Product Specifications and Quality Assurance- Global standard setting and local solutions

Nutrition Supply Chain Practitioners Forum
Copenhagen, 21-23 June, 2016
UNICEF’S QUALITY ASSURANCE SYSTEM

UNICEF supplies products to many countries world-wide, including those that have little or no regulatory control of the products supplied. UNICEF is therefore committed to ensure the quality of the products it supplies.

- Adherence to WHO “Model Quality Assurance System for Procurement Agencies MQAS” - TRS 986 Annex 3
- Prequalification of Suppliers and Products

- Documentation system in place
  - Quality manual
  - Division procedures
  - Centre procedures

- Generally procurement activities are centralized in UNICEF Supply Division (procurement by UNICEF country offices requires authorization)
ASSURING PRODUCT QUALITY

Specifications (Customer Requirements)

• Address product quality and safety
• Well established for medicines (selection as per Essential Medicine List and treatment guidelines, pharmacopoeia references available)
• Not well established for foods for special purposes and dietary supplements

Manufacturing Standards

• Assure consistent quality
• WHO GMP reference for medicines
• Codex Standards reference for food products
Example of gaps in specifications: RUTF

Technical annex of the 2007 Joint Statement (WHO, WFP, UNSCN & UNICEF) reviewed

**Technical annex**

**Ready-to-use therapeutic foods**

Ready-to-use therapeutic foods (RUTF) are high-energy, fortified, ready-to-eat foods suitable for the treatment of children with severe acute malnutrition. These foods should be soft or crushable and should be easy for young children to eat without any preparation. At least half of the proteins contained in the foods should come from milk products.

<table>
<thead>
<tr>
<th>Nutritional composition</th>
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<tbody>
<tr>
<td>Moisture content</td>
</tr>
<tr>
<td>Energy</td>
</tr>
<tr>
<td>Proteins</td>
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<tr>
<td>Lipids</td>
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<tr>
<td>Sodium</td>
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<tr>
<td>Potassium</td>
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<tr>
<td>Calcium</td>
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<td>Phosphorus (excluding phytate)</td>
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<tr>
<td>Magnesium</td>
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<td>Iron</td>
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<table>
<thead>
<tr>
<th>Maximum toxin levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aflatoxin level</td>
</tr>
<tr>
<td>Microorganism content</td>
</tr>
<tr>
<td>Coliform test</td>
</tr>
<tr>
<td>Clostridium perfringens</td>
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<tr>
<td>Yeast</td>
</tr>
<tr>
<td>Moulds</td>
</tr>
<tr>
<td>Pathogenic Staphylococci</td>
</tr>
<tr>
<td>Salmonella</td>
</tr>
<tr>
<td>Listeria</td>
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</tbody>
</table>
Why review the ‘Joint statement’ technical annex?

• The Joint statement did not contain enough guidance to properly assure the quality of RUTF
• Microbial testing suggestions within the Technical Annex of the Joint statement were not based on a risk assessment
• Microbial criteria in the Joint statement was developed almost 10 years ago, at a time when ‘risk assessments’ were only just beginning to be applied to food safety
• The microbiological criteria has no sampling plan accompanying its recommendations ⇒ recommended tests were incomplete
Conclusions of Expert Reviews

Four expert reviews agreed that to better control the quality of RUTF manufacturers must apply standards of best practice in hygiene control in their facilities and in the selection of raw materials that go into the final product.

Appropriate sampling of raw materials and also finished products will enable better monitoring of products. The pathogen to focus on in a product like RUTF is Salmonella, as this is the most likely bacteria to cause harm in children consuming the products.
Current and Future development of RUTF specification

Focus on preventative measures in factory – Clean environments and safe ingredients

2nd expert committee recommendations

Codex guideline for RUTF proposal to Codex Nutrition committee

Nov 2015

Codex guideline to incorporate 2nd Experts recommendations into Codex Guideline for RUTF

2020

2015

Report publication:
2nd Experts meeting on microbiological Safety of LNS for SAM and MAM

UNICEF’s aim is to have an International Codex Guideline for RUTF that covers nutritional and Food Safety aspects rather than an ‘unofficial’ internal document
Strategy to mitigate risks related to supply of nutrition products: Risk Analysis and Mitigation Plan

