Community-based Health and Nutrition to Reduce Stunting Project

Baseline results

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Outline

1. Background on the project and the evaluation
2. Study design
3. Results: household baseline characteristics
4. Results: extent of program implementation
5. Results: outcomes
   A. Healthcare service provision and access
   B. Food security and dietary diversity
   C. Breastfeeding, micronutrients, and service provider counseling about feeding and nutrition
   D. Sanitation
   E. Anthropometry and anemia
6. Conclusions
1. Background on the project and the evaluation
Indonesia has a high rate of stunting

• Defined as height or length for age more than 2 standard deviations below median according to WHO standards

• In 2013, Indonesia’s national stunting rate was 37.2% among children under 5 according to the National Basic Health Research study (Riskesdas)
  – Higher in study provinces: 38.6% in West Kalimantan, 41.3% in Central Kalimantan and 36.7% in South Sumatra (Department Kesehatan RI 2010)

• Indonesia’s stunting rate is high relative to the country’s level of economic development
Indonesia’s high stunting rate could constrain the country’s economic development

- Potential consequences: impaired cognitive ability, higher morbidity and mortality
  - Lifelong effects of lower wages and lost productivity
  - Stunting is a cyclical problem since stunted mothers are more likely to have stunted offspring

- Potential causes: poor maternal nutrition, inadequate early childhood nutrition, severe and repeated infections, environmental factors
  - Undernutrition and infection can become a vicious cycle
The Community-based Health & Nutrition to Reduce Stunting Project

• One of three projects under the MCC Indonesia Compact
  – Nutrition project is for five years, US$131.5 million

• Focus on improving health and nutrition of pregnant women, infants, and children under 5

• Three program components
  1. Expanding existing community-driven development program ("Generasi") to rural areas of three new provinces and strengthening emphasis on health and nutrition in program indicators in all 11 participating provinces
  2. Supply-side trainings (infant & young child feeding, growth monitoring, sanitation), provision of equipment for growth monitoring, distribution of micronutrients, and private sector response activity
  3. National communications campaign
<table>
<thead>
<tr>
<th>Project implementation</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarter (calendar)</td>
<td>1</td>
<td>2</td>
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<tr>
<td>Generasi facilitator training</td>
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<td>Generasi block grants disbursed</td>
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<tr>
<td>IYCF training at PHO (Provincial Health Office)/DHO (District Health Office) level</td>
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<tr>
<td>IYCF training at puskesmas/community level</td>
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<tr>
<td>Growth monitoring training at PHO/DHO level</td>
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<tr>
<td>Growth monitoring training at puskesmas/community level</td>
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<tr>
<td>Sanitation training and triggering events</td>
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<td>Sanitation entrepreneur training</td>
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<tr>
<td>Anthropometric kits distributed</td>
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<tr>
<td>IFA distribution for pregnant women</td>
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<tr>
<td>Micronutrient distribution for children 6-24 months</td>
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<tr>
<td>Private sector response activity</td>
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<tr>
<td>Communication campaign</td>
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</tr>
</tbody>
</table>

**Project timeline**

<table>
<thead>
<tr>
<th>Component 1</th>
<th>Component 2</th>
<th>Component 3</th>
</tr>
</thead>
</table>

**Note:**
- Component 1: Dark blue
- Component 2: Light blue
- Component 3: Blue
2. Study design
An independent impact evaluation

- Randomized design to estimate causal impacts
  - Randomization at the kecamatan (subdistrict) level
- Baseline and endline surveys allow us to control for changes over time that would have occurred in the absence of the program
- Mathematica worked closely with MCC and MCA-I on the evaluation design. SurveyMETER carried out the baseline data collection
Random assignment across three provinces

95 treatment and 95 control kecamatan in West Kalimantan, Central Kalimantan and South Sumatra

Source: MCA-I
Purple indicates treatment kecamatan, red indicates control kecamatan. Yellow lines indicate district boundaries.
Surveys took place across 22 districts, 190 kecamatan, and 760 desa in three provinces

<table>
<thead>
<tr>
<th>Province</th>
<th>Districts</th>
<th>Kecamatan</th>
<th>Desa</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Kalimantan</td>
<td>9</td>
<td>79</td>
<td>316</td>
</tr>
<tr>
<td>Central Kalimantan</td>
<td>8</td>
<td>68</td>
<td>272</td>
</tr>
<tr>
<td>South Sumatra</td>
<td>5</td>
<td>43</td>
<td>172</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>190</td>
<td>760</td>
</tr>
</tbody>
</table>

Source: SurveyMETER (2015).

