UNC
GILLINGS SCHOOL OF
GLOBAL PUBLIC HEALTH

THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

COLLABORATIVE STUDIES COORDINATING CENTER
DEPARTMENT OF BIOSTATISTICS

137 E. FRANKLIN STREET
SUITE 203
CAMPUS BOX 8030
CHAPEL HILL, NC 27599-8030

T 919.962.6971
F 919.962.3265
www.cscc.unc.edu

TO: HCHS/SOL Quality Control Committee

FROM: Daniela Sotres-Alvarez, HCHS/SOL Coordinating Center
DATE: April 26, 2016

RE: HCHS/SOL Visit 2 Quality Control Report, April 2017

Attached the HCHS/SOL Visit 2 QC Report produced for April 2017. We closed data entry for files used in this report on April 4 to give us a snapshot of completed examinations for the full month of March 2017. The report includes:

3. Visit 2 Lab Reliability Study (blinded duplicates for Central Lab)

Two statistics of great interest are the reliability coefficient and the coefficient of variation (CV). A reliability coefficient close to 1 suggests that only a small proportion of the total variance is due to measurement error (or laboratory) variation. Ideally, we would like all reliabilities to be above 0.80. The CV is a measure of within-specimen variation expressed as a percentage of the mean; we would like to see CV values below 10%. Basophils (% and count) and Monocyte Count take very few values and there is not much variability; hence the reliability statistic is not very meaningful.

Most statistics (reliability, CV, mean difference and proportion of positive differences) continue to show excellent reproducibility from the Central Lab for blinded duplicates.

4. Visit 2 HCHS/SOL ALL participants

Table 3. Number of days between clinic date and lab receipt for tube #4

- Miami is now open one Sunday a month and, hence, samples collected on Sunday will start to show up on this table.
- No new cases of shipping taking > 3 days reported. Overall, there are only 13 cases, 9 of which have been confirmed by the sites and central lab.
- Sites and Lab receive query Q2 (BIO9 different to collection dated transmitted with the Lab data) to resolve inconsistent dates. Please communicate and address the inconsistency either in CDART or at the Central Lab (and retransmit data to CC).

Updated Echo Inventory Tables

Table 1. Intake Overview For Total Study and By Site, as of 4/24/2017

	Echo CRFs Received, N	Echo Images Received, N (%)	Echos Screened for Quality, N (%)	Quality Score (mean±SD)	Quality Score Breakdown, N (%)			Query Critical Alerts[1], N (%)	Critical Alerts
					Good (Score 9-10)	Adequate (Score 7-8)	Poor[2] (Score <7)		
Overall	6374 (100%)	6374 (100%)	6360 (100%)	8.2± 1.1	2438 (38%)	3614 (57%)	308 (5%)	28 (.4%)	11 (.2%)
B	1287 (20%)	1287 (100%)	1284 (100%)	7.9± 1.2	333 (26%)	828 (64%)	123 (10%)	11 (.9%)	3 (.2%)
C	1618 (25%)	1618 (100%)	1615 (100%)	7.9± 1.0	439 (27%)	1058 (66%)	118 (7%)	6 (.4%)	2 (.1%)
M	1701 (27%)	1701 (100%)	1695 (100%)	8.8± 0.9	1111 (66%)	566 (33%)	18 (1%)	4 (.2%)	4 (.2%)
S	1768 (28%)	1768 (100%)	1766 (100%)	8.1± 0.9	555 (31%)	1162 (66%)	49 (3%)	7 (.4%)	2 (.1%)

Table 2. Intake Overview by Sonographer, as of 4/24/2017

Sonographer ID	Echos Performed, N(%)	Echos Screened for Quality, N(%)	Quality Score (mean±SD)	Quality Score Breakdown, N (%)		
				Good (Score 9-10)	Adequate (Score 7-8)	Poor[2] (Score <7)
110	585 (9%)	584 (100%)	7.8± 1.3	154 (26%)	372 (64%)	58 (10%)
111	195 (3%)	195 (100%)	8.0± 0.9	45 (23%)	142 (73%)	8 (4%)
113	77 (1%)	77 (100%)	8.0± 0.9	21 (27%)	52 (68%)	4 (5%)
123	430 (7%)	428 (100%)	7.8± 1.1	113 (26%)	262 (61%)	53 (12%)
212	413 (6%)	413 (100%)	8.1± 0.9	123 (30%)	277 (67%)	13 (3%)
213	475 (7%)	474 (100%)	8.0± 0.9	116 (24%)	336 (71%)	22 (5%)
214	138 (2%)	138 (100%)	8.0± 1.1	51 (37%)	75 (54%)	12 (9%)
218	558 (9%)	556 (100%)	7.8± 1.1	137 (25%)	354 (64%)	65 (12%)
222	34 (1%)	34 (100%)	7.6± 1.5	12 (35%)	16 (47%)	6 (18%)
304	1302 (20%)	1300 (100%)	8.9± 0.9	903 (69%)	388 (30%)	9 (1%)
306	287 (5%)	283 (99%)	8.6± 1.0	152 (54%)	122 (43%)	9 (3%)

1. Query Critical Alerts are echos which sites originally considered critical, and were expedited to BWH for review. After a thorough review from the consulting cardiologists at the sites, as well as the BWH Overreader cardiologists, all of the alerts to date were deemed not to be critical alerts.
2. Echos determined to be poor quality will still be analyzed, however it is possible that little, if any, data will be able to be obtained.
3. Echos which are fully analyzed are the number of echos which have had Apical, Parasternal, and Doppler measures all completed on the same echo, which was then queued for Overreading.

327	112 (2%)	112 (100%)	8.5± 0.8	56 (50%)	56 (50%)	0 (0%)
418	512 (8%)	512 (100%)	8.1± 0.9	159 (31%)	339 (66%)	14 (3%)
420	1256 (20%)	1254 (100%)	8.2± 0.9	396 (32%)	823 (66%)	35 (3%)

Table 3. Echo Analysis Summary, as of 4/24/2017

	QC	Apical	Paresternal	Doppler	Fully Analyzed	Overread	Transferred	Preliminary Data Sent
Overall	6360	6360	6326	5932	5925	5801	5801	6360
Bronx	1284	1285	1280	1197	1196	1176	1176	1284
Chicago	1615	1614	1603	1494	1492	1443	1443	1615
Miami	1695	1695	1687	1593	1591	1568	1568	1695
San Diego	1766	1766	1756	1648	1646	1614	1614	1766

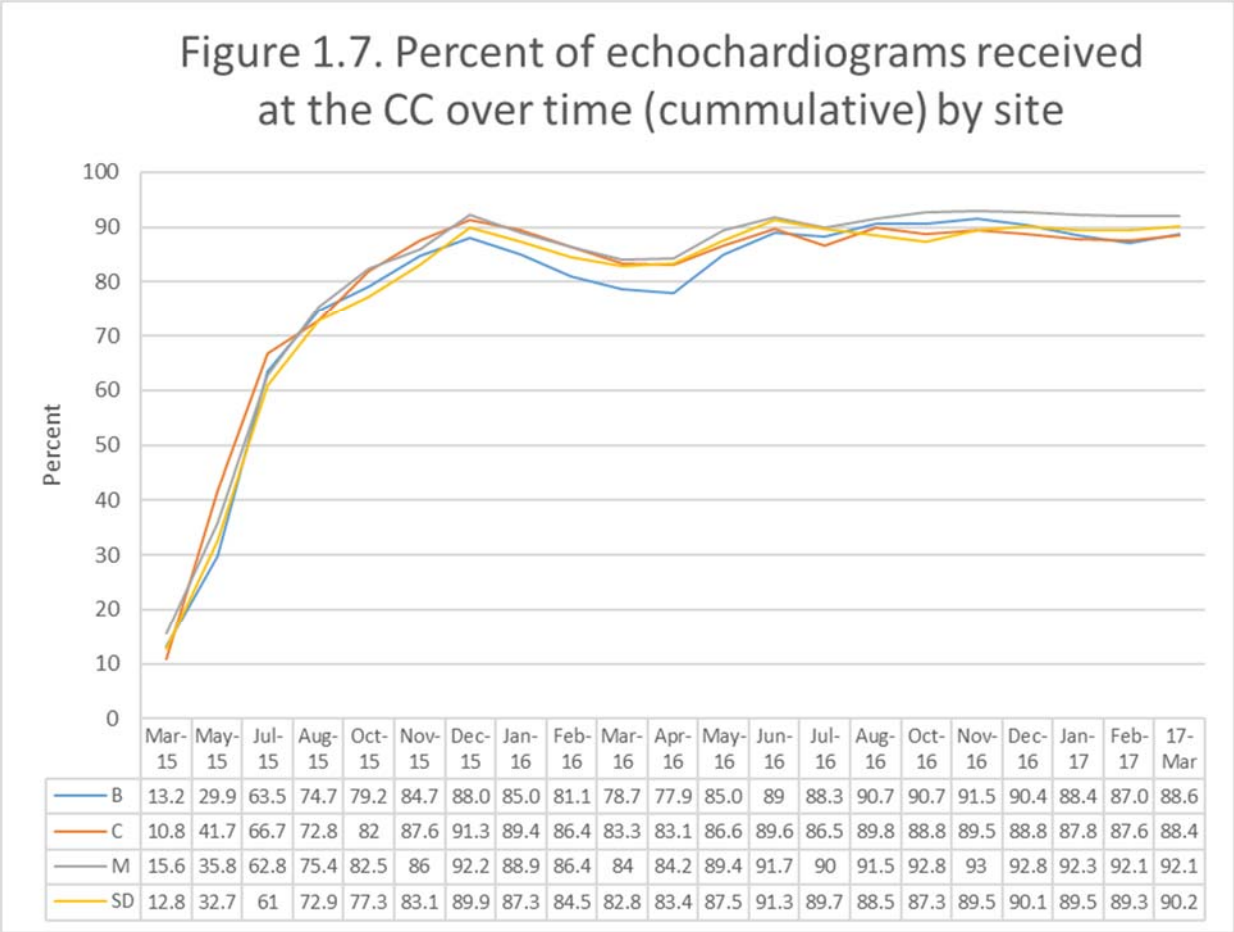
Table 4. Echo Primary Measures Overall and By Site, as of 4/24/2017

	LVEDV (ml)	LVESV (ml)	LVEF (%)	LVEDD (cm)	IVS (cm)	LV mass (g)	E' Lateral (cm/s)	E/E' Ratio	TR vel (cm/s)	Long. Strain (%)
Overall	93.32±21.98	27.89±12.39	70.7± 5.7	4.37± 0.43	1.02± 0.15	147.59±42.14	8.7± 2.4	8.6± 3.3	219± 32	-19.0± 2.1
B	97.68±23.97	30.36±14.92	69.5± 6.0	4.36± 0.46	1.04± 0.16	150.49±46.25	8.7± 2.4	8.5± 3.3	219± 34	-18.9± 2.3
C	93.14±21.16	28.03±11.82	70.4± 5.7	4.34± 0.43	1.01± 0.15	145.45±40.32	8.8± 2.3	8.5± 3.2	219± 35	-18.9± 1.9
M	94.46±22.14	28.03±13.58	71.0± 6.1	4.40± 0.43	1.01± 0.15	146.72±42.38	8.7± 2.3	8.4± 3.1	222± 29	-19.2± 2.1
S	89.26±20.31	25.85± 8.86	71.4± 4.8	4.38± 0.41	1.02± 0.15	148.27±40.29	8.6± 2.4	9.0± 3.5	212± 33	-19.2± 2.0

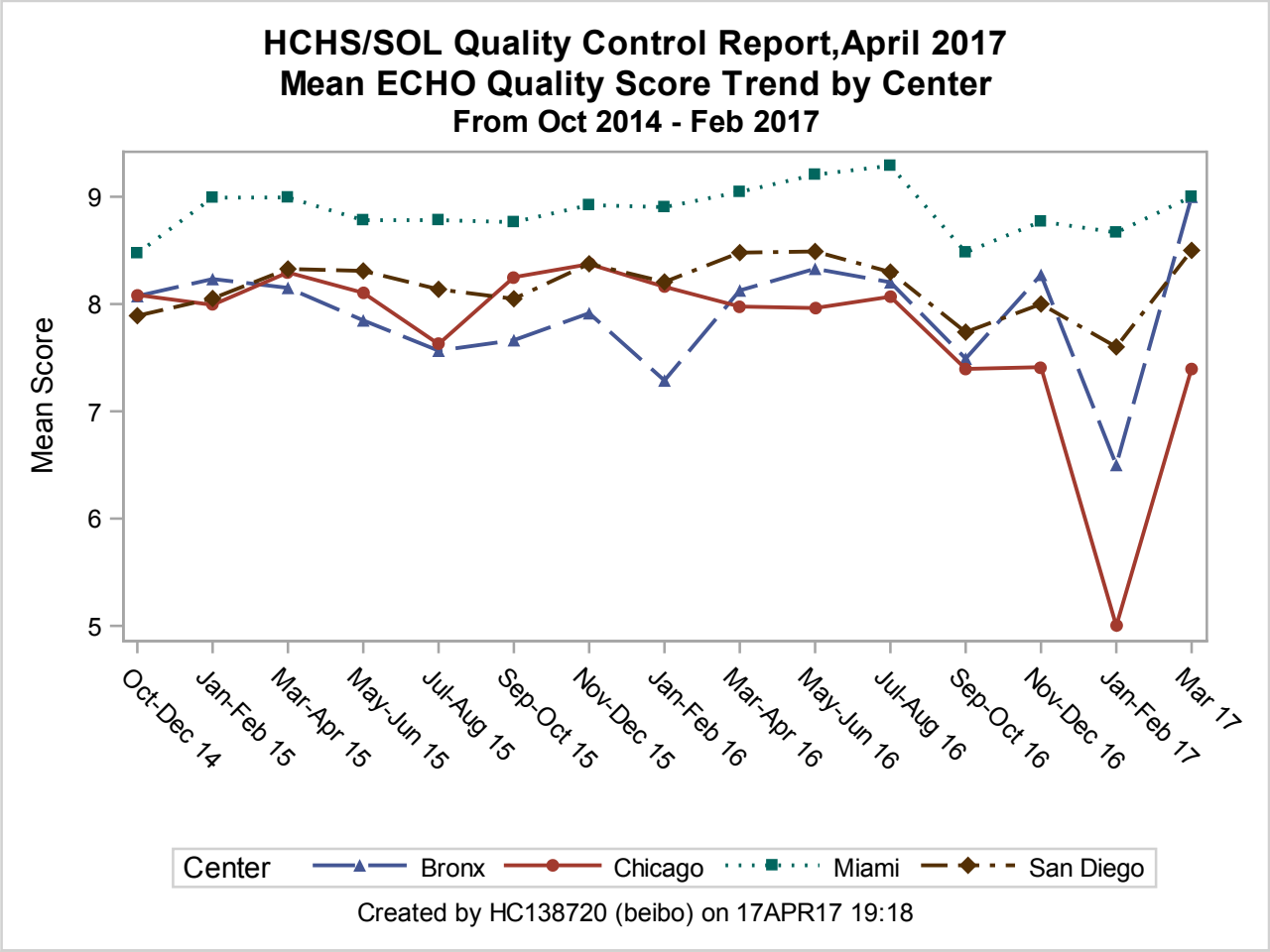
1. Query Critical Alerts are echos which sites originally considered critical, and were expedited to BWH for review. After a thorough review from the consulting cardiologists at the sites, as well as the BWH Overreader cardiologists, all of the alerts to date were deemed not to be critical alerts.
2. Echos determined to be poor quality will still be analyzed, however it is possible that little, if any, data will be able to be obtained.
3. Echos which are fully analyzed are the number of echos which have had Apical, Parasternal, and Doppler measures all completed on the same echo, which was then queued for Overreading.

SOURCE: Management Report Table 1.7 Study Procedures Projected, Acquired, and Received

% Echocardiograms received by the CC = # received / # eligible

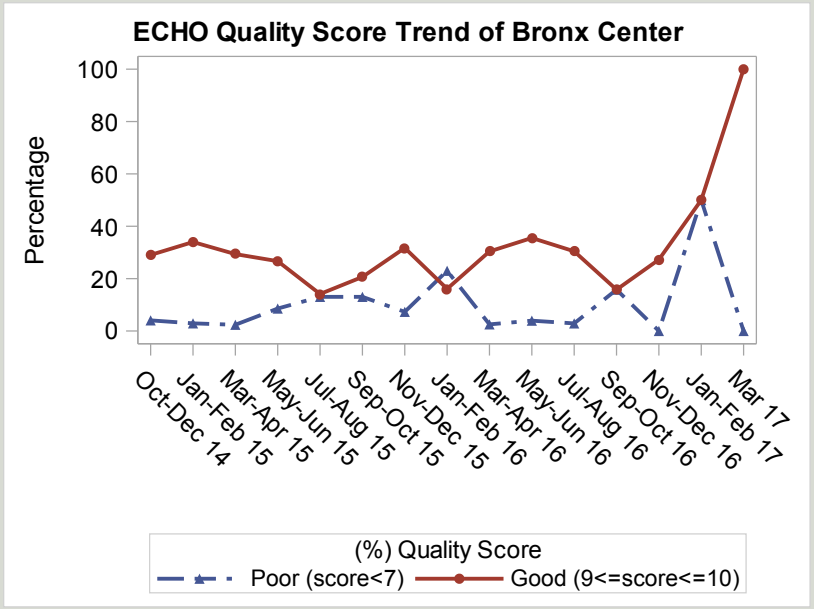


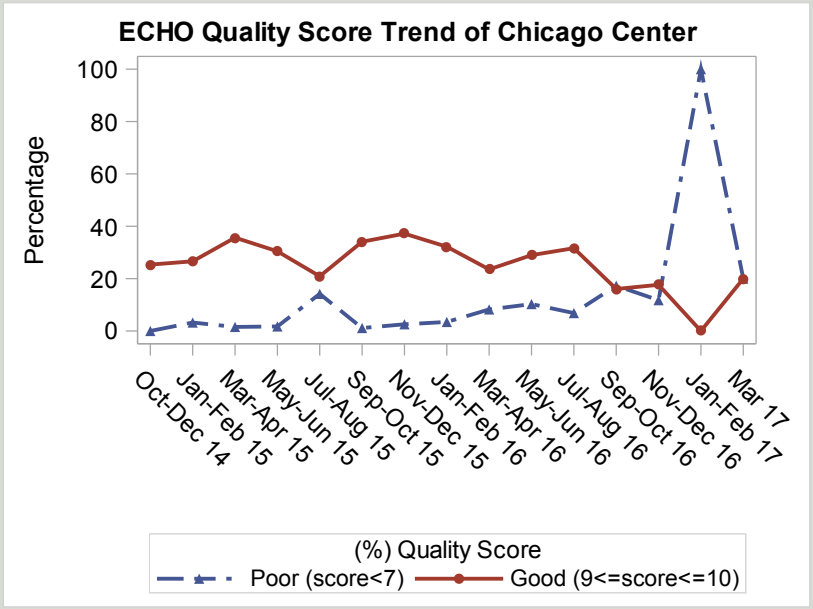
	Mar-15	May-15	Jul-15	Aug-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	17-Mar
B	13.2	29.9	63.5	74.7	79.2	84.7	88.0	85.0	81.1	78.7	77.9	85.0	89	88.3	90.7	90.7	91.5	90.4	88.4	87.0	88.6
C	10.8	41.7	66.7	72.8	82	87.6	91.3	89.4	86.4	83.3	83.1	86.6	89.6	86.5	89.8	88.8	89.5	88.8	87.8	87.6	88.4
M	15.6	35.8	62.8	75.4	82.5	86	92.2	88.9	86.4	84	84.2	89.4	91.7	90	91.5	92.8	93	92.8	92.3	92.1	92.1
SD	12.8	32.7	61	72.9	77.3	83.1	89.9	87.3	84.5	82.8	83.4	87.5	91.3	89.7	88.5	87.3	89.5	90.1	89.5	89.3	90.2

