ± 91.01	149.0 ± 1.67	1002.3 ± 110.77	156.3 ± 47.78	2243.4 ± 197.70	n = 8	All Methods & Instruments
353.0	150.0	949.0	150.0	2160.0	n = 8	Median value, All Methods & Instruments
288.5 ± 82.70	174.0 ± 33.90	1053.0 ± 33.23	165.0 ± 21.21	2342.5 ± 102.53	n = 3	<Instruments>
402.2 ± 41.50	148.6 ± 1.81	963.2 ± 134.55	160.0 ± 38.89	2189.6 ± 211.19	n = 5	Automated microplate processor
308.0 ± 107.43	137.8 ± 12.34	874.6 ± 101.02	141.3 ± 21.39	1951.1 ± 271.84	n = 2	LC/MS/MS
						Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

## Dehydroepiandrosterone sulfate (DHEA-S, µg/dL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
67.08 ± 8.61	224.23 ± 19.56	117.15 ± 11.67	198.34 ± 18.87	132.67 ± 14.89	n = 37	All Methods & Instruments
66.80	223.40	115.00	195.00	134.00	n = 37	Median value, All Methods & Instruments
						<Instruments>
68.84 ± 3.16	234.11 ± 2.16	121.79 ± 1.85	206.17 ± 3.77	141.49 ± 3.95	n = 4	Abbott Architect i System
70.14 ± 5.47	232.12 ± 14.08	121.08 ± 3.57	209.01 ± 15.26	135.35 ± 3.02	n = 4	Beckman Coulter ACCESS
70.96 ± 1.52	222.72 ± 8.18	115.31 ± 4.40	199.34 ± 8.30	123.57 ± 8.84	n = 3	Beckman Coulter UniCel DxI 800
51.83 ± 4.41	200.87 ± 11.46	100.85 ± 6.59	169.84 ± 10.23	115.59 ± 7.53	n = 4	Siemens ADVIA Centaur
62.91 ± 5.46	217.25 ± 15.76	114.84 ± 10.99	194.60 ± 10.24	130.97 ± 11.45	n = 13	Siemens Immulite 2000
66.21 ± 6.95	222.59 ± 12.48	116.09 ± 7.21	198.43 ± 13.15	129.70 ± 9.77	n = 5	Mean of Above Means
						<Reagents>
68.84 ± 3.16	234.11 ± 2.16	121.79 ± 1.85	206.17 ± 3.77	141.49 ± 3.95	n = 4	Abbott
69.31 ± 4.33	225.77 ± 13.18	117.07 ± 5.33	198.99 ± 16.41	127.21 ± 10.78	n = 9	Beckman Coulter
77.02 ± 3.75	252.25 ± 6.37	134.97 ± 4.85	228.17 ± 7.41	159.96 ± 10.20	n = 4	Roche Elecsys/Modular E/e601/e411
51.83 ± 4.41	200.87 ± 11.46	100.85 ± 6.59	169.84 ± 10.23	115.59 ± 7.53	n = 4	Siemens ADVIA/ADVIS Centaur
63.92 ± 6.47	217.59 ± 14.49	113.94 ± 8.66	193.32 ± 9.78	132.05 ± 10.53	n = 15	Siemens Immulite
66.95 ± 8.46	225.95 ± 18.05	117.64 ± 11.52	199.41 ± 19.62	134.27 ± 15.60	n = 5	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