The sample was representative of households in sampled kecamatan, but not of province as a whole.
# Surveys with multiple types of respondents

<table>
<thead>
<tr>
<th>Type of respondent</th>
<th>Key topics covered</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Household</strong></td>
<td>Demographics, income/assets, water/sanitation/hygiene, community engagement, participation in Generasi, health seeking behaviors / knowledge, nutrition (including food security, dietary diversity, infant &amp; young child feeding practices, micronutrient coverage &amp; compliance), care of child, household decision-making, anthropometry &amp; anemia</td>
</tr>
<tr>
<td>Household head</td>
<td></td>
</tr>
<tr>
<td>Pregnant woman</td>
<td></td>
</tr>
<tr>
<td>Caregiver</td>
<td></td>
</tr>
<tr>
<td><strong>Desa</strong></td>
<td>Training, health knowledge, participation in Generasi</td>
</tr>
<tr>
<td>Desa head</td>
<td></td>
</tr>
<tr>
<td>Posyandu volunteer</td>
<td></td>
</tr>
<tr>
<td>Generasi volunteer</td>
<td></td>
</tr>
<tr>
<td>Midwife</td>
<td></td>
</tr>
<tr>
<td><strong>Health facility</strong></td>
<td>Equipment, services, supervision/outreach, knowledge</td>
</tr>
<tr>
<td>Puskesmas management</td>
<td></td>
</tr>
<tr>
<td>Nutritionist</td>
<td></td>
</tr>
<tr>
<td>Midwife coordinator</td>
<td></td>
</tr>
<tr>
<td>Sanitarian</td>
<td></td>
</tr>
</tbody>
</table>
Sampling procedure

• 4 desa sampled per kecamatan; 1 sampling unit per desa
  – Sampling units depend on local context but were no more than 250 households

• Complete listing of all households in sampled unit to identify eligible respondents

• Random sample of eligible households (including a pregnant woman or a caregiver of a child 0-35 months old)
  – 8 pregnant women per kecamatan
  – 16 caregivers of children 0-35 months old per kecamatan
## Sample sizes and response rates by instrument type

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Sample size</th>
<th>Response rate (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household head</td>
<td>4,547</td>
<td>85</td>
</tr>
<tr>
<td>Caregiver</td>
<td>3,034</td>
<td>84</td>
</tr>
<tr>
<td>Pregnant Woman</td>
<td>1,513</td>
<td>86</td>
</tr>
<tr>
<td>Posyandu Volunteer</td>
<td>732</td>
<td>100</td>
</tr>
<tr>
<td>Desa head</td>
<td>760</td>
<td>100</td>
</tr>
<tr>
<td>Generasi volunteer</td>
<td>358</td>
<td>94</td>
</tr>
<tr>
<td>Midwife</td>
<td>570</td>
<td>75</td>
</tr>
<tr>
<td>Facility management</td>
<td>251</td>
<td>100</td>
</tr>
<tr>
<td>Midwife coordinator</td>
<td>245</td>
<td>97</td>
</tr>
<tr>
<td>Nutritionist</td>
<td>214</td>
<td>88</td>
</tr>
<tr>
<td>Sanitarian</td>
<td>203</td>
<td>88</td>
</tr>
</tbody>
</table>
1. Describe conditions at baseline
   – Provide MCC and MCA-I with information that can improve the design of project activities

2. Test for balance between treatment and control areas

In order to achieve these goals, we first consider the timing of program implementation relative to baseline data collection.
3. Results: household baseline characteristics
Treatment and control respondents were balanced on demographic characteristics

<table>
<thead>
<tr>
<th></th>
<th>Treatment mean</th>
<th>Control mean</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Household head</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female (percent)</td>
<td>1.8</td>
<td>2.7</td>
<td>-0.9*</td>
</tr>
<tr>
<td>Age (years)</td>
<td>38.2</td>
<td>38.6</td>
<td>-0.4</td>
</tr>
<tr>
<td>Muslim (percent)</td>
<td>71.0</td>
<td>70.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Completed junior high (percent)</td>
<td>41.0</td>
<td>45.3</td>
<td>-4.3*</td>
</tr>
<tr>
<td><strong>Pregnant woman</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>26.5</td>
<td>26.5</td>
<td>0.0</td>
</tr>
<tr>
<td>Completed junior high (percent)</td>
<td>54.0</td>
<td>49.5</td>
<td>4.4</td>
</tr>
<tr>
<td><strong>Caregiver</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>28.3</td>
<td>28.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Completed junior high (percent)</td>
<td>49.0</td>
<td>51.1</td>
<td>-2.1</td>
</tr>
</tbody>
</table>

* / ** / *** Significantly different from zero at the .10 / .05 / .01 level, two-tailed test.

Source: Household, pregnant woman and caregiver baseline surveys, 2015

* Individual has completed junior high or above. In Indonesia, junior high is most commonly called SMP (Sekolah Menengah Pertama) and usually ends at grade 7.
Pregnancies and child characteristics were also balanced between treatment and control groups.

<table>
<thead>
<tr>
<th></th>
<th>Treatment mean</th>
<th>Control mean</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pregnant woman sample</strong></td>
<td></td>
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</tr>
<tr>
<td>Second trimester (percent)</td>
<td>46.9</td>
<td>43.9</td>
<td>3.0</td>
</tr>
<tr>
<td>Woman has buku KIA (percent)</td>
<td>65.5</td>
<td>53.7</td>
<td>11.8***</td>
</tr>
<tr>
<td><strong>Caregiver sample</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caregiver is the child’s mother (percent)</td>
<td>98.5</td>
<td>98.4</td>
<td>0.1</td>
</tr>
<tr>
<td>Child age (months)</td>
<td>16.6</td>
<td>16.8</td>
<td>-0.2</td>
</tr>
<tr>
<td>Child is female (percent)</td>
<td>51.2</td>
<td>49.9</td>
<td>1.3</td>
</tr>
<tr>
<td>Child has buku KIA or KMS (percent)</td>
<td>58.0</td>
<td>52.4</td>
<td>5.6*</td>
</tr>
</tbody>
</table>

* / ** / *** Significantly different from zero at the .10 / .05 / .01 level, two-tailed test.

