## Table 1. Maternal Micronutrients and Child Immune Status

| Maternal Micronutrients and Child Immune Status | Outcome | N | 25th Percentile | 75th Percentile | Outcome, 75th Percentile v. 25th Percentile | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | Adjusted | | | |
|  |  |  |  |  | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-value |
| Vit D (nmol/L) | Ln AGP Age 14 months (g/L) | 422 | 32.53 | 54.57 | 0 | 0.01 | 0.01 (-0.08, 0.1) | 0.8 |
|  | Ln CRP Age 14 months (mg/L) | 368 | 32.51 | 54.37 | -0.15 | -0.05 | 0.1 (-0.15, 0.35) | 0.44 |
|  | Ln IFN-y Age 14 months (pg/mL) | 409 | 32.13 | 54.11 | 2.01 | 1.95 | -0.05 (-0.19, 0.08) | 0.42 |
|  | Sum score of 13 cytokines Age 14 months | 409 | 32.13 | 54.32 | -0.02 | 0.09 | 0.1 (-0.03, 0.24) | 0.13 |
|  | Ln AGP Age 28 months (g/L) | 251 | 33.19 | 56.35 | -0.23 | -0.28 | -0.05 (-0.23, 0.13) | 0.6 |
|  | Ln CRP Age 28 months (mg/L) | 497 | 32.58 | 55.49 | -0.05 | -0.05 | 0 (0, 0) | 0.02 |
|  | Ln IFN-y Age 28 months (pg/mL) | 489 | 32.53 | 55.44 | 1.59 | 1.6 | 0.01 (-0.07, 0.08) | 0.9 |
|  | Sum score of 13 cytokines Age 28 months | 488 | 32.51 | 55.38 | -0.22 | -0.23 | -0.02 (-0.13, 0.1) | 0.8 |
|  |  |  |  |  |  |  |  |  |
| Vit D deficiency | Ln AGP Age 14 months (g/L) | 422 | 0 | 1 | 0.01 | -0.01 | -0.02 (-0.12, 0.09) | 0.75 |
|  | Ln CRP Age 14 months (mg/L) | 368 | 0 | 1 | -0.08 | -0.29 | -0.21 (-0.6, 0.18) | 0.29 |
|  | Ln IFN-y Age 14 months (pg/mL) | 409 | 0 | 1 | 2.01 | 1.9 | -0.12 (-0.25, 0.01) | 0.08 |
|  | Sum score of 13 cytokines Age 14 months | 409 | 0 | 1 | 0.06 | -0.07 | -0.14 (-0.38, 0.11) | 0.28 |
|  | Ln AGP Age 28 months (g/L) | 251 | 0 | 1 | -0.12 | -0.1 | 0.02 (-0.14, 0.18) | 0.81 |
|  | Ln CRP Age 28 months (mg/L) | 497 | 0 | 1 | -0.04 | -0.1 | -0.06 (-0.36, 0.24) | 0.69 |
|  | Ln IFN-y Age 28 months (pg/mL) | 489 | 0 | 1 | 1.59 | 1.61 | 0.02 (-0.13, 0.16) | 0.82 |
|  | Sum score of 13 cytokines Age 28 months | 488 | 0 | 1 | -0.2 | -0.24 | -0.03 (-0.25, 0.18) | 0.78 |
|  |  |  |  |  |  |  |  |  |
| Ln RBP (umol/L) | Ln AGP Age 14 months (g/L) | 422 | 0.13 | 0.52 | 0.01 | 0 | -0.01 (-0.06, 0.04) | 0.64 |
|  | Ln CRP Age 14 months (mg/L) | 368 | 0.13 | 0.52 | -0.03 | -0.17 | -0.14 (-0.33, 0.05) | 0.14 |
|  | Ln IFN-y Age 14 months (pg/mL) | 409 | 0.13 | 0.52 | 2.01 | 1.96 | -0.05 (-0.11, 0.02) | 0.16 |
|  | Sum score of 13 cytokines Age 14 months | 409 | 0.13 | 0.52 | 0.09 | -0.24 | -0.33 (-0.6, -0.07) | 0.01 |
|  | Ln AGP Age 28 months (g/L) | 251 | 0.13 | 0.52 | -0.12 | -0.08 | 0.03 (-0.04, 0.11) | 0.36 |
|  | Ln CRP Age 28 months (mg/L) | 497 | 0.13 | 0.52 | -0.04 | -0.04 | 0 (0, 0) | 0.41 |
