Using intake data

Charlotte B. Madsen
Division for Toxicology and Risk Assessment
National Food Institute
Technical University of Denmark
Risk assessment

Hazard Identification

Hazard Characterisation

Exposure Assessment

Risk Characterisation

Allergen contamination

Food intake data
Food intake data comes from food intake surveys

- Based on e.g. 7 days dietary record, 2 days dietary record, 24 h recall
- The data recorded and the organisation of the data determines the available parameters
- The primary goal is to gather nutritional data and data on consumption patterns – reflects the organisation of data

- Different levels of detail
  - Intake per day
    - Intake per meal
  - Food groups (e.g. Bread)
    - Wheat bread
      - Wheat bread with fat containing kernels
        » Brand name
Intake data relevant for food allergy

• Assumptions
  – Food allergy is an acute reaction
  – If not causing symptoms the allergen will be “washed out”
  – The washing out period is < 2 hours

• Consequence
  – The relevant intake scenario is a meal
  – The relevant measure is “eaters only” – gives a higher mean intake

(For exposure to a chemical giving chronic toxic effects the relevant intake is mean intake per day or week)
Intake data relevant for food allergy

• Dietary surveys generate an enormous amount of data

• The only data used in food allergy risk assessment are
  – Amount eaten (g) per food/food group
    • Maybe organised by age and/or gender
  – For probabilistic risk assessment
    • Frequency of intake
## Danish national food survey age group 4-75

<table>
<thead>
<tr>
<th></th>
<th>MEAN</th>
<th>STDDEV</th>
<th>P95</th>
<th>MAX</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>K04.1 Wheat bread, total</td>
<td>74,18</td>
<td>43,62</td>
<td>154,3</td>
<td>356</td>
<td>4.353</td>
</tr>
<tr>
<td>K06.8.4 Chokoladespread</td>
<td>9,73</td>
<td>10,86</td>
<td>29,0</td>
<td>194</td>
<td>1.510</td>
</tr>
<tr>
<td>K13.2.3 Mashed potato</td>
<td>26,16</td>
<td>18,36</td>
<td>59,57</td>
<td>171</td>
<td>1.032</td>
</tr>
<tr>
<td>K14.1.2 Sauce</td>
<td>17,86</td>
<td>17,13</td>
<td>47,14</td>
<td>304</td>
<td>2.750</td>
</tr>
</tbody>
</table>

Per meal - eaters only
Intake data relevant for food allergy

Eaters only

• Mean intake

• P95

• Max intake
  – Only one data point

• Probabilistic assessment uses distribution of individual intake
Intake data relevant for food allergy

• Intake data are based on the general population with an unknown proportion of food allergic individuals
  – In the Danish national survey 2005-2008 11.6% reported food allergy, most of these to pollen cross reacting foods

• It is assumed if a food allergic person eats a certain food the portion size and frequency of consumption will not differ from a non allergic person

• We don’t know if this assumption is correct
Intake data relevant for food allergy

- Detailed intake data on a national level
- Currently no pan-European food intake data suitable for food allergy risk assessment.
- A detailed pan-European dietary database available in approximately 10 years
- Food producer: How to make a food allergy risk assessment that covers export markets?
- EFSA: How to make a food allergy risk assessment that covers dietary patterns in EU?

- Solution? – Make simulated model intakes (portion size and frequency of intake) to use in food allergy risk assessment
Thank you for your attention