Risks identified
A. Product Quality
- Sub-standard product delivery,
- Deterioration of product in supply chain,
- Failure in addressing incidents,

B. Supply
   Product supply shortages,
   Stock-outs,
   Lack of alternative products,
   Incident claims response.

Risk mitigation plan:
1. Develop/improve Quality Management System related to nutrition products.
2. Improve supplier performance
3. Influence suppliers development (communication, ownership, process control)
Highlights of Nutrition Action Plan (1)

1. Quality Management System (QMS) updated to address aspects related to nutrition products

2. Establishment and improvement of specifications for nutrition products (in collaboration and in consultation with FAO and WHO)

3. Development of a risk based approach for optimizing GMP inspection process and frequency – Joint inspections with international partners

4. Application of risk principles in establishing the annual sampling and testing program in order to identify products at risk of non-compliance. Better monitoring of testing data
5. Identification and development of suppliers who are considered critical. Regular meetings to address supplier issues. Improvement on supplier’s performance monitoring.

6. Supplier’s introduction to quality risk management principles for the lifecycle of the product (process and product development, product realization, product withdrawal)

7. Review of technical personnel in Medicines and Nutrition Centre and Quality Assurance Centre.
Regulation:
- Promotion of Public Health
- Safeguarding Public Health
Drug

- Stringent manufacturing standards (WHO GMP)
- High grade raw materials and rigorous testing during and on finished product prior to release
- Stability data for full length of shelf life

Dietary Supplement

- Requirements for manufacturing can vary from pharma GMP to food Codex/ISO standards
- Can require less testing during and on the finished product prior to release

Food

- Guidance targeting hygiene standards (Codex/ISO)
- Food grade raw materials
- Less rigour on testing of products
Drug

- Clinical evidence included in the dossier to the regulatory authority
- Registration process up to 6 years (at least 2 years)
- Claims limited to indications based on clinical evidence

Dietary Supplement

- Registration process 1 month to 1 year (depending on requirement)
- No requirement for stability data prior to product release on the market
- Claims permissible broad and may not require clinical trial evidence

Food

- Focus on food safety aspects and little emphasis on therapeutic effects of product
- Basic requirements for market authorisation (no registration needed)
- Claims can be broad or often based on ‘structure function’ relationships
Defining a regulatory and management framework for specialized nutrition supplies

what do we want to achieve

• Ensure quality and impact
• Gain recognition of value and need
• Secure resources (budget)
• Improve planning
• Create efficiency in supply chain
• Enhance monitoring

instruments

• Evidence of efficacy, safety and cost efficiency
• Treatment/nutrition management guidelines
• Regulatory pathway
• Essential Supply Lists (EML, EHL...)
• Advocacy
### 30.5 Triple fixed dose combinations

<table>
<thead>
<tr>
<th>MEDICINE</th>
<th>DS</th>
<th>STR</th>
<th>L</th>
<th>C</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenofovir + emtricitabine</td>
<td>Tablet</td>
<td>300mg + 200mg</td>
<td>HC4</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Tenofovir + lamivudine</td>
<td>Tablet</td>
<td>300mg + 150mg</td>
<td>HC4</td>
<td>V</td>
<td></td>
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<tr>
<td>Zidovudine + lamivudine</td>
<td>Tablet</td>
<td>300mg + 150mg</td>
<td>HC4</td>
<td>V</td>
<td></td>
</tr>
</tbody>
</table>

### 31. NUTRITION

<table>
<thead>
<tr>
<th>MEDICINE</th>
<th>DS</th>
<th>STR</th>
<th>L</th>
<th>C</th>
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</thead>
<tbody>
<tr>
<td>Formula 75</td>
<td>Powder</td>
<td>75 kCal + 0.9g protein/100ml</td>
<td>H</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Formula 100</td>
<td>Powder</td>
<td>100 kCal + 2.9g protein/100ml</td>
<td>H</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>Ready to use therapeutic-feeds (RUTF)</td>
<td>Paste</td>
<td>30% full fat milk, 28% sugar, 15% vegetable oil, 15% peanut butter, 1.6% mineral vitamin mix</td>
<td>HC2</td>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>