|  | Ln IFN-y Age 28 months (pg/mL) | 489 | 0.12 | 0.51 | 1.54 | 1.61 | 0.07 (0, 0.13) | 0.05 |
|  | Sum score of 13 cytokines Age 28 months | 488 | 0.12 | 0.51 | -0.32 | -0.24 | 0.09 (-0.01, 0.19) | 0.09 |
|  |  |  |  |  |  |  |  |  |
| Vit A deficiency | Ln AGP Age 14 months (g/L) | 422 | 0 | 1 | 0.01 | -0.14 | -0.15 (-0.35, 0.04) | 0.12 |
|  | Ln CRP Age 14 months (mg/L) | 368 | 0 | 1 | -0.13 | -0.32 | -0.19 (-0.93, 0.55) | 0.63 |
|  | Ln IFN-y Age 14 months (pg/mL) | 409 | 0 | 1 | 1.98 | 2.08 | 0.1 (-0.14, 0.35) | 0.42 |
|  | Sum score of 13 cytokines Age 14 months | 409 | 0 | 1 | 0.03 | 0.44 | 0.42 (-0.04, 0.87) | 0.07 |
|  | Ln AGP Age 28 months (g/L) | 251 | 0 | 1 | -0.1 | -0.26 | -0.16 (-0.44, 0.13) | 0.28 |
|  | Ln CRP Age 28 months (mg/L) | 497 | 0 | 1 | -0.04 | -0.26 | -0.22 (-0.76, 0.32) | 0.44 |
|  | Ln IFN-y Age 28 months (pg/mL) | 489 | 0 | 1 | 1.59 | 1.44 | -0.15 (-0.41, 0.11) | 0.25 |
|  | Sum score of 13 cytokines Age 28 months | 488 | 0 | 1 | -0.22 | -0.52 | -0.3 (-0.69, 0.09) | 0.13 |
|  |  |  |  |  |  |  |  |  |
| Ln ferritin (ug/L) | Ln AGP Age 14 months (g/L) | 422 | 2.54 | 3.89 | 0.04 | -0.04 | -0.08 (-0.2, 0.04) | 0.2 |
|  | Ln CRP Age 14 months (mg/L) | 368 | 2.52 | 3.89 | 0.2 | -0.29 | -0.49 (-1.04, 0.07) | 0.08 |
|  | Ln IFN-y Age 14 months (pg/mL) | 409 | 2.53 | 3.88 | 2.02 | 1.94 | -0.08 (-0.17, 0.01) | 0.07 |
|  | Sum score of 13 cytokines Age 14 months | 409 | 2.53 | 3.88 | 0.07 | -0.1 | -0.16 (-0.33, 0) | 0.05 |
|  | Ln AGP Age 28 months (g/L) | 251 | 2.49 | 3.64 | -0.1 | -0.13 | -0.02 (-0.12, 0.07) | 0.65 |
|  | Ln CRP Age 28 months (mg/L) | 497 | 2.54 | 3.81 | -0.05 | -0.03 | 0.02 (-0.14, 0.18) | 0.8 |
|  | Ln IFN-y Age 28 months (pg/mL) | 489 | 2.59 | 3.87 | 1.61 | 1.67 | 0.06 (-0.03, 0.15) | 0.2 |
|  | Sum score of 13 cytokines Age 28 months | 488 | 2.59 | 3.88 | -0.35 | -0.13 | 0.22 (-0.07, 0.51) | 0.14 |
|  |  |  |  |  |  |  |  |  |
| Ln sTfR (mg/L) | Ln AGP Age 14 months (g/L) | 422 | 1.28 | 1.68 | 0 | -0.03 | -0.03 (-0.08, 0.02) | 0.23 |
|  | Ln CRP Age 14 months (mg/L) | 368 | 1.29 | 1.69 | -0.09 | -0.18 | -0.09 (-0.31, 0.13) | 0.44 |
|  | Ln IFN-y Age 14 months (pg/mL) | 409 | 1.28 | 1.68 | 1.94 | 1.9 | -0.05 (-0.21, 0.12) | 0.6 |
|  | Sum score of 13 cytokines Age 14 months | 409 | 1.28 | 1.67 | 0 | -0.09 | -0.09 (-0.39, 0.21) | 0.57 |
|  | Ln AGP Age 28 months (g/L) | 251 | 1.3 | 1.67 | -0.13 | -0.1 | 0.03 (-0.04, 0.1) | 0.38 |
|  | Ln CRP Age 28 months (mg/L) | 497 | 1.3 | 1.7 | -0.13 | 0.02 | 0.15 (-0.02, 0.32) | 0.08 |
|  | Ln IFN-y Age 28 months (pg/mL) | 489 | 1.3 | 1.68 | 1.57 | 1.54 | -0.04 (-0.2, 0.13) | 0.68 |
