

# Development of a Food consumption survey

*For dietary exposure assessments*

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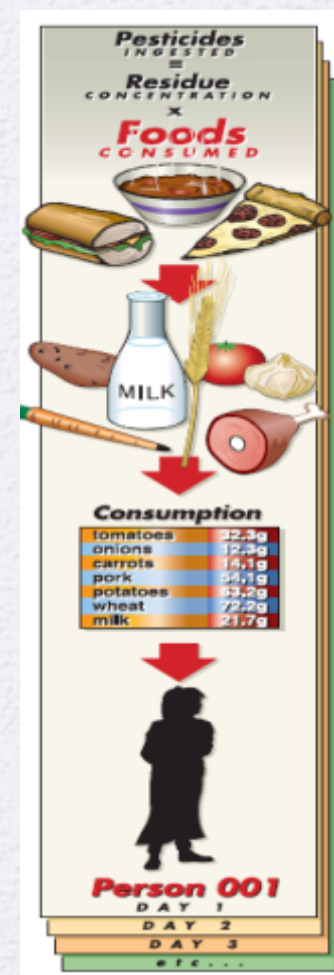
1<sup>ST</sup> GLOBAL FOOD REGULATORY SCIENCE SYMPOSIUM – November 20<sup>th</sup>, 2021

# Food Consumption Surveys

There is a need to collect **detailed, harmonised and high-quality** food consumption data from the study population;

**Food consumption surveys** provide **reliable data** for the assessment of **consumers' exposure to contaminants** in food at an **individual level**;

Provide information on the food consumption in **well-defined groups of individuals**.



# Main Steps

for the development of a food consumption survey

## Step 1

- Preparation of a preliminary study plan and evaluation of the **availability** of acceptable **methodology and tools** to be used

## Step 2

- Preparation of the **detailed study plan** and related documentation
- Evaluation/establishment of the **study plan requirements**
- Estimation of **budget** and evaluation of **funding possibilities**

## Step 3

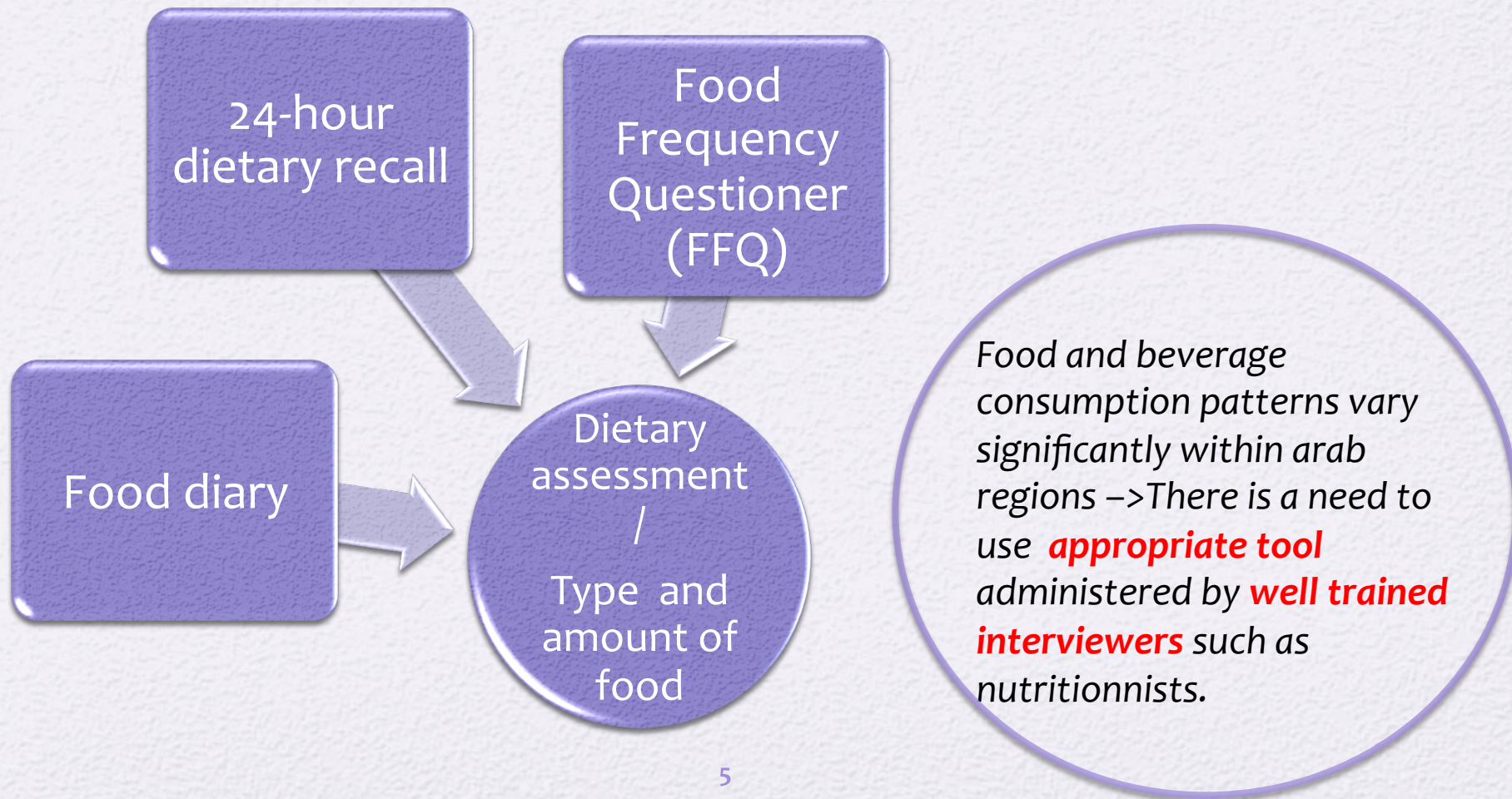
- **Approval process** of the Study Plan & the budget
- Compilation of an **action plan** for the study process



