Diet Quality: A Missing Link

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Outline

1. Diet quality: What is it and why is it important to both nutrition and agriculture?

2. A missing link: critical indicator and data gaps for understanding and acting on poor diet quality

3. Recommendations

4. The INDDEX Project: seeking to improve dietary data availability, access, and use
1. Diet quality: what is it and why is it important to both nutrition and agriculture?
Diet Quality: A Multi-dimensional Construct

Proportionality/Balance

Variety

Adequacy

Moderation/Avoidance of Excess

Sources: Arimond and Ruel, 2004; Arimond 2008; Ruel 2013; Wirt et al 2009; Waijers and Feskens, 2005
Why Do We Care about Diet Quality?
“Quality” is embedded in the food security definition

“Food security exists when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for a healthy and active life” -- FAO/UN: World Food Summit, 1996
Nutrient inadequacy remains a problem…

<table>
<thead>
<tr>
<th>Vitamin A deficiency</th>
<th>Iodine deficiency (UIC &lt;100 μg/L)</th>
<th>Zinc deficiency (weighted average of country means)</th>
<th>Iron deficiency anaemia (haemoglobin &lt;110 g/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Children &lt;5 years</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serum retinol &lt;0.70 μmol/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global</td>
<td>33.3%</td>
<td>28.5%</td>
<td>17.3%</td>
</tr>
<tr>
<td><strong>Africa</strong></td>
<td>41.6%</td>
<td>40.0%</td>
<td>23.9%</td>
</tr>
<tr>
<td>Americas and the Caribbean</td>
<td>15.6%</td>
<td>13.7%</td>
<td>9.6%</td>
</tr>
<tr>
<td><strong>Asia</strong></td>
<td>33.5%</td>
<td>31.6%</td>
<td>19.4%</td>
</tr>
<tr>
<td>Europe</td>
<td>14.9%</td>
<td>44.2%</td>
<td>7.6%</td>
</tr>
</tbody>
</table>

Data are % (95% CI). UIC=urine iodine concentration.
While energy excess is rapidly increasing...

Over 1/3 of “high stunting-burden” countries have overweight + obesity rates >30%

....Leading to serious consequences

Top 10 causes of years of life lost: All developing countries, 2010

Source: Institute for Health Metrics and Evaluation
Projected increases in diabetes to 2030

Map: IDF Regions and global projections of the number of people with diabetes (20-79 years), 2011 and 2030

<table>
<thead>
<tr>
<th>REGION</th>
<th>2011 MILLIONS</th>
<th>2030 MILLIONS</th>
<th>INCREASE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>14.7</td>
<td>28.0</td>
<td>90%</td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td>32.8</td>
<td>59.7</td>
<td>83%</td>
</tr>
<tr>
<td>South-East Asia</td>
<td>71.4</td>
<td>120.9</td>
<td>69%</td>
</tr>
<tr>
<td>South and Central America</td>
<td>25.1</td>
<td>39.9</td>
<td>59%</td>
</tr>
<tr>
<td>Western Pacific</td>
<td>131.9</td>
<td>187.9</td>
<td>42%</td>
</tr>
<tr>
<td>North America and Caribbean</td>
<td>37.7</td>
<td>51.2</td>
<td>36%</td>
</tr>
<tr>
<td>Europe</td>
<td>52.6</td>
<td>64.0</td>
<td>22%</td>
</tr>
<tr>
<td>World</td>
<td>366.2</td>
<td>551.8</td>
<td>51%</td>
</tr>
</tbody>
</table>

Source: International Diabetes Federation, Diabetes Atlas 5th Ed. 2011
Why should the ag and food sector care about diet quality?

• Markets: unmet need for healthy, high value foods; removing supply side constraints could enable producers to benefit.

• Ag sector is an engine for food security – and of course ‘diet quality’ is a goal inherent to the food security definition.
2. A Missing Link: critical indicator and data gaps for understanding and acting on poor diet quality
4 Key Issues:

1. Lack of validated indices or dashboard of diet quality indicators with global recognition and institutional backing.

2. Lack of nationally representative data on individual-level food and nutrient consumption.

3. Many countries don’t have dietary guidelines; there are no global dietary guidelines.

4. Existing data (eg. FBS, HCES) that could provide data on quality of availability and access are under-utilized.
No validated global indices of child or adult diet quality are routinely collected

- FAO Undernourishment Indicator
- FAO “Suite of Food Security Indicators”
- Food Insecurity Experience Scale
- Household Dietary Diversity Score
- Economist Global Food Security Index
- Demographic and Health Surveys
This is also true when referring to the quality of food availability and food access.