|  | Sum score of 13 cytokines Age 28 months | 488 | 1.29 | 1.69 | -0.24 | -0.25 | -0.01 (-0.11, 0.09) | 0.89 |
|  |  |  |  |  |  |  |  |  |
| Iron deficiency | Ln AGP Age 14 months (g/L) | 422 | 0 | 1 | -0.02 | 0.1 | 0.13 (0.03, 0.22) | 0.01 |
|  | Ln CRP Age 14 months (mg/L) | 368 | 0 | 1 | -0.17 | 0.11 | 0.27 (-0.08, 0.63) | 0.13 |
|  | Ln IFN-y Age 14 months (pg/mL) | 409 | 0 | 1 | 1.97 | 2.01 | 0.04 (-0.09, 0.16) | 0.58 |
|  | Sum score of 13 cytokines Age 14 months | 409 | 0 | 1 | 0 | 0.09 | 0.09 (-0.14, 0.32) | 0.45 |
|  | Ln AGP Age 28 months (g/L) | 251 | 0 | 1 | -0.14 | -0.06 | 0.08 (-0.07, 0.23) | 0.29 |
|  | Ln CRP Age 28 months (mg/L) | 497 | 0 | 1 | -0.09 | 0.03 | 0.12 (-0.16, 0.4) | 0.41 |
|  | Ln IFN-y Age 28 months (pg/mL) | 489 | 0 | 1 | 1.62 | 1.57 | -0.05 (-0.18, 0.08) | 0.47 |
|  | Sum score of 13 cytokines Age 28 months | 488 | 0 | 1 | -0.19 | -0.31 | -0.12 (-0.32, 0.08) | 0.23 |
| N, 25th Percentile, and 75th Percentile are from the adjusted analyses | | | | | | | | |
| \* P-value < 0.2 after adjusting for multiple comparisons using the Benjamini-Hochberg procedure | | | | | | | | |

## Table 2. Maternal Cortisol and Child Immune Status

| Maternal Cortisol and Child Immune Status | Outcome | N | 25th Percentile | 75th Percentile | Outcome, 75th Percentile v. 25th Percentile | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | Adjusted | | | |
|  |  |  |  |  | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-value |
| Ln Cortisol (ug/dL) | Ln AGP Age 14 months (g/L) | 418 | 2.47 | 3.26 | -0.01 | 0.00 | 0.01 (-0.06, 0.08) | 0.78 |
|  | Ln CRP Age 14 months (mg/L) | 364 | 2.49 | 3.27 | -0.26 | -0.11 | 0.15 (-0.12, 0.42) | 0.28 |
|  | Ln IFN-y Age 14 months (pg/mL) | 416 | 2.45 | 3.27 | 1.87 | 1.89 | 0.02 (-0.1, 0.14) | 0.75 |
|  | Sum score of 13 cytokines Age 14 months | 415 | 2.45 | 3.27 | -0.09 | -0.10 | -0.01 (-0.25, 0.23) | 0.93 |
|  | Ln AGP Age 28 months (g/L) | 251 | 2.48 | 3.24 | -0.22 | -0.15 | 0.07 (-0.02, 0.16) | 0.14 |
|  | Ln CRP Age 28 months (mg/L) | 492 | 2.53 | 3.26 | -0.24 | -0.07 | 0.17 (-0.02, 0.35) | 0.07 |
|  | Ln IFN-y Age 28 months (pg/mL) | 483 | 2.52 | 3.26 | 1.56 | 1.60 | 0.04 (-0.09, 0.16) | 0.57 |
|  | Sum score of 13 cytokines Age 28 months | 483 | 2.52 | 3.26 | -0.25 | -0.29 | -0.03 (-0.16, 0.09) | 0.6 |
| N, 25th Percentile, and 75th Percentile are from the adjusted analyses | | | | | | | | |
| \* P-value < 0.2 after adjusting for multiple comparisons using the Benjamini-Hochberg procedure | | | | | | | | |