# Step 1:

## Preliminary study plan, methodology and nutritional tools

# Methods for collecting intake data



# Interview methods

In-person or face-to-face interviews

Paper and pencil assisted interview (PAPI)

Computer assisted personal interview (CAPI)

Distance interviews

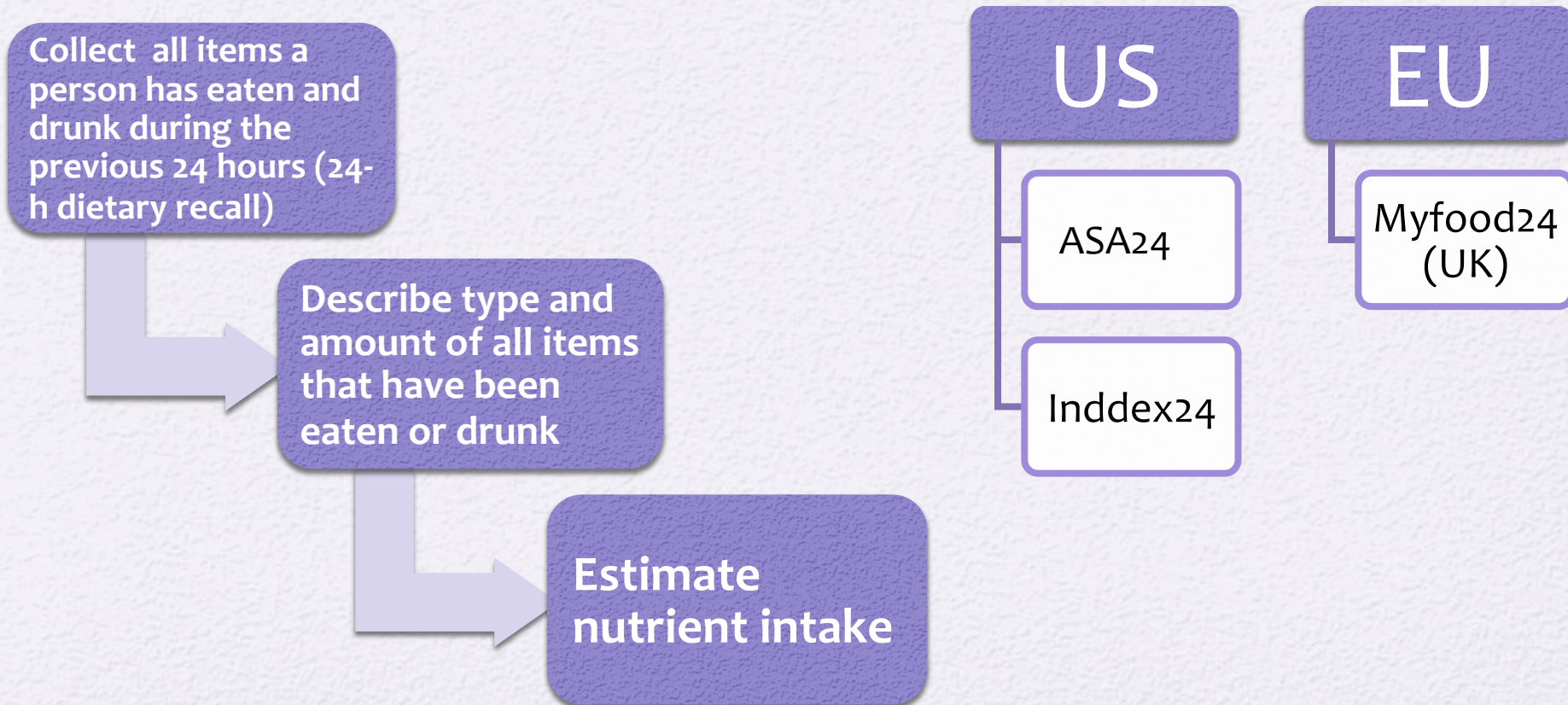
Computer assisted telephone interview (CATI)

