Overview: Dietary Assessment Technologies of the Future

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New Technologies

- **ASA24**: Automated Self-Administered 24-Hour Dietary Recall

- **FIVR:** Mobile Food Intake Visualization and Voice Recognizer

- **mpFR:** Mobile Phone Food Record

ASA24 – What is it?

- Collects 24-Hour recall data
- Web-based system
- Respondent, Researcher, and Administrator sites
- Interactive interview
- Rich graphical interface
- Self-coding

- Funded by NCI, developed by Archimage and Westat in collaboration with USDA

ASA24 – Respondent Interface Features

- Multiple pass (5)

- Meal-based

- Collects food details

- Collects multi-ingredient foods

- Collects additions to foods

- Every food links to FNDDS

- Food portion pictures

- Agent facilitates the interview & engages Respondent

ASA24 – Food Probe Data Base Features

- USDA Automated Multiple Pass Method (AMPM)

- Revised for self-administration

- Differences (ASA24 vs. AMPM):
  - Food categories = 124 (131)
  - Probes = 826 (2200)
  - FNDDS food codes = 4,052 (6,974)

ASA24 – Food Probe Data Base Features

- Food List Terms (FLT) for Quick list
  - FLT = ~6,600
  - Average FLT/category = 51
  - Max FLT/category = 740 (Fish)

- Portion pictures = 4,360
  - Average pictures/category = 34
  - Max Pictures/category = 814 (Vegetables)

FIVR – What is it?

- An instrument that automatically translates images and voice recorded information captured on a cellular phone into dietary intake data

- Funded by NIH; developed by Viocare Technologies in collaboration with the University of Iowa

FIVR - Features

- Cell phone
  - Prompts = Cell phone reminder
  - Visual = cell phone with camera
  - Auditory = cell phone verbal description of foods

- Intake algorithm
  - Back-end server
  - Determines information needed to identify food

FIVR Features

- "Smart" voice recognition system
  - Customized to the respondent based on typically reported foods
  - Query for details
- Lexicon of foods-plus-image
  - Food composition database of verbal description matched with image

mpFR – What is it?

- A tool for recording dietary intakes that includes a mobile phone, digital photos, image processing, and a nutrient database

- Funded under NIH Genes, Environment, and Health Initiative; developed by Purdue University

mpFR - Features

- Handheld phone w/ camera

- Image processing software

  - Image calibration
  - Image segmentation
  - Volume estimation
  - Total food volume consumed

- Eventually offer user nutritional information