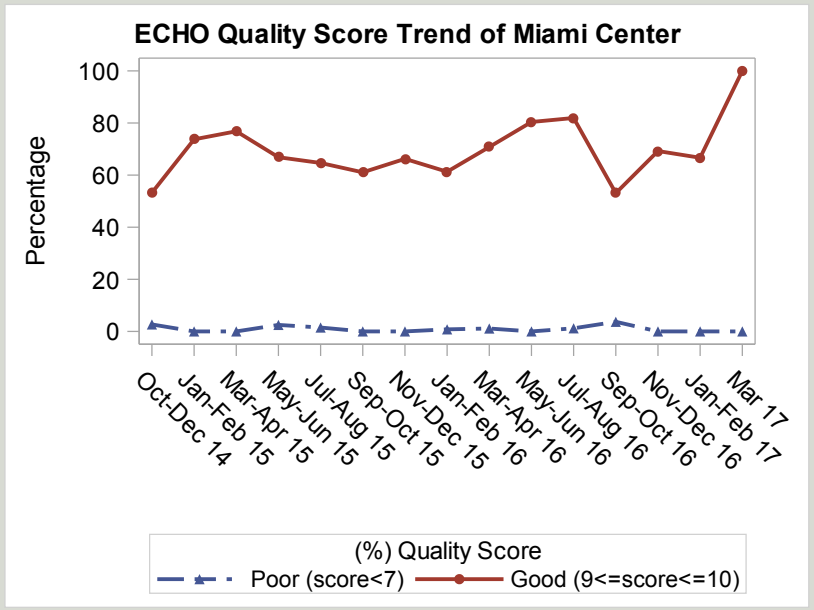


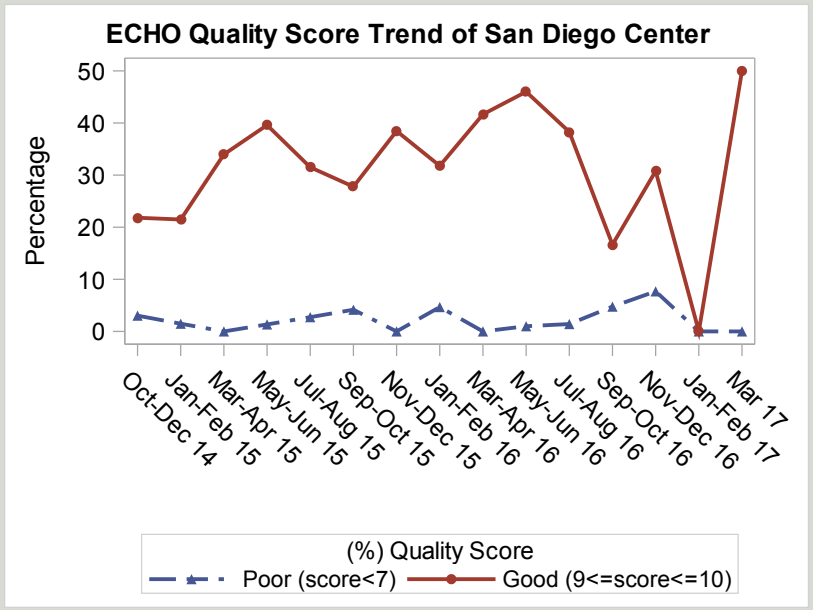
	Oct-Dec 14	Jan-Feb 15	Mar-Apr 15	May-Jun 15	Jul-Aug 15	Sep-Oct 15	Nov-Dec 15	Jan-Feb 16	Mar-Apr 16	May-Jun 16	Jul-Aug 16	Sep-Oct 16	Nov-Dec 16	Jan-Feb 17	Mar 17
N															
Bronx	148	103	126	105	92	92	82	87	79	76	69	57	11	2	2
Chicago	213	124	129	115	134	88	78	87	85	107	117	81	17	1	5
Miami	186	118	151	160	133	131	77	124	89	102	83	81	13	3	2
San	165	135	156	149	146	144	104	107	96	100	141	126	13	5	2
Mean															
Bronx	8.1	8.2	8.2	7.8	7.6	7.7	7.9	7.3	8.1	8.3	8.2	7.5	8.3	6.5	9.0
Chicago	8.1	8.0	8.3	8.1	7.6	8.3	8.4	8.2	8.0	8.0	8.1	7.4	7.4	5.0	7.4
Miami	8.5	9.0	9.0	8.8	8.8	8.8	8.9	8.9	9.0	9.2	9.3	8.5	8.8	8.7	9.0
San	7.9	8.1	8.3	8.3	8.1	8.0	8.4	8.2	8.5	8.5	8.3	7.7	8.0	7.6	8.5
Std															
Bronx	0.9	0.8	0.8	1.3	1.3	1.3	1.5	1.6	0.9	1.0	0.9	1.1	0.8	3.5	0.0
Chicago	0.8	1.0	0.8	0.8	1.2	0.8	0.8	0.9	1.0	1.1	1.0	1.4	1.4		1.1
Miami	1.0	0.8	0.7	1.2	0.9	0.7	0.9	0.9	0.9	0.8	0.8	0.9	0.6	0.6	0.0
San	0.8	0.7	0.8	0.9	0.9	0.9	0.8	0.9	0.8	0.8	0.9	0.9	0.9	0.5	0.7

Created by HC138720 (beibo) on 17APR17 19:18


ECHO Quality Score Trend of Bronx Center
Percentage
100
80
60
40
20
0
Oct-Dec 14
Jan-Feb 15
Mar-Apr 15
May-Jun 15
Jul-Aug 15
Sep-Oct 15
Nov-Dec 15
Jan-Feb 16
Mar-Apr 16
May-Jun 16
Jul-Aug 16
Sep-Oct 16
Nov-Dec 16
Jan-Feb 17
Mar 17
(%) Quality Score
Poor (score<7)
Good (9<=score<=10)


ECHO Quality Score Trend of Chicago Center
Percentage
100
80
60
40
20
0
Oct-Dec 14
Jan-Feb 15
Mar-Apr 15
May-Jun 15
Jul-Aug 15
Sep-Oct 15
Nov-Dec 15
Jan-Feb 16
Mar-Apr 16
May-Jun 16
Jul-Aug 16
Sep-Oct 16
Nov-Dec 16
Jan-Feb 17
Mar 17
(%) Quality Score
Poor (score<7)
Good (9<=score<=10)


ECHO Quality Score Trend of Miami Center
Percentage
100
80
60
40
20
0
Oct-Dec 14
Jan-Feb 15
Mar-Apr 15
May-Jun 15
Jul-Aug 15
Sep-Oct 15
Nov-Dec 15
Jan-Feb 16
Mar-Apr 16
May-Jun 16
Jul-Aug 16
Sep-Oct 16
Nov-Dec 16
Jan-Feb 17
Mar 17
(%) Quality Score
Poor (score<7)
Good (9<=score<=10)


ECHO Quality Score Trend of San Diego Center
Percentage
50
40
30
20
10
0
Oct-Dec 14
Jan-Feb 15
Mar-Apr 15
May-Jun 15
Jul-Aug 15
Sep-Oct 15
Nov-Dec 15
Jan-Feb 16
Mar-Apr 16
May-Jun 16
Jul-Aug 16
Sep-Oct 16
Nov-Dec 16
Jan-Feb 17
Mar 17
(%) Quality Score
Poor (score<7)
Good (9<=score<=10)

HCHS/SOL Quality Control Report, April 2017
ECHO Quality Score Trend of Bronx Center

	Quality Score Breakdown	
Time	Poor N(%) (score < 7)	Good N(%) (9 <= score <= 10)
Oct-Dec 14	6 (4.1%)	43 (29.1%)
Jan-Feb 15	3 (2.9%)	35 (34.0%)
Mar-Apr 15	3 (2.4%)	37 (29.4%)
May-Jun 15	9 (8.6%)	28 (26.7%)
Jul-Aug 15	12 (13.0%)	13 (14.1%)
Sep-Oct 15	12 (13.0%)	19 (20.7%)
Nov-Dec 15	6 (7.3%)	26 (31.7%)
Jan-Feb 16	20 (23.0%)	14 (16.1%)
Mar-Apr 16	2 (2.5%)	24 (30.4%)
May-Jun 16	3 (3.9%)	27 (35.5%)
Jul-Aug 16	2 (2.9%)	21 (30.4%)
Sep-Oct 16	9 (15.8%)	9 (15.8%)
Nov-Dec 16	0 (0.0%)	3 (27.3%)
Jan-Feb 17	1 (50.0%)	1 (50.0%)
Mar 17	0 (0.0%)	2 (100.0%)

HCHS/SOL Quality Control Report, April 2017
ECHO Quality Score Trend of Chicago Center

	Quality Score Breakdown	
Time	Poor N(%) (score < 7)	Good N(%) (9 <= score <= 10)
Oct-Dec 14	0 (0.0%)	54 (25.4%)
Jan-Feb 15	4 (3.2%)	33 (26.6%)
Mar-Apr 15	2 (1.6%)	46 (35.7%)
May-Jun 15	2 (1.7%)	35 (30.4%)
Jul-Aug 15	19 (14.2%)	28 (20.9%)
Sep-Oct 15	1 (1.1%)	30 (34.1%)
Nov-Dec 15	2 (2.6%)	29 (37.2%)
Jan-Feb 16	3 (3.4%)	28 (32.2%)
Mar-Apr 16	7 (8.2%)	20 (23.5%)
May-Jun 16	11 (10.3%)	31 (29.0%)
Jul-Aug 16	8 (6.8%)	37 (31.6%)
Sep-Oct 16	14 (17.3%)	13 (16.0%)
Nov-Dec 16	2 (11.8%)	3 (17.6%)
Jan-Feb 17	1 (100.0%)	0 (0.0%)
Mar 17	1 (20.0%)	1 (20.0%)

HCHS/SOL Quality Control Report, April 2017
ECHO Quality Score Trend of Miami Center

	Quality Score Breakdown	
Time	Poor N(%) (score < 7)	Good N(%) (9 <= score <= 10)
Oct-Dec 14	5 (2.7%)	99 (53.2%)
Jan-Feb 15	0 (0.0%)	87 (73.7%)
Mar-Apr 15	0 (0.0%)	116 (76.8%)
May-Jun 15	4 (2.5%)	107 (66.9%)
Jul-Aug 15	2 (1.5%)	86 (64.7%)
Sep-Oct 15	0 (0.0%)	80 (61.1%)
Nov-Dec 15	0 (0.0%)	51 (66.2%)
Jan-Feb 16	1 (0.8%)	76 (61.3%)
Mar-Apr 16	1 (1.1%)	63 (70.8%)
May-Jun 16	0 (0.0%)	82 (80.4%)
Jul-Aug 16	1 (1.2%)	68 (81.9%)
Sep-Oct 16	3 (3.7%)	43 (53.1%)
Nov-Dec 16	0 (0.0%)	9 (69.2%)
Jan-Feb 17	0 (0.0%)	2 (66.7%)
Mar 17	0 (0.0%)	2 (100.0%)

HCHS/SOL Quality Control Report, April 2017
ECHO Quality Score Trend of San Diego Center

	Quality Score Breakdown	
Time	Poor N(%) (score < 7)	Good N(%) (9 <= score <= 10)
Oct-Dec 14	5 (3.0%)	36 (21.8%)
Jan-Feb 15	2 (1.5%)	29 (21.5%)
Mar-Apr 15	0 (0.0%)	53 (34.0%)
May-Jun 15	2 (1.3%)	59 (39.6%)
Jul-Aug 15	4 (2.7%)	46 (31.5%)
Sep-Oct 15	6 (4.2%)	40 (27.8%)
Nov-Dec 15	0 (0.0%)	40 (38.5%)
Jan-Feb 16	5 (4.7%)	34 (31.8%)
Mar-Apr 16	0 (0.0%)	40 (41.7%)
May-Jun 16	1 (1.0%)	46 (46.0%)
Jul-Aug 16	2 (1.4%)	54 (38.3%)
Sep-Oct 16	6 (4.8%)	21 (16.7%)
Nov-Dec 16	1 (7.7%)	4 (30.8%)
Jan-Feb 17	0 (0.0%)	0 (0.0%)
Mar 17	0 (0.0%)	1 (50.0%)

HCHS/SOL Quality Control Report, April 2017

Table 1. Reliability of Anthropometric Measurements

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Standing Height (ANT2)													
Bronx	67	161.5	0.53	9.35	1.00	0.3	161.5	161.5	0.00	-0.18	0.18	0.48	1.000
*Bronx	68	161.4	2.62	9.03	0.92	1.6	161.6	160.7	0.44	-0.44	1.32	0.50	1.000
Chicago	91	159.1	0.35	8.96	1.00	0.2	159.1	159.1	0.04	-0.06	0.15	0.59	0.523
*Chicago	92	159.2	0.38	8.84	1.00	0.2	159.2	159.2	0.02	-0.09	0.13	0.57	0.678
Miami	57	163.1	0.37	9.47	1.00	0.2	163.0	163.1	-0.11	-0.24	0.03	0.31	0.210
*Miami	58	163.2	0.42	9.41	1.00	0.3	163.2	162.9	-0.07	-0.22	0.08	0.35	0.332
San Diego	86	162.5	0.43	9.42	1.00	0.3	162.4	162.5	-0.02	-0.15	0.11	0.47	0.860
*San Diego	86	162.5	0.43	9.42	1.00	0.3	162.4	162.5	-0.02	-0.15	0.11	0.47	0.860
Overall	303	161.4	0.44	9.34	1.00	0.3	161.4	161.4	-0.01	-0.08	0.06	0.48	0.691
*Overall	304	161.4	1.29	9.24	0.98	0.8	161.4	161.1	0.09	-0.12	0.29	0.48	0.767
Weight (ANT4)													
Bronx	66	78.2	0.18	16.59	1.00	0.2	78.19	78.23	-0.04	-0.10	0.02	0.33	0.122
*Bronx	67	78.4	0.47	17.08	1.00	0.6	78.39	77.96	-0.11	-0.27	0.04	0.32	0.087
Chicago	91	74.3	0.11	13.99	1.00	0.1	74.31	74.31	-0.00	-0.03	0.03	0.51	1.000
*Chicago	92	74.1	0.25	13.95	1.00	0.3	74.07	73.91	-0.04	-0.11	0.04	0.50	1.000
Miami	57	79.3	0.10	17.19	1.00	0.1	79.27	79.26	0.01	-0.03	0.05	0.50	1.000
*Miami	58	79.1	4.14	16.53	0.94	5.2	78.72	78.49	-0.76	-2.27	0.75	0.48	1.000
San Diego	84	78.8	0.14	15.94	1.00	0.2	78.77	78.83	-0.06	-0.10	-0.02	0.26	0.011
*San Diego	85	79.0	0.26	16.35	1.00	0.3	78.96	79.42	-0.02	-0.10	0.06	0.28	0.020
Overall	301	77.4	0.30	15.86	1.00	0.4	77.40	77.44	-0.04	-0.09	0.01	0.40	0.035
*Overall	302	77.4	1.84	15.97	0.99	2.4	77.30	77.26	-0.19	-0.48	0.10	0.40	0.029

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Fat (%) (ANT5)													
Bronx	58	35.2	1.37	7.71	0.97	3.9	35.11	35.31	-0.20	-0.70	0.30	0.40	0.185
*Bronx	59	35.4	3.22	7.68	0.85	9.1	35.05	36.02	-0.74	-1.89	0.42	0.40	0.148
Chicago	83	33.3	0.71	8.28	0.99	2.1	33.22	33.41	-0.19	-0.40	0.02	0.30	0.002
*Chicago	84	33.4	1.40	8.13	0.97	4.2	33.17	33.40	-0.37	-0.79	0.04	0.30	0.001
Miami	52	34.4	0.32	8.92	1.00	0.9	34.37	34.49	-0.12	-0.24	-0.01	0.35	0.081
*Miami	53	34.4	3.00	8.56	0.89	8.7	34.07	34.85	-0.70	-1.84	0.44	0.34	0.060
San Diego	76	35.9	0.24	8.70	1.00	0.7	35.87	36.00	-0.13	-0.20	-0.05	0.31	0.003
*San Diego	77	36.0	0.32	20.38	1.00	0.9	41.96	36.03	-0.09	-0.19	0.01	0.32	0.005
Overall	269	34.7	0.62	8.43	0.99	1.8	34.62	34.73	-0.11	-0.21	-0.01	0.34	0.000
*Overall	273	34.7	2.16	13.27	0.97	6.2	36.39	35.00	-0.44	-0.79	-0.08	0.34	0.000
Impedance (ANT6)													
Bronx	58	498.3	4.41	69.86	1.00	0.9	497.4	499.1	-1.69	-3.25	-0.13	0.36	0.044
*Bronx	59	501.1	5.83	70.41	0.99	1.2	499.9	503.6	-2.37	-4.41	-0.34	0.35	0.033
Chicago	82	506.9	5.94	74.39	0.99	1.2	505.1	508.7	-3.66	-5.31	-2.01	0.26	0.000
*Chicago	84	507.2	19.72	74.03	0.93	3.9	504.7	508.5	-4.98	-10.9	0.92	0.27	0.000
Miami	52	518.8	4.24	68.06	1.00	0.8	517.3	520.3	-2.94	-4.37	-1.51	0.28	0.005
*Miami	53	520.5	4.71	67.41	1.00	0.9	518.9	525.7	-3.30	-4.87	-1.73	0.27	0.004
San Diego	84	473.0	3.26	142.06	1.00	0.7	471.7	474.2	-2.57	-3.39	-1.75	0.21	0.000
*San Diego	85	474.7	3.35	141.34	1.00	0.7	473.5	475.4	-2.41	-3.28	-1.54	0.23	0.000
Overall	279	498.4	5.02	99.87	1.00	1.0	497.0	499.9	-2.94	-3.70	-2.18	0.27	0.000
*Overall	281	498.6	11.44	98.15	0.99	2.3	496.9	501.2	-3.34	-5.19	-1.48	0.28	0.000

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Fat Mass (ANT7)													
Bronx	58	28.4	0.58	10.40	1.00	2.0	28.26	28.48	-0.22	-0.43	-0.02	0.34	0.027
*Bronx	59	28.6	2.66	10.87	0.94	9.3	28.25	29.10	-0.70	-1.65	0.25	0.33	0.020
Chicago	83	25.2	0.33	9.15	1.00	1.3	25.11	25.28	-0.17	-0.27	-0.08	0.31	0.002
*Chicago	84	25.3	1.10	9.02	0.99	4.3	25.11	25.25	-0.33	-0.66	-0.01	0.30	0.002
Miami	52	28.0	0.27	11.37	1.00	0.9	27.98	28.10	-0.13	-0.22	-0.03	0.31	0.041
*Miami	53	28.4	0.28	11.36	1.00	1.0	28.35	28.23	-0.10	-0.21	0.00	0.33	0.065
San Diego	84	35.8	0.20	23.53	1.00	0.5	35.75	35.84	-0.10	-0.15	-0.04	0.29	0.001
*San Diego	85	35.7	0.23	23.29	1.00	0.7	35.64	35.79	-0.07	-0.14	-0.00	0.30	0.002
Overall	279	29.7	0.37	15.98	1.00	1.2	29.59	29.73	-0.14	-0.20	-0.08	0.32	0.000
*Overall	281	29.7	1.37	15.76	0.99	4.6	29.56	29.74	-0.29	-0.51	-0.06	0.31	0.000
FFM (ANT8)													
Bronx	58	50.6	0.44	10.56	1.00	0.9	50.67	50.53	0.14	-0.02	0.30	0.58	0.312
*Bronx	59	50.5	2.58	10.10	0.94	5.1	50.83	49.70	0.60	-0.32	1.53	0.59	0.253
Chicago	83	48.9	0.29	9.04	1.00	0.6	48.99	48.82	0.17	0.08	0.25	0.73	0.000
*Chicago	84	49.0	1.09	8.88	0.99	2.2	49.14	48.78	0.33	0.00	0.65	0.74	0.000
Miami	52	51.4	0.41	9.36	1.00	0.8	51.45	51.29	0.16	0.01	0.32	0.68	0.038
*Miami	53	51.4	1.05	9.14	0.99	2.1	51.54	50.67	0.35	-0.04	0.74	0.68	0.028
San Diego	84	54.6	0.18	17.13	1.00	0.3	54.66	54.60	0.05	-0.00	0.11	0.67	0.011
*San Diego	85	54.4	0.22	17.14	1.00	0.4	54.46	54.66	0.03	-0.04	0.10	0.66	0.017
Overall	278	51.4	0.34	12.52	1.00	0.7	51.47	51.35	0.12	0.06	0.17	0.67	0.000
*Overall	281	51.4	1.41	12.30	0.99	2.7	51.56	51.06	0.30	0.07	0.53	0.67	0.000

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
TBW (ANT9)													
Bronx	58	37.0	0.31	7.72	1.00	0.8	37.09	36.99	0.10	-0.01	0.21	0.62	0.144
*Bronx	59	37.0	1.88	7.39	0.94	5.1	37.21	36.39	0.44	-0.23	1.12	0.63	0.111
Chicago	83	35.8	0.22	6.62	1.00	0.6	35.87	35.74	0.13	0.06	0.19	0.73	0.000
*Chicago	84	35.9	0.80	6.50	0.99	2.2	35.98	35.71	0.24	0.00	0.48	0.74	0.000
Miami	52	37.3	0.19	6.72	1.00	0.5	37.33	37.28	0.06	-0.01	0.13	0.69	0.041
*Miami	53	37.5	0.22	6.73	1.00	0.6	37.55	37.09	0.08	-0.00	0.16	0.69	0.029
San Diego	84	42.5	0.17	19.79	1.00	0.4	42.52	42.50	0.02	-0.03	0.07	0.66	0.020
*San Diego	85	42.4	0.50	19.61	1.00	1.2	42.46	42.50	0.09	-0.05	0.24	0.66	0.015
Overall	278	38.4	0.23	12.61	1.00	0.6	38.45	38.37	0.08	0.04	0.12	0.68	0.000
*Overall	281	38.4	1.01	12.32	0.99	2.6	38.49	38.10	0.21	0.04	0.37	0.68	0.000
Waist (ANT10A)													
Bronx	66	100.9	1.91	12.48	0.98	1.9	100.7	101.1	-0.41	-1.06	0.24	0.41	0.193
*Bronx	67	100.9	2.51	12.72	0.96	2.5	100.6	101.4	-0.69	-1.53	0.15	0.40	0.155
Chicago	90	97.7	0.97	12.12	0.99	1.0	97.97	97.46	0.51	0.25	0.77	0.70	0.002
*Chicago	92	97.7	1.12	12.13	0.99	1.1	98.00	97.13	0.62	0.32	0.92	0.71	0.001
Miami	56	99.0	1.05	13.48	0.99	1.1	99.30	98.79	0.52	0.15	0.88	0.71	0.012
*Miami	57	99.2	1.23	13.36	0.99	1.2	99.47	97.92	0.63	0.21	1.06	0.71	0.008
San Diego	83	99.7	0.95	12.71	0.99	1.0	99.81	99.58	0.23	-0.06	0.51	0.59	0.188
*San Diego	84	99.8	1.09	12.54	0.99	1.1	99.95	99.74	0.31	-0.01	0.63	0.59	0.154
Overall	295	99.2	1.22	12.62	0.99	1.2	99.31	99.05	0.26	0.07	0.46	0.60	0.003
*Overall	300	99.3	1.55	12.65	0.99	1.6	99.40	98.98	0.24	-0.00	0.49	0.60	0.003