## Lutropin (LH, mIU/mL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
14.55 ± 1.80	5.75 ± 0.65	209.05 ± 29.61	11.76 ± 1.68	94.87 ± 11.64	n = 89	All Methods & Instruments
14.30	5.70	200.00	11.40	94.03	n = 89	Median value, All Methods & Instruments
						<Instruments>
12.94 ± 0.24	5.17 ± 0.10	196.21 ± 9.22	10.14 ± 0.21	77.42 ± 2.07	n = 6	Abbott Architect i System
13.50 ± 0.35	5.43 ± 0.18	235.78 ± 7.82	10.55 ± 0.28	84.73 ± 2.57	n = 4	Beckman Coulter ACCESS
13.25 ± 0.65	5.29 ± 0.22	229.75 ± 11.56	10.12 ± 0.64	83.72 ± 6.23	n = 7	Beckman Coulter UniCel DxI 600
13.45 ± 1.04	5.49 ± 0.33	224.98 ± 7.24	10.09 ± 1.00	83.36 ± 7.35	n = 6	Beckman Coulter UniCel DxI 800
14.23 ± 0.56	5.61 ± 0.46	200.00 ± 0.00	12.90 ± 0.95	116.27 ± 2.15	n = 5	Ortho Vitros 5600
17.04 ± 0.65	7.28 ± 0.15	200.00 ± 0.00	13.44 ± 0.39	93.22 ± 1.77	n = 3	Roche cobas e411
17.44 ± 0.40	7.19 ± 0.22	200.00 ± 0.00	13.40 ± 0.29	93.80 ± 2.14	n = 5	Roche cobas e601
13.51 ± 0.66	5.58 ± 0.22	238.05 ± 46.15	10.99 ± 0.56	95.94 ± 6.51	n = 19	Siemens ADVIA Centaur
15.00 ± 0.60	5.84 ± 0.12	150.00 ± 0.00	12.70 ± 0.38	101.72 ± 3.56	n = 6	Siemens Dimension Vista
16.94 ± 1.02	6.51 ± 0.02	200.00 ± 0.00	14.22 ± 0.49	110.48 ± 2.74	n = 3	Siemens Immulite 1000
16.11 ± 0.87	6.11 ± 0.48	200.00 ± 0.00	13.65 ± 0.39	104.15 ± 8.46	n = 12	Siemens Immulite 2000
14.75 ± 0.12	5.78 ± 0.13	230.78 ± 46.57	11.47 ± 0.74	93.69 ± 4.96	n = 5	Tosoh Bioscience
14.74 ± 1.71	5.83 ± 0.66	211.43 ± 22.05	11.97 ± 1.67	94.36 ± 11.75	n = 12	Mean of Above Means
						<Reagents>
12.94 ± 0.24	5.17 ± 0.10	196.21 ± 9.22	10.14 ± 0.21	77.42 ± 2.07	n = 6	Abbott
13.35 ± 0.73	5.38 ± 0.26	230.26 ± 11.06	10.21 ± 0.70	83.78 ± 5.64	n = 17	Beckman Coulter
14.40 ± 0.62	5.66 ± 0.41	200.00 ± 0.00	13.17 ± 1.04	117.87 ± 4.02	n = 6	Ortho Clinical Diagnostics
17.37 ± 0.56	7.23 ± 0.27	200.00 ± 0.00	13.42 ± 0.43	93.54 ± 2.52	n = 11	Roche Elecsys/Modular E/e601/e411
13.56 ± 0.68	5.60 ± 0.23	235.48 ± 45.72	11.00 ± 0.54	95.68 ± 6.39	n = 20	Siemens ADVIA/ADVIS Centaur
15.15 ± 0.51	5.86 ± 0.13	150.00 ± 0.00	12.81 ± 0.28	102.54 ± 3.50	n = 5	Siemens Dimension LOCI
16.25 ± 0.97	6.23 ± 0.41	200.00 ± 0.00	13.76 ± 0.47	105.79 ± 7.91	n = 15	Siemens Immulite
13.97 ± 1.33	5.45 ± 0.46	226.58 ± 48.59	10.94 ± 0.93	91.61 ± 5.82	n = 3	Tosoh AIA
14.46 ± 1.48	5.63 ± 0.41	207.96 ± 24.13	11.94 ± 1.58	95.63 ± 12.34	n = 8	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

