



Data challenges to improve dietary exposure assessment...

... examples from Anses' point of view

Dietary exposure assessment at Anses

- Based on two national studies...
 - Individual national food consumption survey (INCA)
 - Latest study INCA3 2014-15
 - 4114 participants : 1993 children 0-17 yo and 2121 adults 18-79 yo
 - 3 non-consecutive days (24-h dietary recall) completed by a food propensity questionnaire
 - Socio-demographic variables, anthropometric measures (weight and height)
 - Physical activity and sedentarity
 - Total diet study (EAT) for chemical substances
 - Foods sampled are defined by the national consumption data (90% of diet covered)
 - Food is prepared as consumed, then analysed (>400 substances)
 - Second EAT2 (2006-07) and infantile EATi (2010-11)
- ...plus specific R&D projects on special interest subjects
 - Microbiology (campylobacter) : food preparation behaviour
 - Contamination of breast milk
- Together with national food monitoring and food controls

3rd INCA survey: an integrated approach

- Double objective
 - Representative and detailed food consumption data to :
 - Assess nutrition status and risks
 - Assess the respect of national guidelines/recommendations on food intake
 - Other information for more precise dietary exposure assessments
- Going beyond nutritional aspects
 - includes food preservation, food packaging material
 - EFSA Guidance and the facets of the FoodEx2 food classification and description system
 - extended to include information about private wells, home water treatment, home grown foods or food gathering, fridge temperatures, use-by dates of food, food preparation and storage...
 - Dedicated additional questionnaires
- Extensive information to combine, validate and analyse

3rd INCA survey: a test case for the future

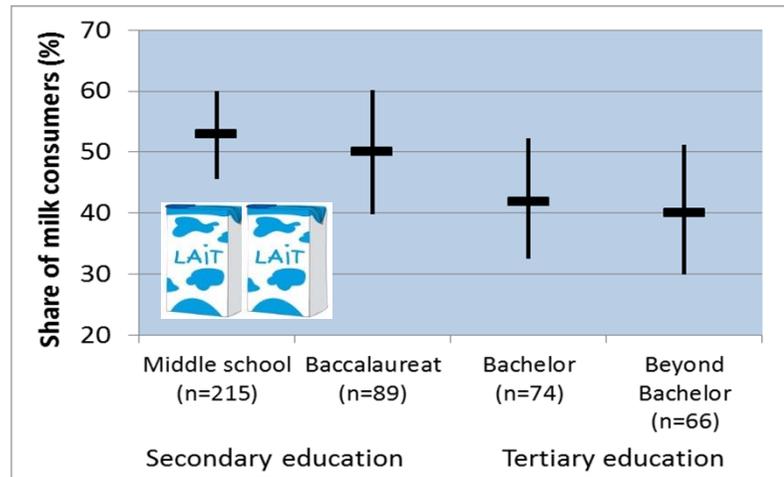
- Integrated or not integrated: that is the question
 - Does collecting ancillary information simultaneously lead to more precise dietary exposure/risk assessments?
 - More complicated surveys are more time and resource consuming
 - More complicated surveys lead to lower participation rates
 - INCA3 extensive database: evaluate the pertinence of the integrated approach, adjust the questionnaires for the next INCA survey
- An example: food packaging materials (FPM)
 - Does precise information about a consumer's specific preferred FPM improve dietary exposure assessment ?
 - Is there a link between the consumer and the type of FPM to which his food is “exposed” ?
 - Does the profile of the consumers vary with the type of FPM within the different food groups?
Canned foods/drinks? Foods/drinks in glassware?