Quality of food availability and access are necessary, though not sufficient for the individual consumption of quality diets.
## E.g., The Global Nutrition Report Finds Dietary Quality Data Challenges

<table>
<thead>
<tr>
<th>Rejected Indicator</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household Dietary Diversity Score</td>
<td>“No routine data collection” “Not validated as an indicator of access to diet quality”</td>
</tr>
<tr>
<td>Women’s Dietary Diversity</td>
<td>“No routine data collection”</td>
</tr>
<tr>
<td>Processed food consumption</td>
<td>“Data only available for a few big countries. More work needs to be done”</td>
</tr>
<tr>
<td>Prevalence of low fruit and vegetable consumption</td>
<td>“Data are sparse and self-reported by countries from surveys that may not be representative.”</td>
</tr>
</tbody>
</table>

Source: [http://globalnutritionreport.org/files/2014/07/Country-Profile-Indicators-Table.pdf](http://globalnutritionreport.org/files/2014/07/Country-Profile-Indicators-Table.pdf)
We are limited in our ability to:

• Assess and act on dietary causes of malnutrition and preventable disease

• Understand the links between agriculture, nutrition, and the environment

• Identify risks and the scale of exposure to food contaminants (“safety”)

• Plan and evaluate relevant policies and programs to shape the food system toward positive outcomes.
3. Recommendations
Key Recommendations for Improving Nutrition through Agriculture

“Food and agriculture policies can have a better impact on nutrition if they monitor dietary consumption and access to safe, diverse, and nutritious foods”

Recommendation #1: Identify and agree on diet quality information needs, driven by objective

- Quality of the food supply
- Local-level food environment
- Household-level access to quality food
- Individual-level diet quality:
  - Associated behaviors (Eg. meal patterns, eating away from home, snacking, consumption of highly processed foods, activity levels)
- Sustainability, stability, safety, and acceptability
- Causes and consequences of dietary choices
### Key Data Sources: Challenges and Constraints

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Appropriate For:</th>
<th>Challenges and Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Balance Sheets</td>
<td>Information on the quality of the food supply</td>
<td>- No information on distribution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Questionable data quality</td>
</tr>
<tr>
<td>Household Consumption and Expenditure Surveys</td>
<td>Understanding food environments</td>
<td>- Not always designed to enable validate indicator construction.</td>
</tr>
<tr>
<td></td>
<td>Quality of household food access</td>
<td>- Usually captures ‘apparent consumption’</td>
</tr>
<tr>
<td>Dietary Assessment Surveys</td>
<td>Metrics of individual dietary quality</td>
<td>- Expensive, technically complex, sporadically implemented</td>
</tr>
<tr>
<td></td>
<td>Individual dietary patterns</td>
<td></td>
</tr>
<tr>
<td>Demographic &amp; Health Surveys</td>
<td>Household or individual proxy indicators of quality, such as MDD-W</td>
<td>- Additions to DHS are possible but must be negotiated and require financial support</td>
</tr>
</tbody>
</table>
4 Main Approaches to Assessing Individual-level Diet Quality

1. Dietary diversity scores
2. Data-driven dietary patterns
3. A priori food or nutrient-based indexes
4. Indicator dashboard
While validated diet quality indexes exist, they have typically been context-specific.

[Healthy Eating Index]

Components 1-5 measure the degree to which a person’s diet conforms to Food Guide Pyramid serving recommendations for the grains, vegetables, fruits, milk, and meat food groups.

Component 6 measures total fat consumption as a percentage of total food energy intake.

Component 7 measures saturated fat consumption as a percentage of total food energy intake.

Component 8 measures total cholesterol intake.

Component 9 measures total sodium intake.

Component 10 examines the variety in a person’s diet.

Figure 1. Components of the HEI
Recommendation #2: Validate against agreed upon standards for ‘healthy diets’

- Dietary guidelines themselves have remained remarkably consistent over the last century (Davis and Saltos 1999)
- “Remarkable similarities” in food based guidelines across countries (MoD 2001)
- PAHO and SPRING project launching an initiative to develop global dietary guidelines for women
- Arimond, Coates, Herforth to conduct cross-country review of dietary guideline content.
- Consider “Sustainable” dietary guidelines
Recommendation #3: Scale up validated MDD-W Indicator

- Proxy indicator for global use in assessing women’s diet quality: micronutrient adequacy

- Expert consensus around a 10 food group index, consensus around a 5 food group threshold

- Requires a commitment and funding to regularly include it in DHS surveys.

- Advocate to include in “post-2015 framework”
Recommendation #4: Improve availability of, and access to, individual-level dietary data

- Automated dietary data collection and analysis platform to decrease cost, improve estimates.

- Link updated food composition tables to data collection platform for easier analysis of nutrient data.

- Create a publically accessible and centralized database of individual food consumption data to be housed by FAO/WHO.
Recommendation #5: Improve design of HCES to produce more accurate and useful information on quality of food and nutrient access

• Determine ‘best practices’ for elements such as:
  – capturing foods consumed outside the home
  – optimal food list length and composition
  – optimal recall periods

• Work with countries to adopt best practices
Recommenda\n\n\n#6:

Increase the use of existing food consumption and dietary data to guide policy-making
4. The International Dietary Data Expansion (INDDEX) Project: Seeking to improve dietary data availability, access, and use
International Dietary Data Expansion (INDDEXX) Project

1. **Standardize and streamline** the collection and analysis of individual dietary data

2. **Improve the design** of household consumption and expenditure surveys;

3. **Increase the use** of food and nutrient data to guide nutrition and agriculture policy

4. **Stimulate global cooperation and country capacity** for improved acquisition and use of dietary data
Thank you!