Follitropin (FSH, mIU/mL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
27.43 ± 2.53	7.39 ± 1.01	29.12 ± 2.55	19.69 ± 3.44	114.58 ± 23.62	n = 89	All Methods & Instruments
27.30	7.20	29.00	19.10	108.70	n = 89	Median value, All Methods & Instruments
						<Instruments>
25.93 ± 1.20	6.51 ± 0.14	27.85 ± 0.64	17.20 ± 0.60	101.17 ± 5.02	n = 6	Abbott Architect i System
28.09 ± 1.58	7.16 ± 0.43	29.44 ± 1.93	17.59 ± 0.84	96.39 ± 5.35	n = 4	Beckman Coulter ACCESS
28.95 ± 1.37	7.39 ± 0.68	30.78 ± 0.98	18.12 ± 1.16	102.31 ± 3.98	n = 7	Beckman Coulter UniCel DxI 600
28.92 ± 1.76	7.43 ± 0.49	31.26 ± 1.28	18.17 ± 1.33	97.96 ± 6.83	n = 6	Beckman Coulter UniCel DxI 800
22.97 ± 0.70	5.83 ± 0.31	24.00 ± 0.64	16.60 ± 0.67	102.24 ± 0.80	n = 5	Ortho Vitros 5600
27.36 ± 0.91	7.37 ± 0.32	30.31 ± 1.53	19.88 ± 0.59	117.01 ± 3.84	n = 3	Roche cobas e411
25.85 ± 0.82	6.82 ± 0.17	28.24 ± 0.91	18.46 ± 0.59	110.30 ± 1.00	n = 5	Roche cobas e601
29.43 ± 1.33	8.70 ± 0.38	30.07 ± 1.44	26.42 ± 1.28	160.43 ± 5.54	n = 19	Siemens ADVIA Centaur
25.33 ± 0.87	6.60 ± 0.39	27.80 ± 1.29	17.76 ± 0.56	103.06 ± 4.87	n = 6	Siemens Dimension Vista
26.02 ± 0.49	7.48 ± 0.36	28.01 ± 1.44	20.21 ± 1.08	118.60 ± 2.56	n = 3	Siemens Immulite 1000
27.02 ± 0.88	7.34 ± 0.34	28.32 ± 0.79	20.44 ± 0.74	120.57 ± 3.74	n = 12	Siemens Immulite 2000
33.18 ± 2.32	8.49 ± 0.54	36.61 ± 1.29	19.45 ± 1.01	102.21 ± 4.31	n = 5	Tosoh Bioscience
27.23 ± 2.30	7.23 ± 0.75	29.06 ± 2.04	18.50 ± 1.34	105.80 ± 8.84	n = 12	Mean of Above Means
						<Reagents>
25.93 ± 1.20	6.51 ± 0.14	27.85 ± 0.64	17.20 ± 0.60	101.17 ± 5.02	n = 6	Abbott
28.73 ± 1.60	7.37 ± 0.59	30.81 ± 1.63	17.98 ± 1.13	98.88 ± 7.07	n = 17	Beckman Coulter
22.96 ± 0.62	5.75 ± 0.33	23.96 ± 0.58	16.54 ± 0.58	102.50 ± 1.02	n = 6	Ortho Clinical Diagnostics
26.33 ± 1.26	6.96 ± 0.35	28.63 ± 1.53	18.87 ± 0.99	111.10 ± 6.30	n = 12	Roche Elecsys/Modular E/e601/e411
29.40 ± 1.41	8.69 ± 0.40	30.06 ± 1.53	26.37 ± 1.39	160.05 ± 6.16	n = 20	Siemens ADVIA/ADVIS Centaur
25.65 ± 0.53	6.71 ± 0.33	28.15 ± 1.14	17.91 ± 0.48	104.47 ± 4.11	n = 5	Siemens Dimension LOCI
26.80 ± 0.91	7.37 ± 0.35	28.32 ± 0.93	20.43 ± 0.80	120.00 ± 3.50	n = 15	Siemens Immulite
31.76 ± 1.81	8.18 ± 0.59	36.13 ± 1.22	19.06 ± 1.03	100.01 ± 3.92	n = 3	Tosoh AIA
27.11 ± 2.59	7.17 ± 0.91	28.87 ± 2.79	18.24 ± 1.26	104.03 ± 6.46	n = 8	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

Prolactin ( $\mu\text{g/L}$ )