## Table 3. Maternal Estriol and Child Immune Status

| Maternal Estriol and Child Immune Status | Outcome | N | 25th Percentile | 75th Percentile | Outcome, 75th Percentile v. 25th Percentile | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | Adjusted | | | |
|  |  |  |  |  | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-value |
| Ln Estriol (ng/mL) | Ln AGP Age 14 months (g/L) | 418 | 0.73 | 1.71 | -0.02 | 0.03 | 0.06 (-0.02, 0.13) | 0.14 |
|  | Ln CRP Age 14 months (mg/L) | 364 | 0.73 | 1.71 | -0.09 | -0.13 | -0.04 (-0.12, 0.04) | 0.31 |
|  | Ln IFN-y Age 14 months (pg/mL) | 406 | 0.76 | 1.71 | 1.98 | 1.97 | 0 (-0.07, 0.07) | 0.96 |
|  | Sum score of 13 cytokines Age 14 months | 406 | 0.75 | 1.71 | 0.01 | -0.06 | -0.07 (-0.42, 0.28) | 0.7 |
|  | Ln AGP Age 28 months (g/L) | 251 | 0.70 | 1.71 | -0.10 | -0.07 | 0.02 (-0.07, 0.11) | 0.66 |
|  | Ln CRP Age 28 months (mg/L) | 492 | 0.82 | 1.74 | -0.10 | 0.03 | 0.12 (-0.03, 0.28) | 0.12 |
|  | Ln IFN-y Age 28 months (pg/mL) | 484 | 0.78 | 1.74 | 1.61 | 1.63 | 0.02 (-0.08, 0.12) | 0.7 |
|  | Sum score of 13 cytokines Age 28 months | 483 | 0.78 | 1.74 | -0.36 | -0.28 | 0.08 (-0.09, 0.25) | 0.37 |
| N, 25th Percentile, and 75th Percentile are from the adjusted analyses | | | | | | | | |
| \* P-value < 0.2 after adjusting for multiple comparisons using the Benjamini-Hochberg procedure | | | | | | | | |

## Table 4. Maternal Immune Status and Child Immune Status

| Maternal Immune Status and Child Immune Status | Outcome | N | 25th Percentile | 75th Percentile | Outcome, 75th Percentile v. 25th Percentile | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | Adjusted | | | |
|  |  |  |  |  | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-value |
| Ln AGP (g/L) | Ln AGP Age 14 months (g/L) | 422 | -1.14 | -0.55 | -0.01 | 0 | 0.01 (-0.07, 0.09) | 0.87 |
|  | Ln CRP Age 14 months (mg/L) | 368 | -1.11 | -0.53 | 0.03 | 0.03 | 0 (0, 0) | 0.99 |
|  | Ln IFN-y Age 14 months (pg/mL) | 409 | -1.14 | -0.54 | 1.99 | 1.96 | -0.03 (-0.11, 0.05) | 0.46 |
|  | Sum score of 13 cytokines Age 14 months | 409 | -1.14 | -0.54 | 0 | -0.08 | -0.08 (-0.24, 0.07) | 0.29 |
|  | Ln AGP Age 28 months (g/L) | 251 | -1.19 | -0.62 | -0.05 | -0.12 | -0.06 (-0.22, 0.09) | 0.44 |
|  | Ln CRP Age 28 months (mg/L) | 497 | -1.14 | -0.58 | -0.01 | -0.08 | -0.07 (-0.24, 0.09) | 0.39 |
|  | Ln IFN-y Age 28 months (pg/mL) | 489 | -1.11 | -0.6 | 1.58 | 1.6 | 0.02 (-0.04, 0.09) | 0.5 |
|  | Sum score of 13 cytokines Age 28 months | 488 | -1.11 | -0.6 | -0.2 | -0.22 | -0.02 (-0.11, 0.08) | 0.76 |
|  |  |  |  |  |  |  |  |  |
| Ln CRP (mg/L) | Ln AGP Age 14 months (g/L) | 422 | -0.15 | 1.41 | -0.05 | 0 | 0.05 (-0.05, 0.15) | 0.33 |
