DSID-1 Data Files Description for the Dietary Supplement Ingredient Database - Release 1 (DSID-1)

The Nutrient Data Laboratory (NDL), Beltsville Human Nutrition Research Center (BHNRC), Agricultural Research Service (ARS), USDA, has been working with the Office of Dietary Supplements, National Institutes of Health (ODS/NIH) and other federal agencies to plan and develop a Dietary Supplement Ingredient Database (DSID) and is releasing the results for 18 vitamins and minerals in the adult MVM study as DSID-1.

The DSID-1 files contain final regression analysis data for these 18 ingredients in adult MVMs and applications of these data for the ingredients and labeled levels of adult MVM products reported in NHANES 2003-04 and 2005-06. The applied data set of adult MVMs derived from NHANES files includes only adult MVMs (n = 3 or more vitamins) that have ingredient levels within the specified regression ranges. This data set includes both regular and mature formulations. Prenatal MVMs were not included in the adult MVM study; they are planned for study in 2009-10.

DSID-1 includes the following data:

Table 1. Regression Equation Data. This table of prediction equation information is based on analytical results for 18 vitamins and minerals in adult MVM products. Predicted percent differences from label for each nutrient can be calculated using the information in this table. In addition, regression equation information for calculating Standard Errors (SE) is included.

For each of the 18 vitamins and minerals being reported in DSID-1, this table includes information for calculating predicted mean values and SE of the mean and SE for an observation. For each equation, the intercept, linear and quadratic parameters are listed. For estimating the SE, the cubic and quartic parameters are listed, if applicable. The equations for predicted percent difference from label, predicted result per serving, SE of the predicted percent difference, SE of the predicted result per serving are provided and an example calculation has been completed. Equation example calculations are provided in the spreadsheet on the tab “Application of Equation”, which is next to the tab for Table 1.

Table 2. Predicted Ingredient Amounts. This table includes predicted ingredient amounts and standard errors based on regression analysis estimates for each of the 18 ingredients at labeled levels for adult MVM products in the NHANES 2003-04 and 2005-06 files. In addition, linking codes are listed for application of these results to NHANES dietary supplement label databases.

The Table 2 format, with example below, provides information on labeled levels (per serving) within the labeled range to which the regression can be applied for each of the 18 ingredients in adult MVMs. Corresponding to each labeled level is the predicted amount per serving based on statistical regression equation data identified in Table 1. The standard error (SE) of the mean and SE of an observation have also been calculated for these labeled levels using the Table 1 equation information.

In Table 2, some fields in the NHANES 2003-04 and NHANES 2005-06 linking code columns are blank because reported labeled levels may or may not be the same for different NHANES data sets.

Table 2 (example):

Ingredient	Label Amount Per Serving	Predicted Amount per Serving	Unit	Predicted Amount per Serving SEM	Predicted Amount Per Serving SE Individual	Predicted % Difference from Label	NHANES 2003-04 DSID Linking Code	NHANES 2005-06 DSID Linking Code
CALCIUM	25	32	mg	1.3	3.7	29	103010300250	103010500250
CALCIUM	26	33	mg	1.4	3.9	29	103010300260	
CALCIUM	28	36	mg	1.4	4.2	28		103010500280
CALCIUM	29	37	mg	1.5	4.3	28		103010500290
CALCIUM	30	38	mg	1.5	4.5	28		103010500300
CALCIUM	31	40	mg	1.5	4.6	28		103010500310
CALCIUM	32	41	mg	1.6	4.8	28		103010500320
CALCIUM	33.3	43	mg	1.6	5.0	28		103010500333
CALCIUM	35	45	mg	1.6	5.2	27	103010300350	103010500350
CALCIUM	39.9	51	mg	1.8	5.9	27	103010300399	

