

# Considerations in Establishing Acceptable Risk Levels for Country Foods

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# What are Country Foods?

- Foods that are collected from the environment (i.e., not purchased at stores)
- Foods can include:
  - plants: berries, mushrooms, traditional medicines
  - wild game: moose, caribou, bear, etc. (meat and organs)
  - aquatic life: fish, crabs, shellfish

# What Guidance Exists for Assessment of Country Foods?

- Health Canada has several sources of guidance
  - TRVs and consumption estimates
  - Canadian Handbook on Health Impact Assessment
  - Health Canada's PQRA guidance provides some general principles (but is not very specific on this issue)
  - Health Canada may develop more specific guidance in the future

# What Type of Sites Require Assessment of Country Foods?

- Sites requiring country food assessment include:
  - mine sites (for both permitting and closing)
  - harbour areas
  - but really any site where food can be harvested
  - food consumption has been the source of exposure for disease outbreaks and diligence is required

# Obstacles in Assessment of Country Foods

- Modelling
  - can be very difficult to model movement of COPCs through the food chain
  - for example, not aware of any soil quality guidelines that specifically address metal concentrations in plants
  - **Is anyone in the group aware of such guidelines/standards that consider movement of chemicals into plants?**

# Obstacles in Assessment of Country Foods

- Tissue Residue Guidelines
  - very few chemicals have tissue residue guidelines that are developed for protection of human health
    - methylmercury guideline of 0.5 ug/g applies to commercial fish only
    - lead guideline of 0.5 ug/g applies to whole tomatoes
  - paucity of guidelines may be due to health agencies wanting to maintain flexibility
  - **Is anyone in the group aware of tissue guidelines/standards?**

# Obstacles in Assessment of Country Foods

- Toxicity Reference Values
  - TRVs can vary appreciably within Health Canada (e.g., contaminated sites group versus the food group)
  - in US, it appears that US FDA and US EPA have different ideas on potency of methylmercury in fish
  - varying TEFs for PCDD/Fs and PCBs are a recent factor to consider

# Obstacles in Assessment of Country Foods

- Exposure Estimates
  - HHRA needs to consider risks to individuals such that using general population consumption rates may not be applicable to individuals who seek out the food group of concern
    - e.g., fish eaters versus non-fish eaters
  - may also need to consider that some people seek out certain parts of the food that can have a unique contaminant profile
    - e.g., crab hepatopancreas, kidney of moose/caribou

# Obstacles in Assessment of Country Foods

- Exposure Estimates (cont...)
  - future habits can be difficult to characterize
    - food surveys may be of limited value if consumption rates change with time
  - **Is anyone in the group aware of alternate approaches?**

# Obstacles in Assessment of Country Foods

- Acceptable Risk Levels
  - consumption of many country foods may provide a nutritional health benefit versus certain diet alternatives
  - closing a fishery or advising against country food consumption can have negative health consequences due to lack of access to these foods
  - consequently, the acceptable level of risk can be higher than typically allowed

# Obstacles in Assessment of Country Foods

- Acceptable Risk Levels: Worked Example
  - Health Canada commercial fish methyl Hg guideline = 0.5 ug/g
  - A 16 kg toddler consuming a 75 g portion once per month would be exposed to 0.078 ug/kg/d
  - TDI for methyl mercury = 0.2 ug/kg/d (for young children and pregnant women)
  - HQ = 0.4 (i.e., above some benchmarks but still well below any level that has actually been associated with health effects in people)

# Possible Discussion Items

- Other experiences of the group on country foods assessment?
- Suggestions for addressing health benefits versus decrements?
- Suggestions for modelling approaches?
- Suggestions for establishing acceptable risk levels?