|  | Ln CRP Age 14 months (mg/L) | 368 | -0.09 | 1.46 | -0.1 | 0.17 | 0.27 (-0.31, 0.84) | 0.37 |
|  | Ln IFN-y Age 14 months (pg/mL) | 409 | -0.14 | 1.38 | 1.98 | 1.98 | 0.01 (-0.07, 0.08) | 0.85 |
|  | Sum score of 13 cytokines Age 14 months | 409 | -0.14 | 1.38 | -0.02 | -0.02 | 0 (-0.14, 0.13) | 0.98 |
|  | Ln AGP Age 28 months (g/L) | 251 | -0.15 | 1.36 | -0.05 | -0.12 | -0.07 (-0.16, 0.02) | 0.12 |
|  | Ln CRP Age 28 months (mg/L) | 497 | -0.08 | 1.42 | -0.05 | -0.06 | -0.01 (-0.17, 0.15) | 0.92 |
|  | Ln IFN-y Age 28 months (pg/mL) | 489 | -0.13 | 1.41 | 1.61 | 1.59 | -0.02 (-0.12, 0.08) | 0.74 |
|  | Sum score of 13 cytokines Age 28 months | 488 | -0.13 | 1.41 | -0.23 | -0.25 | -0.02 (-0.14, 0.1) | 0.77 |
|  |  |  |  |  |  |  |  |  |
| Initial Ln IFN-y (pg/mL) | Ln AGP Age 14 months (g/L) | 355 | 1.67 | 2.3 | -0.04 | -0.03 | 0.01 (-0.05, 0.06) | 0.78 |
|  | Ln CRP Age 14 months (mg/L) | 308 | 1.66 | 2.29 | 0.14 | 0.14 | 0.01 (-0.01, 0.03) | 0.37 |
|  | Ln IFN-y Age 14 months (pg/mL) | 342 | 1.67 | 2.3 | 1.95 | 2.02 | 0.07 (0, 0.14) | 0.05 |
|  | Sum score of 13 cytokines Age 14 months | 341 | 1.67 | 2.3 | 0.03 | 0.04 | 0.01 (-0.19, 0.22) | 0.92 |
|  | Ln AGP Age 28 months (g/L) | 248 | 1.56 | 2.14 | -0.18 | -0.07 | 0.11 (-0.04, 0.25) | 0.15 |
|  | Ln CRP Age 28 months (mg/L) | 473 | 1.65 | 2.3 | -0.05 | -0.04 | 0 (-0.03, 0.04) | 0.82 |
|  | Ln IFN-y Age 28 months (pg/mL) | 461 | 1.64 | 2.3 | 1.76 | 1.75 | -0.01 (-0.08, 0.06) | 0.82 |
|  | Sum score of 13 cytokines Age 28 months | 461 | 1.64 | 2.3 | -0.23 | -0.26 | -0.03 (-0.14, 0.08) | 0.58 |
|  |  |  |  |  |  |  |  |  |
| Sum score of 13 cytokines | Ln AGP Age 14 months (g/L) | 355 | -0.63 | 0.63 | -0.06 | -0.02 | 0.04 (-0.04, 0.12) | 0.34 |
|  | Ln CRP Age 14 months (mg/L) | 308 | -0.66 | 0.61 | 0.13 | 0.1 | -0.03 (-0.25, 0.18) | 0.77 |
|  | Ln IFN-y Age 14 months (pg/mL) | 342 | -0.64 | 0.63 | 1.93 | 1.92 | 0 (-0.18, 0.17) | 0.96 |
|  | Sum score of 13 cytokines Age 14 months | 341 | -0.64 | 0.63 | -0.08 | -0.11 | -0.04 (-0.34, 0.26) | 0.81 |
|  | Ln AGP Age 28 months (g/L) | 248 | -0.79 | 0.51 | -0.16 | -0.11 | 0.05 (-0.09, 0.19) | 0.51 |
|  | Ln CRP Age 28 months (mg/L) | 473 | -0.65 | 0.65 | -0.06 | -0.05 | 0 (0, 0.01) | 0\* |
|  | Ln IFN-y Age 28 months (pg/mL) | 461 | -0.66 | 0.64 | 1.71 | 1.69 | -0.02 (-0.1, 0.05) | 0.52 |
|  | Sum score of 13 cytokines Age 28 months | 461 | -0.66 | 0.64 | -0.12 | -0.36 | -0.24 (-0.53, 0.04) | 0.09 |
| N, 25th Percentile, and 75th Percentile are from the adjusted analyses | | | | | | | | |
| \* P-value < 0.2 after adjusting for multiple comparisons using the Benjamini-Hochberg procedure | | | | | | | | |