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
6.49 ± 0.92	7.79 ± 1.01	37.74 ± 4.27	6.18 ± 0.68	16.43 ± 2.03	n = 80	All Methods & Instruments
6.50	7.80	37.30	6.10	16.40	n = 80	Median value, All Methods & Instruments
						<Instruments>
7.30 ± 0.46	9.00 ± 0.28	41.07 ± 2.06	6.87 ± 0.25	18.14 ± 0.89	n = 7	Abbott Architect i System
6.83 ± 0.14	8.13 ± 0.23	36.24 ± 1.03	6.46 ± 0.26	16.49 ± 0.57	n = 3	Beckman Coulter ACCESS
6.90 ± 0.54	7.81 ± 0.18	35.01 ± 2.13	6.38 ± 0.37	16.28 ± 1.17	n = 6	Beckman Coulter UniCel DxI 600
6.60 ± 0.26	7.65 ± 0.61	34.50 ± 2.06	6.15 ± 0.32	16.27 ± 0.92	n = 6	Beckman Coulter UniCel DxI 800
7.28 ± 0.04	8.18 ± 0.26	38.88 ± 1.56	6.71 ± 0.29	17.30 ± 0.46	n = 5	Ortho Vitros 5600
9.20 ± 0.09	10.90 ± 0.18	50.76 ± 0.26	8.70 ± 0.00	22.67 ± 0.05	n = 3	Roche cobas e601
6.36 ± 0.23	7.11 ± 0.29	36.34 ± 1.77	5.89 ± 0.18	15.06 ± 0.77	n = 18	Siemens ADVIA Centaur
5.67 ± 0.17	7.79 ± 0.30	41.86 ± 1.00	6.09 ± 0.17	17.51 ± 0.46	n = 7	Siemens Dimension Vista
5.29 ± 0.31	6.89 ± 0.56	34.72 ± 3.02	5.30 ± 0.37	14.65 ± 1.32	n = 11	Siemens Immulite 2000
6.55 ± 0.27	8.52 ± 0.32	37.28 ± 0.41	6.75 ± 0.27	17.07 ± 0.23	n = 3	Tosoh Bioscience
6.66 ± 0.84	7.94 ± 0.76	37.22 ± 2.99	6.35 ± 0.51	16.60 ± 1.18	n = 10	Mean of Above Means
						<Reagents>
7.30 ± 0.46	9.00 ± 0.28	41.07 ± 2.06	6.87 ± 0.25	18.14 ± 0.89	n = 7	Abbott
6.73 ± 0.37	7.89 ± 0.51	35.08 ± 1.95	6.30 ± 0.34	16.29 ± 0.91	n = 15	Beckman Coulter
7.28 ± 0.36	8.32 ± 0.49	39.44 ± 2.32	6.85 ± 0.47	17.47 ± 0.80	n = 6	Ortho Clinical Diagnostics
9.25 ± 0.36	11.05 ± 0.55	50.91 ± 1.57	8.80 ± 0.46	22.84 ± 0.98	n = 8	Roche Elecsys/Modular E/e601/e411
6.39 ± 0.25	7.14 ± 0.30	36.61 ± 1.93	5.92 ± 0.18	15.13 ± 0.77	n = 20	Siemens ADVIA/ADVIS Centaur
5.70 ± 0.16	7.85 ± 0.29	42.08 ± 0.90	6.13 ± 0.14	17.62 ± 0.40	n = 6	Siemens Dimension LOCI
5.43 ± 0.43	7.05 ± 0.68	35.26 ± 3.00	5.40 ± 0.49	14.96 ± 1.43	n = 13	Siemens Immulite
6.72 ± 1.14	8.06 ± 1.09	39.11 ± 4.59	6.38 ± 0.83	16.94 ± 2.00	n = 7	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

