## Table S1

|  |  |  |  | Outcome, Q3 v. Q1 | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | Unadjusted | | | | Fully adjusted | | | |
| Urinary oxidative stress biomarker | Outcome | Q1 Mean | Q3 Mean | Predicted Outcome at Q1 | Predicted Outcome at Q3 | Coefficient (95% CI) | P-value | Predicted Outcome at Q1 | Predicted Outcome at Q3 | Coefficient (95% CI) | P-value |
| IPF(2a)-III | WAZ Year 1 | -0.73 | -0.09 | -1.08 | -1.25 | -0.17 (-0.26, -0.08) | 0 | -1.4 | -1.38 | 0.02 (-0.06, 0.1) | 0.66 |
|  | WLZ Year 1 | -0.73 | -0.09 | -0.69 | -0.84 | -0.15 (-0.23, -0.06) | 0 | -0.88 | -0.87 | 0.01 (-0.04, 0.07) | 0.64 |
|  | HCZ Year 1 | -0.73 | -0.09 | -1.74 | -1.75 | -0.01 (-0.09, 0.07) | 0.85 | -1.85 | -1.8 | 0.05 (-0.02, 0.13) | 0.16 |
|  | WAZ Year 2 | -0.73 | -0.08 | -1.43 | -1.52 | -0.08 (-0.17, 0) | 0.06 | -1.81 | -1.76 | 0.04 (-0.01, 0.09) | 0.1 |
|  | WLZ Year 2 | -0.73 | -0.09 | -0.98 | -1.01 | -0.04 (-0.12, 0.04) | 0.35 | -0.83 | -0.75 | 0.07 (0.02, 0.13) | 0.01 |
|  | HCZ Year 2 | -0.73 | -0.09 | -1.83 | -1.78 | 0.05 (-0.03, 0.14) | 0.23 | -1.75 | -1.65 | 0.1 (0.03, 0.18) | 0.01 |
|  | Weight velocity (kg/month) Year 1 to Year 2 | -0.73 | -0.08 | 0.15 | 0.15 | 0 (0, 0.01) | 0.01 | 0.14 | 0.15 | 0 (0, 0.01) | 0.01 |
|  | Head circumference velocity (cm/month) Year 1 to Year 2 | -0.73 | -0.09 | 0.14 | 0.15 | 0 (0, 0.01) | 0.12 | 0.14 | 0.14 | 0.01 (0, 0.01) | 0.08 |
|  | Change in child WAZ from Year 1 to Year 2 | -0.73 | -0.08 | -0.32 | -0.22 | 0.09 (0.05, 0.14) | 0 | -0.22 | -0.16 | 0.06 (0.02, 0.1) | 0.01 |
|  | Change in WLZ from Year 1 to Year 2 | -0.73 | -0.09 | -0.34 | -0.23 | 0.11 (0.05, 0.17) | 0 | -0.16 | -0.09 | 0.07 (0.02, 0.13) | 0.01 |
|  | Change in HCZ from Year 1 to Year 2 | -0.73 | -0.09 | -0.07 | -0.02 | 0.04 (-0.01, 0.09) | 0.09 | -0.23 | -0.18 | 0.05 (0, 0.1) | 0.04 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 2,3-dinor-iPF(2a)-III | WAZ Year 1 | 1.55 | 1.97 | -1.1 | -1.29 | -0.19 (-0.29, -0.09) | 0 | -1.39 | -1.4 | -0.01 (-0.04, 0.03) | 0.67 |
|  | WLZ Year 1 | 1.55 | 1.97 | -0.73 | -0.8 | -0.07 (-0.17, 0.02) | 0.14 | -0.88 | -0.89 | -0.01 (-0.03, 0.02) | 0.61 |
|  | HCZ Year 1 | 1.55 | 1.97 | -1.7 | -1.8 | -0.09 (-0.19, 0) | 0.04 | -1.84 | -1.86 | -0.02 (-0.11, 0.06) | 0.64 |
|  | WAZ Year 2 | 1.54 | 1.97 | -1.44 | -1.54 | -0.09 (-0.2, 0.01) | 0.08 | -1.8 | -1.78 | 0.02 (-0.04, 0.08) | 0.49 |
|  | WLZ Year 2 | 1.54 | 1.97 | -1.04 | -1.06 | -0.03 (-0.24, 0.19) | 0.81 | -0.79 | -0.75 | 0.04 (-0.07, 0.15) | 0.5 |