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Hip (ANT10B)													
Bronx	67	106.3	2.69	9.72	0.93	2.5	106.6	106.1	0.55	-0.35	1.46	0.51	1.000
*Bronx	67	106.3	2.69	10.58	0.94	2.5	106.6	106.3	0.55	-0.35	1.46	0.51	1.000
Chicago	91	103.6	0.92	9.22	0.99	0.9	103.7	103.4	0.31	0.05	0.57	0.61	0.103
*Chicago	92	103.7	1.09	9.21	0.99	1.0	103.8	103.5	0.22	-0.10	0.53	0.60	0.136
Miami	56	105.9	0.71	11.49	1.00	0.7	106.0	105.7	0.32	0.07	0.57	0.71	0.036
*Miami	57	105.8	0.79	11.13	0.99	0.8	105.9	105.4	0.25	-0.04	0.53	0.69	0.061
San Diego	84	108.0	0.86	11.55	0.99	0.8	108.0	108.0	0.07	-0.19	0.33	0.54	0.689
*San Diego	84	108.0	0.86	11.46	0.99	0.8	108.0	107.8	0.07	-0.19	0.33	0.54	0.689
Overall	293	105.9	1.25	10.64	0.99	1.2	106.0	105.8	0.24	0.04	0.44	0.57	0.058
*Overall	300	105.9	1.52	10.65	0.98	1.4	106.0	105.7	0.26	0.02	0.50	0.57	0.054

*** Outliers defined as the pair difference >3SD**

(1) Standard deviation = square root (within-subject variance)

(2) Standard deviation = square root (between-subject variance)

(3) The reliability coefficient is the ICC (intra-class correlation coefficient) which is an estimate of the correlation between repeated measurements

(4) The coefficient of variation (CV) is the lab SD expressed as a percent of the mean of QC pairs

(5) P-value for test that the proportion of positive differences = 50% (test for systematic bias)

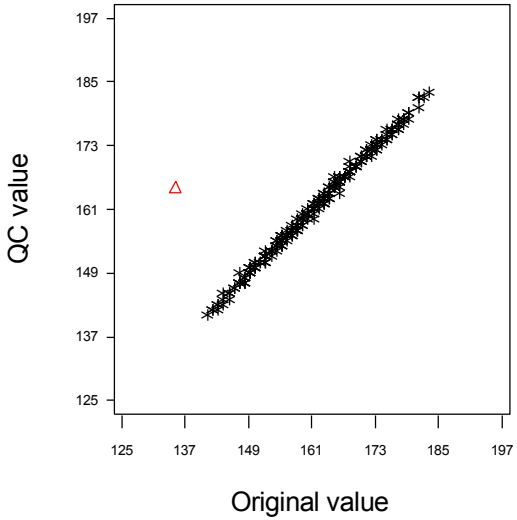
Created by HC138716 (beibo) on 17APR17 17:04

Based on the HCHS Visit2 1704 retrieval data created in April 4, 2017

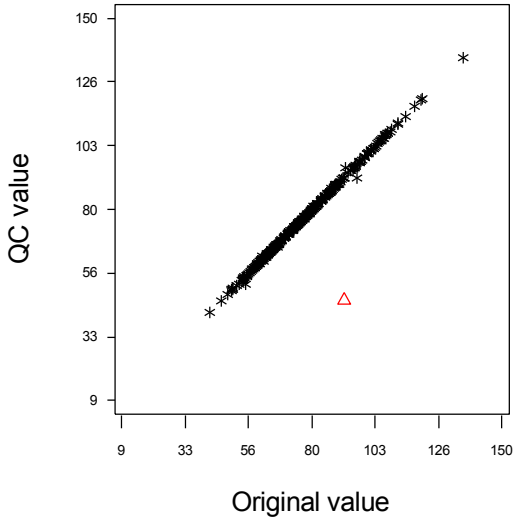
HCHS/SOL Quality Control Report April 2017

Reliability of Anthropometric Measurements

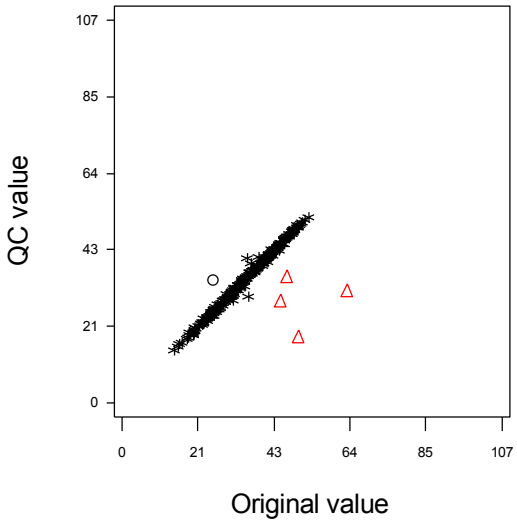
standing height (ANT2)



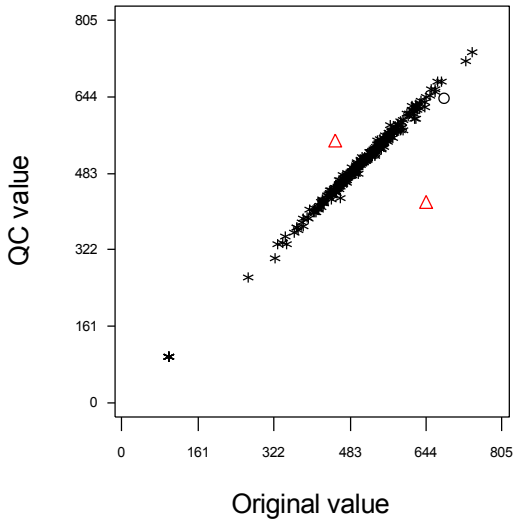
weight (ANT4)



fat (%) (ANT5)



impedance (ANT6)



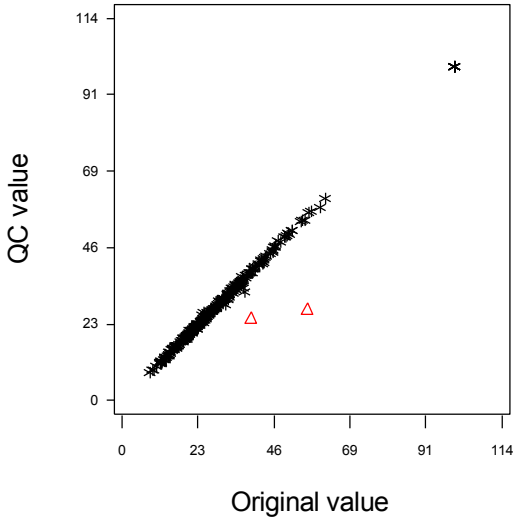
Circles indicate differences larger than 2 SD, and triangles larger than 3 SD

Created by HC138716 (beibo) on 17APR17 17:04
Based on the HCHS Visit2 1704 retrieval data created in April 4, 2017

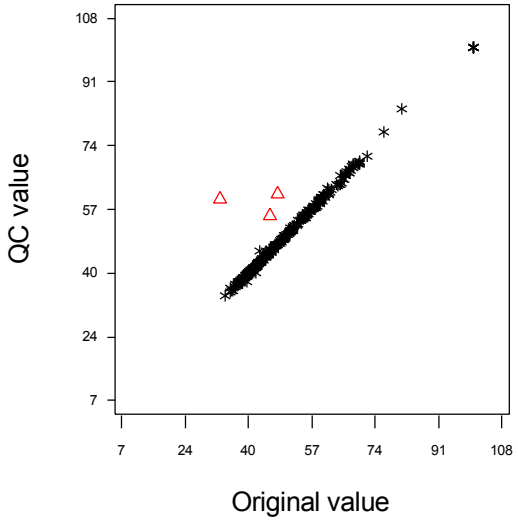
HCHS/SOL Quality Control Report April 2017

Reliability of Anthropometric Measurements

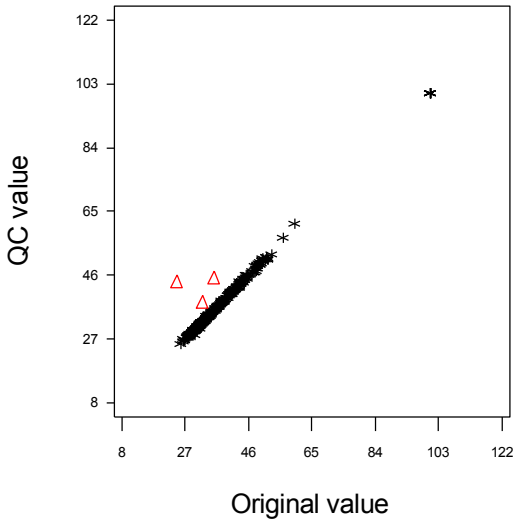
fat mass (ANT7)



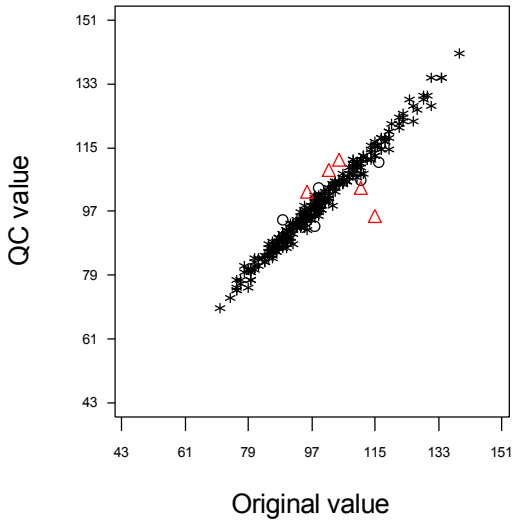
FFM (ANT8)



TBW (ANT9)



waist (ANT10A)



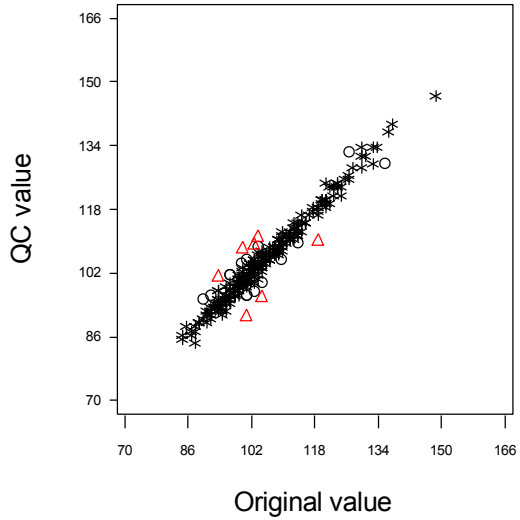
Circles indicate differences larger than 2 SD, and triangles larger than 3 SD

Created by HC138716 (beibo) on 17APR17 17:04
Based on the HCHS Visit2 1704 retrieval data created in April 4, 2017

HCHS/SOL Quality Control Report April 2017

Reliability of Anthropometric Measurements

hip (ANT10B)



Circles indicate differences larger than 2 SD, and triangles larger than 3 SD

HCHS/SOL Quality Control Report, April 2017

Table 2a. Reliability of laboratory measurements (Tube 1: 9 mL red-stoppered (serum)) Excluding ALL pairs before 1/1/2015 at the Bronx

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Total cholesterol (mg/dL) (LABA66)													
Bronx	291	182.6	4.00	38.52	0.99	2.2	182.4	182.8	-0.42	-1.07	0.23	0.45	0.140
*Bronx	296	183.3	6.21	39.21	0.98	3.4	183.0	183.5	-0.52	-1.52	0.48	0.46	0.161
Chicago	380	185.2	2.51	35.84	1.00	1.4	185.3	185.2	0.11	-0.24	0.47	0.51	0.625
*Chicago	385	185.8	4.63	35.96	0.98	2.5	185.8	185.8	0.08	-0.58	0.73	0.51	0.666
Miami	335	203.6	6.51	41.17	0.98	3.2	206.1	201.0	5.14	4.32	5.96	0.79	0.000
*Miami	337	203.5	8.02	40.92	0.96	3.9	206.1	200.9	5.19	4.11	6.27	0.79	0.000
San Diego	205	196.9	7.10	39.74	0.97	3.6	200.4	193.4	6.95	5.95	7.94	0.87	0.000
*San Diego	208	197.8	9.57	39.92	0.95	4.8	201.0	194.5	6.56	4.94	8.17	0.86	0.000
Overall	1210	191.6	5.06	39.58	0.98	2.6	192.8	190.3	2.51	2.13	2.88	0.64	0.000
*Overall	1226	192.1	7.02	39.71	0.97	3.7	193.3	190.9	2.44	1.90	2.97	0.64	0.000
Triglycerides (mg/dL) (LABA67)													
Bronx	292	126.1	4.66	76.65	1.00	3.7	126.0	126.2	-0.13	-0.88	0.63	0.50	1.000
*Bronx	296	126.0	11.06	75.85	0.98	8.8	125.4	126.6	-1.18	-2.96	0.60	0.50	1.000
Chicago	381	129.9	2.68	79.37	1.00	2.1	129.9	129.8	0.13	-0.25	0.51	0.50	1.000
*Chicago	385	131.3	9.96	85.14	0.99	7.6	131.6	131.0	0.68	-0.72	2.09	0.50	1.000
Miami	336	141.8	6.34	88.74	0.99	4.5	143.3	140.3	2.96	2.05	3.87	0.76	0.000
*Miami	337	142.2	16.37	88.21	0.97	11.5	144.2	140.1	4.11	1.68	6.55	0.76	0.000
San Diego	204	151.4	6.70	121.53	1.00	4.4	154.1	148.8	5.22	4.13	6.30	0.83	0.000
*San Diego	208	151.6	14.82	120.34	0.99	9.8	154.6	148.6	6.02	3.28	8.75	0.82	0.000
Overall	1214	135.6	5.16	89.62	1.00	3.8	136.3	134.8	1.57	1.17	1.97	0.63	0.000
*Overall	1226	136.5	13.10	91.22	0.98	9.6	137.5	135.4	2.08	1.05	3.11	0.63	0.000

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
HDL-cholesterol (mg/dL) (LABA68)													
Bronx	289	51.1	1.09	15.29	0.99	2.1	51.06	51.16	-0.10	-0.28	0.08	0.44	0.080
*Bronx	296	51.6	2.42	16.07	0.98	4.7	51.69	51.60	0.09	-0.30	0.48	0.45	0.130
Chicago	382	48.8	0.78	14.04	1.00	1.6	48.85	48.82	0.03	-0.08	0.14	0.53	0.495
*Chicago	385	48.9	2.33	13.94	0.97	4.8	48.98	48.78	0.20	-0.13	0.53	0.53	0.456
Miami	333	51.2	1.57	15.40	0.99	3.1	51.77	50.73	1.04	0.82	1.25	0.76	0.000
*Miami	337	51.3	3.86	15.17	0.94	7.5	51.89	50.71	1.18	0.61	1.75	0.76	0.000
San Diego	205	50.1	1.75	14.02	0.98	3.5	50.88	49.41	1.47	1.20	1.75	0.84	0.000
*San Diego	208	50.3	4.13	13.85	0.92	8.2	50.87	49.73	1.13	0.35	1.91	0.83	0.000
Overall	1209	50.3	1.29	14.75	0.99	2.6	50.53	50.01	0.52	0.42	0.62	0.64	0.000
*Overall	1226	50.5	3.18	14.83	0.96	6.3	50.76	50.15	0.60	0.35	0.85	0.64	0.000
LDL-cholesterol (mg/dL) (LABA69)													
Bronx	288	105.6	3.00	33.41	0.99	2.8	105.5	105.8	-0.35	-0.84	0.14	0.44	0.050
*Bronx	294	106.5	5.15	34.18	0.98	4.8	106.2	106.7	-0.47	-1.30	0.36	0.44	0.052
Chicago	375	110.8	2.28	32.09	0.99	2.1	110.8	110.8	0.06	-0.27	0.38	0.52	0.540
*Chicago	380	111.0	4.78	31.91	0.98	4.3	110.9	111.2	-0.31	-0.99	0.37	0.51	0.658
Miami	323	124.5	4.79	35.86	0.98	3.8	126.2	122.7	3.45	2.82	4.09	0.76	0.000
*Miami	326	124.4	6.09	35.61	0.97	4.9	126.0	122.8	3.19	2.32	4.06	0.76	0.000
San Diego	196	117.3	4.94	32.66	0.98	4.2	119.5	115.1	4.43	3.68	5.19	0.81	0.000
*San Diego	198	117.4	6.33	32.39	0.96	5.4	119.3	115.5	3.83	2.70	4.96	0.80	0.000
Overall	1182	114.4	3.76	34.44	0.99	3.3	115.2	113.6	1.61	1.32	1.90	0.62	0.000
*Overall	1198	114.6	5.52	34.25	0.97	4.8	115.2	113.9	1.29	0.85	1.72	0.61	0.000

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Alanine aminotransferase (U/L) (LABA74)													
Bronx	292	23.2	0.65	15.62	1.00	2.8	23.18	23.23	-0.05	-0.16	0.05	0.47	0.456
*Bronx	296	23.2	1.36	15.51	0.99	5.9	23.09	23.31	-0.22	-0.44	-0.00	0.45	0.288
Chicago	381	26.8	0.57	17.29	1.00	2.1	26.78	26.75	0.04	-0.04	0.12	0.51	0.808
*Chicago	385	26.7	1.24	17.19	0.99	4.6	26.76	26.69	0.07	-0.11	0.24	0.51	0.810
Miami	330	22.8	1.37	13.39	0.99	6.0	22.90	22.73	0.17	-0.04	0.38	0.60	0.002
*Miami	336	23.0	2.60	13.53	0.96	11.3	23.04	22.98	0.06	-0.33	0.46	0.59	0.006
San Diego	206	24.8	1.09	14.27	0.99	4.4	25.20	24.37	0.83	0.65	1.00	0.91	0.000
*San Diego	208	24.9	3.67	14.07	0.94	14.7	25.34	24.55	0.78	0.08	1.48	0.90	0.000
Overall	1212	24.5	0.98	15.44	1.00	4.0	24.56	24.40	0.17	0.09	0.25	0.61	0.000
*Overall	1225	24.6	2.25	15.39	0.98	9.2	24.61	24.49	0.12	-0.06	0.30	0.60	0.000
Aspartate aminotransferase (U/L) (LABA75)													
Bronx	291	21.7	0.65	10.59	1.00	3.0	21.61	21.69	-0.09	-0.19	0.02	0.44	0.143
*Bronx	295	21.6	1.01	10.52	0.99	4.7	21.54	21.74	-0.20	-0.36	-0.04	0.43	0.077
Chicago	381	23.0	0.47	11.40	1.00	2.1	23.02	23.01	0.01	-0.06	0.07	0.51	0.932
*Chicago	385	23.0	0.88	11.34	0.99	3.8	23.00	22.98	0.02	-0.11	0.14	0.51	0.933
Miami	330	21.6	0.78	7.83	0.99	3.6	21.85	21.44	0.41	0.30	0.52	0.76	0.000
*Miami	337	22.0	1.11	8.92	0.98	5.0	22.19	21.76	0.43	0.27	0.59	0.75	0.000
San Diego	204	22.3	0.93	10.53	0.99	4.2	22.65	22.00	0.66	0.50	0.81	0.85	0.000
*San Diego	207	22.4	2.01	10.42	0.96	8.9	22.75	22.11	0.64	0.26	1.02	0.85	0.000
Overall	1209	22.3	0.71	10.43	1.00	3.2	22.38	22.17	0.21	0.15	0.26	0.64	0.000
*Overall	1224	22.3	1.23	10.37	0.99	5.5	22.38	22.20	0.18	0.09	0.28	0.64	0.000

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Creatinine (mg/dL) (LABA76)													
Bronx	289	0.8	0.02	0.27	0.99	3.1	0.80	0.82	-0.02	-0.02	-0.02	0.17	0.000
*Bronx	296	0.8	0.05	0.27	0.96	6.5	0.80	0.82	-0.02	-0.03	-0.01	0.19	0.000
Chicago	380	0.7	0.02	0.21	0.99	2.1	0.75	0.75	-0.00	-0.01	-0.00	0.36	0.000
*Chicago	385	0.8	0.02	0.35	1.00	2.9	0.76	0.76	-0.00	-0.01	0.00	0.37	0.000
Miami	336	0.8	0.03	0.21	0.98	3.6	0.75	0.76	-0.02	-0.02	-0.01	0.23	0.000
*Miami	337	0.8	0.20	0.21	0.52	26.8	0.76	0.76	-0.00	-0.03	0.03	0.24	0.000
San Diego	206	0.7	0.03	0.21	0.99	3.5	0.74	0.74	-0.00	-0.01	0.00	0.42	0.043
*San Diego	208	0.7	0.06	0.21	0.91	8.7	0.74	0.74	-0.00	-0.02	0.01	0.42	0.044
Overall	1221	0.8	0.03	0.28	0.99	3.8	0.76	0.77	-0.01	-0.01	-0.01	0.29	0.000
*Overall	1226	0.8	0.11	0.28	0.86	14.8	0.77	0.77	-0.01	-0.02	0.00	0.29	0.000
Cystatin C (mg/L) (LABA101)													
Bronx	289	0.9	0.03	0.28	0.99	3.5	0.91	0.91	-0.00	-0.01	0.00	0.51	0.851
*Bronx	296	0.9	0.04	0.28	0.98	4.9	0.91	0.91	-0.00	-0.01	0.01	0.51	0.902
Chicago	380	0.9	0.02	0.37	1.00	2.8	0.86	0.85	0.00	0.00	0.01	0.57	0.019
*Chicago	385	0.9	0.03	0.36	0.99	3.0	0.86	0.85	0.00	-0.00	0.01	0.56	0.031
Miami	336	0.9	0.04	0.22	0.97	4.7	0.88	0.85	0.02	0.02	0.03	0.71	0.000
*Miami	337	0.9	0.26	0.22	0.40	30.2	0.90	0.85	0.04	0.00	0.08	0.71	0.000
San Diego	205	0.9	0.04	0.25	0.98	4.6	0.87	0.85	0.02	0.01	0.03	0.66	0.000
*San Diego	208	0.9	0.06	0.25	0.95	6.9	0.87	0.85	0.02	0.01	0.03	0.66	0.000
Overall	1224	0.9	0.04	0.29	0.98	4.5	0.88	0.87	0.01	0.01	0.01	0.61	0.000
*Overall	1226	0.9	0.14	0.29	0.80	16.4	0.88	0.87	0.02	0.00	0.03	0.61	0.000