Source: Pregnant woman and caregiver baseline surveys, 2015
Treatment and control households had similar dwellings and WASH infrastructure

<table>
<thead>
<tr>
<th>Household Dwelling Characteristics</th>
<th>Treatment mean</th>
<th>Control mean</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>House had electricity</td>
<td>87.7</td>
<td>87.7</td>
<td>-0.1</td>
</tr>
<tr>
<td>Had a motorcycle</td>
<td>77.1</td>
<td>75.1</td>
<td>2.0</td>
</tr>
<tr>
<td>Used wood for cooking fuel</td>
<td>43.8</td>
<td>37.7</td>
<td>6.1*</td>
</tr>
<tr>
<td>Used an improved water source</td>
<td>49.8</td>
<td>46.8</td>
<td>3.1</td>
</tr>
<tr>
<td>Treated water</td>
<td>81.8</td>
<td>79.5</td>
<td>2.2</td>
</tr>
<tr>
<td>Soap was observed</td>
<td>69.5</td>
<td>70.9</td>
<td>-1.4</td>
</tr>
<tr>
<td>Household had toilet</td>
<td>84.5</td>
<td>85.6</td>
<td>-1.1</td>
</tr>
</tbody>
</table>

* / ** / *** Significantly different from zero at the .10 / .05 / .01 level, two-tailed test.

Source: Household baseline survey, 2015
4. Results: extent of program implementation
### Some project activities had launched before the baseline survey

<table>
<thead>
<tr>
<th>Project implementation</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarter (calendar)</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>Quarter (Compact)</td>
<td>4 5 6 7</td>
<td>8 9 10 11</td>
<td>12 13 14 15</td>
<td>16 17 18 19</td>
<td>20</td>
</tr>
<tr>
<td>Generasi facilitator training</td>
<td></td>
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<td></td>
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<tr>
<td>Generasi block grants disbursed</td>
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<tr>
<td>Infant and young child feeding (IYCF) training</td>
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<tr>
<td>Growth monitoring training</td>
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<tr>
<td>Anthropometric kits distributed</td>
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<tr>
<td>Micronutrient distribution</td>
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<tr>
<td>Sanitation program</td>
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<tr>
<td>Private sector response activity</td>
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<tr>
<td>Communication campaign</td>
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</table>

Some project activities had launched before the baseline survey.
At baseline, nearly all treatment desa had developed a plan for utilizing Generasi funds and over had half received funds.

Source: Generasi volunteer and desa head baseline surveys, 2015.
Sample size: 380.
The majority of treatment households were not aware of or participating in Generasi activities.

Sample size: 2,280.
Posyandu activities were mostly unaffected

<table>
<thead>
<tr>
<th>Posyandu activities</th>
<th>Treatment mean</th>
<th>Control mean</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnant woman had buku KIA/KMS</td>
<td>65.5</td>
<td>53.7</td>
<td>11.8***</td>
</tr>
<tr>
<td>Child had buku KIA/KMS</td>
<td>58.0</td>
<td>52.4</td>
<td>5.6*</td>
</tr>
<tr>
<td>Weighing provided</td>
<td>95.7</td>
<td>95.9</td>
<td>-0.2</td>
</tr>
<tr>
<td>Distributed vitamin A in past 12 months</td>
<td>92.1</td>
<td>93.6</td>
<td>-1.5</td>
</tr>
<tr>
<td>Distributed IFA in past 6 months</td>
<td>60.7</td>
<td>65.9</td>
<td>-5.2</td>
</tr>
<tr>
<td>Had stock of Taburia</td>
<td>5.1</td>
<td>8.7</td>
<td>-3.6*</td>
</tr>
<tr>
<td>Had stock of Oralit</td>
<td>26.5</td>
<td>29.6</td>
<td>-3.1</td>
</tr>
<tr>
<td>Ever held kelas ibu hamil</td>
<td>31.0</td>
<td>31.5</td>
<td>-0.5</td>
</tr>
<tr>
<td>Ever held kelas balita</td>
<td>18.0</td>
<td>18.1</td>
<td>-0.1</td>
</tr>
</tbody>
</table>

Source: Pregnant women, caregiver, and kader posyandu baseline surveys, 2015.
* / ** / *** Significantly different from zero at the .10 / .05 / .01 level, two-tailed test.
Performance on Generasi KPIs was balanced with the exception of weighing and immunization