Computer assisted web interview (CAWI)



# Available web tools / software for dietary assessment

## Objectives



- Example of a screen shot from a web-based 24h recall

The screenshot displays a web-based 24h recall interface. At the top, the date and time are shown as "Sunday, September 11, 2016" (labeled 'a'). Below this, the meal is identified as "Breakfast" at "07:00 a.m. - At home" (labeled 'c'). To the right of the meal name are "Modify" and "Delete" buttons (labeled 'b'). The meal items are listed on the left: "Sliced white bread", "+ Regular peanut butter", "+ Jam", "Egg", "+ Ketchup/chilli sauce", "Fruit juice without added sugar" (highlighted in blue), "Filtered/instant coffee", "+ 2% milk", and "+ White sugar" (labeled 'e' and 'h'). To the right of the meal items is a search bar (labeled 'd') with the placeholder text "Enter here the food to search for" and a "Search" button. Below the search bar is a list of food categories (labeled 'g') including "Vegetable/fruit ...", "Bread/cereal/baked goods...", "Pasta/rice and other grains ...", "Milk/dairy product/milk substitute...", "Legume/soy (tofu)/nuts and seeds...", "Egg/egg-based dishes...", "Prepared dishes...", "Fast food/ food from a fast food restaurant...", "Dessert...", "Beverage...", "Salty snack...", "Meal replacement/dietary supplements/sports food....", "Condiment/sauce/seasoning...", "Oil and fat ...", and "Sugar/spread/chocolate/candy...".



# Required databases for the food consumption survey

In order to prepare the dietary software for data collection, country specific databases need to be prepared at national level before the survey starts (EFSA /EU Menu Guidance, 2014):

- **Food list** (open-ended comprising solid foods, beverages, including drinking water, and food supplements),
- **Food classification** (for an unique and universal identification and characterisation of food items at least the core terms for single foods, and the extended terms for composite dishes).
- **Food descriptors** (source, part consumed, process, qualitative information, fortification, sweetening agent, packaging material, brand, product name),
- **Food composition** (at least for energy content),
- **Portion sizes** (portion size measurement aids (PSMAs): portion-size picture books, household measures (HHMs), standard portions and known package sizes as weight or volume),
- **Standard recipes,**
- **Food yield and edible factors.**

# Food description

Food quantities “as reported”

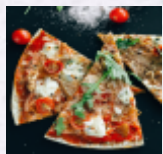
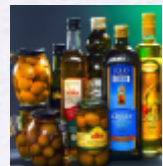
Identification & characterisation of food items

**Food categories:**

- F&V, Meat, Dairy products, etc

**Food group:**

- Raw primary commodity
- RPC derivatives
- Composite foods



Food list

Comprising solid foods, beverages, including drinking water, and food supplements

Food classification

Food descriptors

**Additional information for a particular aspect of a food:**

Examples:

- Source
- Part consumed
- Preparation method
- Source commodities
- Ingredient
- Process
- Packaging
- Brand

Food quantities “as finally consumed” .