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
GGT (U/L) (LABA102)													
Bronx	291	31.6	1.14	28.31	1.00	3.6	31.59	31.66	-0.08	-0.26	0.11	0.45	0.197
*Bronx	296	34.4	3.73	43.69	0.99	10.9	34.01	34.71	-0.70	-1.30	-0.10	0.44	0.100
Chicago	383	33.7	0.75	30.66	1.00	2.2	33.65	33.76	-0.11	-0.21	-0.00	0.45	0.255
*Chicago	385	33.8	3.35	30.53	0.99	9.9	33.66	33.91	-0.25	-0.72	0.23	0.45	0.258
Miami	329	28.2	1.08	20.29	1.00	3.8	28.49	27.84	0.66	0.51	0.81	0.82	0.000
*Miami	337	30.7	1.76	30.85	1.00	5.7	31.11	30.30	0.81	0.56	1.06	0.81	0.000
San Diego	206	33.0	1.46	31.90	1.00	4.4	33.51	32.45	1.07	0.83	1.31	0.87	0.000
*San Diego	208	33.0	2.63	31.71	0.99	8.0	33.43	32.52	0.91	0.42	1.40	0.86	0.000
Overall	1216	32.0	1.21	29.01	1.00	3.8	32.17	31.83	0.33	0.24	0.43	0.64	0.000
*Overall	1226	32.9	2.98	34.42	0.99	9.1	33.00	32.87	0.13	-0.11	0.37	0.64	0.000

*** Outliers defined as the pair difference >3SD**

(1) Standard deviation = square root (within-subject variance)

(2) Standard deviation = square root (between-subject variance)

(3) The reliability coefficient is the ICC (intra-class correlation coefficient) which is an estimate of the correlation between repeated measurements

(4) The coefficient of variation (CV) is the lab SD expressed as a percent of the mean of QC pairs

(5) P-value for test that the proportion of positive differences = 50% (test for systematic bias)

Created by HC138701a (beibo) on 17APR17 14:21

Based on the HCHS Visit2 1704 retrieval data created in April 4, 2017

HCHS/SOL Quality Control Report, April 2017

Table 2b. Reliability of laboratory measurements (Tube 4: 4 mL lavender-stoppered (EDTA)) Excluding ALL pairs before 1/1/2015 at the Bronx

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
White Blood Count (x10e9) (LABA1)													
Bronx	295	6.9	0.26	1.90	0.98	3.8	6.92	6.96	-0.04	-0.08	0.00	0.46	0.235
*Bronx	297	6.9	0.40	1.89	0.96	5.8	6.93	6.94	-0.01	-0.07	0.06	0.47	0.290
Chicago	380	6.4	0.16	1.58	0.99	2.5	6.44	6.44	0.01	-0.02	0.03	0.51	0.731
*Chicago	385	6.5	0.20	1.63	0.99	3.1	6.47	6.45	0.02	-0.01	0.05	0.52	0.609
Miami	334	6.9	0.20	1.69	0.99	3.0	6.87	6.92	-0.05	-0.08	-0.02	0.38	0.000
*Miami	338	6.9	0.28	1.72	0.98	4.0	6.90	6.96	-0.06	-0.10	-0.02	0.38	0.000
San Diego	209	6.6	0.26	1.74	0.98	3.9	6.69	6.54	0.15	0.11	0.20	0.68	0.000
*San Diego	211	6.6	0.35	1.73	0.96	5.3	6.69	6.53	0.16	0.10	0.22	0.68	0.000
Overall	1221	6.7	0.22	1.75	0.98	3.3	6.73	6.72	0.01	-0.01	0.03	0.49	0.754
*Overall	1231	6.7	0.30	1.75	0.97	4.5	6.74	6.72	0.01	-0.01	0.04	0.49	0.755
Red Blood Count (x10e12) (LABA2)													
Bronx	292	4.5	0.12	0.47	0.94	2.6	4.44	4.56	-0.12	-0.14	-0.11	0.11	0.000
*Bronx	297	4.5	0.13	0.47	0.93	2.8	4.43	4.56	-0.12	-0.14	-0.11	0.11	0.000
Chicago	384	4.6	0.04	0.46	0.99	0.8	4.56	4.56	0.00	-0.00	0.01	0.52	0.444
*Chicago	388	4.6	0.04	0.46	0.99	1.0	4.57	4.57	-0.00	-0.01	0.00	0.52	0.515
Miami	335	4.7	0.07	0.49	0.98	1.4	4.71	4.69	0.02	0.01	0.03	0.60	0.001
*Miami	338	4.7	0.07	0.49	0.98	1.5	4.71	4.69	0.02	0.01	0.03	0.60	0.001
San Diego	207	4.5	0.08	0.44	0.97	1.8	4.54	4.53	0.01	-0.00	0.03	0.53	0.395
*San Diego	211	4.5	0.09	0.43	0.96	2.1	4.54	4.52	0.01	-0.00	0.03	0.54	0.326
Overall	1216	4.6	0.08	0.47	0.98	1.6	4.57	4.59	-0.02	-0.02	-0.01	0.44	0.000
*Overall	1234	4.6	0.09	0.47	0.97	1.9	4.57	4.59	-0.02	-0.03	-0.01	0.44	0.000

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Hemoglobin (g/dL) (LABA3)													
Bronx	292	13.2	0.34	1.43	0.95	2.6	13.02	13.38	-0.36	-0.39	-0.32	0.10	0.000
*Bronx	297	13.2	0.37	1.42	0.94	2.8	13.02	13.39	-0.37	-0.42	-0.33	0.10	0.000
Chicago	384	13.6	0.08	1.49	1.00	0.6	13.60	13.59	0.01	-0.00	0.02	0.56	0.052
*Chicago	388	13.6	0.10	1.49	1.00	0.8	13.60	13.60	0.00	-0.01	0.02	0.56	0.072
Miami	336	13.8	0.18	1.45	0.98	1.3	13.85	13.78	0.07	0.04	0.10	0.65	0.000
*Miami	339	13.8	0.19	1.44	0.98	1.4	13.85	13.79	0.07	0.04	0.09	0.64	0.000
San Diego	210	13.6	0.27	1.38	0.96	2.0	13.62	13.58	0.04	-0.01	0.09	0.53	0.415
*San Diego	211	13.6	0.50	1.36	0.88	3.7	13.59	13.59	-0.00	-0.10	0.09	0.53	0.460
Overall	1226	13.6	0.22	1.46	0.98	1.6	13.53	13.59	-0.06	-0.08	-0.04	0.45	0.001
*Overall	1235	13.6	0.30	1.45	0.96	2.2	13.53	13.60	-0.07	-0.09	-0.05	0.44	0.001
% Hematocrit (LABA4)													
Bronx	293	41.7	1.10	4.18	0.94	2.6	41.15	42.30	-1.15	-1.27	-1.03	0.11	0.000
*Bronx	297	41.7	1.18	4.15	0.93	2.8	41.15	42.34	-1.19	-1.32	-1.05	0.11	0.000
Chicago	375	42.4	0.35	4.36	0.99	0.8	42.42	42.44	-0.01	-0.06	0.04	0.49	0.869
*Chicago	388	42.5	0.45	4.37	0.99	1.1	42.53	42.55	-0.02	-0.09	0.04	0.49	0.829
Miami	333	45.1	0.68	4.37	0.98	1.5	45.08	45.06	0.02	-0.08	0.13	0.53	0.369
*Miami	338	45.1	0.76	4.36	0.97	1.7	45.15	45.09	0.06	-0.06	0.17	0.53	0.290
San Diego	209	42.6	0.75	4.00	0.97	1.8	42.60	42.57	0.03	-0.11	0.17	0.51	0.887
*San Diego	211	42.6	1.45	3.89	0.88	3.4	42.54	42.59	-0.06	-0.33	0.22	0.51	0.888
Overall	1225	43.1	0.76	4.45	0.97	1.8	42.92	43.19	-0.27	-0.32	-0.21	0.41	0.000
*Overall	1234	43.1	0.96	4.43	0.96	2.2	42.92	43.20	-0.29	-0.36	-0.21	0.41	0.000

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Mean Corpuscular Volume (fl) (LABA5)													
Bronx	293	93.1	0.48	6.42	0.99	0.5	93.12	93.14	-0.02	-0.10	0.05	0.49	0.850
*Bronx	297	93.2	0.60	6.40	0.99	0.6	93.15	93.15	0.00	-0.10	0.10	0.50	1.000
Chicago	381	93.3	0.47	6.42	0.99	0.5	93.32	93.31	0.01	-0.06	0.08	0.50	1.000
*Chicago	388	93.4	0.62	6.44	0.99	0.7	93.39	93.38	0.01	-0.08	0.10	0.50	1.000
Miami	336	96.3	0.65	6.98	0.99	0.7	96.12	96.50	-0.38	-0.47	-0.29	0.17	0.000
*Miami	338	96.3	0.68	7.01	0.99	0.7	96.14	96.54	-0.40	-0.49	-0.31	0.17	0.000
San Diego	210	94.3	0.75	6.23	0.99	0.8	94.16	94.40	-0.23	-0.37	-0.09	0.31	0.000
*San Diego	211	94.3	2.45	5.99	0.86	2.6	94.05	94.51	-0.46	-0.93	0.01	0.30	0.000
Overall	1230	94.3	0.59	6.69	0.99	0.6	94.22	94.37	-0.15	-0.20	-0.10	0.35	0.000
*Overall	1234	94.3	1.17	6.64	0.97	1.2	94.20	94.38	-0.18	-0.28	-0.09	0.36	0.000
Mean Corpuscular Hemoglobin (pg) (LABA6)													
Bronx	293	29.4	0.21	2.00	0.99	0.7	29.42	29.42	-0.00	-0.04	0.03	0.51	0.801
*Bronx	297	29.4	0.26	1.99	0.98	0.9	29.42	29.43	-0.01	-0.05	0.04	0.51	0.802
Chicago	381	29.9	0.23	1.85	0.99	0.8	29.87	29.85	0.01	-0.02	0.05	0.54	0.183
*Chicago	386	29.9	0.25	1.84	0.98	0.8	29.87	29.86	0.02	-0.02	0.05	0.54	0.169
Miami	328	29.5	0.24	2.16	0.99	0.8	29.52	29.53	-0.01	-0.05	0.02	0.48	0.595
*Miami	336	29.6	0.28	2.15	0.98	0.9	29.55	29.56	-0.01	-0.06	0.03	0.48	0.600
San Diego	207	30.1	0.22	1.96	0.99	0.7	30.11	30.12	-0.00	-0.05	0.04	0.49	0.822
*San Diego	209	30.1	0.30	1.95	0.98	1.0	30.11	30.14	-0.03	-0.09	0.03	0.48	0.709
Overall	1210	29.7	0.23	2.00	0.99	0.8	29.70	29.70	0.00	-0.02	0.02	0.51	0.620
*Overall	1228	29.7	0.27	2.00	0.98	0.9	29.71	29.72	-0.00	-0.03	0.02	0.51	0.667

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Mean Corpuscular Hemoglobin Concentration (g/dL)(LABA7)													
Bronx	279	31.8	0.22	1.24	0.97	0.7	31.78	31.77	0.00	-0.03	0.04	0.53	0.329
*Bronx	284	31.8	0.27	1.23	0.95	0.8	31.77	31.76	0.01	-0.04	0.05	0.54	0.303
Chicago	361	32.1	0.26	1.40	0.97	0.8	32.16	32.13	0.02	-0.02	0.06	0.54	0.193
*Chicago	369	32.1	0.31	1.39	0.95	1.0	32.15	32.14	0.01	-0.03	0.06	0.53	0.240
Miami	289	31.0	0.36	1.01	0.89	1.2	31.06	30.95	0.11	0.06	0.17	0.61	0.000
*Miami	292	31.0	0.38	1.01	0.87	1.2	31.06	30.94	0.12	0.06	0.18	0.61	0.000
San Diego	200	32.0	0.26	1.10	0.95	0.8	32.07	32.01	0.05	0.00	0.10	0.56	0.113
*San Diego	202	32.1	0.34	1.11	0.91	1.1	32.07	32.05	0.02	-0.04	0.09	0.56	0.154
Overall	1123	31.7	0.27	1.30	0.96	0.9	31.77	31.73	0.05	0.02	0.07	0.56	0.000
*Overall	1147	31.7	0.33	1.30	0.94	1.0	31.77	31.73	0.04	0.01	0.07	0.56	0.000
% Red Cell Distribution Width (LABA8)													
Bronx	292	14.3	0.09	1.35	1.00	0.7	14.23	14.27	-0.04	-0.05	-0.02	0.35	0.000
*Bronx	297	14.2	0.17	1.35	0.98	1.2	14.23	14.25	-0.01	-0.04	0.01	0.36	0.000
Chicago	382	13.9	0.08	1.28	1.00	0.5	13.90	13.91	-0.01	-0.02	0.00	0.46	0.266
*Chicago	386	13.9	0.08	1.33	1.00	0.6	13.92	13.93	-0.01	-0.02	0.00	0.46	0.270
Miami	337	14.7	0.09	1.63	1.00	0.6	14.67	14.65	0.02	0.01	0.04	0.60	0.002
*Miami	338	14.7	0.35	1.63	0.96	2.4	14.67	14.68	-0.00	-0.06	0.05	0.60	0.003
San Diego	208	13.9	0.08	1.13	0.99	0.6	13.93	13.91	0.02	-0.00	0.03	0.58	0.065
*San Diego	211	13.9	0.21	1.15	0.97	1.5	13.96	13.91	0.05	0.01	0.09	0.59	0.037
Overall	1223	14.2	0.09	1.43	1.00	0.6	14.20	14.21	-0.00	-0.01	0.00	0.49	0.696
*Overall	1232	14.2	0.23	1.43	0.98	1.6	14.21	14.21	0.00	-0.02	0.02	0.50	0.887

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Platelet Count (x10e9) (LABA9)													
Bronx	292	242.3	7.79	67.03	0.99	3.2	239.8	244.7	-4.91	-6.05	-3.78	0.30	0.000
*Bronx	297	242.6	10.35	66.77	0.98	4.3	240.6	244.6	-4.01	-5.61	-2.40	0.31	0.000
Chicago	381	245.5	5.14	60.84	0.99	2.1	245.6	245.4	0.28	-0.45	1.01	0.52	0.432
*Chicago	386	245.9	5.66	61.07	0.99	2.3	245.9	245.8	0.09	-0.71	0.88	0.52	0.532
Miami	331	253.9	8.16	61.31	0.98	3.2	253.1	254.8	-1.65	-2.88	-0.42	0.47	0.282
*Miami	337	253.5	12.70	61.69	0.96	5.0	252.4	254.6	-2.19	-4.09	-0.28	0.47	0.239
San Diego	207	261.3	6.98	70.68	0.99	2.7	262.4	260.2	2.14	0.83	3.46	0.58	0.026
*San Diego	210	261.9	9.47	70.23	0.98	3.6	263.3	260.6	2.72	0.95	4.50	0.58	0.022
Overall	1216	249.9	7.14	64.60	0.99	2.9	249.2	250.5	-1.31	-1.87	-0.75	0.46	0.013
*Overall	1230	249.9	9.77	64.56	0.98	3.9	249.4	250.5	-1.07	-1.85	-0.30	0.47	0.019
Mean platelet volume (fL) (LABA105)													
Bronx	290	11.8	0.16	1.02	0.98	1.3	11.77	11.79	-0.01	-0.04	0.01	0.44	0.099
*Bronx	293	11.8	0.21	1.03	0.96	1.7	11.78	11.80	-0.02	-0.06	0.01	0.44	0.088
Chicago	376	11.6	0.13	1.03	0.98	1.2	11.64	11.63	0.00	-0.02	0.02	0.51	0.680
*Chicago	381	11.6	0.15	1.02	0.98	1.3	11.64	11.64	-0.01	-0.03	0.02	0.51	0.815
Miami	311	11.8	0.15	0.94	0.98	1.3	11.78	11.73	0.05	0.03	0.07	0.65	0.000
*Miami	315	11.8	0.16	0.94	0.97	1.3	11.78	11.73	0.06	0.03	0.08	0.66	0.000
San Diego	193	11.5	0.14	1.02	0.98	1.2	11.49	11.45	0.05	0.02	0.07	0.66	0.000
*San Diego	196	11.5	0.17	1.01	0.97	1.5	11.49	11.44	0.05	0.01	0.08	0.66	0.000
Overall	1174	11.7	0.15	1.01	0.98	1.3	11.69	11.67	0.02	0.01	0.03	0.56	0.001
*Overall	1185	11.7	0.17	1.00	0.97	1.5	11.69	11.67	0.02	0.00	0.03	0.56	0.001

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Platelet distribution width (fL) (LABA106)													
Bronx	288	15.0	0.59	2.51	0.95	3.9	14.99	15.06	-0.07	-0.17	0.03	0.43	0.038
*Bronx	293	15.0	0.74	2.50	0.92	4.9	15.00	15.09	-0.08	-0.20	0.03	0.43	0.034
Chicago	376	14.7	0.50	2.43	0.96	3.4	14.69	14.72	-0.04	-0.11	0.03	0.50	1.000
*Chicago	381	14.8	0.57	2.46	0.95	3.8	14.74	14.77	-0.03	-0.11	0.05	0.50	1.000
Miami	302	15.0	0.58	2.32	0.94	3.9	15.10	14.98	0.12	0.03	0.22	0.56	0.038
*Miami	308	15.1	0.67	2.32	0.92	4.4	15.13	15.01	0.12	0.02	0.23	0.56	0.040
San Diego	189	14.4	0.47	2.34	0.96	3.3	14.40	14.30	0.11	0.01	0.20	0.58	0.030
*San Diego	194	14.4	0.59	2.42	0.94	4.1	14.49	14.36	0.13	0.01	0.25	0.58	0.027
Overall	1155	14.8	0.54	2.42	0.95	3.6	14.82	14.81	0.01	-0.03	0.06	0.51	0.412
*Overall	1176	14.9	0.64	2.44	0.94	4.3	14.87	14.84	0.02	-0.03	0.08	0.51	0.366
% Glycosylated Hemoglobin (LABA72)													
Bronx	295	6.1	0.06	1.38	1.00	0.9	6.12	6.11	0.00	-0.01	0.01	0.48	0.773
*Bronx	297	6.1	0.19	1.37	0.98	3.0	6.11	6.12	-0.01	-0.04	0.02	0.48	0.775
Chicago	388	5.9	0.04	1.08	1.00	0.7	5.92	5.92	0.00	-0.00	0.01	0.52	0.651
*Chicago	390	5.9	0.06	1.08	1.00	1.0	5.92	5.92	0.00	-0.00	0.01	0.53	0.530
Miami	336	6.1	0.04	1.38	1.00	0.7	6.07	6.08	-0.00	-0.01	0.01	0.50	1.000
*Miami	338	6.1	0.06	1.38	1.00	0.9	6.07	6.08	-0.00	-0.01	0.01	0.50	1.000
San Diego	209	6.2	0.04	1.24	1.00	0.7	6.16	6.16	0.00	-0.01	0.01	0.50	1.000
*San Diego	211	6.2	0.05	1.23	1.00	0.9	6.15	6.15	0.00	-0.01	0.01	0.51	0.905
Overall	1229	6.1	0.04	1.27	1.00	0.7	6.05	6.05	0.00	-0.00	0.00	0.50	0.960
*Overall	1236	6.0	0.10	1.27	0.99	1.7	6.05	6.05	-0.00	-0.01	0.01	0.51	0.844

