**Table 1. Enrollment characteristics by intervention group**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Control | Water + Sanitation + Handwashing | | Nutrition | | Nutrition + Water + Sanitation + Handwashing | |
| No. of clusters: | N= | | N= | | N= | | N= |
| No. of compounds: | N= | | N= | | N= | | N= |
|  | % / mean | | % / mean | | % / mean | | % / mean |
| **Maternal** |  |  | |  | |  | |
| Age | xx | xx | | xx | | xx | |
| Years of education | x | x | | x | | x | |
| **Paternal** |  |  | |  | |  | |
| Age | xx | xx | | xx | | xx | |
| Years of education | x | x | | x | | x | |
| **Household** |  |  | |  | |  | |
| Number of persons | x | x | | x | | x | |
| Has electricity | xx.x | xx.x | | xx.x | | xx.x | |
| Has a cement floor | xx.x | xx.x | | xx.x | | xx.x | |
| Acres of agricultural land owned | x.xx | x.xx | | x.xx | | x.xx | |
| **Drinking Water** |  |  | |  | |  | |
| Shallow tubewell primary water  source | xx.x | xx.x | | xx.x | | xx.x | |
| Stored water observed at home | xx.x | xx.x | | xx.x | | xx.x | |
| Reported treating water yesterday | x.x | x.x | | x.x | | x.x | |
| **Sanitation** |  |  | |  | |  | |
| Reported daily open defecation |  |  | |  | |  | |
| Adult men | x.x | x.x | | x.x | | x.x | |
| Adult women | x.x | x.x | | x.x | | x.x | |
| Children: 8-<15 years | x.x | x.x | | x.x | | x.x | |
| Children: 3-<8 years | xx.x | xx.x | | xx.x | | xx.x | |
| Children: 0-<3 years | xx.x | xx.x | | xx.x | | xx.x | |
| Latrine |  |  | |  | |  | |
| Owned | xx.x | xx.x | | xx.x | | xx.x | |
| Concrete slab | xx.x | xx.x | | xx.x | | xx.x | |
| Functional water seal | xx.x | xx.x | | xx.x | | xx.x | |
| Visible stool on slab or floor | xx.x | xx.x | | xx.x | | xx.x | |
| Owned a potty | x.x | x.x | | x.x | | x.x | |
| Human feces observed in the |  |  | |  | |  | |
| House | x.x | x.x | | x.x | | x.x | |
| Child's play area | x.x | x.x | | x.x | | x.x | |
| **Handwashing** |  |  | |  | |  | |
| Within 6 steps of latrine |  |  | |  | |  | |
| Has water | xx.x | xx.x | | xx.x | | xx.x | |
| Has soap | x.x | x.x | | x.x | | x.x | |
| Within 6 steps of kitchen |  |  | |  | |  | |
| Has water | x.x | x.x | | x.x | | x.x | |
| Has soap | x.x | x.x | | x.x | | x.x | |
| **Nutrition** |  |  | |  | |  | |
| Food insecure | % | % | | % | | % | |
| Maternal short stature (<145cm) | % | % | | % | | % | |
|  |  |  | |  | |  | |

**Table 2. Effect of intervention on environmental enteric dysfunction measurements at follow-up 1**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Outcome, Arm | N | Geometric mean | | Difference from Control  (95% CI) | | Difference from Nutrition  (95% CI) | | Difference from  WSH  (95% CI) | |
| **Ln myeloperoxidase (ng/ml)** |  |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln alpha 1-antitrypsin (mg/g)** |  | |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln neopterin (nmol/L)** |  | |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln lactulose (mmol/L)\*** |  | |  | |  | |  | |  | | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln mannitol (mmol/L)\*** |  | |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln L:M ratio** |  | |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  |  | |  | |  | |  | |

\*Pre-specified secondary outcome

**Table 3. Effect of intervention on environmental enteric dysfunction measurements after 1 year of intervention**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Outcome, Arm | N | Geometric mean | | Difference from Control  (95% CI) | | Difference from Nutrition  (95% CI) | | Difference from  WSH  (95% CI) | |
| **Ln myeloperoxidase (ng/ml)** |  |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln alpha 1-antitrypsin (mg/g)** |  | |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln neopterin (nmol/L)** |  | |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln regenerating gene 1β (μg/ml)** |  | |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln lactulose (mmol/L)\*** |  | |  | |  | |  | |  | | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln mannitol (mmol/L)\*** |  | |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln L:M ratio** |  | |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  |  | |  | |  | |  | |