<table>
<thead>
<tr>
<th>Generasi indicator (percentage of women or children)</th>
<th>Treatment mean</th>
<th>Control mean</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Four prenatal visits(^a)</td>
<td>43.2</td>
<td>35.7</td>
<td>7.5</td>
</tr>
<tr>
<td>2. Received 90 iron pills during pregnancy(^a)</td>
<td>27.2</td>
<td>24.8</td>
<td>2.3</td>
</tr>
<tr>
<td>3. Delivery by trained professional(^a)</td>
<td>69.1</td>
<td>68.7</td>
<td>0.4</td>
</tr>
<tr>
<td>4. Three postnatal visits(^a)</td>
<td>8.3</td>
<td>10.6</td>
<td>-2.3</td>
</tr>
<tr>
<td>5. Complete childhood immunizations(^b)</td>
<td>31.5</td>
<td>41.2</td>
<td>-9.7 ***</td>
</tr>
<tr>
<td>6. Weighed in last month(^c)</td>
<td>58.5</td>
<td>44.5</td>
<td>14.1 ***</td>
</tr>
<tr>
<td>7. Vitamin A twice / year(^d)</td>
<td>28.2</td>
<td>26.7</td>
<td>1.5</td>
</tr>
<tr>
<td>8. Ever attend kelas ibu hamil(^a)</td>
<td>15.7</td>
<td>10.3</td>
<td>5.5</td>
</tr>
<tr>
<td>9. Husband ever attend kelas ibu hamil(^a)</td>
<td>2.3</td>
<td>1.3</td>
<td>1.0</td>
</tr>
<tr>
<td>10. Ever attend kelas balita(^c)</td>
<td>7.9</td>
<td>6.7</td>
<td>1.2</td>
</tr>
<tr>
<td>11. Husband ever attend kelas balita(^c)</td>
<td>1.2</td>
<td>0.5</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Source: Caregiver and pregnant woman baseline surveys, 2015.
\(^a\) Among children/mothers of children 0–5 months of age. \(^b\) Among children 12–35 months of age. \(^c\) Among children/mothers of children 0–23 months of age.
\(^d\) Among children 6-35 months of age.

* / ** / *** Significantly different from zero at the .10 / .05 / .01 level, two-tailed test.
Many children had not received recommended vaccines and control area rates were higher

Source: Caregiver baseline survey, 2015.
Sample size: 3,039.
Note: The share of children receiving the complete suite of childhood immunizations was over 9 percentage points higher in control areas—32 percent in treatment areas and 41 percent in control areas
Even in desa with more engaged posyandu, individual behavior change is still needed

Restricting the analysis to desa where the posyandu had:

• Held kelas ibu hamil, only 10% of pregnant women report having attended
  – Compared to 13% of all pregnant women

• Held kelas balita, only 11% of caregivers reported having attended
  – Compared to 7% among all caregivers

• Similarly, even though over 90% of posyandu offered weighing, just approximately 50% of all caregivers reported having their children weighed in the last month
The overwhelming majority of bidan and kader posyandu had received any training, and half received training in 2014

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Treatment mean</th>
<th>Control mean</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kader posyandu</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ever received any training</td>
<td>76.3</td>
<td>70.4</td>
<td>5.9</td>
</tr>
<tr>
<td>Received training in 2014</td>
<td>52.9</td>
<td>38.5</td>
<td>14.4***</td>
</tr>
<tr>
<td>Received training on IYCF funded by MCA-I</td>
<td>8.8</td>
<td>3.0</td>
<td>5.8***</td>
</tr>
<tr>
<td><strong>Bidan</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ever received any training</td>
<td>89.2</td>
<td>88.8</td>
<td>0.4</td>
</tr>
<tr>
<td>Received training in 2014</td>
<td>48.4</td>
<td>46.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Received training on IYCF funded by MCA-I</td>
<td>2.8</td>
<td>1.1</td>
<td>1.8</td>
</tr>
<tr>
<td>Years worked as bidan</td>
<td>9.1</td>
<td>9.4</td>
<td>-0.3</td>
</tr>
<tr>
<td>Had CPM or Akademi Bidan certification</td>
<td>85.7</td>
<td>86.7</td>
<td>-1.0</td>
</tr>
</tbody>
</table>

* / ** / *** Significantly different from zero at the .10 / .05 / .01 level, two-tailed test.

Source: Kader posyandu, bidan baseline surveys, 2015
Kader posyandu had relatively high levels of training on core posyandu functions

- Breastfeeding: 62%
- Growth monitoring: 62%
- Complementary feeding: 61%
- Immunizations: 58%
- Sanitation: 51%
- Antenatal Care: 27%

Source: Kader posyandu baseline survey, 2015.
Sample size: 732.
Program implementation: conclusions

• Some program implementation had begun before the baseline survey
  – Nearly all treatment desa had begun some program activities
  – Over half of treatment desa had received first tranche of funding

• We found very few indications that Generasi activities or program funding had affected health services at baseline.
  – Caregivers in treatment desa were 14% more likely to attend monthly weighing sessions, which may have been a result of Generasi activities occurring before baseline.
  – Only 7% of households in treatment desa had participated in Generasi activity
  – Pregnant women in treatment desa were no more likely to receive prenatal visits or iron tablets during pregnancy
5. Results

A. Health care service provision and access
Travel time and cost to access basic maternal and child health services were minimal

