

Food Safety Risk Analysis and Risk Assessment-II

Structure of Risk Analysis



What is Risk Assessment ?

- ✓ Process or tool for identifying a hazard and estimating the risk presented by that hazard
- ✓ Widely used in the field of food safety
- ✓ It may be quantitative or qualitative
- ✓ Quantitative – “1 death per year in given population from hazard X in product Y”
- ✓ Qualitative – “High risk”

Risk assessment

- ✓ The scientific evaluation of adverse health effects due to human exposure to food borne hazards

- ✓ First step in risk analysis

- ✓ Provides;
 - annual occurrence of illness
 - annual rate of illness per population

Risk Assessment

- ✓ **Hazard identification;**
 - ✓ *"The identification of biological, chemical, and physical agents capable of causing adverse health effects and which may be present in a particular food or group of foods."*

(WHO, 2010)

Risk Assessment

- ✓ **Hazard characterization;**

- ✓ *"The qualitative and/or quantitative evaluation of the nature of the adverse health effects associated with biological, chemical and physical agents which may be present in food. For chemical agents, a dose-response assessment should be performed. For biological or physical agents, a dose-response assessment should be performed if the data are obtainable."*

(WHO, 2010)

Risk Assessment

- ✓ **Exposure assessment;**
- ✓ *"The qualitative and/or quantitative evaluation of the likely intake of biological, chemical, and physical agents via food as well as exposures from other sources if relevant"*

(WHO, 2010)

Risk Assessment

- ✓ Risk characterization;

- ✓ *"The qualitative and/or quantitative estimation, including attendant uncertainties, of the probability of occurrence and severity of known or potential adverse health effects in a given population based on hazard identification, hazard characterization and exposure assessment."*

(WHO, 2010)

Risk management

✓ Risk management;

- ✓ *"The process, distinct from risk assessment, of weighing policy alternatives, in consultation with all interested parties, considering risk assessment and other factors relevant for the health protection of consumers and for the promotion of fair trade practices, and, if needed, selecting appropriate prevention and control options."*

(WHO, 2010)

Elements of risk management

- 1. Risk evaluation**
- 2. Risk management option assessment**
- 3. Implementation of management decision**
- 4. Monitoring and review**
 - Assessment of management decision
 - Review risk management and/or assessment necessary

Risk communication

- ✓ Risk communication;

- ✓ *"The interactive exchange of information and opinions throughout the risk analysis process concerning hazards and risks, risk-related factors and risk perceptions, among risk assessors, risk managers, consumers, industry, the academic community and other interested parties, including the explanation of risk assessment findings and the basis of risk management decisions."*

(WHO, 2010)