|  | HCZ Year 2 | 1.54 | 1.97 | -1.8 | -1.8 | 0 (-0.09, 0.1) | 0.99 | -1.72 | -1.66 | 0.06 (-0.03, 0.15) | 0.19 |
|  | Weight velocity (kg/month) Year 1 to Year 2 | 1.54 | 1.97 | 0.15 | 0.15 | 0 (0, 0.01) | 0.37 | 0.14 | 0.15 | 0 (0, 0.01) | 0.08 |
|  | Head circumference velocity (cm/month) Year 1 to Year 2 | 1.54 | 1.97 | 0.14 | 0.15 | 0.01 (0, 0.02) | 0 | 0.13 | 0.14 | 0.01 (0, 0.01) | 0.02 |
|  | Change in child WAZ from Year 1 to Year 2 | 1.54 | 1.97 | -0.29 | -0.25 | 0.05 (-0.05, 0.14) | 0.33 | -0.24 | -0.21 | 0.03 (-0.06, 0.12) | 0.59 |
|  | Change in WLZ from Year 1 to Year 2 | 1.54 | 1.97 | -0.3 | -0.27 | 0.03 (-0.08, 0.15) | 0.57 | -0.13 | -0.1 | 0.03 (-0.08, 0.14) | 0.57 |
|  | Change in HCZ from Year 1 to Year 2 | 1.54 | 1.97 | -0.08 | -0.01 | 0.07 (0.02, 0.13) | 0.01 | -0.23 | -0.14 | 0.09 (0.03, 0.14) | 0 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| iPF(2a)-VI | WAZ Year 1 | 2.31 | 2.87 | -1.1 | -1.28 | -0.17 (-0.27, -0.07) | 0 | -1.4 | -1.37 | 0.02 (-0.02, 0.06) | 0.32 |
|  | WLZ Year 1 | 2.31 | 2.87 | -0.72 | -0.84 | -0.12 (-0.22, -0.03) | 0.01 | -0.88 | -0.87 | 0.01 (-0.02, 0.04) | 0.52 |
|  | HCZ Year 1 | 2.3 | 2.87 | -1.73 | -1.74 | -0.01 (-0.12, 0.1) | 0.83 | -1.85 | -1.79 | 0.06 (-0.04, 0.16) | 0.27 |
|  | WAZ Year 2 | 2.3 | 2.86 | -1.44 | -1.53 | -0.09 (-0.18, 0) | 0.05 | -1.81 | -1.76 | 0.04 (-0.01, 0.1) | 0.11 |
|  | WLZ Year 2 | 2.3 | 2.86 | -0.98 | -1.01 | -0.03 (-0.12, 0.06) | 0.51 | -0.81 | -0.76 | 0.05 (-0.01, 0.11) | 0.09 |
|  | HCZ Year 2 | 2.3 | 2.86 | -1.81 | -1.8 | 0.02 (-0.07, 0.11) | 0.74 | -1.72 | -1.65 | 0.08 (-0.01, 0.16) | 0.08 |
|  | Weight velocity (kg/month) Year 1 to Year 2 | 2.3 | 2.86 | 0.15 | 0.15 | 0 (0, 0.01) | 0.04 | 0.15 | 0.15 | 0 (0, 0.01) | 0.03 |
|  | Head circumference velocity (cm/month) Year 1 to Year 2 | 2.3 | 2.86 | 0.14 | 0.15 | 0.01 (0, 0.02) | 0.1 | 0.14 | 0.14 | 0 (0, 0.01) | 0.24 |
|  | Change in child WAZ from Year 1 to Year 2 | 2.3 | 2.86 | -0.3 | -0.22 | 0.08 (0.03, 0.12) | 0 | -0.23 | -0.19 | 0.05 (0, 0.09) | 0.04 |
|  | Change in WLZ from Year 1 to Year 2 | 2.3 | 2.86 | -0.32 | -0.23 | 0.08 (0.02, 0.15) | 0.01 | -0.15 | -0.11 | 0.05 (-0.01, 0.11) | 0.12 |
|  | Change in HCZ from Year 1 to Year 2 | 2.3 | 2.87 | -0.14 | 0.01 | 0.14 (0.03, 0.25) | 0.01 | -0.25 | -0.11 | 0.13 (0.03, 0.23) | 0.01 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 8,12-iso-iPF(2a)-VI | WAZ Year 1 | 2.16 | 2.91 | -1.22 | -1.15 | 0.07 (-0.15, 0.28) | 0.55 | -1.4 | -1.37 | 0.03 (-0.01, 0.07) | 0.11 |