<table>
<thead>
<tr>
<th>Service</th>
<th>Sample size (N=)</th>
<th>Full sample median</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Travel time (minutes)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Puskesmas</td>
<td>2,149</td>
<td>15</td>
<td>2.17</td>
</tr>
<tr>
<td>Polindes</td>
<td>1,018</td>
<td>10</td>
<td>1.39</td>
</tr>
<tr>
<td>Bidan</td>
<td>1,357</td>
<td>10</td>
<td>2.42</td>
</tr>
<tr>
<td>Posyandu</td>
<td>3,361</td>
<td>9</td>
<td>1.07</td>
</tr>
<tr>
<td><strong>Travel cost (rupiah)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Puskesmas</td>
<td>2,153</td>
<td>4,000</td>
<td>3,686.72</td>
</tr>
<tr>
<td>Polindes</td>
<td>1,018</td>
<td>0</td>
<td>2,597.41</td>
</tr>
<tr>
<td>Bidan</td>
<td>1,366</td>
<td>3,000</td>
<td>1,281.72</td>
</tr>
<tr>
<td>Posyandu</td>
<td>3,366</td>
<td>0</td>
<td>287.78</td>
</tr>
</tbody>
</table>

Notes: One U.S. dollar is approximately 14,000 Rupiah.
Sample is caregivers and pregnant women who report having visited these facilities.
Bidan appear to have been accessible in terms of proximity and work load

<table>
<thead>
<tr>
<th></th>
<th>Full sample mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live in desa where they work</td>
<td>76.8</td>
<td>2.10</td>
</tr>
<tr>
<td>Work in at least one other desa</td>
<td>23.0</td>
<td>2.20</td>
</tr>
<tr>
<td>Number of other bidan working in desa</td>
<td>1.0</td>
<td>0.07</td>
</tr>
<tr>
<td>Number of pregnant women currently serving</td>
<td>12.1</td>
<td>0.62</td>
</tr>
</tbody>
</table>

Source: Bidan baseline survey, 2015.
Puskesmas were well staffed

Source: Puskesmas baseline survey, 2015
Sample size: 251
Puskesmas were well equipped

Source: Puskesmas baseline survey, 2015
Sample size: 251
Most puskesmas had nutritional supplies in stock at the time of the survey

- IFA: 94% in stock, 18% stock out
- Taburia: 60% in stock, 48% stock out
- Oralit: 96% in stock, 10% stock out
- Vitamin A: 94% in stock, 16% stock out

Source: Puskesmas baseline survey, 2015
Sample size: 251
Women had agency over decisions that affect themselves and their children

- Child's healthcare: 90%
- Food expenditures: 64%
- Food eaten at home: 85%
- Own healthcare: 88%

Source: Pregnant woman and caregiver baseline surveys, 2015.
Sample size: 4,554.
Health care service: conclusions

• Travel time and costs were relatively low
  – Caregivers traveled a median of 15 minutes or less to key health services
  – There was no cost to travel to posyandu and very minimal cost to travel to puskesmas

• Access to bidan was high with 75% of bidan living in the same desa where they work

• Most puskesmas possessed the vitamin supplements and equipment needed to provide basic maternal and early child health services

• Most women reported having at least some say in the health and nutrition decisions that affect them and their children
  – Approximately 90% of caregivers and pregnant women reported being part of the decision-making process over their own healthcare and their children’s.
5. Outcomes

B. Food security and dietary diversity
Food security and dietary diversity

- **Food security**: whether there is **enough food** to eat
- **Dietary diversity**: whether the diet is **sufficiently nutritious**

- **The objective of these data were to describe conditions at baseline while minimizing the time required of respondents**
  - Food security: Questions about strategies for coping with not having enough to eat (household survey)
    - 5 out of the 9 questions that comprise the internationally-validated Household Food Insecurity Access Scale (HFIAS)
  - Dietary diversity: 7 day recall of consumption of various food groups (pregnant women and children)
    - Not comparable with standard 24 hour measure, but captures more variety than 24 hour recall for food groups consumed less frequently
Households experienced varying degrees of food insecurity

Sample size: 4,560.
Note: These are lower bounds on food insecurity

• The household survey only included 5 of the 9 questions that are used to construct the internationally-validated household food insecurity access scale

• The 4 behaviors not included in the baseline survey were:
  – Being unable to eat preferred foods
  – Eating foods that you do not want to
  – Running out of food at home because of lack of resources
  – Going a whole day and night without eating because there was not enough food

• Without data on these other behaviors, it is possible that we were unable to identify some households that experience food insecurity and cope with it using other means than the subset that was included in the baseline survey
Most pregnant women consumed a fairly diverse diet that included protein, fruit & vegetables.

Percentage of pregnant women consuming each food group in past 7 days

- Grains: 99% (6.9 days)
- White starches: 45% (1.9 days)
- Vegetables: 94% (4.2 days)
- Fruits: 58% (2.3 days)
- Meat: 88% (4.2 days)
- Fish: 77% (3.4 days)
- Eggs: 73% (3.4 days)
- Dairy: 33% (5.4 days)
- Legumes: 70% (3.1 days)
- Oil fats: 96% (6.1 days)
- Sugar: 72% (4.2 days)
- Palm oil: 4% (3.4 days)

Source: Pregnant woman baseline survey, 2015.
Sample size: 1,520.
Note: One percent of pregnant women did not consume any protein source in past 7 days
* Includes only those who reported eating the specified food group
Children ate a lot of snacks and grains but also consumed protein, fruits, and vegetables

