

# Center for Human Phenomic Science

## Nutrition Core: Bionutrition Unit Facilities

The Bionutrition Research Unit provides investigators within the Center for Human Phenomic Science (CHPS) with research quality nutrition evaluations, nutrient analyses, patient management, and nutrition education to subjects enrolled in CHPS approved protocols. The unit is staffed with two registered dietitians and a diet technician with extensive experience in clinical research involving infants, children, and adults.

The general categories of services provided include assessment of dietary intake, implementing nutrition interventions, and planning study-specific meals. The unit staff also consults on study design during the planning phase of a study. All charges are based on the hourly rates for the staff, supplies, and license costs for nutrient analysis software.

### Consultation

The research dietitians and nutritionist are available to consult with investigators prior to protocol submission to provide advice on the design for the nutrition component of their study. This may include selection of the appropriate methodology or design of a nutrition intervention.

### Diet Analysis

1. Research dietitians and nutritionists collect and analyze dietary information from 24-hour recall interviews and 24-hour written food records.
  - a. Recalls: Patients are contacted by phone to complete recalls. CHOP uses the multipass method. <sup>1</sup>
  - b. Records: Completed participant food records are sent to the Bionutrition team by the study coordinators.
2. The dietary information is entered and analyzed with one of following software programs:
  - a. [Nutrition Data System for Research](#) (NDSR)  
Developed by the Division of Epidemiology at the University of Minnesota, the NDSR software database includes more than 18,000 foods. Values for 178 nutrient, nutrient ratios and other food components are generated from the database. The USDA Nutrient Data Laboratory is the primary source of nutrient values and nutrient composition.



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- b. [MetabolicPro](#)  
MetabolicPro is the only web-based nutrient analysis software program designed for use by metabolic dietitians. All foods in the database contain complete amino acid data, making it the most effective tool for analyzing diets of patients with amino acid and organic acid disorders.
  - c. Study-specific nutrition analysis programs.
3. The completed data analysis is sent to study coordinators at specified timepoints using Excel spreadsheets.

### Nutrition Intervention and Consultation

Nutrition interventions are protocol specific. Bionutrition Unit requests include evaluation of nutrition status based on diet histories, nutrition education (for dietary modifications), food tolerances and/or preferences, review of anthropometric data, patient medical history, lab reports, and planned study meals:

### Questionnaires

The staff is trained to administer nutrient-specific questionnaires to meet protocol requirements.

### References:

1. Johnson RK, Driscoll P, Goran MI. [Comparison of multiple-pass 24-hour recall estimates of energy intake with total energy expenditure determined by the doubly labeled water method in young children.](#) *J Am Diet Assoc.* 1996; 96:1140-1144. PMID: 8906138