|  | WLZ Year 1 | 2.16 | 2.91 | -0.75 | -0.78 | -0.03 (-0.2, 0.14) | 0.73 | -0.88 | -0.87 | 0.01 (-0.01, 0.04) | 0.25 |
|  | HCZ Year 1 | 2.16 | 2.91 | -1.72 | -1.7 | 0.02 (-0.12, 0.16) | 0.77 | -1.85 | -1.81 | 0.04 (-0.06, 0.15) | 0.42 |
|  | WAZ Year 2 | 2.16 | 2.9 | -1.45 | -1.52 | -0.06 (-0.21, 0.08) | 0.41 | -1.8 | -1.78 | 0.02 (-0.04, 0.08) | 0.46 |
|  | WLZ Year 2 | 2.17 | 2.9 | -0.98 | -1.01 | -0.04 (-0.14, 0.07) | 0.5 | -0.81 | -0.77 | 0.04 (-0.02, 0.11) | 0.19 |
|  | HCZ Year 2 | 2.17 | 2.9 | -1.81 | -1.78 | 0.04 (-0.09, 0.17) | 0.59 | -1.71 | -1.65 | 0.06 (-0.03, 0.15) | 0.17 |
|  | Weight velocity (kg/month) Year 1 to Year 2 | 2.16 | 2.9 | 0.15 | 0.15 | 0 (0, 0.01) | 0.2 | 0.15 | 0.15 | 0 (0, 0.01) | 0.17 |
|  | Head circumference velocity (cm/month) Year 1 to Year 2 | 2.17 | 2.9 | 0.14 | 0.15 | 0.01 (0, 0.02) | 0.06 | 0.13 | 0.14 | 0.01 (0, 0.02) | 0.06 |
|  | Change in child WAZ from Year 1 to Year 2 | 2.16 | 2.9 | -0.3 | -0.23 | 0.07 (0.01, 0.13) | 0.02 | -0.23 | -0.19 | 0.04 (-0.01, 0.08) | 0.15 |
|  | Change in WLZ from Year 1 to Year 2 | 2.17 | 2.9 | -0.32 | -0.23 | 0.08 (0.01, 0.15) | 0.02 | -0.15 | -0.12 | 0.04 (-0.03, 0.1) | 0.27 |
|  | Change in HCZ from Year 1 to Year 2 | 2.17 | 2.9 | -0.1 | -0.02 | 0.08 (0, 0.17) | 0.05 | -0.24 | -0.15 | 0.09 (0.02, 0.17) | 0.01 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Combined urinary oxidative stress biomarkers | WAZ Year 1 | 2.48 | 3.53 | -1.09 | -1.27 | -0.18 (-0.33, -0.03) | 0.02 | -1.4 | -1.38 | 0.02 (-0.02, 0.06) | 0.34 |
|  | WLZ Year 1 | 2.48 | 3.53 | -0.7 | -0.86 | -0.16 (-0.26, -0.07) | 0 | -0.88 | -0.87 | 0.01 (-0.02, 0.03) | 0.62 |
|  | HCZ Year 1 | 2.47 | 3.53 | -1.72 | -1.72 | 0 (-0.12, 0.12) | 0.96 | -1.85 | -1.79 | 0.06 (-0.05, 0.17) | 0.27 |
|  | WAZ Year 2 | 2.48 | 3.52 | -1.43 | -1.55 | -0.12 (-0.22, -0.03) | 0.01 | -1.73 | -1.81 | -0.08 (-0.21, 0.05) | 0.23 |
|  | WLZ Year 2 | 2.48 | 3.52 | -0.98 | -1.02 | -0.04 (-0.13, 0.05) | 0.41 | -0.77 | -0.75 | 0.02 (-0.14, 0.18) | 0.79 |
|  | HCZ Year 2 | 2.47 | 3.52 | -1.82 | -1.79 | 0.03 (-0.07, 0.12) | 0.61 | -1.75 | -1.65 | 0.1 (0.01, 0.19) | 0.02 |
|  | Weight velocity (kg/month) Year 1 to Year 2 | 2.48 | 3.52 | 0.15 | 0.15 | 0 (-0.01, 0.01) | 0.94 | 0.14 | 0.15 | 0.01 (0, 0.01) | 0.01 |
|  | Head circumference velocity (cm/month) Year 1 to Year 2 | 2.48 | 3.52 | 0.14 | 0.15 | 0.01 (0, 0.02) | 0.02 | 0.13 | 0.14 | 0.01 (0, 0.01) | 0.03 |