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
% Neutrophils (LABA10)													
Bronx	292	57.1	1.19	9.29	0.98	2.1	57.08	57.16	-0.08	-0.27	0.11	0.50	1.000
*Bronx	297	57.2	2.14	9.21	0.95	3.7	57.10	57.21	-0.12	-0.46	0.23	0.50	1.000
Chicago	374	57.3	0.82	7.63	0.99	1.4	57.37	57.23	0.14	0.02	0.26	0.55	0.109
*Chicago	382	57.1	1.20	7.85	0.98	2.1	57.14	56.97	0.17	0.00	0.34	0.55	0.089
Miami	335	58.9	0.99	8.41	0.99	1.7	59.06	58.82	0.24	0.10	0.39	0.62	0.000
*Miami	338	58.9	1.64	8.37	0.96	2.8	59.02	58.75	0.27	0.02	0.51	0.62	0.000
San Diego	207	59.1	0.92	7.64	0.99	1.6	58.97	59.16	-0.19	-0.36	-0.01	0.41	0.040
*San Diego	211	58.9	1.25	7.90	0.98	2.1	58.89	58.92	-0.02	-0.26	0.22	0.43	0.088
Overall	1210	58.0	0.97	8.33	0.99	1.7	58.05	57.96	0.08	0.01	0.16	0.54	0.028
*Overall	1228	57.9	1.60	8.38	0.96	2.8	57.95	57.85	0.10	-0.03	0.22	0.54	0.025
% Lymphocytes (LABA11)													
Bronx	292	31.8	1.08	8.55	0.98	3.4	31.95	31.72	0.24	0.06	0.41	0.57	0.049
*Bronx	297	31.8	2.12	8.46	0.94	6.7	31.97	31.72	0.25	-0.09	0.59	0.57	0.044
Chicago	376	30.9	0.75	6.73	0.99	2.4	30.80	30.94	-0.14	-0.25	-0.04	0.42	0.010
*Chicago	383	31.1	1.06	6.93	0.98	3.4	31.02	31.15	-0.13	-0.28	0.02	0.42	0.009
Miami	334	30.1	0.88	7.52	0.99	2.9	30.13	30.14	-0.01	-0.14	0.12	0.50	0.949
*Miami	337	30.2	1.46	7.50	0.96	4.8	30.16	30.21	-0.05	-0.27	0.18	0.49	0.898
San Diego	209	30.7	0.98	7.07	0.98	3.2	30.85	30.59	0.26	0.08	0.45	0.59	0.034
*San Diego	211	30.9	1.22	7.23	0.97	3.9	31.02	30.75	0.28	0.05	0.51	0.59	0.035
Overall	1211	30.9	0.89	7.51	0.99	2.9	30.91	30.88	0.04	-0.03	0.11	0.51	0.788
*Overall	1228	31.0	1.51	7.54	0.96	4.9	31.02	30.96	0.06	-0.06	0.18	0.51	0.715

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
% Monocytes (LABA12)													
Bronx	295	7.5	0.55	1.84	0.92	7.4	7.48	7.60	-0.12	-0.21	-0.03	0.42	0.030
*Bronx	297	7.6	0.68	1.83	0.88	9.0	7.49	7.63	-0.13	-0.24	-0.03	0.42	0.031
Chicago	380	7.9	0.56	2.01	0.93	7.1	7.89	7.91	-0.02	-0.10	0.06	0.47	0.335
*Chicago	383	7.9	0.60	2.00	0.92	7.5	7.91	7.90	0.01	-0.08	0.09	0.47	0.443
Miami	334	7.0	0.61	2.01	0.91	8.7	6.89	7.19	-0.30	-0.39	-0.22	0.28	0.000
*Miami	338	7.1	0.70	2.01	0.89	9.9	6.92	7.21	-0.28	-0.39	-0.18	0.29	0.000
San Diego	210	6.9	0.53	1.83	0.92	7.6	6.89	6.98	-0.09	-0.19	0.01	0.41	0.047
*San Diego	211	7.0	1.34	1.72	0.62	19.2	6.88	7.09	-0.21	-0.46	0.05	0.40	0.038
Overall	1222	7.4	0.58	1.98	0.92	7.8	7.36	7.48	-0.12	-0.17	-0.08	0.39	0.000
*Overall	1229	7.4	0.82	1.95	0.85	11.0	7.36	7.50	-0.14	-0.21	-0.08	0.40	0.000
% Eosiniphils (LABA13)													
Bronx	296	2.6	0.38	2.14	0.97	14.2	2.63	2.65	-0.02	-0.08	0.04	0.48	0.791
*Bronx	297	2.7	0.53	2.13	0.94	19.8	2.65	2.65	0.01	-0.07	0.09	0.49	0.860
Chicago	380	2.9	0.34	2.48	0.98	11.6	2.95	2.94	0.01	-0.03	0.06	0.54	0.310
*Chicago	383	2.9	0.50	2.46	0.96	16.8	2.93	2.96	-0.03	-0.10	0.04	0.53	0.439
Miami	334	2.8	0.31	2.28	0.98	11.1	2.83	2.83	-0.00	-0.05	0.05	0.50	1.000
*Miami	338	2.9	0.37	2.41	0.98	13.0	2.87	2.86	0.02	-0.04	0.07	0.51	0.927
San Diego	210	2.4	0.33	1.73	0.96	13.9	2.39	2.39	-0.00	-0.06	0.06	0.54	0.572
*San Diego	211	2.4	0.35	1.73	0.96	14.5	2.39	2.38	0.01	-0.06	0.08	0.54	0.500
Overall	1216	2.7	0.33	2.23	0.98	12.1	2.73	2.73	-0.00	-0.03	0.03	0.52	0.494
*Overall	1229	2.8	0.45	2.26	0.96	16.3	2.76	2.76	-0.00	-0.04	0.03	0.52	0.471

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
% Basophils (LABA14)													
Bronx	293	0.9	0.34	0.57	0.74	36.6	0.89	0.96	-0.07	-0.12	-0.01	0.41	0.071
*Bronx	297	0.9	0.39	0.56	0.68	41.8	0.91	0.96	-0.05	-0.11	0.01	0.43	0.110
Chicago	371	1.1	0.33	0.70	0.82	29.5	1.13	1.11	0.03	-0.02	0.07	0.53	0.504
*Chicago	382	1.2	0.46	0.69	0.69	39.8	1.15	1.15	-0.00	-0.07	0.06	0.52	0.687
Miami	332	1.1	0.36	0.53	0.68	32.6	1.12	1.11	0.01	-0.04	0.07	0.50	1.000
*Miami	338	1.1	0.44	0.50	0.57	39.1	1.13	1.11	0.02	-0.05	0.08	0.50	1.000
San Diego	208	1.0	0.34	0.76	0.84	32.8	1.05	0.99	0.06	-0.01	0.12	0.63	0.031
*San Diego	211	1.0	0.43	0.74	0.74	41.9	1.04	1.03	0.01	-0.07	0.10	0.60	0.075
Overall	1203	1.1	0.34	0.64	0.78	32.4	1.05	1.05	0.00	-0.02	0.03	0.51	0.748
*Overall	1228	1.1	0.43	0.63	0.68	40.4	1.07	1.07	-0.01	-0.04	0.03	0.50	0.858
Neutrophil Count (x10e9) (LABA23)													
Bronx	290	4.0	0.16	1.51	0.99	3.9	4.02	4.03	-0.02	-0.04	0.01	0.47	0.462
*Bronx	297	4.0	0.32	1.50	0.96	7.9	4.03	4.04	-0.01	-0.06	0.04	0.47	0.430
Chicago	374	3.7	0.10	1.21	0.99	2.7	3.73	3.72	0.01	-0.01	0.02	0.55	0.130
*Chicago	382	3.7	0.14	1.21	0.99	3.8	3.73	3.71	0.02	0.00	0.04	0.56	0.082
Miami	335	4.1	0.14	1.37	0.99	3.5	4.12	4.13	-0.01	-0.03	0.01	0.44	0.072
*Miami	337	4.1	0.24	1.36	0.97	5.8	4.13	4.14	-0.01	-0.05	0.02	0.44	0.073
San Diego	207	3.9	0.16	1.33	0.99	4.0	3.97	3.88	0.09	0.06	0.11	0.68	0.000
*San Diego	211	3.9	0.23	1.32	0.97	5.8	3.97	3.88	0.09	0.05	0.13	0.68	0.000
Overall	1213	3.9	0.15	1.36	0.99	3.7	3.95	3.93	0.01	0.00	0.03	0.53	0.131
*Overall	1227	3.9	0.24	1.35	0.97	6.0	3.95	3.94	0.01	-0.00	0.03	0.53	0.134

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Lymphocyte Count (x10e9) (LABA24)													
Bronx	288	2.1	0.10	0.63	0.97	4.9	2.14	2.13	0.00	-0.01	0.02	0.47	0.481
*Bronx	297	2.1	0.15	0.64	0.95	7.1	2.16	2.14	0.02	-0.01	0.04	0.49	0.730
Chicago	380	2.0	0.07	0.61	0.99	3.6	1.97	1.98	-0.01	-0.02	0.00	0.44	0.080
*Chicago	383	2.0	0.09	0.61	0.98	4.4	1.98	1.98	-0.01	-0.02	0.01	0.44	0.095
Miami	335	2.0	0.10	0.57	0.97	4.8	2.03	2.04	-0.01	-0.03	0.00	0.43	0.042
*Miami	337	2.0	0.14	0.58	0.95	6.8	2.04	2.06	-0.02	-0.05	-0.00	0.43	0.031
San Diego	209	2.0	0.11	0.57	0.96	5.7	2.02	1.96	0.06	0.04	0.08	0.74	0.000
*San Diego	211	2.0	0.15	0.63	0.95	7.4	2.05	1.97	0.08	0.05	0.10	0.74	0.000
Overall	1213	2.0	0.10	0.60	0.98	4.7	2.04	2.03	0.00	-0.00	0.01	0.50	0.887
*Overall	1228	2.0	0.13	0.62	0.96	6.4	2.05	2.04	0.01	-0.00	0.02	0.50	0.972
Monocyte Count (x10e9) (LABA25)													
Bronx	294	0.5	0.05	0.17	0.92	9.5	0.51	0.52	-0.01	-0.02	-0.00	0.37	0.007
*Bronx	297	0.5	0.05	0.17	0.91	10.5	0.51	0.52	-0.01	-0.02	0.00	0.39	0.018
Chicago	382	0.5	0.05	0.17	0.93	9.4	0.50	0.50	0.00	-0.00	0.01	0.53	0.485
*Chicago	383	0.5	0.05	0.17	0.92	9.8	0.51	0.50	0.00	-0.00	0.01	0.53	0.439
Miami	335	0.5	0.05	0.15	0.90	10.5	0.47	0.49	-0.02	-0.03	-0.01	0.28	0.000
*Miami	338	0.5	0.06	0.15	0.87	12.5	0.47	0.49	-0.02	-0.03	-0.01	0.28	0.000
San Diego	210	0.4	0.05	0.13	0.87	11.4	0.44	0.44	0.00	-0.01	0.01	0.49	1.000
*San Diego	211	0.5	0.15	0.13	0.43	32.3	0.44	0.46	-0.01	-0.04	0.01	0.49	0.914
Overall	1224	0.5	0.05	0.16	0.91	10.3	0.48	0.49	-0.01	-0.01	-0.00	0.42	0.000
*Overall	1229	0.5	0.08	0.16	0.81	15.9	0.49	0.49	-0.01	-0.02	-0.00	0.42	0.000

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Eosinophil Count (x10e9) (LABA26)													
Bronx	293	0.2	0.03	0.15	0.96	16.9	0.18	0.18	0.00	-0.00	0.01	0.52	0.890
*Bronx	297	0.2	0.03	0.15	0.95	19.8	0.18	0.18	0.00	-0.00	0.01	0.54	0.689
Chicago	381	0.2	0.03	0.19	0.98	15.9	0.19	0.19	-0.00	-0.01	0.00	0.39	0.072
*Chicago	383	0.2	0.05	0.19	0.95	23.7	0.19	0.20	-0.01	-0.01	-0.00	0.38	0.044
Miami	333	0.2	0.03	0.18	0.97	15.8	0.19	0.19	0.00	-0.00	0.01	0.52	0.801
*Miami	338	0.2	0.04	0.20	0.97	18.1	0.20	0.20	0.00	-0.00	0.01	0.54	0.545
San Diego	210	0.2	0.03	0.13	0.94	20.8	0.16	0.16	0.00	-0.00	0.01	0.56	0.551
*San Diego	211	0.2	0.03	0.13	0.93	21.7	0.16	0.16	0.00	-0.00	0.01	0.57	0.461
Overall	1217	0.2	0.03	0.17	0.97	16.8	0.18	0.18	-0.00	-0.00	0.00	0.49	0.742
*Overall	1229	0.2	0.04	0.17	0.95	21.0	0.18	0.18	-0.00	-0.00	0.00	0.50	0.949
Basophil Count (x10e9) (LABA27)													
Bronx	296	0.1	0.03	0.05	0.70	59.5	0.05	0.06	-0.01	-0.01	-0.00	0.37	0.052
*Bronx	297	0.1	0.03	0.05	0.68	61.2	0.05	0.06	-0.00	-0.01	0.00	0.38	0.072
Chicago	377	0.1	0.03	0.06	0.77	49.6	0.06	0.06	-0.00	-0.01	0.00	0.47	0.724
*Chicago	382	0.1	0.04	0.06	0.69	61.7	0.06	0.07	-0.00	-0.01	0.00	0.45	0.494
Miami	331	0.1	0.04	0.05	0.63	49.6	0.07	0.07	-0.00	-0.01	0.00	0.46	0.510
*Miami	337	0.1	0.04	0.04	0.53	57.4	0.07	0.07	-0.00	-0.01	0.00	0.46	0.525
San Diego	209	0.1	0.03	0.06	0.77	53.9	0.06	0.06	0.00	-0.00	0.01	0.57	0.441
*San Diego	211	0.1	0.04	0.06	0.71	60.7	0.06	0.06	0.00	-0.01	0.01	0.55	0.652
Overall	1213	0.1	0.03	0.05	0.72	52.4	0.06	0.06	-0.00	-0.00	0.00	0.46	0.212
*Overall	1227	0.1	0.04	0.05	0.66	60.3	0.06	0.06	-0.00	-0.01	0.00	0.45	0.145

*** Outliers defined as the pair difference >3SD**

(1) Standard deviation = square root (within-subject variance)

(2) Standard deviation = square root (between-subject variance)

(3) The reliability coefficient is the ICC (intra-class correlation coefficient) which is an estimate of the correlation between repeated measurements

(4) The coefficient of variation (CV) is the lab SD expressed as a percent of the mean of QC pairs

(5) P-value for test that the proportion of positive differences = 50% (test for systematic bias)

HCHS/SOL Quality Control Report, April 2017

Table 2c. Reliability of laboratory measurements (Tube 5: 10 mL lavender-stoppered (EDTA)) Excluding ALL pairs before 1/1/2015 at the Bronx

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Glucose, fasting (mg/dL) (LABA70)													
Bronx	295	113.0	1.78	43.88	1.00	1.6	113.1	113.0	0.14	-0.15	0.42	0.54	0.201
*Bronx	297	113.1	3.48	43.69	0.99	3.1	113.1	113.0	0.14	-0.41	0.70	0.54	0.203
Chicago	380	120.1	3.98	51.14	0.99	3.3	120.1	120.2	-0.13	-0.70	0.44	0.50	1.000
*Chicago	384	121.2	19.36	50.26	0.87	16.0	121.3	121.1	0.20	-2.50	2.90	0.50	1.000
Miami	334	107.3	2.32	30.14	0.99	2.2	106.7	108.0	-1.35	-1.67	-1.03	0.25	0.000
*Miami	338	107.5	4.25	29.96	0.98	4.0	107.1	107.9	-0.85	-1.49	-0.22	0.26	0.000
San Diego	206	107.0	1.98	32.21	1.00	1.9	106.5	107.4	-0.89	-1.25	-0.52	0.31	0.000
*San Diego	208	107.0	3.09	32.02	0.99	2.9	106.4	107.6	-1.21	-1.78	-0.63	0.30	0.000
Overall	1217	112.6	2.37	41.65	1.00	2.1	112.4	112.8	-0.47	-0.66	-0.29	0.40	0.000
*Overall	1227	113.0	11.27	41.27	0.93	10.0	112.9	113.2	-0.34	-1.22	0.54	0.41	0.000

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Insulin, fasting (mU/L) (LABA96)													
Bronx	294	83.8	6.05	56.93	0.99	7.2	83.88	83.66	0.22	-0.76	1.20	0.49	0.807
*Bronx	297	83.8	9.76	56.44	0.97	11.7	83.91	83.62	0.29	-1.28	1.86	0.49	0.856
Chicago	378	93.7	5.36	60.27	0.99	5.7	93.83	93.63	0.20	-0.57	0.96	0.53	0.379
*Chicago	384	95.0	11.30	61.21	0.97	11.9	95.47	94.49	0.98	-0.60	2.56	0.53	0.327
Miami	333	98.9	6.12	64.51	0.99	6.2	98.83	99.06	-0.24	-1.17	0.69	0.49	0.866
*Miami	338	100.4	13.39	66.88	0.96	13.3	100.9	100.0	0.84	-1.18	2.86	0.50	1.000
San Diego	205	93.7	4.71	60.93	0.99	5.0	93.89	93.60	0.29	-0.62	1.20	0.50	1.000
*San Diego	208	93.8	9.34	60.29	0.98	10.0	94.32	93.30	1.02	-0.77	2.82	0.51	0.942
Overall	1211	92.7	5.71	60.89	0.99	6.2	92.73	92.59	0.14	-0.32	0.59	0.50	0.786
*Overall	1227	93.6	11.28	61.80	0.97	12.1	93.96	93.18	0.78	-0.11	1.67	0.51	0.654

*** Outliers defined as the pair difference >3SD**
(1) Standard deviation = square root (within-subject variance)
(2) Standard deviation = square root (between-subject variance)
(3) The reliability coefficient is the ICC (intra-class correlation coefficient) which is an estimate of the correlation between repeated measurements
(4) The coefficient of variation (CV) is the lab SD expressed as a percent of the mean of QC pairs
(5) P-value for test that the proportion of positive differences = 50% (test for systematic bias)

Created by HC138701c (beibo) on 17APR17 15:03
Based on the HCHS Visit2 1704 retrieval data created in April 4, 2017

HCHS/SOL Quality Control Report, April 2017

Table 2d. Reliability of laboratory measurements (Tube 8: 4 mL lavender-stoppered (EDTA)) Excluding ALL pairs before 1/1/2015 at the Bronx

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Glucose, post OGTT (mg/dL) (LABA71)													
Bronx	293	128.1	3.46	47.45	0.99	2.7	128.2	128.0	0.20	-0.36	0.76	0.47	0.420
*Bronx	295	128.1	4.58	47.25	0.99	3.6	128.1	128.1	0.03	-0.71	0.77	0.47	0.422
Chicago	340	126.5	2.97	46.02	1.00	2.4	126.4	126.6	-0.22	-0.66	0.23	0.47	0.293
*Chicago	342	126.6	4.77	45.83	0.99	3.8	126.6	126.5	0.14	-0.58	0.85	0.47	0.352
Miami	332	130.5	3.72	46.78	0.99	2.9	130.9	130.2	0.69	0.12	1.25	0.53	0.276
*Miami	334	130.6	7.20	46.47	0.98	5.5	131.3	130.0	1.35	0.27	2.44	0.54	0.230
San Diego	205	134.1	3.57	46.01	0.99	2.7	134.2	134.0	0.17	-0.53	0.86	0.45	0.217
*San Diego	208	134.6	6.23	46.18	0.98	4.6	134.6	134.7	-0.10	-1.20	1.00	0.45	0.195
Overall	1169	129.3	3.37	46.47	0.99	2.6	129.4	129.2	0.19	-0.09	0.46	0.48	0.338
*Overall	1179	129.5	5.78	46.46	0.98	4.5	129.7	129.3	0.41	-0.04	0.87	0.49	0.406

*** Outliers defined as the pair difference >3SD**

(1) Standard deviation = square root (within-subject variance)

(2) Standard deviation = square root (between-subject variance)

(3) The reliability coefficient is the ICC (intra-class correlation coefficient) which is an estimate of the correlation between repeated measurements

(4) The coefficient of variation (CV) is the lab SD expressed as a percent of the mean of QC pairs

(5) P-value for test that the proportion of positive differences = 50% (test for systematic bias)

Created by HC138701d (beibo) on 17APR17 15:06

Based on the HCHS Visit2 1704 retrieval data created in April 4, 2017

HCHS/SOL Quality Control Report, April 2017

Table 2e. Reliability of laboratory measurements (Urine)
Excluding ALL pairs before 1/1/2015 at the Bronx

	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Urine creatinine, random (mg/dL) (LABA79)													
Bronx	292	104.4	2.72	69.38	1.00	2.6	104.1	104.7	-0.55	-0.99	-0.11	0.39	0.002
*Bronx	296	105.6	11.74	69.85	0.97	11.1	105.5	105.6	-0.15	-2.05	1.75	0.39	0.002
Chicago	373	147.6	3.12	73.71	1.00	2.1	147.8	147.5	0.30	-0.14	0.75	0.53	0.266
*Chicago	381	147.9	12.38	73.06	0.97	8.4	147.5	148.3	-0.75	-2.51	1.01	0.53	0.387
Miami	331	107.9	1.52	68.71	1.00	1.4	107.9	107.9	0.05	-0.18	0.29	0.51	0.737
*Miami	334	108.1	8.57	68.36	0.98	7.9	108.7	107.6	1.08	-0.22	2.37	0.52	0.594
San Diego	206	99.2	1.56	66.61	1.00	1.6	99.14	99.30	-0.16	-0.45	0.13	0.44	0.198
*San Diego	207	99.4	5.75	66.37	0.99	5.8	99.57	99.18	0.39	-0.72	1.50	0.45	0.232
Overall	1202	117.9	2.42	72.86	1.00	2.1	117.9	117.9	-0.05	-0.25	0.14	0.48	0.246
*Overall	1218	118.5	10.35	72.63	0.98	8.7	118.5	118.4	0.09	-0.73	0.91	0.48	0.250
Urine microalbumin, random (mg/dL) (LABA80)													
Bronx	292	11.7	7.92	38.17	0.96	67.5	12.02	11.43	0.59	-0.70	1.87	0.58	0.177
*Bronx	293	17.8	141.38	47.93	0.10	794.5	23.92	11.67	12.25	-10.7	35.16	0.59	0.146
Chicago	373	14.1	1.58	41.22	1.00	11.3	14.10	14.02	0.08	-0.15	0.31	0.52	0.735
*Chicago	377	24.7	6.63	189.49	1.00	26.8	24.73	24.75	-0.01	-0.96	0.94	0.52	0.738
Miami	318	43.1	1.13	247.48	1.00	2.6	43.08	43.19	-0.11	-0.29	0.06	0.44	0.241
*Miami	324	52.9	3.20	266.91	1.00	6.0	52.85	52.88	-0.03	-0.53	0.46	0.44	0.255
San Diego	198	24.3	0.70	122.01	1.00	2.9	24.37	24.30	0.07	-0.07	0.20	0.53	0.780
*San Diego	203	61.6	2.70	280.53	1.00	4.4	61.61	61.51	0.10	-0.43	0.63	0.54	0.689
Overall	1196	35.4	5.76	211.16	1.00	16.3	35.51	35.36	0.15	-0.31	0.61	0.51	0.685
*Overall	1197	36.9	70.06	211.40	0.90	189.9	38.40	35.40	3.00	-2.61	8.62	0.51	0.649