# Food composition database

- Nutrients and energy content of foods
- Allow to convert foods from **food consumption data** to **nutrients intakes**.

## Food Composition Tables for Kingdom of Bahrain (First Edition 2011. Musaiger A.O.)

PROXIMATE COMPOSITION OF FOODS PER 100g EDIBLE PORTION  
تركيب الأغذية من العناصر الغذائية التقريبية ( لكل ١٠٠ جرام من الجزء الصالح للأكل )

No. رقم التسلسل	Food الغذاء	Arabic Name الاسم العربي	Water g ماء (جم)	Protein g بروتين (جم)	Fat g دهون (جم)	Ash g معادن (جم)	Fibre g الياف (جم)	Carbohydrate g كربوهيدرات (جم)	Energy Kcal طاقة حرارية (سعة)
1.18	Doughnut, jam	دونت بالمرابي	26.9	5.7	14.5	-	N	52.9	349
1.19	Dream topping, milk made	كريمة الحلويات	1.4	6.0	50.4	-	Tr	42.2	637
1.20	Fruit cake	كعك الفواكه	20.6	3.7	11.0	-	3.5	61.2	347
1.21	Gingernut biscuits	بسكوت الزنجبيل	3.4	5.6	15.2	-	1.4	74.7	475
1.22	Ground barley, cooked	شعير مطحون و مطبوخ	4.9	11.3	2.2	5.2	19.0	57.4	294
1.23	Instant dessert powder	مسحوق الحلوى الجاهز	1.0	2.4	17.3	-	N	60.1	391
1.24	Macaroni, raw	معكرونة	10.4	13.7	2.0	-	-	73.9	368
1.25	Noodles, egg raw	نودلز مع بيض ني	9.1	12.1	8.2	-	2.9	67.7	391
1.26	- egg boiled	نودلز مع بيض مسلو	84.3	2.2	0.5	-	0.6	13.0	65
1.27	- fried	نودلز مقلي	75.1	1.9	11.5	-	0.5	11.3	153
1.28	- plain boiled	نودلز مسلو	82.2	2.4	0.4	-	0.7	13.0	62



# Available Arab food composition databases

- ◆ **Egypt:** Food Composition Tables (books, 1975, 1985, 1996)
- ◆ **Sudan:** Food Composition Tables book, 1986)
- ◆ **Tunisia:**
  - ✓ Food Composition Tables (books, 1957, 2007, in progress)
- ◆ **Arabian Gulf States:** Composition of mixed dishes (Paper, 1984)
- ◆ **Bahrain:**
  - ✓ Food Composition Tables for Kingdom of Bahrain (2011)
  - ✓ Food Composition Tables for Arab Gulf Countries (2005)
  - ✓ Food Composition Tables for Use in Bahrain (1985)
  - ✓ Nutritive Value of Foods (1987)
- ◆ **Kuwait :**
  - ✓ Composition and Protein Quality of Food Consumed in Kuwait (paper, 1982)
  - ✓ Kuwaiti food composition tables - Composite dishes, (*in EuroFIR FoodEXplorer*, 2018)
- ◆ **Saudi Arabia:**
  - ✓ Saudi Food Composition Search Application
  - ✓ Food composition table (paper, 2021)
- ◆ **Middle/ Near East:** Food Composition Tables for the Near East (book, 1982)
- ◆ **Iraq:** Food Composition Table for Iraq (*in EuroFIR FoodEXplorer*)
- ◆ **Morocco:** Nutritional composition of fast food traditional dishes and processed foods available in Morocco (*in EuroFIR FoodEXplorer*, 2018)

# Quantification of the food as eaten

## Portion size

### measurement aids :

- portion-size picture books,
- household measures (HHMs),
- standard portions
- known package sizes



Portion sizes

Standard recipes

Food yield and edible factors

Preparation of recipes including

home recipe

and ready-made recipe



## Standard food-specific coefficients

### Example :

- raw-to-cooked yield factors,
- edible part coefficients

Libyan Journal of Medicine 2016, 11: 32676 - <http://dx.doi.org/10.3402/ljm.v11.32676>

Figure - available via license: [Creative Commons Attribution 2.0 Generic](#)



# Step 2

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## Detailed study plan



# Step 2

## Detailed study plan

Objectives of the study

Target population

Time periods

Survey management and organization

Measurements to be taken & Methods of dietary data collection

Time schedule

Protocols and questionnaires  
Methods of data recording, processing and statistical evaluation

Communication plan

## Study Plan requirements

Human resources

Technical backup for data collection

Equipment and documentation

Study sites (*home/study centres*)

Personal training

Provision of vehicles/ transportation

Communication requirements

## Budget & funding

Estimation of budget

balancing between the level of details in consumption data desired versus the minimum requirements for obtaining information

Evaluation of funding possibilities

# Step 3

## Approval process & action plan

# Step 3

Once the budget has been approved, or simultaneously with the approval process, the action plan for the preparation and implementation of the study shall be prepared.