|  | Change in child WAZ from Year 1 to Year 2 | 2.48 | 3.52 | -0.31 | -0.21 | 0.1 (0.05, 0.15) | 0 | -0.24 | -0.18 | 0.06 (0.01, 0.11) | 0.01 |
|  | Change in WLZ from Year 1 to Year 2 | 2.48 | 3.52 | -0.29 | -0.21 | 0.08 (-0.1, 0.26) | 0.38 | -0.11 | -0.1 | 0.01 (-0.15, 0.17) | 0.91 |
|  | Change in HCZ from Year 1 to Year 2 | 2.47 | 3.52 | -0.15 | 0.01 | 0.15 (0.02, 0.29) | 0.03 | -0.23 | -0.15 | 0.08 (0.03, 0.14) | 0 |

## Table S2

|  |  |  |  | Outcome, Q3 v. Q1 | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | Unadjusted | | | | Fully adjusted | | | |
| Salivary stress biomarker | Outcome | Q1 Mean | Q3 Mean | Predicted Outcome at Q1 | Predicted Outcome at Q3 | Coefficient (95% CI) | P-value | Predicted Outcome at Q1 | Predicted Outcome at Q3 | Coefficient (95% CI) | P-value |
| Pre to post-stress change in slope of cortisol | WAZ Year 2 | -0.01 | 0 | -1.51 | -1.44 | 0.07 (-0.02, 0.17) | 0.12 | -1.88 | -1.85 | 0.02 (-0.11, 0.15) | 0.74 |
|  | WLZ Year 2 | -0.01 | 0 | -1 | -0.91 | 0.1 (0, 0.19) | 0.04 | -1 | -0.93 | 0.07 (0.01, 0.12) | 0.02 |
|  | HCZ Year 2 | -0.01 | 0 | -1.76 | -1.86 | -0.1 (-0.26, 0.05) | 0.18 | -1.81 | -1.9 | -0.09 (-0.21, 0.04) | 0.17 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Cortisol residualized gain score | WAZ Year 2 | -0.21 | 0.14 | -1.44 | -1.52 | -0.08 (-0.18, 0.03) | 0.17 | -1.82 | -1.86 | -0.04 (-0.12, 0.03) | 0.26 |
|  | WLZ Year 2 | -0.21 | 0.14 | -0.91 | -1.01 | -0.1 (-0.2, 0.01) | 0.06 | -0.93 | -0.99 | -0.06 (-0.12, 0) | 0.04 |
|  | HCZ Year 2 | -0.21 | 0.14 | -1.86 | -1.76 | 0.09 (-0.06, 0.25) | 0.23 | -1.89 | -1.8 | 0.09 (-0.04, 0.22) | 0.18 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Pre to post-stress change in slope of sAA | WAZ Year 2 | -4.37 | 0.06 | -1.41 | -1.45 | -0.04 (-0.1, 0.01) | 0.13 | -1.76 | -1.77 | 0 (-0.04, 0.03) | 0.85 |
|  | WLZ Year 2 | -4.37 | 0.06 | -0.96 | -0.96 | 0 (0, 0) | 1 | -0.88 | -0.87 | 0.02 (-0.02, 0.05) | 0.41 |
|  | HCZ Year 2 | -4.38 | 0.07 | -1.79 | -1.8 | -0.01 (-0.1, 0.08) | 0.83 | -1.88 | -1.85 | 0.02 (-0.03, 0.07) | 0.38 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| sAA residualized gain score | WAZ Year 2 | -51.35 | 27.2 | -1.46 | -1.41 | 0.05 (-0.01, 0.11) | 0.12 | -1.78 | -1.78 | 0 (-0.03, 0.04) | 0.96 |
|  | WLZ Year 2 | -51.35 | 27.2 | -0.96 | -0.96 | 0 (0, 0) | 1 | -0.86 | -0.88 | -0.02 (-0.06, 0.02) | 0.26 |