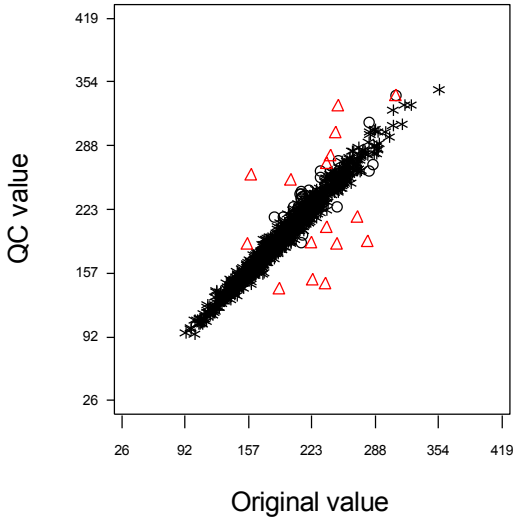
	QC Pairs						Repli-cate	Original	Difference (replicate-original)				
	N	Mean	Within SD (Lab) (1)	Between SD (2)	Reliab (3)	CV (4)	Mean	Mean	Mean	95% CI		Prop > 0	pval (5)
Albumin/creatinine ratio (mg/g) (LABA81)													
Bronx	292	12.3	3.32	31.90	0.99	27.0	12.50	12.14	0.36	-0.18	0.90	0.60	0.003
*Bronx	293	17.2	113.21	38.36	0.10	660.0	22.01	12.30	9.71	-8.63	28.05	0.60	0.002
Chicago	374	9.8	1.24	25.02	1.00	12.6	9.87	9.83	0.04	-0.14	0.22	0.49	0.697
*Chicago	377	17.4	6.90	113.89	1.00	39.6	17.66	17.16	0.50	-0.49	1.48	0.49	0.739
Miami	317	28.2	1.23	95.19	1.00	4.4	28.20	28.23	-0.03	-0.22	0.17	0.44	0.055
*Miami	324	42.8	3.30	175.00	1.00	7.7	42.70	42.92	-0.21	-0.72	0.30	0.44	0.051
San Diego	200	42.3	2.04	241.40	1.00	4.8	42.50	42.15	0.35	-0.05	0.74	0.54	0.413
*San Diego	203	74.4	5.94	355.94	1.00	8.0	74.85	73.88	0.97	-0.18	2.13	0.54	0.372
Overall	1196	32.7	5.16	185.67	1.00	15.8	32.89	32.54	0.35	-0.06	0.77	0.51	0.560
*Overall	1197	33.9	56.21	185.77	0.92	165.9	35.20	32.56	2.64	-1.87	7.15	0.51	0.538

*** Outliers defined as the pair difference >3SD**
(1) Standard deviation = square root (within-subject variance)
(2) Standard deviation = square root (between-subject variance)
(3) The reliability coefficient is the ICC (intra-class correlation coefficient) which is an estimate of the correlation between repeated measurements
(4) The coefficient of variation (CV) is the lab SD expressed as a percent of the mean of QC pairs
(5) P-value for test that the proportion of positive differences = 50% (test for systematic bias)

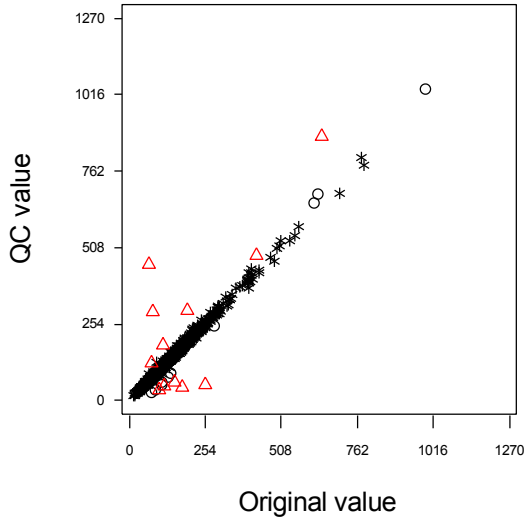
Created by HC138701e (beibo) on 17APR17 15:10
Based on the HCHS Visit2 1704 retrieval data created in April 4, 2017

Figure associated to Table 2a. Reliability of laboratory measurements (Tube 1: 9 mL red-stoppered (serum))) Excluding ALL pairs before 1/1/2015 at the Bronx

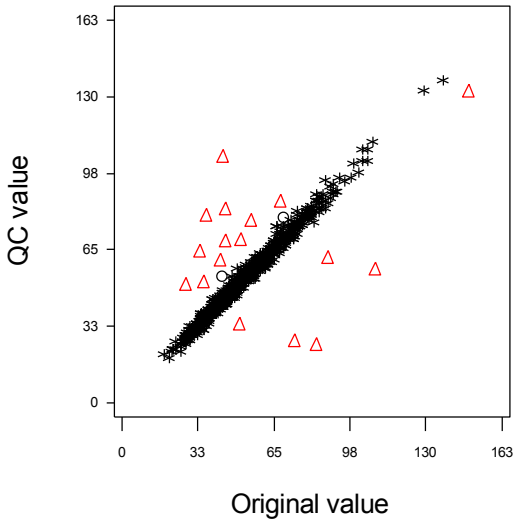
Cholesterol, Total (mg/dL) (LABA66)



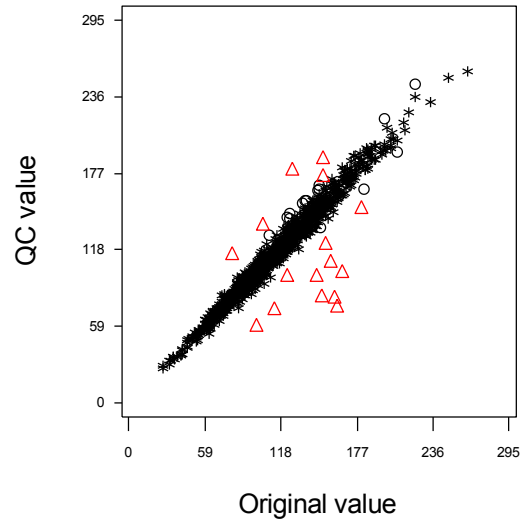
Triglycerides (mg/dL) (LABA67)



HDL-cholesterol (mg/dL) (LABA68)



LDL-cholesterol (mg/dL) (LABA69)

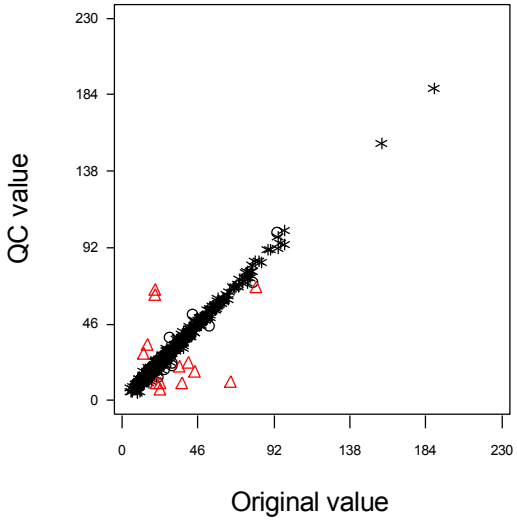


Circles indicate differences larger than 2 SD, and triangles larger than 3 SD

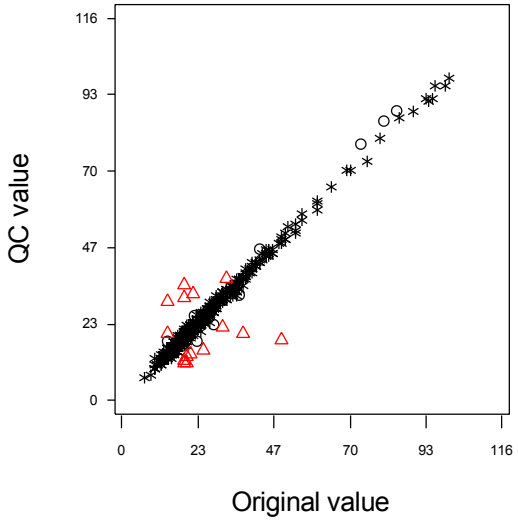
Created by HC138701a (beibo) on 17APR17 14:21
Based on the HCHS Visit2 1704 retrieval data created in April 4, 2017

Figure associated to Table 2a. Reliability of laboratory measurements (Tube 1: 9 mL red-stoppered (serum))) Excluding ALL pairs before 1/1/2015 at the Bronx

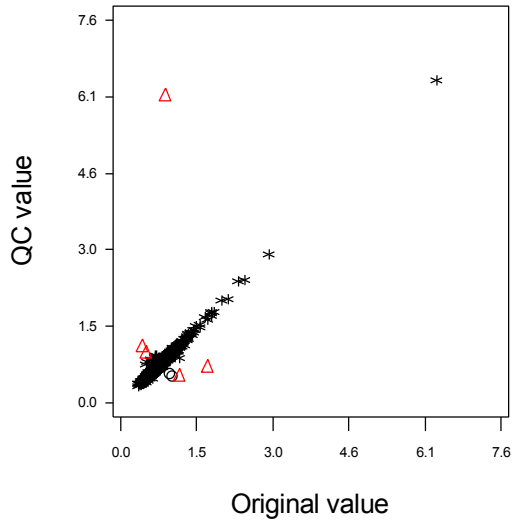
Alanine aminotransferase (U/L) (LABA74)



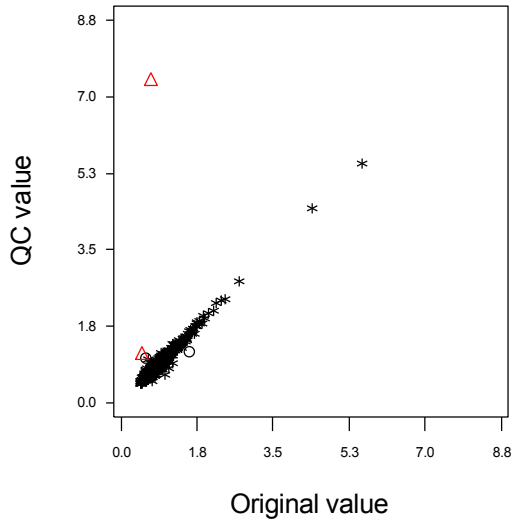
Aspartate aminotransferase (U/L) (LABA75)



Creatinine (mg/dL) (LABA76)



Cystatin C(mg/L) corrected (LABA101)

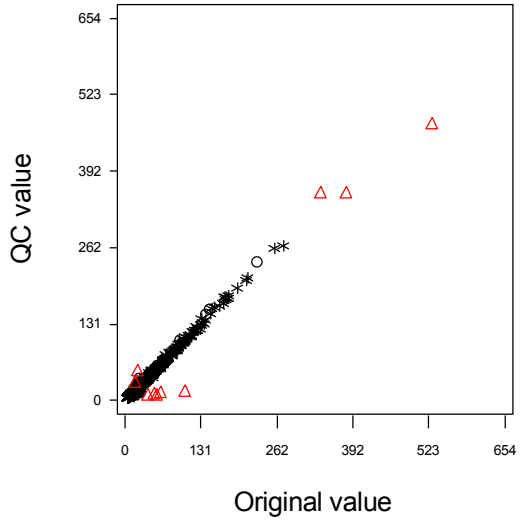


Circles indicate differences larger than 2 SD, and triangles larger than 3 SD

Created by HC138701a (beibo) on 17APR17 14:21
Based on the HCHS Visit2 1704 retrieval data created in April 4, 2017

Figure associated to Table 2a. Reliability of laboratory measurements (Tube 1: 9 mL red-stoppered (serum))) Excluding ALL pairs before 1/1/2015 at the Bronx

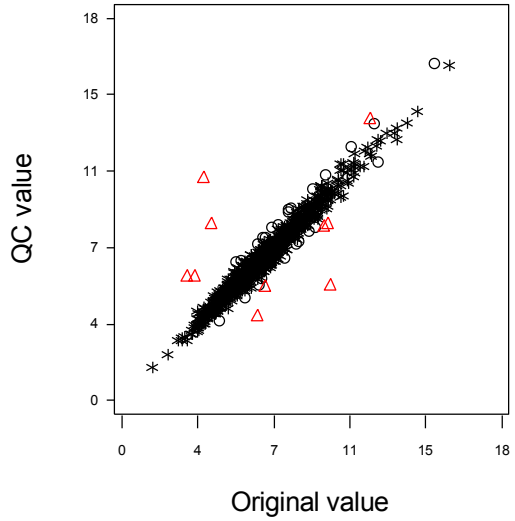
Gamma Glutamyl Transferase (U/L) (LABA102)



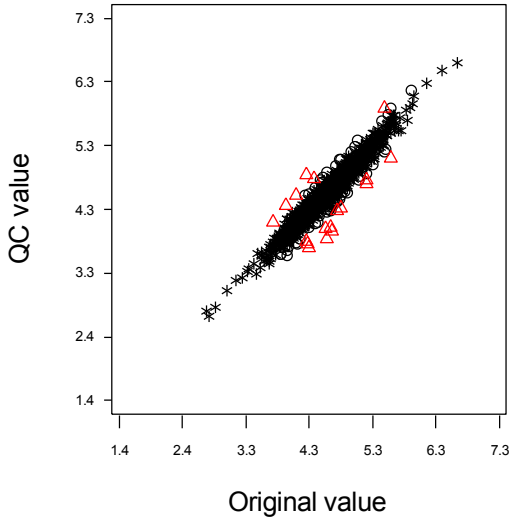
Circles indicate differences larger than 2 SD, and triangles larger than 3 SD

Figure associated to Table 2b. Reliability of laboratory measurements (Tube 4: 4 mL lavender-stoppered (EDTA)) Excluding ALL pairs before 1/1/2015 at the Bronx

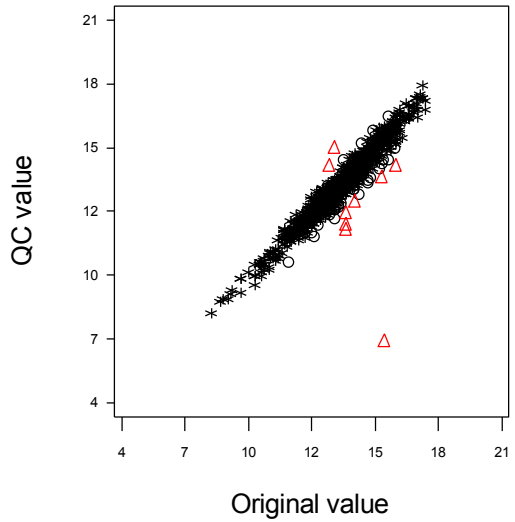
White Blood Count (x10e9) (LABA1)



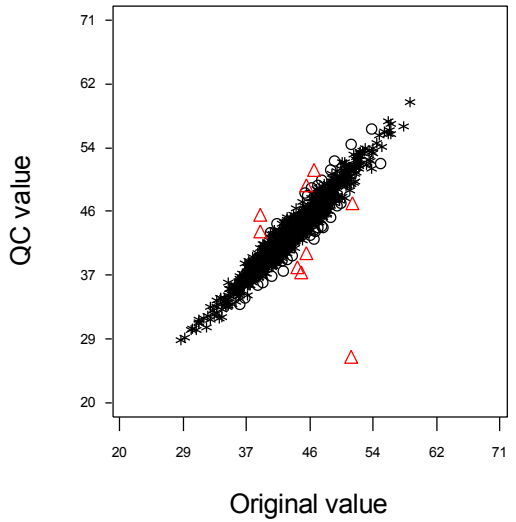
Red Blood Count (x10e12) (LABA2)



Hemoglobin (g/dL) (LABA3)



Hematocrit (%) (LABA4)

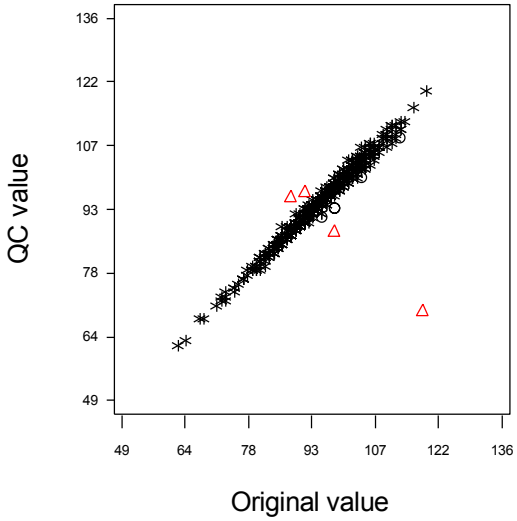


Circles indicate differences larger than 2 SD, and triangles larger than 3 SD

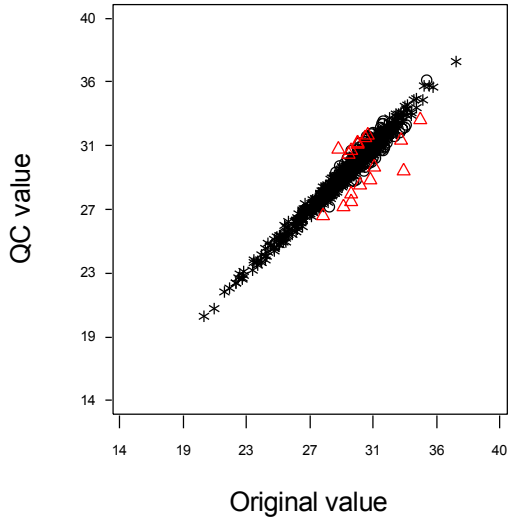
Created by HC138701b (beibo) on 17APR17 14:53
Based on the HCHS Visit2 1704 retrieval data created in April 4, 2017

Figure associated to Table 2b. Reliability of laboratory measurements (Tube 4: 4 mL lavender-stoppered (EDTA)) Excluding ALL pairs before 1/1/2015 at the Bronx

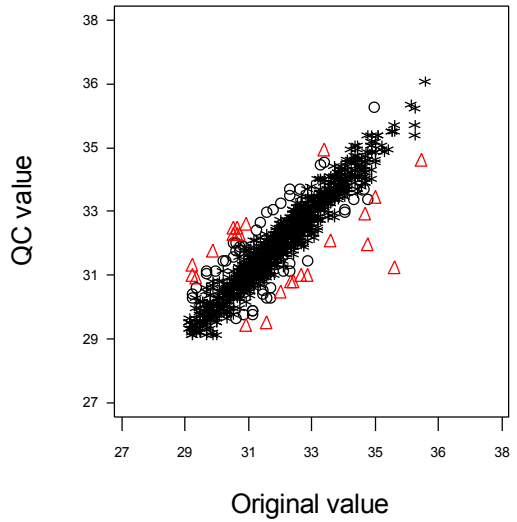
Mean Corpuscular Volume (fl) (LABA5)



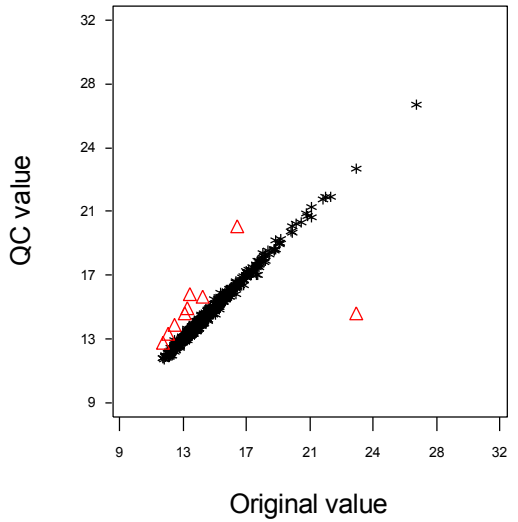
Mean Corpuscular Hemoglobin (pg) (LABA6)



Mean Corpuscular Hemoglobin Concentration (g/dL) (LABA7)



Red Cell Distribution Width (%) (LABA8)

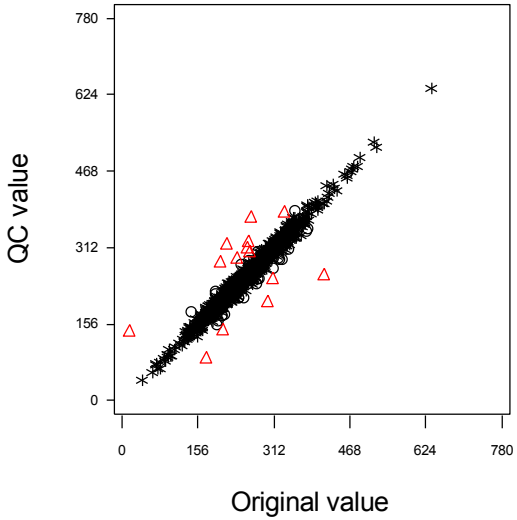


Circles indicate differences larger than 2 SD, and triangles larger than 3 SD

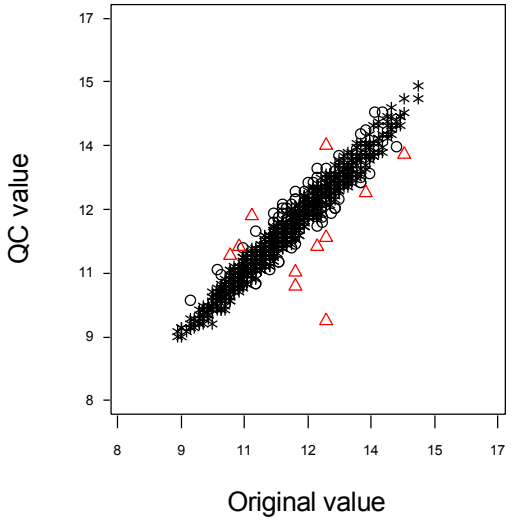
Created by HC138701b (beibo) on 17APR17 14:53
Based on the HCHS Visit2 1704 retrieval data created in April 4, 2017