Percentage of children consuming each food group in the past 7 days

<table>
<thead>
<tr>
<th>Food Group</th>
<th>Percentage</th>
<th>Average number of days consumed*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grains</td>
<td>94%</td>
<td>6.9</td>
</tr>
<tr>
<td>White starches</td>
<td>31%</td>
<td>1.9</td>
</tr>
<tr>
<td>Vegetables</td>
<td>63%</td>
<td>4.2</td>
</tr>
<tr>
<td>Fruits</td>
<td>63%</td>
<td>2.3</td>
</tr>
<tr>
<td>Meat</td>
<td>47%</td>
<td>4.2</td>
</tr>
<tr>
<td>Fish</td>
<td>61%</td>
<td>3.4</td>
</tr>
<tr>
<td>Eggs</td>
<td>64%</td>
<td>3.4</td>
</tr>
<tr>
<td>Dairy</td>
<td>25%</td>
<td>5.4</td>
</tr>
<tr>
<td>Legumes</td>
<td>52%</td>
<td>3.1</td>
</tr>
<tr>
<td>Formula</td>
<td>36%</td>
<td>6.1</td>
</tr>
<tr>
<td>Baby food</td>
<td>14%</td>
<td>4.2</td>
</tr>
<tr>
<td>Snacks</td>
<td>85%</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Source: Caregiver baseline survey, 2015.
Sample size: 2,560.
Note: Figure only represents children who have eaten semi-solid and/or solid foods regularly.
* Includes only those who reported eating the specified food group.
Dietary diversity: Conclusions

- Over the course of a week, most pregnant women ate a variety of food groups and consumed protein daily.
- Grains and snacks accounted for a large share of children’s diet, but most children also had protein and vegetables or fruits several days each week.
- These data must be interpreted with caution since we do not know the number or size of portions per day.
- Some households lacked the resources necessary to provide a sufficient diet.
  - 33% of households claiming they were worried about not having enough food.
- These data are not inconsistent with the very high rates of anemia identified in these populations.
  - The data are not rich enough to determine if pregnant women and children consume enough iron. Iron deficiency is only one of several causes of anemia.
5. Outcomes

C. Breastfeeding, micronutrients, and service provider counseling about feeding and nutrition
There is opportunity to improve breastfeeding knowledge and practices

- Early initiation knowledge
  - Pregnant women (N=1520): 71%
  - Caregivers (N=3039): 72%

- Early initiation practice
  - Pregnant women (N=1520): 20%
  - Caregivers (N=3039): 34%

- Exclusive breastfeeding knowledge
  - Pregnant women (N=1520): 19%
  - Caregivers (N=3039): 25%

Among 0-5 month olds, N=514) child is exclusively breastfed
  - Pregnant women: 20%
  - Caregivers: 20%

Among 6-35 month olds, N=2507) child was exclusively breastfed for 6 months
  - Pregnant women: 0%
  - Caregivers: 20%

This gap could be partially due to complications that prevented the mother from breastfeeding within an hour of the birth.

Source: Caregiver and pregnant woman baseline surveys, 2015.
*Caregivers of children 0-23 months (N=2072)
Rates of exclusive breastfeeding were very low, starting within the first month of life.

Source: Caregiver baseline survey, 2015.
Note: Some columns add up to 101 percent due to rounding.
Breastfeeding rates were high, but so was use of formula

Source: Caregiver baseline survey, 2015.
Sample size: 58–102.
Many children regularly consumed liquids and foods before the recommended introduction of complementary feeding.

Source: Caregiver baseline survey, 2015.
Sample size: 25–100.
Note: 98.6 percent of 6-8 month olds consumed food in the previous week.
Breastfeeding: Conclusions

• Breastfeeding rates and knowledge of the importance of initiation were high
  – Almost all children were breastfed (84% among 12-15 month olds) and many were breastfed past their first year of life
  – Knowledge of initiating breastfeeding within the first hour of birth was high

• Exclusive breastfeeding rates and knowledge about exclusivity need to be improved
  – Less than a fifth of pregnant women and a quarter of caregivers knew that children should not be given any food or liquid other than breast milk for the first 6 months of life
  – Only 13% of 5 month old children were exclusively breastfed
  – A large share of children consumed formula daily from a very young age
Few caregivers were familiar with Taburia or had given it to their children

Source: Caregiver baseline survey, 2015.
There is scope to improve consumption of IFA during pregnancy.

Receipt and consumption of IFA

- Received any IFA: 70%
- Consumed any IFA: 68%
- Received at least 30 IFA per trimester: 48%
- Consumed at least 30 IFA per trimester: 23%
- Received at least 90 IFA: 25%
- Consumed at least 90 IFA: 14%

Source: Caregiver and pregnant woman baseline surveys, 2015.
Side effects and forgetfulness can inhibit pregnant women from taking IFA regularly

Reasons for not taking the recommended dosage of IFA

- Experienced side effects: 30%
- Don’t like taste: 26%
- Too much effort: 15%
- Forgot: 15%
- No need to take pills: 13%
- No Medicine: 8%
- Afraid: 4%
- Other: 4%

Source: Caregiver and pregnant woman baseline surveys, 2015.
Sample size: 621
Micronutrients: Conclusions

• Very few children were consuming Taburia

• Consumption of iodized salt was very common

• Micronutrient consumption during pregnancy was low
  – 30% of pregnant women and caregivers reported not receiving any IFA pills and a quarter of caregivers reported having received the recommended 90 tablets
  – Almost all women who received IFA took some of it
Most service providers reported discussing nutrition-related topics with women

