COST-EFFECTIVENESS OF A SIMPLIFIED COMBINED PROTOCOL FOR TREATING ACUTE MALNUTRITION

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Background
• SAM cases are currently treated with ready-to-use therapeutic food (RUTF), whereas MAM cases are often treated with ready-to-use supplementary food (RUSF) or fortified corn-soya blend (CSB++).
• Streamlining the current system to combine the treatment protocols for SAM and MAM may be more cost-effective, improve coverage and improve program adherence while achieving similar rates of recovery.
• The proposed “combine protocol” uses mid-upper arm circumference (MUAC) – only for diagnosis, and one product (RUTF) at a standardised dosage for treatment.
• Secondary analysis found that two 92g sachets of RUTF (1,000 kcal) meets the total energy requirements for >95% of children with a MUAC<115mm, and one 92g sachet of RUTF (500 kcal) meets half the energy requirements for >95% of children with a MUAC of 115-<125mm.

Methods
• A cluster-randomized, controlled, non-inferiority trial is currently underway to evaluate the effectiveness and cost-effectiveness (CE) of the “combined protocol” compared to the standard protocol, in South Sudan and Kenya (see Protocol details in Table below).
• The main trial outcome will be recovery rate.
• For assessing total economic cost for each protocol from a societal perspective, data on program and caregiver costs were collected.
• Interviews have been conducted with key informants representing clinic staff, support staff and partners, as well as caregivers; and accounting data will be analysed at the end of the trial.

Methods (2): Description of study protocols

<table>
<thead>
<tr>
<th>Standard Protocol (CONTROL)</th>
<th>Combined Protocol (INTERVENTION)</th>
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<tbody>
<tr>
<td><strong>Admission Criteria</strong></td>
<td></td>
</tr>
<tr>
<td>WHZ &lt; 3</td>
<td>WHZ &lt; 3 AND/OR MUAC &lt; 115mm AND/OR Bilateral pitting oedema (&lt;115mm)</td>
</tr>
<tr>
<td>Discharged from OTP AND/OR</td>
<td>Discharged from OTP AND/OR WHZ &lt; 2 to WHZ &gt; 3 AND/OR MUAC 115mm &lt; 125mm</td>
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<tr>
<td><strong>Dosage</strong></td>
<td></td>
</tr>
<tr>
<td>RUTF 2000 kcal/day</td>
<td>RUTF 2000 kcal/day</td>
</tr>
<tr>
<td>SFP 1 RJUF/day</td>
<td>SJUF 1 RJUF/day</td>
</tr>
<tr>
<td><strong>Cured</strong></td>
<td></td>
</tr>
<tr>
<td>MUAC&gt;115mm for two consecutive visits* AND/or WHZ&gt;3 Z-score for two consecutive visits AND No oedema for two consecutive visits</td>
<td>MUAC&gt;115mm for two consecutive measurements and no oedema</td>
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Costs

Results (1): Product and Supply Chain Costs
• Preliminary results for CE suggest that the major cost-savings will be due to reduced RUTF dosages.
  - Combined protocol SAM children receive 14 sachets per week
  - Standard protocol SAM children receive between 14 and 35 sachets per week

<table>
<thead>
<tr>
<th>RUTF</th>
<th>Standard Protocol</th>
<th>Combined Protocol</th>
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<tbody>
<tr>
<td>Average sachets per visit</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Average sachets per child (so far)</td>
<td>77</td>
<td>42</td>
</tr>
</tbody>
</table>
• Savings due to streamlining of logistics were not apparent in Kenya due to centralised distribution of all medical supplies through KEMSA.
• In S.Sudan, cost of the RUSF supply chain is conservatively $8,000 for these 12 clinics per year

Results (2): Cost to Caregivers
• We found no apparent difference between protocols.

Kenya:
• Average costs per visit was $1.72
• Average time per visit was 2h39mins
• Average hourly earnings were $0.35
• Average economic costs to caregivers per visit: $2.17

South Sudan:
• Average costs per visit was $0.08
• Average time per visit was 5h40mins
• Average hourly earnings were $0.12
• Average economic costs to caregivers per visit: $0.80

Results (3): Staff costs per clinic
• We found no apparent difference in staff costs between protocols.

Conclusions
• The change of dosage will have a large impact on the cost of treatment as prescribed dosages have been reduced from a maximum of 35 sachets per week, to 14 per week.
• Streamlined supply logistics of the Combined Protocol may lead to some cost savings in countries with decentralised medical supply chains.
• There was no evident difference in caregiver nor staff costs between control and intervention arms, however, it will be important to consider effectiveness per $ after the trial is complete.
• Caregivers, especially those with earning potential, such as in Nairobi, pay a high economic time cost to take part in treatment.
• Staff costs in Kenya, where clinics are integrated with other health services, were significantly lower than in South Sudan.

2 Online protocol: ISRCTN30393230