Figure associated to Table 2b. Reliability of laboratory measurements (Tube 4: 4 mL lavender-stoppered (EDTA))
Excluding ALL pairs before 1/1/2015 at the Bronx

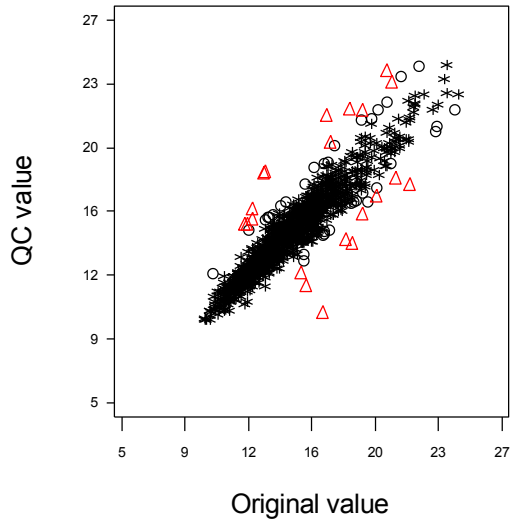
Platelet Count (x10e9) (LABA9)



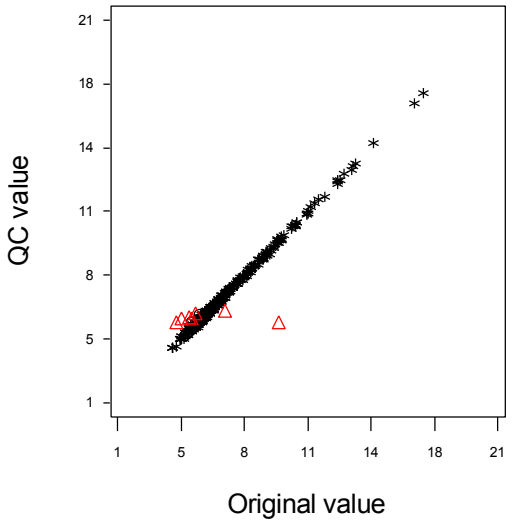
Mean platelet volume (fL) (LABA105)



Platelet distribution width (fL) (LABA106)



Glycosylated Hemoglobin (%) (LABA72)

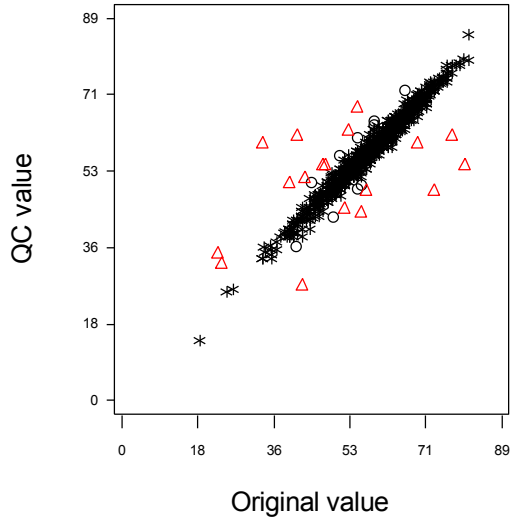


Circles indicate differences larger than 2 SD, and triangles larger than 3 SD

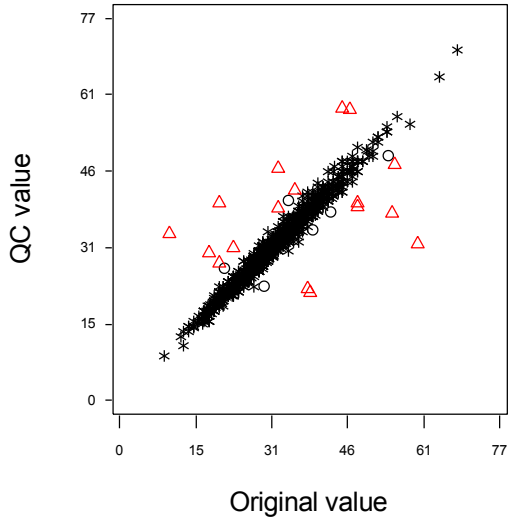
Created by HC138701b (beibo) on 17APR17 14:53
Based on the HCHS Visit2 1704 retrieval data created in April 4, 2017

Figure associated to Table 2b. Reliability of laboratory measurements (Tube 4: 4 mL lavender-stoppered (EDTA)) Excluding ALL pairs before 1/1/2015 at the Bronx

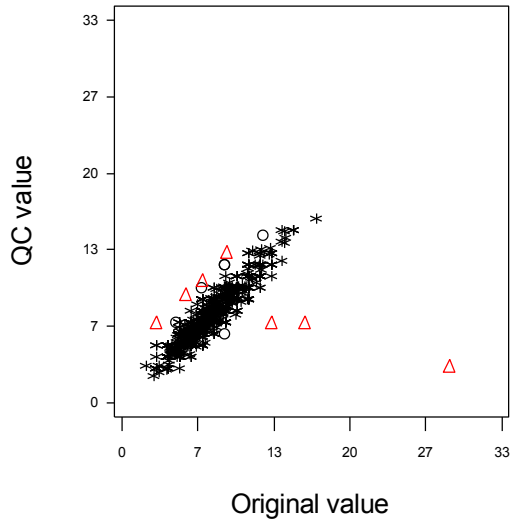
Neutrophils (%) (LABA10)



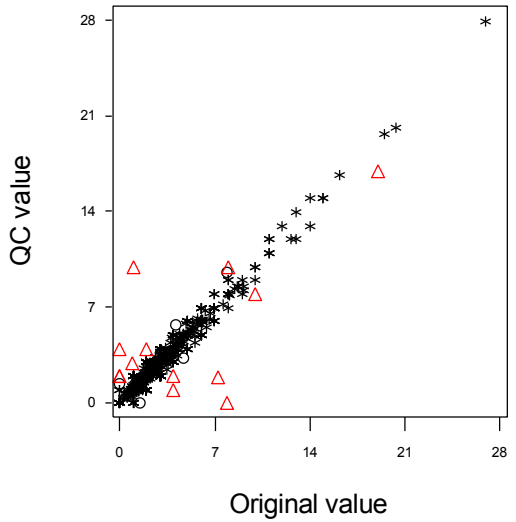
Lymphocytes (%) (LABA11)



Monocytes (%) (LABA12)



Eosinophils (%) (LABA13)

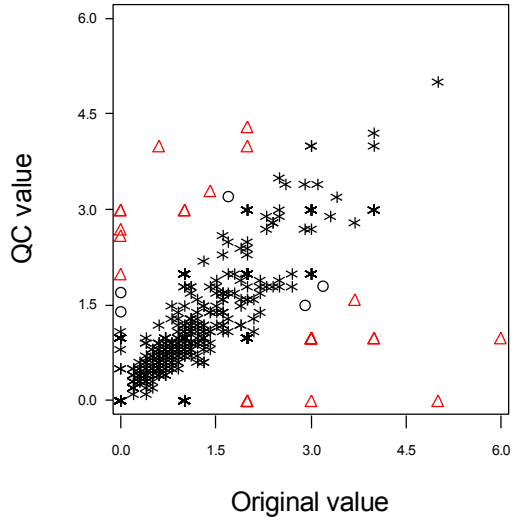


Circles indicate differences larger than 2 SD, and triangles larger than 3 SD

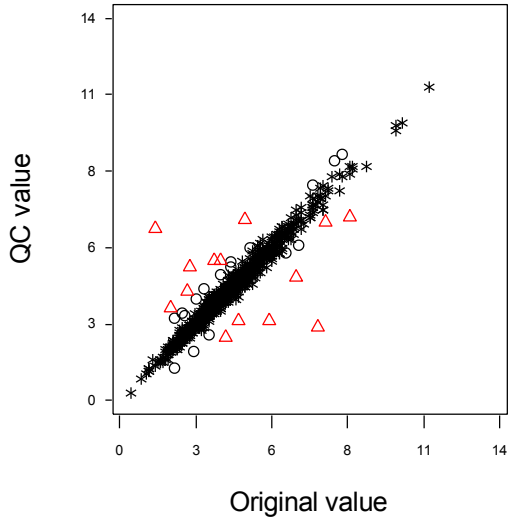
Created by HC138701b (beibo) on 17APR17 14:53
Based on the HCHS Visit2 1704 retrieval data created in April 4, 2017

Figure associated to Table 2b. Reliability of laboratory measurements (Tube 4: 4 mL lavender-stoppered (EDTA))
Excluding ALL pairs before 1/1/2015 at the Bronx

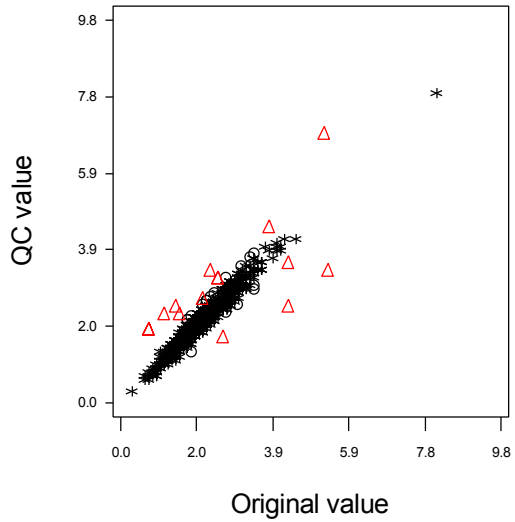
Basophils (%) (LABA14)



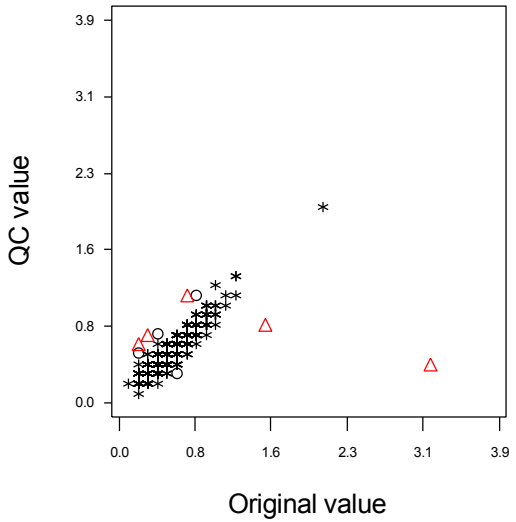
Neutrophil Count (x10e9) (LABA23)



Lymphocyte Count (x10e9) (LABA24)



Monocyte Count (x10e9) (LABA25)

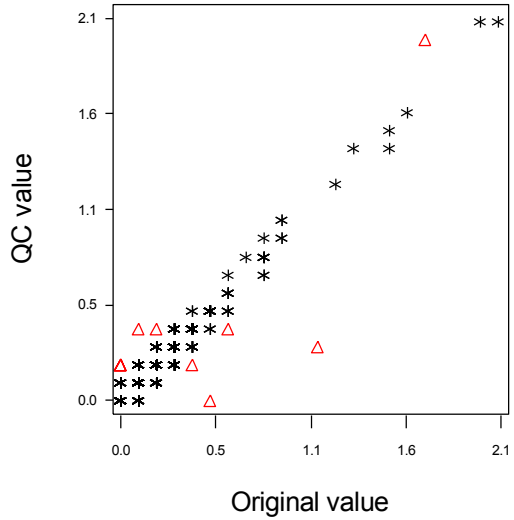


Circles indicate differences larger than 2 SD, and triangles larger than 3 SD

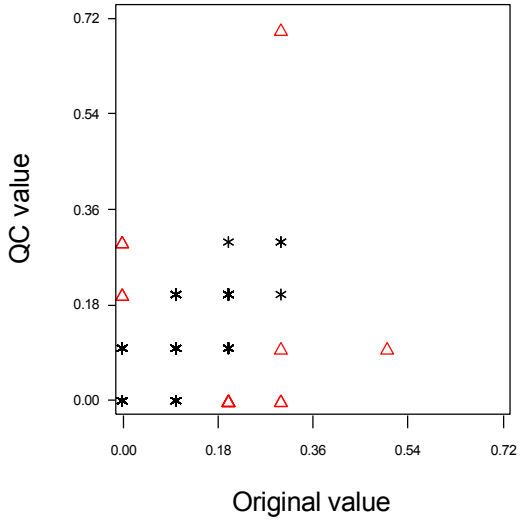
Created by HC138701b (beibo) on 17APR17 14:53
Based on the HCHS Visit2 1704 retrieval data created in April 4, 2017

Figure associated to Table 2b. Reliability of laboratory measurements (Tube 4: 4 mL lavender-stoppered (EDTA)) Excluding ALL pairs before 1/1/2015 at the Bronx

Eosinophil Count (x10e9) (LABA26)



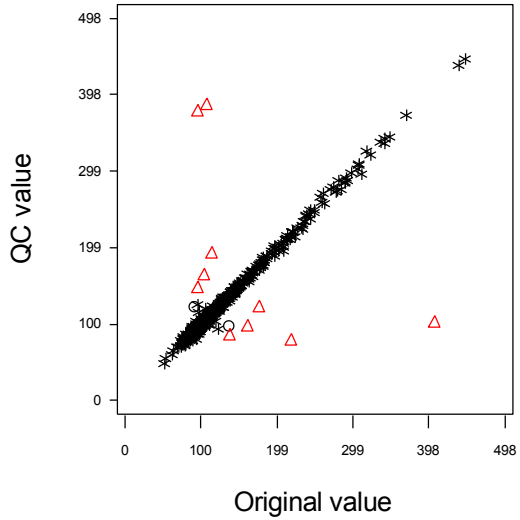
Basophil Count (x10e9) (LABA27)



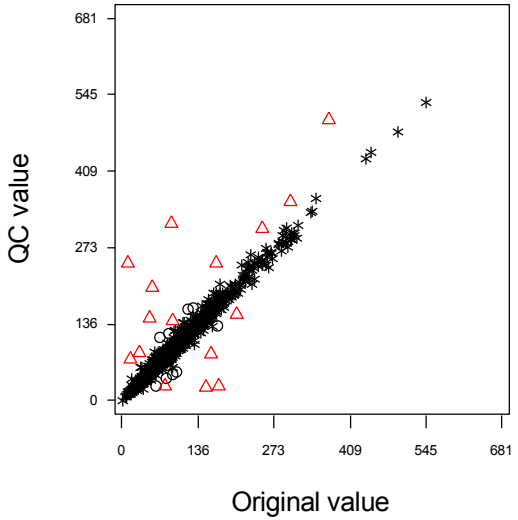
Circles indicate differences larger than 2 SD, and triangles larger than 3 SD

Figure associated to Table 2c. Reliability of laboratory measurements (Tube 5: 10 mL lavender-stoppered (EDTA))
Excluding ALL pairs before 1/1/2015 at the Bronx

Glucose, fasting (mg/dL) (LABA70)



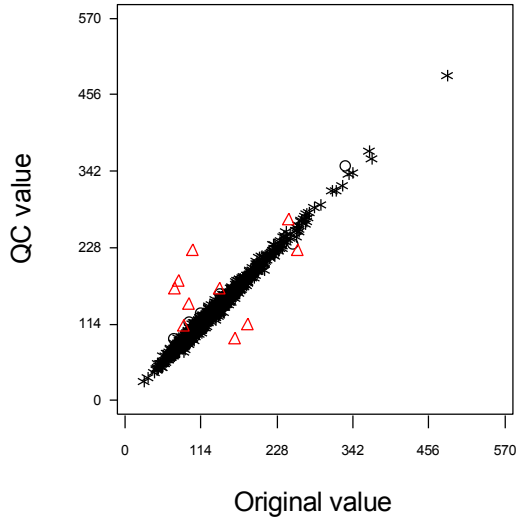
Insulin, fasting (pmol/L) (LABA96)



Circles indicate differences larger than 2 SD, and triangles larger than 3 SD

Figure associated to Table 2d. Reliability of laboratory measurements (Tube 8: 4 mL lavender-stoppered (EDTA))
Excluding ALL pairs before 1/1/2015 at the Bronx

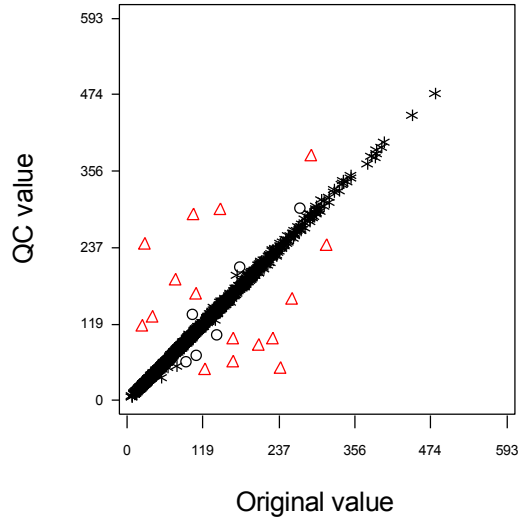
Glucose, post OGTT (mg/dL) (LABA71)



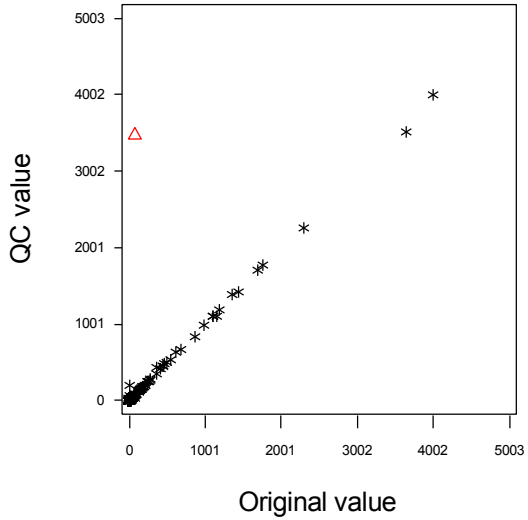
Circles indicate differences larger than 2 SD, and triangles larger than 3 SD

Figure associated to Table 2e. Reliability of laboratory measurements (Urine)
Excluding ALL pairs before 1/1/2015 at the Bronx

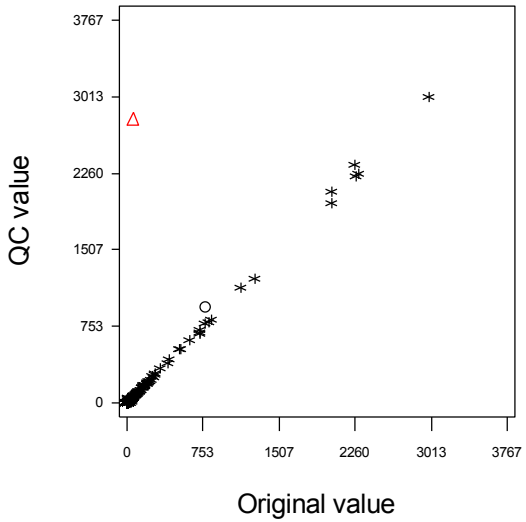
Urine creatinine (md/dL) (LABA79)



Urine microalbumin (mg/dL) (LABA80)



Urine Albumin/creatinine ratio (LABA81)



Circles indicate differences larger than 2 SD, and triangles larger than 3 SD

Created by HC138701e (beibo) on 17APR17 15:10
Based on the HCHS Visit2 1704 retrieval data created in April 4, 2017

HCHS/SOL Quality Control Report, April 2017

Table 3. Day of week tube #4 (4 mL EDTA) was collected and number of days between sample collection and Lab receipt by center.

