Micronutrient Supplement Decreases Diarrhea and Respiratory Morbidity in Rural Honduran Children.

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INTRODUCTION
This study evaluated the effects of a fortified corn/soy beverage mix, Chispuditos®, on morbidity for all diseases decreased in the year of the intervention among children who received the supplement Chispuditos® daily for 12 months. Chispuditos is a corn and soy-based beverage fortified with 21 vitamins/minerals including iron (12 mg/cup), vitamin A (100 mcg/g), vitamin C (10 mg/cup), copper (0.3 mg/cup), zinc (9 mg/cup), and riboflavin (0.5 mg/cup). Table 1 displays the formula for Chispuditos®.

RESULTS
Table 2. Chispuditos® micronutrient levels per daily serving

<table>
<thead>
<tr>
<th>Micronutrient</th>
<th>Amount per cup of Chispuditos®</th>
<th>Amount per daily serving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>12 mg</td>
<td>144 mg</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>100 mcg</td>
<td>1,200 mcg</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>10 mg</td>
<td>120 mg</td>
</tr>
<tr>
<td>Copper</td>
<td>0.3 mg</td>
<td>3.6 mg</td>
</tr>
<tr>
<td>Zinc</td>
<td>9 mg</td>
<td>108 mg</td>
</tr>
<tr>
<td>Riboflavin</td>
<td>0.5 mg</td>
<td>6 mg</td>
</tr>
</tbody>
</table>

Monthly incidence of diarrhea, upper respiratory infection, acute bronchitis, and cough was compared for the year prior to and year of the intervention using data from all children enrolled in the MANI 2 program. Monthly incidences of diarrhea and acute bronchitis were reduced by 78% (p<.01) and 73% (p<.01) respectively for the intervention period compared to the 12 months prior. Monthly incidence of acute bronchitis decreased by 49% (p<.01). During the year of the intervention, there were 13.7 fewer cases per month (a 49% decrease, p<.01) among the treatment group. Compared to the untreated, incidence decreased by 49% (p<.05). During the year of the intervention, there were 32.7 fewer cases per month (a 61% decrease, p<.01) among the treatment group. Compared to the untreated, incidence decreased by 49% (p<.01). During the year of the intervention, there were 11.3 fewer cases per month (a 43% decrease, p<.01) among the treatment group. Compared to the untreated, incidence decreased by 50% (p<.01).

CONCLUSIONS
1. Provision of the fortified corn/soy beverage mix Chispuditos® was associated with a significant reduction in the number of diarrheal cases in children in southern Intibucá, Honduras. Provision of Chispuditos was associated with a rapid increase in hemoglobin for children whose hemoglobin was low at baseline. For children severely anemic at baseline, hemoglobin increased by 2.3 g/dL (p<.05). Mean increases were adjusted to control for baseline and socioeconomic status.

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REFERENCES