## Intact Parathyrin (PTH, pg/mL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
2.73 ± 2.36	3.07 ± 2.38	160.69 ± 44.76	2.98 ± 2.33	308.08 ± 90.63	n = 82	All Methods & Instruments
2.50	3.00	161.10	3.00	306.60	n = 82	Median value, All Methods & Instruments
						<Instruments>
2.10 ± 2.17	2.20 ± 2.05	220.85 ± 6.26	2.30 ± 1.94	425.80 ± 12.37	n = 4	Abbott Architect i System
1.48 ± 2.73	1.52 ± 2.70	128.68 ± 38.24	1.48 ± 2.72	242.65 ± 71.80	n = 7	Beckman Coulter ACCESS
1.52 ± 2.44	1.52 ± 2.44	142.30 ± 11.09	1.54 ± 2.42	247.16 ± 54.37	n = 6	Beckman Coulter UniCel DxI 600
1.00 ± 0.00	1.00 ± 0.00	123.54 ± 28.79	1.00 ± 0.00	225.87 ± 58.65	n = 8	Beckman Coulter UniCel DxI 800
3.40 ± 0.00	3.40 ± 0.00	200.83 ± 20.22	3.40 ± 0.00	366.26 ± 42.18	n = 5	Ortho Vitros 5600
1.63 ± 0.49	3.83 ± 0.59	110.59 ± 7.72	3.43 ± 0.55	196.38 ± 53.78	n = 5	Roche cobas e601
1.58 ± 0.41	5.47 ± 1.87	120.20 ± 4.74	3.53 ± 0.32	231.68 ± 11.76	n = 3	Roche MODULAR E
3.81 ± 2.79	3.64 ± 2.62	182.80 ± 25.82	3.84 ± 2.93	350.95 ± 49.64	n = 23	Siemens ADVIA Centaur
5.24 ± 1.95	5.24 ± 1.95	190.65 ± 10.35	5.24 ± 1.95	383.36 ± 11.74	n = 3	Siemens ADVIA Centaur CP
4.44 ± 1.02	4.44 ± 1.02	148.41 ± 8.97	4.44 ± 1.02	292.37 ± 24.06	n = 3	Siemens Immulite 1000
3.00 ± 0.00	3.00 ± 0.00	182.08 ± 36.63	3.00 ± 0.00	366.25 ± 77.95	n = 7	Siemens Immulite 2000
1.00 ± 0.00	1.00 ± 0.00	165.25 ± 8.59	1.00 ± 0.00	310.52 ± 11.22	n = 3	Tosoh Bioscience
2.39 ± 1.43	3.00 ± 1.64	158.88 ± 37.27	2.84 ± 1.42	302.20 ± 78.09	n = 12	Mean of Above Means
						<Reagents>
2.10 ± 2.17	2.20 ± 2.05	220.85 ± 6.26	2.30 ± 1.94	425.80 ± 12.37	n = 4	Abbott
0.52 ± 0.56	0.54 ± 0.54	128.70 ± 31.06	0.53 ± 0.54	237.25 ± 62.69	n = 21	Beckman Coulter
3.40 ± 0.00	3.40 ± 0.00	198.46 ± 18.92	3.40 ± 0.00	365.43 ± 37.90	n = 6	Ortho Clinical Diagnostics
1.61 ± 0.46	4.18 ± 0.66	114.62 ± 8.17	3.58 ± 0.62	218.13 ± 23.53	n = 9	Roche Elecsys/Modular E/e601/e411
3.98 ± 2.75	3.84 ± 2.61	184.51 ± 23.38	4.01 ± 2.87	356.82 ± 45.77	n = 26	Siemens ADVIA/ADVIS Centaur
3.00 ± 0.00	3.00 ± 0.00	175.71 ± 37.99	3.00 ± 0.00	352.94 ± 80.82	n = 8	Siemens Immulite
2.49 ± 1.25	3.03 ± 1.20	172.24 ± 40.70	3.02 ± 1.06	330.27 ± 80.11	n = 6	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

## 25-OH Vitamin D2 (ng/mL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
2.34 ± 1.66 1.50	2.48 ± 1.58 2.00	13.78 ± 3.03 13.00	14.97 ± 0.68 14.00	21.09 ± 2.55 20.00	n = 5 n = 5	All Methods & Instruments Median value, All Methods & Instruments
2.34 ± 1.66	2.48 ± 1.58	13.78 ± 3.03	14.97 ± 0.68	21.09 ± 2.55	n = 5	<Instruments> LC/MS/MS
2.34 ± 1.66	2.48 ± 1.58	13.78 ± 3.03	14.97 ± 0.68	21.09 ± 2.55	n = 5	<Reagents> In-House

## 25-OH Vitamin D3 (ng/mL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
63.87 ± 5.92 62.00	65.06 ± 6.71 63.00	67.65 ± 7.07 63.00	47.72 ± 1.15 47.60	46.19 ± 3.02 45.00	n = 5 n = 5	All Methods & Instruments Median value, All Methods & Instruments
63.87 ± 5.92	65.06 ± 6.71	67.65 ± 7.07	47.72 ± 1.15	46.19 ± 3.02	n = 5	<Instruments> LC/MS/MS
63.87 ± 5.92	65.06 ± 6.71	67.65 ± 7.07	47.72 ± 1.15	46.19 ± 3.02	n = 5	<Reagents> In-House