FPM case study: methodology

- In INCA3, FPM information was obtained for pre-packed foods that are fatty, acidic or liquid (risk of migration of chemical substances)
- Methodological approach
 - Pré-packed foods available in several FPM (fruit juice, soft drinks/sodas, milk...; not jam, soups...)
 - Influence of consumer's age or social and economic status (SES) on type of FPM
 - $(\text{Nb of consumers for a specific FPM}) / (\text{Total nb of consumers})$
- Limits : exploratory work on preconceived ideas
 - SES and lifestyle influence the type of product : plastic or cans are less noble materials than glass, price influences the choice...
 - Preliminary work needs to be refined and carried out extensively

FPM case study : preliminary results (1)

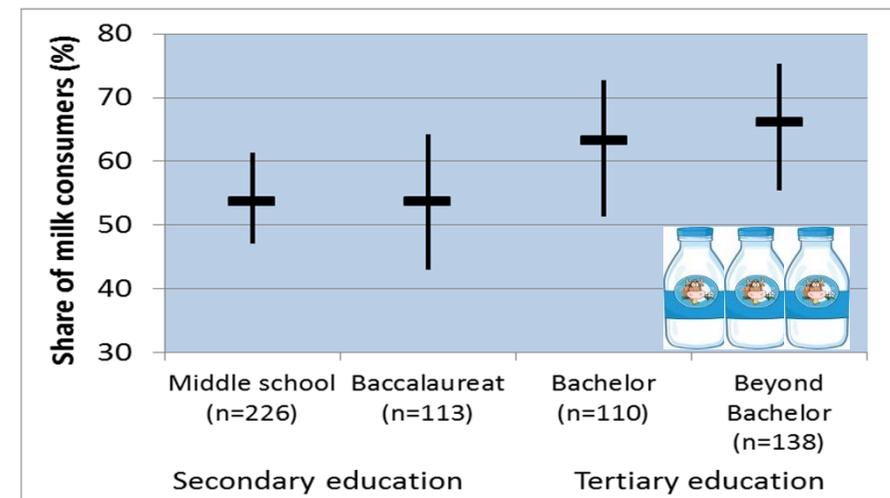
- Milk in multi-material (brick) - adults



Apparent link between the type of FPM and consumer's level of education.

- Milk in plastic (bottle) - adults

Seems to confirm the hypothesis...

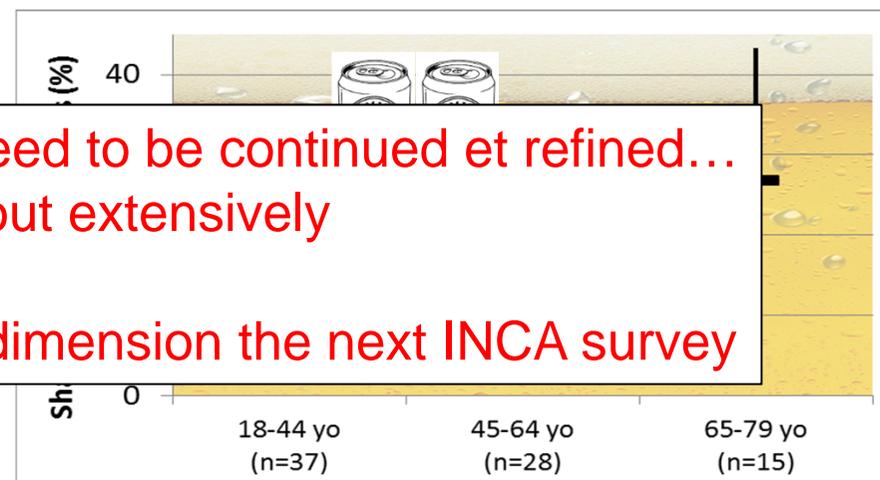


FPM case study : preliminary results (2)

- Soft drinks/sodas in metal (cans) - adults



Apparent link between FPM and age of consumers. Perhaps linked to lifestyle.



These preliminary analyses need to be continued et refined... and carried out extensively

Analysis results used to help dimension the next INCA survey

FPM and age of consumers...

To conclude: some ongoing data challenges

- Adapt or combine essentially nutrition-oriented food consumption surveys to the specific needs of risk assessment.
 - Not only precise food description
 - Also information about packaging, preparation, handling, storage ...
- Better capture consumption and contamination variability
 - Inter- and intra-individual variability, extremities of the population
 - Sub-populations (very small infants, pregnant women...) under-represented in national surveys.
- Reduce the analytical limits of detection and quantification for chemical substances
 - Unable to conclude about a health risk because the analytical limits did not allow a precise enough exposure assessment.

Thank you for your attention

“Data challenges to improve dietary exposure assessment”

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