### Supplemental Table 1:

| Birth weight | Mother’s height | Nutritional status at 24 months | Deviance type | n  |
|--------------|-----------------|---------------------------------|---------------|----|
| <2.5 kg and/or <145 cm | Non-stunted | PD | 79 |
| <2.5 kg and/or <145 cm | Stunted | NPD | 116 |
| ≥2.5 kg and ≥145 cm | Stunted | ND | 349 |
| ≥2.5 kg and ≥145 cm | Non-stunted | NND | 548 |
| **Total** | | | **1092** |

### Supplemental Table 2:

|          | PD | ND |
|----------|----|----|
|          | No | Yes | No | Yes |
| Bangladesh | 40 | 23 | 73 | 46 |
| Brazil   | 0  | 12 | 130 | 6  |
| India    | 34 | 26 | 95 | 68 |
| Peru     | 25 | 14 | 100 | 52 |
| South Africa | 5  | 4  | 100 | 62 |
| Tanzania | 12 | 0  | 50  | 115 |
| **Total** | 116 | 79 | 548 | 349 |
Factors associated with the chances of being positive and negative deviance

### Positive Deviance

| Variables             | Unadjusted | Adjusted |
|-----------------------|------------|----------|
|                       | Beta       | Std. error | 95% CI | p value | Beta       | Std. error | 95% CI | p value |
| Energy from protein   | 0.03       | 0.00       | 0.03   | 0.02    | 0.000 | Energy from protein | 0.02 | 0.01 | 0.04 | -0.01 | 0.186 |
| Diarrhea episodes     | -0.11      | 0.07       | 0.03   | -0.26   | 0.118 | Diarrhea episodes   | -0.02 | 0.01 | 0.03 | -0.03 | 0.031 |
| EBF Days              | 0.00       | 0.00       | 0.00   | 0.00    | 0.343 | EBF Days            | 1.54 | 0.38 | 2.28 | 0.80 | 0.000 |
| WAMI                  | 2.49       | 0.30       | 3.08   | 1.90    | 0.000 | WAMI                | -0.05 | 0.01 | -0.02 | -0.07 | 0.000 |
| SRQ20                 | -0.04      | 0.01       | -0.02  | -0.07   | 0.000 | SRQ20               | -0.14 | 0.18 | 0.21 | -0.49 | 0.422 |
| LM Ratio              | -0.48      | 0.15       | -0.19  | -0.76   | 0.001 | LM Ratio            | -0.14 | 0.18 | 0.21 | -0.49 | 0.422 |
| Hb                    | 0.28       | 0.04       | 0.35   | 0.21    | 0.000 | Hb                  | 0.36 | 0.05 | 0.45 | 0.26 | 0.000 |
| Zinc                  | 0.02       | 0.02       | 0.06   | -0.02   | 0.267 | Zinc                | 0.05 | 0.01 | 0.07 | 0.04 | 0.000 |
| Retinol               | 0.07       | 0.01       | 0.08   | 0.06    | 0.000 | Retinol             | 0.05 | 0.01 | 0.07 | 0.04 | 0.000 |
| TFR                   | -0.01      | 0.01       | 0.02   | -0.03   | 0.594 | TFR                 | -0.03 | 0.00 | -0.02 | -0.03 | 0.000 |
| Ferritin              | -0.01      | 0.00       | 0.00   | -0.01   | 0.001 | Ferritin            | -0.03 | 0.00 | -0.02 | -0.03 | 0.000 |
| Sex                   | -0.90      | 0.08       | -0.75  | -1.05   | 0.000 | Sex                 | -1.08 | 0.09 | -0.90 | -1.26 | 0.000 |
| MPO                   | 0.00       | 0.00       | 0.00   | 0.00    | 0.000 | MPO                 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 |
| Neo                   | 0.00       | 0.00       | 0.00   | 0.00    | 0.000 | Neo                 | 0.00 | 0.00 | 0.00 | 0.00 | 0.600 |
| A1AT                  | -0.53      | 0.17       | -0.19  | -0.86   | 0.002 | A1AT                | -0.81 | 0.21 | -0.41 | -1.22 | 0.000 |
| LAZ score at birth    | 0.33       | 0.04       | 0.40   | 0.26    | 0.000 | LAZ score at birth  | 0.47 | 0.04 | 0.56 | 0.39 | 0.000 |