\*Pre-specified secondary outcome

**Table 4. Effect of intervention on environmental enteric dysfunction measurements after 2 years of intervention**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Outcome, Arm | N | Geometric mean | | Difference from Control  (95% CI) | | Difference from Nutrition  (95% CI) | | Difference from  WSH  (95% CI) | |
| **Ln myeloperoxidase (ng/ml)** |  |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln alpha 1-antitrypsin (mg/g)** |  | |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln neopterin (nmol/L)** |  | |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln lactulose (mmol/L)\*** |  | |  | |  | |  | |  | | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln mannitol (mmol/L)\*** |  | |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  | |  | |  | |  | |  | |
| **Ln L:M ratio** |  | |  | |  | |  | |  | |
| Control | xxx | | xxx.xx | |  | |  | |  | |
| Water + Sanitation + Handwashing (WSH) | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | |  | |  | |
| Nutrition + WSH | xxx | | xxx.xx | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | | x.xx (x.xx, x.xx) | |
|  |  |  | |  | |  | |  | |

\*Pre-specified secondary outcome

**Supplementary Table 1: Enrollment characteristics included in the follow-up and children lost to follow-up**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Included** | **Lost to follow-up at Year 1** | **Lost to follow-up at Year 2** |
| No. of clusters: | N= | N= | N= |
| No. of compounds: | N= | N= | N= |
| **Maternal** |  |  |  |
| Age | xx | xx | xx |
| Years of education | x | x | x |
| **Paternal** |  |  |  |
| Age | xx | xx | xx |
| Years of education | x | x | x |
| **Household** |  |  |  |
| Number of persons | x | x | x |
| Has electricity | xx.x | xx.x | xx.x |
| Has a cement floor | xx.x | xx.x | xx.x |
| Acres of agricultural land owned | x.xx | x.xx | x.xx |
| **Drinking Water** |  |  |  |
| Shallow tubewell primary water  source | xx.x | xx.x | xx.x |
| Stored water observed at home | xx.x | xx.x | xx.x |
| Reported treating water yesterday | x.x | x.x | x.x |
| **Sanitation** |  |  |  |
| Reported daily open defecation |  |  |  |
| Adult men | x.x | x.x | x.x |
| Adult women | x.x | x.x | x.x |
| Children: 8-<15 years | x.x | x.x | x.x |
| Children: 3-<8 years | xx.x | xx.x | xx.x |
| Children: 0-<3 years | xx.x | xx.x | xx.x |
| Latrine |  |  |  |
| Owned | xx.x | xx.x | xx.x |
| Concrete slab | xx.x | xx.x | xx.x |
| Functional water seal | xx.x | xx.x | xx.x |
| Visible stool on slab or floor | xx.x | xx.x | xx.x |
| Owned a potty | x.x | x.x | x.x |
| Human feces observed in the |  |  |  |
| House | x.x | x.x | x.x |
| Child's play area | x.x | x.x | x.x |
| **Handwashing** |  |  |  |
| Within 6 steps of latrine |  |  |  |
| Has water | xx.x | xx.x | xx.x |
| Has soap | x.x | x.x | x.x |
| Within 6 steps of kitchen |  |  |  |
| Has water | x.x | x.x | x.x |
| Has soap | x.x | x.x | x.x |
| **Nutrition** |  |  |  |
| Food insecure | % | % | % |
| Maternal short stature (<145cm) | % | % | % |

**Supplementary Table 2: Effect of intervention on environmental enteric dysfunction measurements at follow-up 1**

**Supplementary Table 3: Effect of intervention on environmental enteric dysfunction measurements after 1 year of intervention**

**Supplementary Table 4: Effect of intervention on environmental enteric dysfunction measurements after 2 years of intervention**

**Supplementary Table 5:** **Effect of intervention on environmental enteric dysfunction measurements at follow-up 1 using using inverse probability weighting**

**Supplementary Table 6:** **Effect of intervention on environmental enteric dysfunction measurements after 1 year of intervention using inverse probability weighting**

**Supplementary Table 7:** **Effect of intervention on environmental enteric dysfunction measurements after 2 years of intervention using inverse probability weighting**

**Supplementary Table 8: Absolute concentrations of environmental enteric dysfunction measurements**

**Should we include any of this info in the main EE paper?**

-diarrheal episodes by group

-Anthro by group