Families screening for malnutrition by MUAC and edema

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ALIMA – the Alliance for International Medical Action
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Family MUAC: Why ALIMA began this research...

- In 2011 ALIMA began studying the feasibility of training mothers to use mid-upper arm circumference (MUAC)

- We were responding to two recurring operational/medical issues:

1. Late presentation (resulting in more complications)
2. Low program coverage (often <50%)
MUAC I: Pilot Study, proof of concept
September 2011 – April 2012


The Alliance for International Medical Action
MUAC I: Mothers can reliably measure MUAC

Results
(n = 103 mother-child pairs)

→ Excellent agreement

→ Errors only at boundaries

→ No difference in:
  - left vs right arm measures
  - Estimating vs measuring mid point
MUAC II: Large-scale trial
May 2013 – April 2014

MUAC II: Results (Distribution of MUAC at admission)

Median MUAC in Mothers vs. CHWs zone was 1.6 mm greater (95% CI = 0.65; 1.87) (p = 0.007) for children admitted by MUAC
# MUAC II: Results (Hospitalization, Agreement, Costs)

<table>
<thead>
<tr>
<th></th>
<th>Mothers Zone</th>
<th>CHWs Zone</th>
<th>Risk Ratio [95%CI]</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalizations for all admissions:</td>
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<tr>
<td>At admission</td>
<td>2.33%</td>
<td>9.01%</td>
<td>0.26 [0.17;0.38]</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>During course of treatment</td>
<td>7.22%</td>
<td>11.84%</td>
<td>0.61 [0.47;0.79]</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>for admissions by MUAC &lt;115 mm:</td>
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<tr>
<td>At admission</td>
<td>0.70%</td>
<td>7.75%</td>
<td>0.09 [0.03;0.25]</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>During course of treatment</td>
<td>7.73%</td>
<td>13.32%</td>
<td>0.58 [0.40;0.85]</td>
<td>0.0021</td>
</tr>
<tr>
<td>Agreement with MUAC at health center</td>
<td>75.4%</td>
<td>40.1%</td>
<td>1.88 [1.69; 2.10]</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

| Overall costs (in USD) | 8 600 | 21 980 | --- | --- |
| Cost per child <5 yo    | 1.04  | 3.00   | --- | --- |

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Making mothers the focal point of MUAC screening strategies is feasible at scale and should be included in regular CMAM programming.

Family MUAC screening strategies will be most efficient in MUAC-based programs integrating SAM/MAM (e.g. better coverage, Maust et al in Sierra Leone)
Integrating SAM/MAM: Key messages

What do we say to mothers when there is no MAM programming?

**SEVERE**: Go to health center within 2 days

**MODERATE**: ??????????

**NORMAL**: Continue to feed your child well
Family MUAC: The Journey to Scale-Up
2015 – today
Family MUAC: Internal changes to policy and practice

→ 250,000 mothers trained 2015-2016 (Burkina Faso, Niger, Mali, Chad, etc.);
   Part of the « MUAC only » study in Burkina Faso, 1,000 Days in Niger, etc
→ Mirriah, Niger since the study:
   - ~170,000 mothers trained with 60.0% coverage
   - 71% of all admissions are referred by mothers
   - Median MUAC 112.9 mm; Hospitalizations reduced by ~ 35%
Family MUAC: External advocacy for scaling-up

- Released training guidelines and FAQ to facilitate journey to scale
- Very well received by policymakers, funders and practitioners (e.g. Part of Niger’s new protocol)
- Remaining gaps:
  - Emergencies
  - Availability of MUAC bracelets
  - Edema
  - Integrating SAM/MAM programming
Thanks for listening!

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