Selection of adult multivitamin/mineral products for comprehensive analytical nutrient content study for the Dietary Supplement Ingredient Database (DSID)

Janet Roseland, Karel W Andrews, Cuiwei Zhao, Amy L Schwartz, Joanne M Holden, Charles Perry, Johanna T Dwyer, Mary Francis Pieper, Kenneth Fishir, Felicia G Smith, Elizabeth Yeley, Larry Donaghue

Nutrient Data Laboratory, Belgrove Human Nutrition Research Center, Beltsville, MD
2 National Agricultural Statistics Service, USDA, Fairfax, VA
3 Office of Dietary Supplements (ODS), National Institutes of Health, Rockville, MD
4 Bioenergetics Program, University of Maryland, College Park, MD

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DSID Overview

The Nutrient Data Laboratory (NDL) at the U.S. Department of Agriculture is collaborating with the Office of Dietary Supplements at the National Institutes of Health, the National Center for Health Statistics at the Centers for Disease Control and Prevention, and the National Institute of Standards and Technology (NIST) to develop the Dietary Supplement Ingredient Database (DSID), an analytically supported database of dietary supplement nutrient information. With the high prevalence of dietary supplement use in the U.S., evaluating the actual composition of these products has become important in order to obtain accurate dietary intake information for research purposes.

Multivitamin/mineral (MVM) products were chosen for the initial studies because these dietary supplements are commonly reported in the National Health and Nutrition Examination Survey (NHANES).

More information is available at www.ars.usda.gov/dsd.

Pilot Study Accomplishments

Pilot studies have been conducted to:
- Develop procedures to request NHANES dietary supplement information, market share and sales channel information for development of sampling plans.
- Develop protocols for purchasing and shipping of products and analytical samples.
- Identify qualified laboratories and laboratory methods for handling and analysis of samples and to assess quality control procedures for the analysis of dietary supplement products.
- Determine whether a systematic relationship exists between label values and analyzed values for nutrients in MVM products and assess the variability for analytical nutrient values among products labeled at the same level.

Objectives of this Analytical Adult Multivitamin/mineral (MVM) Study

- To provide nationally representative estimates for priority nutrients in commonly reported adult MVM products.
- To assess variability in specific products based upon a geographic and channel sampling plan.

Method to Identify Representative Dietary Supplement Products

An independent marketing firm was consulted to provide data regarding general population usage of dietary supplements. The DHSS marketed PMD products and collected the choice of about 22 MVM respondents who had been pre-identified as MVM users from the firm’s existing panel of 55,000 adults. The questionnaire is summarized below.

Markets Share Data Results and Applications

Use of Market Share Data

- Identification of specific products
  After data collection, each product brand and type named in the survey was matched to a specific product name. For example, for “brand QRS” and “mature” named by a respondent, “QRS Senior Multi” was identified to purchase.

- Comparison with 2 national surveys to determine products for study
  These market-share data for adult MVM products were ranked by product and compared to prevalence and frequency of intake from the NHANES 2001-02 and the Multicentric Cohort (MEC) study of supplements reported in Hawaii and California, to assure that the most commonly reported products in these national surveys were included in this analytical adult MVM study.

- Products were purchased in each of the six locations and sent to NDL. Samples (n=208) were repackaged at product lot to the labeled level.

- Results of the laboral projects are being evaluated, comparing the analytical value for each nutrient in each product lot to the labeled level.

Future Plans

Results from this analytical study will be used to determine actual content per nutrient for each product and estimate the variability within and among products. Regression analysis will be applied to analytical results to evaluate its potential for estimating nutrient levels in adult MVM products reported in NHANES. Additional analytical validation may be conducted to develop or confirm regression equations. Factors and patterns in product descriptions and in nutrient data will be studied to determine what MVM characteristics can be used to identify additional categories to optimize extrapolation of data.

Statistical applications of the data will be used for planning future surveys.

A comprehensive relational database will be developed as a platform for the release of the DSID, incorporating the needs of researchers and other major stakeholders in a publicly accessible format.

References

[All references cite 2006 publications except where noted.]


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