	Bronx (N=2254)		Chicago (N=2651)		Miami (N=2558)		San Diego (N=2660)		Overall[1] (N=10123)	
	N	%	N	%	N	%	N	%	N	%
Day of week sample collected[2]										
Monday	194	8.6	167	6.3	59	2.3	104	3.9	524	5.2
Tuesday-Thursday	1214	53.9	805	30.4	1437	56.2	1520	57.1	4976	49.2
Friday	400	17.7	247	9.3	444	17.4	507	19.1	1598	15.8
Saturday	408	18.1	727	27.4	609	23.8	529	19.9	2273	22.5
Sunday	38	1.7	705	26.6	9	0.4	0	0.0	752	7.4
Q2. Different collection dates (BIO9 vs LAB dates)	5	0.2	2	0.1	0	0.0	0	0.0	7	0.1
# days between collection date and lab receipt[3]										
1	1773	78.9	1186	44.8	1914	74.8	2088	78.5	6961	68.8
2	437	19.4	1416	53.5	631	24.7	561	21.1	3045	30.1
3	37	1.6	42	1.6	8	0.3	5	0.2	92	0.9
4+	0	0.0	4	0.2	5	0.2	4	0.2	13	0.1

[1]Includes PHANTOMIDS
[2]Collection date based on LAB data
[3]Among participants with consistent collection dates

Created by HC138707 (beibo) on 17APR17 15:23
Based on HCHS Visit2 1704 retrieval data created on April 4, 2017

HCHS/SOL Quality Control Report, April 2017

Table 4. Percent of YES in the Biospecimen Collection Form (BIO) by field center and clinic date

	Bronx (N=2258)		Chicago (N=2658)		Miami (N=2563)		San Diego (N=2661)		Overall (N=10140)	
	N	%	N	%	N	%	N	%	N	%
Denominator (BIO forms)										
Oct-Dec 2014	173	100.0	266	100.0	248	100.0	204	100.0	891	100.0
Jan-Feb 2015	131	100.0	174	100.0	164	100.0	160	100.0	629	100.0
Mar-Apr 2015	156	100.0	210	100.0	201	100.0	194	100.0	761	100.0
May-June 2015	174	100.0	174	100.0	226	100.0	185	100.0	759	100.0
July-Aug 2015	167	100.0	199	100.0	206	100.0	186	100.0	758	100.0
Sept-Oct 2015	159	100.0	173	100.0	212	100.0	293	100.0	837	100.0
Nov-Dec 2015	152	100.0	181	100.0	165	100.0	193	100.0	691	100.0
Jan-Feb 2016	201	100.0	177	100.0	194	100.0	181	100.0	753	100.0
Mar-Apr 2016	199	100.0	167	100.0	188	100.0	202	100.0	756	100.0
May-June 2016	195	100.0	183	100.0	190	100.0	173	100.0	741	100.0
July-Aug 2016	134	100.0	198	100.0	187	100.0	217	100.0	736	100.0
Sept-Oct 2016	131	100.0	180	100.0	154	100.0	184	100.0	649	100.0
Nov-Dec 2016	111	100.0	160	100.0	95	100.0	118	100.0	484	100.0
Jan-Feb 2017	126	100.0	124	100.0	83	100.0	113	100.0	446	100.0
March 2017	49	100.0	92	100.0	50	100.0	58	100.0	249	100.0

	Bronx (N=2258)		Chicago (N=2658)		Miami (N=2563)		San Diego (N=2661)		Overall (N=10140)	
	N	%	N	%	N	%	N	%	N	%
BIO11: fasting blood collected before snack										
Overall	2245	99.4	2657	100.0	2558	99.8	2659	99.9	10119	99.8
Oct-Dec 2014	173	100.0	266	100.0	248	100.0	204	100.0	891	100.0
Jan-Feb 2015	130	99.2	174	100.0	164	100.0	160	100.0	628	99.8
Mar-Apr 2015	156	100.0	210	100.0	201	100.0	194	100.0	761	100.0
May-June 2015	174	100.0	174	100.0	226	100.0	185	100.0	759	100.0
July-Aug 2015	167	100.0	199	100.0	206	100.0	186	100.0	758	100.0
Sept-Oct 2015	159	100.0	173	100.0	212	100.0	293	100.0	837	100.0
Nov-Dec 2015	151	99.3	181	100.0	165	100.0	193	100.0	690	99.9
Jan-Feb 2016	199	99.0	177	100.0	194	100.0	181	100.0	751	99.7
Mar-Apr 2016	198	99.5	167	100.0	185	98.4	201	99.5	751	99.3
May-June 2016	194	99.5	183	100.0	190	100.0	173	100.0	740	99.9
July-Aug 2016	133	99.3	198	100.0	187	100.0	216	99.5	734	99.7
Sept-Oct 2016	129	98.5	179	99.4	153	99.4	184	100.0	645	99.4
Nov-Dec 2016	108	97.3	160	100.0	95	100.0	118	100.0	481	99.4
Jan-Feb 2017	126	100.0	124	100.0	82	98.8	113	100.0	445	99.8
March 2017	48	98.0	92	100.0	50	100.0	58	100.0	248	99.6

	Bronx (N=2258)		Chicago (N=2658)		Miami (N=2563)		San Diego (N=2661)		Overall (N=10140)	
	N	%	N	%	N	%	N	%	N	%
BIO12: number of venipuncture attempts										
Overall	318	14.1	112	4.2	203	7.9	363	13.6	996	9.8
Oct-Dec 2014	24	13.9	11	4.1	30	12.1	48	23.5	113	12.7
Jan-Feb 2015	20	15.3	4	2.3	15	9.1	32	20.0	71	11.3
Mar-Apr 2015	18	11.5	2	1.0	11	5.5	32	16.5	63	8.3
May-June 2015	24	13.8	7	4.0	16	7.1	25	13.5	72	9.5
July-Aug 2015	32	19.2	13	6.5	15	7.3	23	12.4	83	10.9
Sept-Oct 2015	15	9.4	8	4.6	9	4.2	36	12.3	68	8.1
Nov-Dec 2015	19	12.5	5	2.8	16	9.7	24	12.4	64	9.3
Jan-Feb 2016	28	13.9	9	5.1	17	8.8	16	8.8	70	9.3
Mar-Apr 2016	38	19.1	10	6.0	18	9.6	21	10.4	87	11.5
May-June 2016	45	23.1	9	4.9	14	7.4	25	14.5	93	12.6
July-Aug 2016	17	12.7	8	4.0	13	7.0	18	8.3	56	7.6
Sept-Oct 2016	14	10.7	8	4.4	11	7.1	21	11.4	54	8.3
Nov-Dec 2016	11	9.9	5	3.1	6	6.3	17	14.4	39	8.1
Jan-Feb 2017	11	8.7	10	8.1	6	7.2	14	12.4	41	9.2
March 2017	2	4.1	3	3.3	6	12.0	11	19.0	22	8.8

	Bronx (N=2258)		Chicago (N=2658)		Miami (N=2563)		San Diego (N=2661)		Overall (N=10140)	
	N	%	N	%	N	%	N	%	N	%
BIO13: blood drawing incidents/problems										
Overall	660	29.2	143	5.4	120	4.7	103	3.9	1026	10.1
Oct-Dec 2014	47	27.2	12	4.5	24	9.7	17	8.3	100	11.2
Jan-Feb 2015	32	24.4	4	2.3	2	1.2	12	7.5	50	7.9
Mar-Apr 2015	25	16.0	13	6.2	11	5.5	5	2.6	54	7.1
May-June 2015	50	28.7	5	2.9	17	7.5	7	3.8	79	10.4
July-Aug 2015	48	28.7	7	3.5	8	3.9	8	4.3	71	9.4
Sept-Oct 2015	44	27.7	15	8.7	5	2.4	4	1.4	68	8.1
Nov-Dec 2015	57	37.5	10	5.5	5	3.0	6	3.1	78	11.3
Jan-Feb 2016	84	41.8	7	4.0	5	2.6	6	3.3	102	13.5
Mar-Apr 2016	71	35.7	9	5.4	3	1.6	2	1.0	85	11.2
May-June 2016	63	32.3	14	7.7	0	0.0	5	2.9	82	11.1
July-Aug 2016	39	29.1	15	7.6	3	1.6	4	1.8	61	8.3
Sept-Oct 2016	32	24.4	11	6.1	15	9.7	5	2.7	63	9.7
Nov-Dec 2016	20	18.0	12	7.5	2	2.1	4	3.4	38	7.9
Jan-Feb 2017	32	25.4	4	3.2	9	10.8	9	8.0	54	12.1
March 2017	16	32.7	5	5.4	11	22.0	9	15.5	41	16.5

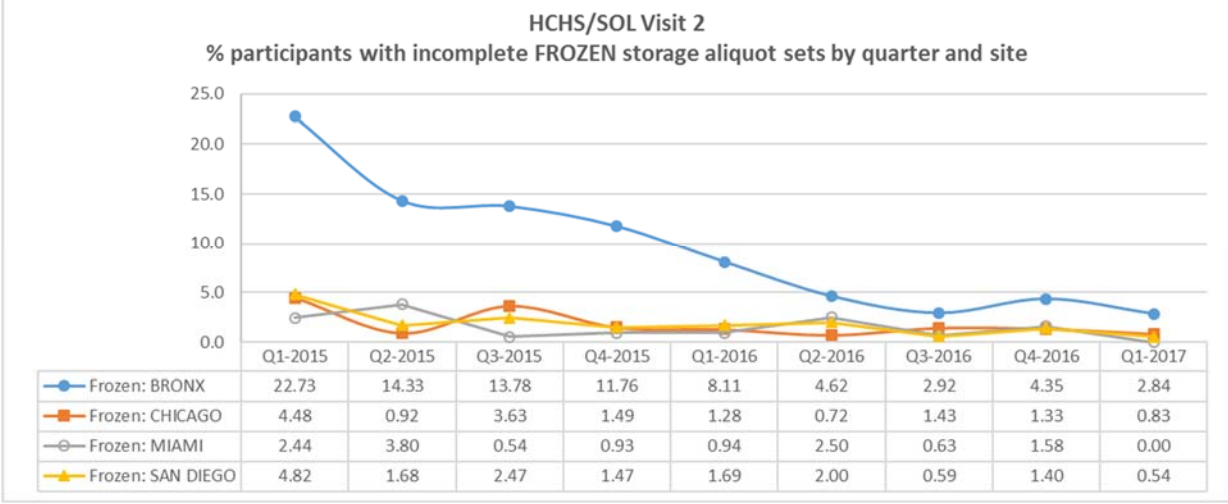
	Bronx (N=2258)		Chicago (N=2658)		Miami (N=2563)		San Diego (N=2661)		Overall (N=10140)	
	N	%	N	%	N	%	N	%	N	%
BIO21: blood processing incidents										
Overall	800	35.4	254	9.6	86	3.4	111	4.2	1251	12.3
Oct-Dec 2014	25	14.5	18	6.8	13	5.2	15	7.4	71	8.0
Jan-Feb 2015	27	20.6	7	4.0	7	4.3	11	6.9	52	8.3
Mar-Apr 2015	29	18.6	6	2.9	6	3.0	8	4.1	49	6.4
May-June 2015	49	28.2	0	0.0	9	4.0	4	2.2	62	8.2
July-Aug 2015	84	50.3	8	4.0	5	2.4	5	2.7	102	13.5
Sept-Oct 2015	56	35.2	12	6.9	5	2.4	11	3.8	84	10.0
Nov-Dec 2015	66	43.4	9	5.0	9	5.5	6	3.1	90	13.0
Jan-Feb 2016	91	45.3	25	14.1	2	1.0	13	7.2	131	17.4
Mar-Apr 2016	75	37.7	19	11.4	2	1.1	6	3.0	102	13.5
May-June 2016	77	39.5	26	14.2	7	3.7	6	3.5	116	15.7
July-Aug 2016	58	43.3	48	24.2	9	4.8	8	3.7	123	16.7
Sept-Oct 2016	62	47.3	20	11.1	8	5.2	8	4.3	98	15.1
Nov-Dec 2016	34	30.6	24	15.0	3	3.2	3	2.5	64	13.2
Jan-Feb 2017	48	38.1	17	13.7	1	1.2	6	5.3	72	16.1
March 2017	19	38.8	15	16.3	0	0.0	1	1.7	35	14.1

	Bronx (N=2258)		Chicago (N=2658)		Miami (N=2563)		San Diego (N=2661)		Overall (N=10140)	
	N	%	N	%	N	%	N	%	N	%
BIO24: post-glucola sample										
Overall	1519	89.0	1955	93.6	1982	93.1	2011	94.6	7467	92.7
Oct-Dec 2014	117	89.3	203	94.0	186	92.1	138	95.2	644	92.8
Jan-Feb 2015	85	94.4	132	95.0	126	93.3	124	93.9	467	94.2
Mar-Apr 2015	103	88.8	177	95.7	145	91.2	135	91.8	560	92.3
May-June 2015	115	85.2	133	95.7	164	88.2	136	95.1	548	90.9
July-Aug 2015	118	93.7	133	93.0	169	93.9	142	95.3	562	94.0
Sept-Oct 2015	105	86.8	130	95.6	168	95.5	232	94.7	635	93.7
Nov-Dec 2015	95	89.6	135	95.1	139	95.9	144	93.5	513	93.8
Jan-Feb 2016	143	90.5	147	97.4	155	96.3	144	93.5	589	94.4
Mar-Apr 2016	146	92.4	120	90.2	148	93.7	151	95.6	565	93.1
May-June 2016	130	87.2	121	91.0	152	98.7	126	96.2	529	93.3
July-Aug 2016	89	90.8	146	94.8	151	93.8	174	95.1	560	94.0
Sept-Oct 2016	86	88.7	132	95.0	110	90.2	150	96.8	478	93.2
Nov-Dec 2016	73	86.9	112	91.1	72	96.0	87	94.6	344	92.0
Jan-Feb 2017	84	85.7	80	87.0	64	86.5	84	97.7	312	89.1
March 2017	30	75.0	54	84.4	33	78.6	44	86.3	161	81.7

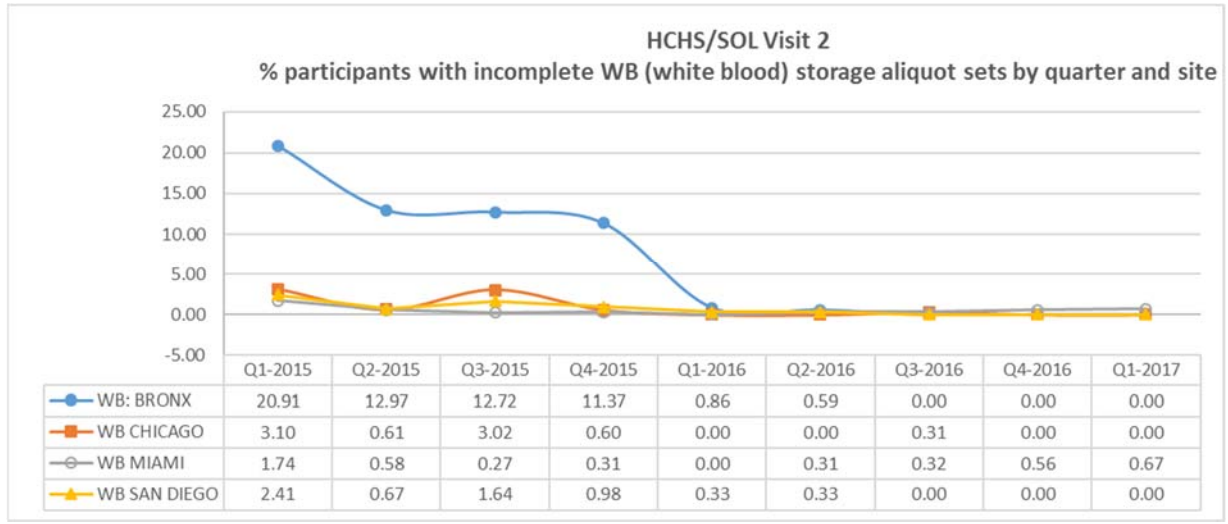
	Bronx (N=2258)		Chicago (N=2658)		Miami (N=2563)		San Diego (N=2661)		Overall (N=10140)	
	N	%	N	%	N	%	N	%	N	%
BIO28: urine sample										
Overall	2253	99.8	2653	99.8	2560	99.9	2661	100.0	10127	99.9
Oct-Dec 2014	173	100.0	266	100.0	248	100.0	204	100.0	891	100.0
Jan-Feb 2015	131	100.0	173	99.4	164	100.0	160	100.0	628	99.8
Mar-Apr 2015	156	100.0	210	100.0	201	100.0	194	100.0	761	100.0
May-June 2015	174	100.0	174	100.0	225	99.6	185	100.0	758	99.9
July-Aug 2015	167	100.0	198	99.5	206	100.0	186	100.0	757	99.9
Sept-Oct 2015	159	100.0	173	100.0	212	100.0	293	100.0	837	100.0
Nov-Dec 2015	152	100.0	181	100.0	163	98.8	193	100.0	689	99.7
Jan-Feb 2016	200	99.5	175	98.9	194	100.0	181	100.0	750	99.6
Mar-Apr 2016	199	100.0	167	100.0	188	100.0	202	100.0	756	100.0
May-June 2016	194	99.5	183	100.0	190	100.0	173	100.0	740	99.9
July-Aug 2016	134	100.0	198	100.0	187	100.0	217	100.0	736	100.0
Sept-Oct 2016	131	100.0	180	100.0	154	100.0	184	100.0	649	100.0
Nov-Dec 2016	110	99.1	160	100.0	95	100.0	118	100.0	483	99.8
Jan-Feb 2017	125	99.2	123	99.2	83	100.0	113	100.0	444	99.6
March 2017	48	98.0	92	100.0	50	100.0	58	100.0	248	99.6

Created by HC138713 (beibo) on 17APR17 15:42
Based on analysis files created on April 4, 2017

HCHS/SOL Visit 2 Biorepository Report by Quarter



	Q1-2015	Q2-2015	Q3-2015	Q4-2015	Q1-2016	Q2-2016	Q3-2016	Q4-2016	Q1-2017
Frozen: BRONX	22.73	14.33	13.78	11.76	8.11	4.62	2.92	4.35	2.84
Frozen: CHICAGO	4.48	0.92	3.63	1.49	1.28	0.72	1.43	1.33	0.83
Frozen: MIAMI	2.44	3.80	0.54	0.93	0.94	2.50	0.63	1.58	0.00
Frozen: SAN DIEGO	4.82	1.68	2.47	1.47	1.69	2.00	0.59	1.40	0.54



	Q1-2015	Q2-2015	Q3-2015	Q4-2015	Q1-2016	Q2-2016	Q3-2016	Q4-2016	Q1-2017
WB: BRONX	20.91	12.97	12.72	11.37	0.86	0.59	0.00	0.00	0.00
WB CHICAGO	3.10	0.61	3.02	0.60	0.00	0.00	0.31	0.00	0.00
WB MIAMI	1.74	0.58	0.27	0.31	0.00	0.31	0.32	0.56	0.67
WB SAN DIEGO	2.41	0.67	1.64	0.98	0.33	0.33	0.00	0.00	0.00

Q1-2017

Field Center	# participant collections	# participants with complete storage aliquot sets	# participants with incomplete storage aliquot sets	Total aliquots	Total aliquots missing	Avg missing aliquot per incomplete set
Frozen: ALL	789	780	9 (1.14%)	26037	79	8.78
Frozen: BRONX	211	205	6 (2.84%)	6963	67	11.17
Frozen: CHICAGO	240	238	2 (0.83%)	7920	10	5.00
Frozen: MIAMI	154	154	0 (0%)	5082	0	0.00
Frozen: SAN DIEGO	184	183	1 (0.54%)	6072	2	2.00
WB: ALL	774	773	1 (0.13%)	1548	2	2.00
WB: BRONX	204	204	0 (0%)	408	0	0.00
WB: CHICAGO	237	237	0 (0%)	474	0	0.00
WB: MIAMI	150	149	1 (0.67%)	300	2	2.00
WB: SAN DIEGO	183	183	0 (0%)	366	0	0.00

HCHS/SOL Visit 2 Biorepository Report by Quarter

Q1-2017 by sample type

Field Center	Sample Type	# participant collections	# Participants with complete storage aliquot sets	# Participants with incomplete storage aliquot sets	Total aliquots	Total aliquots missing	Avg missing aliquot per incomplete set
ALL	Blood	774	773	1 (0.13%)	1548	2	2.00
ALL	Plasma	789	785	4 (0.51%)	11835	40	10.00
ALL	Serum	789	782	7 (0.89%)	11046	37	5.29
ALL	Urine	789	788	1 (0.13%)	3156	2	2.00
BRONX	Blood	204	204	0 (0%)	408	0	0.00
BRONX	Plasma	211	208	3 (1.42%)	3165	32	10.67
BRONX	Serum	211	205	6 (2.84%)	2954	35	5.83
BRONX	Urine	211	211	0 (0%)	844	0	0.00
CHICAGO	Blood	237	237	0 (0%)	474	0	0.00
CHICAGO	Plasma	240	239	1 (0.42%)	3600	8	8.00
CHICAGO	Serum	240	239	1 (0.42%)	3360	2	2.00
CHICAGO	Urine	240	240	0 (0%)	960	0	0.00
MIAMI	Blood	150	149	1 (0.67%)	300	2	2.00
MIAMI	Plasma	154	154	0 (0%)	2310	0	0.00
MIAMI	Serum	154	154	0 (0%)	2156	0	0.00
MIAMI	Urine	154	154	0 (0%)	616	0	0.00
SAN DIEGO	Blood	183	183	0 (0%)	366	0	0.00
SAN DIEGO	Plasma	184	184	0 (0%)	2760	0	0.00
SAN DIEGO	Serum	184	184	0 (0%)	2576	0	0.00
SAN DIEGO	Urine	184	183	1 (0.54%)	736	2	2.00

CUMULATIVE (Oct 2014 – March 2017)

Field Center	# participant collections	# participants with complete storage aliquot sets	# participants with incomplete storage aliquot sets	Total aliquots	Total aliquots missing	Avg missing aliquot per incomplete set
Frozen: ALL	11415	10967	448 (3.92%)	377388	2714	6.06
Frozen: BRONX	2605	2342	263 (10.1%)	86394	1367	5.20
Frozen: CHICAGO	3035	2967	68 (2.24%)	100221	314	4.62
Frozen: MIAMI	2905	2855	50 (1.72%)	95931	241	4.82
Frozen: SAN DIEGO	2870	2803	67 (2.33%)	94842	792	11.82
WB: ALL	11447	11406	41 (0.36%)	22938	74	1.80
WB: BRONX	2606	2597	9 (0.35%)	5244	18	2.00
WB: CHICAGO	3047	3042	5 (0.16%)	6096	7	1.40
WB: MIAMI	2906	2898	8 (0.28%)	5812	14	1.75
WB: SAN DIEGO	2888	2869	19 (0.66%)	5786	35	1.84