Main components of the action plan:

- ✓ Getting the **permission of Ethics Committee** (3-10 months),
- ✓ **Translation/Adaption of the data collection tool** for national use,
- ✓ Getting agreement for the use of a data collection tool
- ✓ Confidential management of the data,
- ✓ selection of interviewers and field staff

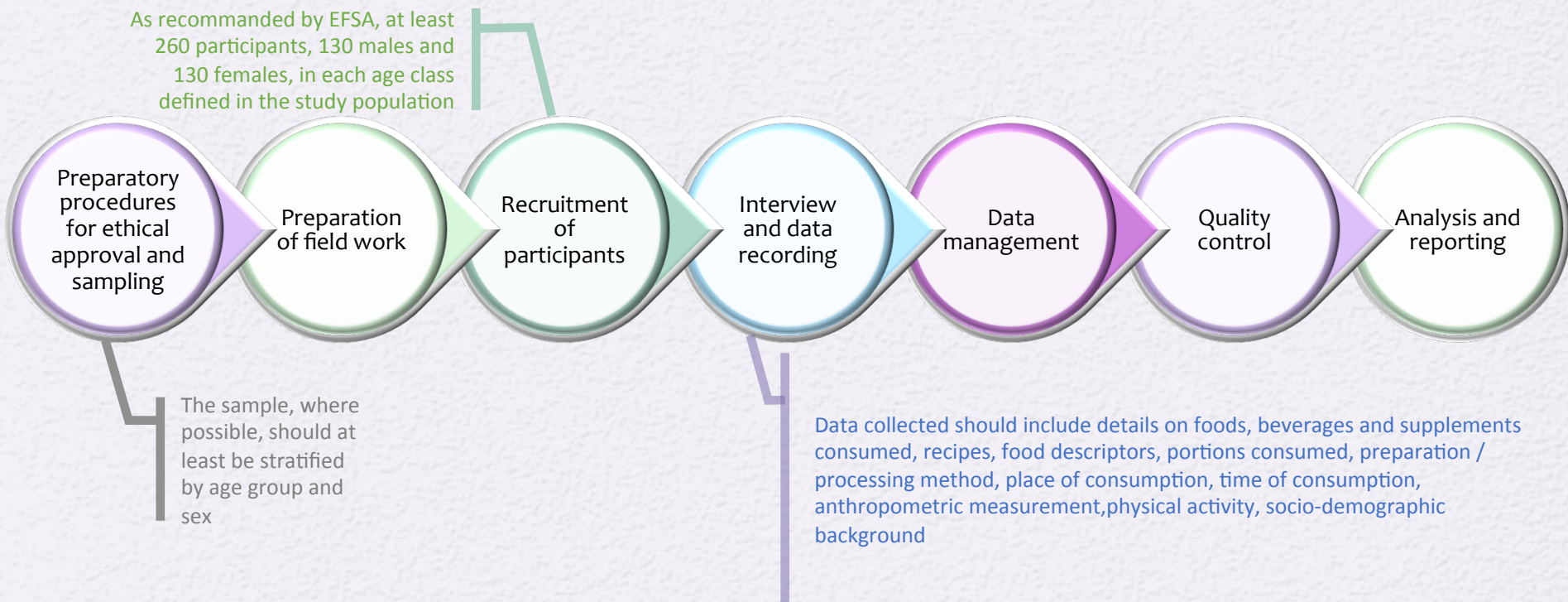




# Main phases of the national — dietary survey — (on the ground)

# Main phases of the national dietary survey

## based on the EU methodology (EFSA)



(EFSA /EU Menu Guidance,  
Appendix 2.1, 2014)



# Thank you!



Food Risk Analysis and Regulatory  
Excellence Platform

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