## Statistical Summary (Mean and Standard Deviation)

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

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
46.08 ± 8.37	54.26 ± 7.85	56.49 ± 9.29	52.60 ± 7.90	49.80 ± 9.74	n = 96	All Methods & Instruments
44.00	53.60	55.10	52.10	48.10	n = 96	Median value, All Methods & Instruments
						<Instruments>
45.00 ± 4.11	53.68 ± 3.35	55.44 ± 3.40	47.93 ± 2.98	44.29 ± 3.05	n = 11	Abbott Architect i System
56.36 ± 6.85	59.53 ± 5.29	58.64 ± 6.55	57.20 ± 6.26	51.06 ± 5.25	n = 7	Beckman Coulter ACCESS
55.32 ± 2.01	61.15 ± 0.86	61.38 ± 4.26	57.54 ± 2.93	47.89 ± 3.52	n = 5	Beckman Coulter UniCel DxI 600
42.35 ± 3.57	52.23 ± 5.53	51.42 ± 4.70	48.36 ± 4.34	45.95 ± 5.28	n = 19	DiaSorin Liaison
34.18 ± 2.88	42.21 ± 3.84	42.97 ± 2.48	39.32 ± 1.90	35.79 ± 1.80	n = 4	Immunodiagnostic Systems-iSYS Immun
63.87 ± 5.95	65.91 ± 7.21	81.81 ± 7.17	63.59 ± 2.89	67.49 ± 2.32	n = 5	LC/MS/MS
53.25 ± 2.72	61.76 ± 5.70	49.92 ± 3.58	58.85 ± 1.35	44.76 ± 3.02	n = 8	Ortho Vitros 5600
42.46 ± 2.40	45.99 ± 0.92	48.48 ± 1.85	44.47 ± 1.74	42.14 ± 1.98	n = 5	Roche cobas e601
41.23 ± 3.34	51.78 ± 4.48	64.36 ± 4.64	54.44 ± 3.78	60.29 ± 4.93	n = 22	Siemens ADVIA Centaur
47.96 ± 9.51	55.15 ± 7.88	55.41 ± 9.57	52.69 ± 7.90	47.68 ± 8.86	n = 9	Mean of Above Means
						<Reagents>
45.00 ± 4.11	53.68 ± 3.35	55.44 ± 3.40	47.93 ± 2.98	44.29 ± 3.05	n = 11	Abbott
55.84 ± 6.29	61.02 ± 4.77	59.60 ± 6.24	57.44 ± 6.06	49.62 ± 5.83	n = 14	Beckman Coulter
42.35 ± 3.57	52.23 ± 5.53	51.42 ± 4.70	48.36 ± 4.34	45.95 ± 5.28	n = 19	DiaSorin Liaison
44.74 ± 5.09	49.24 ± 4.25	51.81 ± 5.20	46.47 ± 1.85	45.62 ± 3.50	n = 3	Immunodiagnostic Systems Enzyme Imm
34.18 ± 2.88	42.21 ± 3.84	42.97 ± 2.48	39.32 ± 1.90	35.79 ± 1.80	n = 4	Immunodiagnostic Systems-iSYS chemi
61.44 ± 10.55	63.66 ± 12.30	78.68 ± 12.82	63.59 ± 2.90	67.49 ± 2.32	n = 6	In-House
53.25 ± 2.72	61.76 ± 5.70	49.92 ± 3.58	58.85 ± 1.35	44.76 ± 3.02	n = 8	Ortho Clinical Diagnostics
42.43 ± 2.10	45.77 ± 0.94	48.10 ± 1.81	44.02 ± 1.90	41.69 ± 1.99	n = 6	Roche Elecsys/Modular E/e601/e411
41.78 ± 3.22	51.99 ± 4.94	64.57 ± 5.00	55.08 ± 4.30	60.68 ± 5.57	n = 19	Siemens ADVIA Centaur - Vitamin D T
38.26 ± 2.07	50.98 ± 1.92	63.47 ± 2.60	52.49 ± 0.67	59.27 ± 1.63	n = 3	Siemens ADVIA/ADVISIA Centaur
45.22 ± 8.19	53.11 ± 7.09	55.36 ± 9.35	51.29 ± 7.53	48.66 ± 9.67	n = 10	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