|  | HCZ Year 2 | -51.38 | 27.52 | -1.79 | -1.78 | 0 (-0.06, 0.07) | 0.92 | -1.85 | -1.87 | -0.03 (-0.08, 0.02) | 0.3 |

## Table S3

|  |  |  |  | Outcome, Q3 v. Q1 | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | Unadjusted | | | | Fully adjusted | | | |
| Resting SAM biomarker | Outcome | Q1 Mean | Q3 Mean | Predicted Outcome at Q1 | Predicted Outcome at Q3 | Coefficient (95% CI) | P-value | Predicted Outcome at Q1 | Predicted Outcome at Q3 | Coefficient (95% CI) | P-value |
| Mean arterial pressure | WAZ Year 2 | 60.89 | 68.89 | -1.48 | -1.31 | 0.17 (0.05, 0.3) | 0.01 | -1.78 | -1.74 | 0.04 (-0.01, 0.1) | 0.13 |
|  | WLZ Year 2 | 60.89 | 68.89 | -1.03 | -0.9 | 0.13 (0.04, 0.23) | 0.01 | -0.96 | -0.9 | 0.05 (-0.01, 0.11) | 0.09 |
|  | HCZ Year 2 | 60.89 | 68.89 | -1.77 | -1.73 | 0.04 (-0.07, 0.15) | 0.52 | -1.81 | -1.82 | -0.01 (-0.12, 0.09) | 0.81 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Mean resting heart rate | WAZ Year 2 | 98.67 | 118 | -1.34 | -1.54 | -0.2 (-0.35, -0.05) | 0.01 | -1.77 | -1.77 | -0.01 (-0.06, 0.05) | 0.81 |
|  | WLZ Year 2 | 98.5 | 118 | -0.88 | -1.03 | -0.15 (-0.31, 0.01) | 0.07 | -0.9 | -0.91 | 0 (-0.06, 0.05) | 0.91 |
|  | HCZ Year 2 | 98.42 | 118 | -1.79 | -1.78 | 0.01 (-0.07, 0.09) | 0.83 | -1.88 | -1.83 | 0.05 (-0.03, 0.13) | 0.25 |

## Table S4

|  |  |  |  | Outcome, Q3 v. Q1 | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | Unadjusted | | | | Fully adjusted | | | |
| Methylation site | Outcome | Q1 Mean | Q3 Mean | Predicted Outcome at Q1 | Predicted Outcome at Q3 | Coefficient (95% CI) | P-value | Predicted Outcome at Q1 | Predicted Outcome at Q3 | Coefficient (95% CI) | P-value |
| Entire promoter region (39 assayed CpG sites) | WAZ Year 2 | 0.22 | 0.48 | -1.42 | -1.43 | -0.01 (-0.07, 0.05) | 0.79 | -1.77 | -1.76 | 0.01 (-0.03, 0.04) | 0.63 |
|  | WLZ Year 2 | 0.22 | 0.48 | -0.98 | -0.95 | 0.03 (-0.03, 0.08) | 0.3 | -0.94 | -0.92 | 0.02 (-0.02, 0.06) | 0.4 |
|  | HCZ Year 2 | 0.22 | 0.48 | -1.78 | -1.76 | 0.02 (-0.06, 0.1) | 0.6 | -1.82 | -1.82 | 0 (-0.08, 0.07) | 0.91 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| NGFI-A transcription factor binding site (CpG site #12) | WAZ Year 2 | -4.65 | -4.14 | -1.38 | -1.38 | 0 (-0.1, 0.11) | 0.99 | -1.86 | -1.66 | 0.2 (0, 0.4) | 0.05 |
|  | WLZ Year 2 | -4.65 | -4.14 | -0.96 | -0.96 | 0 (0, 0) | 1 | -0.96 | -0.92 | 0.05 (-0.08, 0.17) | 0.47 |
|  | HCZ Year 2 | -4.65 | -4.14 | -1.79 | -1.79 | 0 (0, 0) | 1 | -2.07 | -2.09 | -0.02 (-0.12, 0.08) | 0.74 |