Source: Puskesmas nutritionist, bidan, and kader posyandu baseline surveys, 2015
*Nutritionist timeframe is 4 weeks compared to 6 months for bidan and kader posyandu. Nutritionists were only asked about prenatal nutrition, breastfeeding, and complementary feeding.
†Prenatal nutrition question was not included in bidan or kader posyandu surveys.
‡Anemia question was not included in nutritionist or bidan surveys.
Bidan could do more to promote breastfeeding

Bidan discussions about breastfeeding

- Breastfeeding within 1 hour of birth: 29%
- Exclusive breastfeeding for 6 months: 76%
- Breastfeeding until child is 2 years old: 25%
- How to hold child while breastfeeding: 18%
- How many times to breastfeed child each day: 17%
- What to do if woman cannot breastfeed: 10%
- Common problems women face while breastfeeding: 16%

Source: Bidan baseline survey, 2015
Sample size: 570.
Bidan could do more to promote breastfeeding over formula use

Situations in which bidan recommended giving formula to children under six months old

- Ever: 44%
- If mother could not breastfeed: 30%
- If breastfeeding was painful: 5%
- If mother is worried about health of infant: 4%
- If mother is too busy to breastfeed: 4%
- If mother did not live in same household: 1%
- Always recommend formula: 1%
- Other: 14%

Source: Bidan baseline survey, 2015
Sample size: 570
Bidan could do more to educate mothers about complementary feeding

Source: Bidan baseline survey, 2015
Sample size: 570
The majority of nutritionists, bidan, and kader posyandu reported talking with pregnant women and caregivers about some topics relevant to the Nutrition Program but

- Only a quarter of kader posyandu counseled women on anemia
- Less than a third of bidan and less than a fifth of kader posyandu report discussing Taburia
- Only a third of bidan discussed early initiation of breastfeeding within one hour of birth. This is especially problematic because we know that early initiation is low (34%)
- Just over 40% of bidan discussed complementary feeding after 6 months
5. Outcomes

D. Sanitation
Sanitation could be a cause of undernutrition

- In addition to the quantity and quality of food that children consume, their ability to process those nutrients is important.

- Undernutrition and infection are closely related.
  - Correlations between stunting and diarrhea in particular.

- Nutritionists now hypothesize that a subclinical condition called environmental enteropathy could compromise gut function and the immune system.
  - Likely caused by exposure to a contaminated environment.
Nearly a third of households defecated directly into the environment.

Percentage of households using toilet type:

- **Flush**: 51%
- **Improved latrine**: 10%
- **Unimproved latrine**: 5%
- **Hanging**: 17%
- **None**: 15%
- **Other**: 2%
- **Feces go directly into the environment**: 15%

Nearly 60% of children’s feces were left in the open

Percentage of children disposing feces (by location)

- In open: 57%
- Toilet: 38%
- Buried: 2%
- Garbage: 3%

Source: Caregiver baseline survey, 2015.
Sample size: 3,022
There had been very little momentum on sanitation issues at the desa level

- Less than 5% of households recalled any community meeting about sanitation being held in the past year

- Only 3% reported that a household member had participated in such a meeting
  - 90% of the time it was only one or two households in the kecamatan that reported such a meeting occurring
  - There was no significant difference in meeting occurrence or participation between treatment and control areas

- Less than 2% of desa were reported to be certified as open defecation free according to the surveyed desa head
  - 3 out of 379 control desa and 8 out of 380 treatment desa
Sanitation officers visited the dusun they supervise, but progress on triggering was slow

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of dusun supervised</td>
<td>21.2</td>
<td>1.74</td>
</tr>
<tr>
<td>Visited dusun in area</td>
<td>97.0</td>
<td>1.20</td>
</tr>
<tr>
<td>Number of dusun visited in last month</td>
<td>5.0</td>
<td>0.52</td>
</tr>
<tr>
<td>Conducted trigger even in dusun as part of work</td>
<td>77.8</td>
<td>3.30</td>
</tr>
<tr>
<td>Number of trigger events in past six months</td>
<td>3.3</td>
<td>0.34</td>
</tr>
</tbody>
</table>

Source: Puskesmas (sanitation officer) baseline survey, 2015.
Diarrhea was common for children under three

Source: Caregiver baseline survey, 2015.
Note: Diarrhea is defined in the survey as loose or watery stools at least three times in a 24 hour period, or had any loose stool with blood.
Knowledge of diarrhea prevention methods among caregivers and pregnant women was limited.

Source: Caregiver and pregnant woman baseline surveys, 2015.