Intact human Choriogonadotropin (intact hCG, mIU/mL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
40.2 ± 2.35	1.2 ± 0.75	38.6 ± 5.08	1.2 ± 0.68	36.6 ± 2.18	n = 29	All Methods & Instruments
40.0	1.0	40.0	1.0	36.0	n = 29	Median value, All Methods & Instruments
						<Instruments>
39.6 ± 1.10	1.3 ± 0.73	30.6 ± 0.97	1.3 ± 0.73	34.3 ± 0.95	n = 6	Roche cobas e601
39.6 ± 2.62	1.1 ± 0.58	40.6 ± 1.49	1.1 ± 0.58	37.1 ± 1.58	n = 16	Siemens Dimension EXL
41.7 ± 0.51	1.4 ± 1.02	41.3 ± 1.37	1.7 ± 0.51	38.4 ± 1.02	n = 3	Siemens Dimension Xpand
40.2 ± 1.08	1.3 ± 0.14	38.0 ± 5.29	1.4 ± 0.27	36.7 ± 1.88	n = 3	Mean of Above Means
						<Reagents>
39.8 ± 1.06	1.1 ± 0.73	30.7 ± 0.92	1.1 ± 0.73	34.3 ± 0.87	n = 7	Roche Elecsys/Modular E/e601/e411
40.2 ± 2.63	1.2 ± 0.73	40.6 ± 1.44	1.2 ± 0.64	37.3 ± 1.55	n = 20	Siemens Dimension
40.0 ± 0.27	1.2 ± 0.04	35.7 ± 5.67	1.2 ± 0.05	35.8 ± 1.71	n = 2	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

Total Beta hCG (mIU/mL)

Specimen: E41	Specimen: E42	Specimen: E43	Specimen: E44	Specimen: E45	Number	Instrument or Reagent System
40.4 ± 5.67	1.1 ± 0.79	37.5 ± 6.19	1.2 ± 0.62	41.6 ± 6.05	n = 134	All Methods & Instruments
41.0	1.0	39.0	1.0	43.0	n = 134	Median value, All Methods & Instruments
						<Instruments>
31.1 ± 1.45	2.7 ± 2.06	30.8 ± 1.25	2.7 ± 2.06	33.4 ± 1.51	n = 10	Abbott Architect i System
37.2 ± 1.72	0.4 ± 0.38	36.1 ± 1.75	0.7 ± 0.37	41.1 ± 1.95	n = 17	Beckman Coulter ACCESS
39.1 ± 1.73	1.2 ± 1.89	37.8 ± 2.18	1.6 ± 1.63	43.8 ± 2.54	n = 8	Beckman Coulter UniCel DxI 600
37.5 ± 1.42	1.2 ± 1.91	37.1 ± 1.44	1.5 ± 1.68	40.9 ± 2.93	n = 8	Beckman Coulter UniCel DxI 800
45.8 ± 3.07	2.3 ± 0.40	39.1 ± 2.88	2.3 ± 0.40	42.9 ± 2.89	n = 9	Ortho Vitros 5600
44.3 ± 2.16	1.0 ± 0.62	44.3 ± 1.24	1.0 ± 0.42	46.8 ± 0.80	n = 6	Roche cobas e411
42.7 ± 1.13	0.7 ± 0.88	42.5 ± 1.41	0.8 ± 0.83	45.9 ± 1.54	n = 4	Roche cobas e601
41.8 ± 1.39	1.0 ± 0.71	42.4 ± 1.97	1.0 ± 0.64	45.3 ± 1.51	n = 4	Roche MODULAR E
35.8 ± 2.10	2.0 ± 0.00	26.5 ± 1.95	2.0 ± 0.00	31.7 ± 1.87	n = 18	Siemens ADVIA Centaur
43.8 ± 1.07	1.0 ± 0.00	40.3 ± 0.93	1.0 ± 0.00	43.7 ± 1.04	n = 30	Siemens Dimension Vista
61.7 ± 4.90	1.0 ± 0.00	71.4 ± 2.83	1.0 ± 0.00	70.4 ± 2.43	n = 8	Siemens Immulite 2000
45.2 ± 1.90	0.6 ± 0.20	45.9 ± 0.75	0.7 ± 0.17	49.4 ± 1.47	n = 4	Tosoh Bioscience
40.9 ± 5.13	1.2 ± 0.65	39.1 ± 5.52	1.3 ± 0.65	43.1 ± 5.07	n = 12	Mean of Above Means
						<Reagents>
31.3 ± 1.85	2.9 ± 2.11	31.0 ± 1.57	2.9 ± 2.11	33.5 ± 1.56	n = 11	Abbott
37.8 ± 1.88	0.5 ± 0.42	37.2 ± 1.93	0.8 ± 0.35	41.5 ± 2.68	n = 20	Beckman Coulter
37.7 ± 1.80	0.5 ± 0.22	36.1 ± 1.56	0.9 ± 0.20	42.0 ± 2.49	n = 12	Beckman Coulter IFCC Standardized
45.8 ± 2.87	2.3 ± 0.38	39.3 ± 2.64	2.3 ± 0.38	43.1 ± 2.69	n = 11	Ortho Clinical Diagnostics
42.9 ± 1.88	0.9 ± 0.78	43.3 ± 1.66	0.9 ± 0.65	46.2 ± 1.44	n = 15	Roche Elecsys/Modular E/e601/e411
35.9 ± 2.26	2.0 ± 0.00	26.4 ± 1.94	2.0 ± 0.00	31.8 ± 2.04	n = 20	Siemens ADVIA/ADVIS Centaur
42.7 ± 1.37	1.0 ± 0.00	39.0 ± 0.90	1.0 ± 0.00	40.7 ± 2.26	n = 3	Siemens Dimension
43.8 ± 1.11	1.0 ± 0.00	40.4 ± 0.87	1.0 ± 0.00	43.8 ± 0.95	n = 28	Siemens Dimension LOCI
60.1 ± 5.62	1.0 ± 0.00	70.0 ± 5.47	1.0 ± 0.00	68.0 ± 5.75	n = 10	Siemens Immulite
44.4 ± 1.20	0.6 ± 0.26	45.6 ± 0.32	0.7 ± 0.20	48.9 ± 1.50	n = 3	Tosoh AIA
41.1 ± 5.96	1.1 ± 0.81	38.1 ± 5.80	1.2 ± 0.70	41.9 ± 5.92	n = 10	Mean of Above Means