### Negative Deviance

| Variables             | Unadjusted | Adjusted |
|-----------------------|------------|----------|
|                       | Beta       | Std. error | 95% CI | p value | Beta       | Std. error | 95% CI | p value |
| Energy from protein   | -0.02      | 0.01       | -0.01  | -0.03   | 0.000 | Energy from protein | -0.02 | 0.01 | 0.00 | -0.03 | 0.006 |
| Diarrhea episodes     | 0.01       | 0.01       | 0.02   | 0.00    | 0.011 | Diarrhea episodes   | 0.02 | 0.01 | 0.03 | 0.01 | 0.000 |
| EBF Days              | 0.00       | 0.00       | 0.00   | 0.00    | 0.000 | EBF Days            | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 |
| WAMI                  | 0.00       | 0.00       | 0.00   | 0.00    | 1.000 | WAMI                | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 |
| SRQ20                 | 0.00       | 0.01       | 0.01   | -0.01   | 0.875 | SRQ20               | 0.87 | 0.40 | 0.37 | 0.21 | 0.000 |
| LM Ratio              | 0.04       | 0.05       | 0.14   | -0.06   | 0.400 | LM Ratio            | 0.04 | 0.05 | 0.14 | -0.06 | 0.400 |
| Hb                    | -0.21      | 0.02       | -0.17  | -0.25   | 0.000 | Hb                  | -0.28 | 0.02 | -0.23 | -0.32 | 0.000 |
| Zinc                  | 0.00       | 0.01       | 0.01   | -0.02   | 0.080 | Zinc                | 0.00 | 0.02 | 0.01 | -0.02 | 0.080 |
| Retinol               | -0.02      | 0.00       | -0.01  | -0.02   | 0.000 | Retinol             | 0.00 | 0.00 | 0.00 | -0.01 | 0.193 |
| TFR                   | -0.06      | 0.01       | -0.04  | -0.07   | 0.000 | TFR                 | -0.15 | 0.01 | -0.13 | -0.17 | 0.000 |
| Ferritin              | 0.01       | 0.00       | 0.01   | 0.00    | 0.000 | Ferritin            | 0.01 | 0.00 | 0.01 | 0.01 | 0.000 |
| Sex                   | 0.65       | 0.04       | 0.73   | 0.58    | 0.000 | Sex                 | 0.72 | 0.04 | 0.80 | 0.63 | 0.000 |
| MPO                   | 0.00       | 0.00       | 0.00   | 0.00    | 0.000 | MPO                 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 |
| Neo                   | 0.00       | 0.00       | 0.00   | 0.00    | 0.000 | Neo                 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 |
| A1AT                  | 0.50       | 0.09       | 0.67   | 0.33    | 0.000 | A1AT                | 0.67 | 0.10 | 0.86 | 0.48 | 0.000 |
| LAZ score at birth    | -0.81      | 0.02       | -0.76  | -0.85   | 0.000 | LAZ score at birth  | -0.90 | 0.03 | -0.85 | -0.95 | 0.000 |

### Random effects:

#### Positive Deviance

Groups Name Variance Std.Dev. Corr
country (Intercept) 1.463e+00 3.83999
month 2.676e-04 0.01636 1.00
Number of obs: 13702, groups: country, 6

#### Negative Deviance

Groups Name Variance Std.Dev. Corr
country (Intercept) 1.463e+00 3.83999
month 2.676e-04 0.01636 1.00
Number of obs: 13702, groups: country, 6
### Association between levels of vaccine titres and the chances of being positive and negative deviant

#### Outcome variable: PD (Yes vs. No)

|        | Unadjusted |         |         |        | Adjusted* |         |         |        |
|--------|------------|---------|---------|--------|-----------|---------|---------|--------|
|        | B          | SE      | 95% CI  | p-value| B         | SE      | 95% CI  | p-value|
| Measles| -0.076     | 0.080   | 0.080   | -0.232 | -0.102    | 0.093   | 0.080   | -0.284 | 0.273   |
| Tetanus| 0.151      | 0.068   | 0.285   | 0.017  | 0.027     | 0.182   | 0.080   | 0.338  | 0.023   |
| pertusis| 0.023     | 0.070   | 0.159   | -0.113 | 0.739     | -0.139  | 0.085   | 0.027  | 0.306   | 0.101   |
| Rota   | -0.007     | 0.061   | 0.112   | -0.126 | 0.911     | 0.033   | 0.070   | 0.171  | -0.105  | 0.639   |
| Polio  | 0.139      | 0.064   | 0.265   | 0.012  | 0.031     | 0.137   | 0.070   | 0.273  | 0.000   | 0.050   |

**Random effects:**

- Groups Name: Variance Std.Dev.
  - country (Intercept) 1.123855 1.06012
  - month 0.001951 0.04417

Number of obs: 193, groups: country, 6

#### Outcome variable: ND (Yes vs. No)

|        | Unadjusted |         |         |        | Adjusted* |         |         |        |
|--------|------------|---------|---------|--------|-----------|---------|---------|--------|
|        | B          | SE      | 95% CI  | p-value| B         | SE      | 95% CI  | p-value|
| Measles| -0.039     | 0.042   | 0.043   | -0.121 | 0.347  | -0.021  | 0.047   | 0.071  | -0.113  | 0.661   |
| Tetanus| -0.027     | 0.032   | 0.035   | -0.089 | 0.401  | -0.049  | 0.039   | 0.028  | -0.126  | 0.214   |
| pertusis| -0.013     | 0.033   | 0.053   | -0.078 | 0.703  | 0.012   | 0.041   | 0.092  | 0.068   | 0.773   |
| Rota   | -0.078     | 0.028   | -0.024  | -0.133 | 0.005  | -0.053  | 0.030   | 0.006  | -0.112  | 0.077   |
| Polio  | -0.006     | 0.032   | 0.058   | -0.070 | 0.854  | 0.014   | 0.036   | 0.084  | 0.057   | 0.705   |

**Random effects:**

- Groups Name: Variance Std.Dev. Corr
  - country (Intercept) 0.662771 0.81411
  - month 0.004929 0.06995 1.00

Number of obs: 867, groups: country, 6

* Multi-variable models were adjusted for sex, WAMI score, MPO, Neo, A1AT and length-for-age Z-score at birth