- **Good dietary habits and food hygiene**: 54% (Pregnant women) vs. 57% (Caregivers)
- **Drinking water that has been boiled and stored in a sealed container**: 11% (Pregnant women) vs. 15% (Caregivers)
- **Keep house clean so there are no flies in the house**: 10% (Pregnant women) vs. 13% (Caregivers)
- **Wash hands with soap before eating**: 1% (Pregnant women) vs. 3% (Caregivers)
- **Wash hands before preparing food**: 1% (Pregnant women) vs. 3% (Caregivers)
- **Wash hands before feeding baby**: 1% (Pregnant women) vs. 3% (Caregivers)
- **Cleaning up after the baby has urinated/defecated**: 2% (Pregnant women) vs. 2% (Caregivers)
- **Exclusive breastfeeding**: 1% (Pregnant women) vs. 2% (Caregivers)
- **Continued breastfeeding until the child is 2 years old**: 0% (Pregnant women) vs. 0% (Caregivers)
- **Defecate or urinate using latrines**: 0% (Pregnant women) vs. 0% (Caregivers)
- **Not possible**: 1% (Pregnant women) vs. 1% (Caregivers)
Sanitation: Conclusions

• **Sanitation conditions were poor at baseline**
  – Almost a third of households reported defecating directly into the environment, using either a hanging toilet (over water) or no toilet at all
  – More than half of caregivers reported that children’s stool was disposed of in the open

• **Diarrhea rates were high and prevention method knowledge was low**
  – A quarter of children had diarrhea in the last four weeks. Of which only approximately 40% had received some treatment
  – Very few respondents associated other times to wash hands, latrine use or breastfeeding with diarrhea prevention
5. Outcomes

E. Anthropometry and anemia
Definitions of nutritional status indicators

• Low birth weight – less than 2.5 kg

• Stunting – low length or height for age

• Underweight – low weight for age

• Wasting – low weight for height

• Anemia – low hemoglobin concentrations (less than 11 g/dL)
  – Note: not all anemia is caused by iron deficiency

• “Severe” is defined as z-score less than -3 or hemoglobin <7 g/dL for pregnant women and children
Many children were not growing to their potential and anemia was high.

Source: Caregiver baseline survey, 2015.
Note: Sample size range is a result of stunting and underweight survey measures requiring birthdate information which is unavailable for some children, and some children or caregivers refused the physical measurements or blood drawn.

*No data for severity of low birth weight.
Anthropometry measures and anemia varied by age, except for wasting

Source: CAREGIVER baseline survey, 2015.
Note: Anemia 0 to 5 months not collected because blood drawing is not recommended for children under 6 months.
Anthropometry outcomes were very similar for boys and girls but more boys were anemic.

Source: Caregiver baseline survey, 2015.
Note: Indicators by gender 0–35 months.
*Significant difference
Most pregnant women were anemic and had not met the recommendation for weight gain during pregnancy.

- Gained less than recommended weight in third trimester: 54%
- Told to gain more weight in past 3 years: 14%
- Low MUAC: 16%
- Anemic: 55%

Source: Pregnant woman baseline survey, 2015.
Anthropometry: Conclusions

• We found high levels of stunting (consistent with Riskesdas) and underweight
  – 32% of children were stunted and 24% were underweight
  – Increased with age

• Anemia was very high (but not severe) for both children (60%) and pregnant women (55%)
6. Conclusions
Treatment and control groups were balanced at baseline

• Generasi volunteers confirmed that the project had begun in most desa, but:
  – There were no major differences in demographics or socioeconomic characteristics between treatment and control households
  – The only Generasi target indicators affected were weighing, possession of buku KIA/KMS, and training for bidan/posyandu.
There is room to improve progress on Generasi indicators

• Very few caregivers had the recommended number of postnatal visits.

• Participation in kelas ibu hamil and kelas balita was very low.

• The majority of children were not getting all vaccinations.

• Posyandu performance could contribute to low levels of some Generasi indicators.
  – The majority of posyandu have never held a kelas ibu hamil or kelas balita.
Conditions at health facilities are unlikely to be causing the high rates of undernutrition

- Baseline levels of access to health service appear to be high
  - Most pregnant women and caregivers did not have to travel more than 15 minutes or pay more than 4,000 rupiah to access key health services, such as the posyandu, bidan, or puskesmas

- High proportions of health service providers had been trained and most scored high on IYCF knowledge tests
  - 70% of kader posyandu and 90% of bidan had been trained on IYCF topics
  - Bidan demonstrated that knowledge on most IYCF topics was very high (knowledge by kader posyandu demonstrates the need for training)

- The majority of puskesmas were well staffed with key personnel and were often stocked with height/length taking equipment and necessary supplements
There are indeed challenges in the potential causes of undernutrition that the Project seeks to address

• There is scope to improve infant and young child feeding practices
  – The majority of women did not know they should practice or practice exclusive breastfeeding for the first 6 months
  – Rates of exclusive breastfeeding were only 23% at zero months and dropped to 13% at five months
  – Bidan could do more to promote exclusive breastfeeding

• Poor sanitation could be one of the causes of undernutrition
  – Nearly a third of households did not have access to an improved latrine and defecated directly into the environment
  – Nearly 60% of children’s feces were left in the open and not disposed of properly
  – Fewer than 5% of households reported being aware of any meeting held on sanitation in the past year
Undernutrition is a major problem

- 32% of children under 3 are stunted
- 24% of children under 3 are underweight
- The prevalence of wasting is not as high (9%), but is still a concern
- Anemia is also very high, at 55% among pregnant women and over 60% among children under 3 are anemic
Acknowledgements

This presentation would not have been possible without the valuable input and hard work from many others, including:

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- SurveyMETER staff
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For more information

Detailed baseline report findings can be found at


and

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