## Statistical Summary (Mean and Standard Deviation)

Qualitative hCG report:

[AB1] Abbott	Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	5	0	5	0
Indeterminant	0	0	0	0	0
Positive	5	0	5	0	5
[AR1] Alere hCG Combo Cassette	Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	6	0	6	0
Indeterminant	0	0	0	0	0
Positive	6	0	6	0	6
[BC1] Beckman Coulter	Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	16	0	16	0
Indeterminant	0	0	0	0	0
Positive	16	0	16	0	16
[CD1] Cardinal Health	Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	14	0	14	0
Indeterminant	0	0	0	0	0
Positive	14	0	14	0	14
[CM1] CEN-MED Elite Plus hCG One Step	Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	7	0	7	0
Indeterminant	0	0	0	0	0
Positive	7	0	7	0	7
[FI1] Fisher	Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	26	0	26	0
Indeterminant	0	0	0	0	0
Positive	26	0	26	0	26
[JJ1] Ortho Clinical Diagnostics	Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	2	0	2	0
Indeterminant	0	0	0	0	0
Positive	3	1	3	1	3

## Statistical Summary (Mean and Standard Deviation)

[PM1] Polymedco	Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	3	0	3	0
Indeterminant	0	0	0	0	0
Positive	3	0	3	0	3
[QQ2] Quidel QuickVue One-Step hCG Combo	Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	12	0	12	0
Indeterminant	0	0	1	0	1
Positive	12	0	11	0	11
[QQ1] Quidel QuickVue+ One-Step hCG Combo	Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	11	0	11	0
Indeterminant	0	0	0	0	0
Positive	11	0	11	0	11
[RO3] Roche Elecsys/Modular E/e601/e411	Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	4	0	4	0
Indeterminant	0	0	0	0	0
Positive	4	0	4	0	4
[GZ1] Sekisui Diagnostics (Genzyme)	Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	5	0	5	0
Indeterminant	0	0	0	0	0
Positive	5	0	5	0	5
[BY1] Siemens ADVIA/ADVIA Centaur	Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	8	0	8	0
Indeterminant	0	0	0	0	0
Positive	8	0	8	0	8
[DA5] Siemens Dimension	Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	1	0	1	0
Indeterminant	0	0	0	0	0
Positive	1	0	1	0	1

## Statistical Summary (Mean and Standard Deviation)

[DA6] Siemens Dimension LOCI		Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	3	0	3	0	
Indeterminant	0	0	0	0	0	
Positive	3	0	3	0	3	
[SB1] Stanbio		Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	3	0	3	0	
Indeterminant	0	0	0	0	0	
Positive	3	0	3	0	3	
[TR1] TrueMedix		Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	3	0	3	0	
Indeterminant	0	0	0	0	0	
Positive	3	0	3	0	3	
[--] All Methods & Instruments		Specimen:E41	Specimen:E42	Specimen:E43	Specimen:E44	Specimen:E45
Negative	0	129	0	129	0	
Indeterminant	0	0	1	0	1	
Positive	130	1	129	1	129	