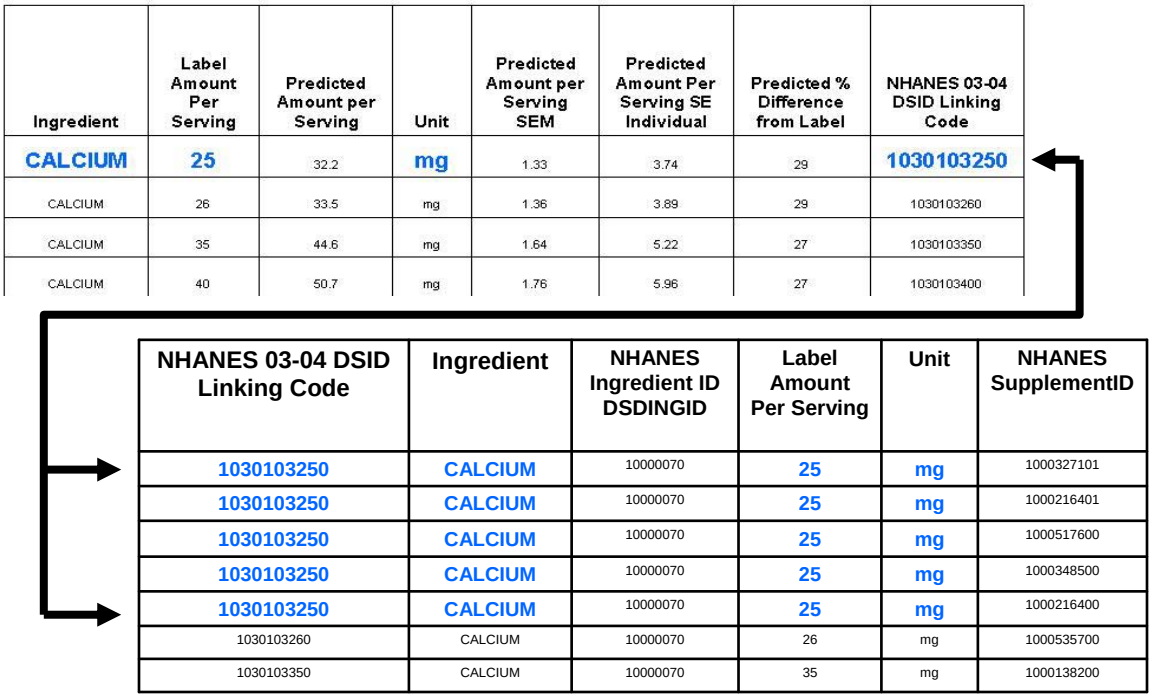
Table 3: NHANES 2003-04 Applications. This table uses the linking codes from Table 2 to identify appropriate products, ingredients and ingredient levels in NHANES 2003-04 files for application of predicted ingredient amounts and standard errors. Table 3 includes the ingredient name and the NHANES ingredient ID number for the NHANES 2003-04 labeled levels per serving within the labeled range to which the regression can be applied for each ingredient in adult MVMs. Table 3 is formatted to provide information for any or all of the 18 ingredients in each identified adult MVM product in NHANES 2003-04 data files. The linking code is used to extract the appropriate predicted levels and SE from Table 2.

Table 3 (example):

NHANES 2003-04 DSID Linking Code	Ingredient	NHANES Ingredient ID DSDINGID	Label Amount Per Serving	Unit	NHANES Supplement ID
103010300250	CALCIUM	10000070	25	mg	1000216400
103010300250	CALCIUM	10000070	25	mg	1000517600
103010300250	CALCIUM	10000070	25	mg	1000216401
103010300250	CALCIUM	10000070	25	mg	1000348500
103010300250	CALCIUM	10000070	25	mg	1000327101
103010300260	CALCIUM	10000070	26	mg	1000535700
103010300350	CALCIUM	10000070	35	mg	1000416900

103010300350	CALCIUM	10000070	35	mg	1000138200

The following diagram illustrates the relationship between Table 2 and Table 3:



Ingredient	Label Amount Per Serving	Predicted Amount per Serving	Unit	Predicted Amount per Serving SEM	Predicted Amount Per Serving SE Individual	Predicted % Difference from Label	NHANES 03-04 DSID Linking Code
CALCIUM	25	32.2	mg	1.33	3.74	29	1030103250
CALCIUM	26	33.5	mg	1.36	3.89	29	1030103260
CALCIUM	35	44.6	mg	1.64	5.22	27	1030103350
CALCIUM	40	50.7	mg	1.76	5.96	27	1030103400

NHANES 03-04 DSID Linking Code	Ingredient	NHANES Ingredient ID DSDINGID	Label Amount Per Serving	Unit	NHANES SupplementID
1030103250	CALCIUM	10000070	25	mg	1000327101
1030103250	CALCIUM	10000070	25	mg	1000216401
1030103250	CALCIUM	10000070	25	mg	1000517600
1030103250	CALCIUM	10000070	25	mg	1000348500
1030103250	CALCIUM	10000070	25	mg	1000216400
1030103260	CALCIUM	10000070	26	mg	1000535700
1030103350	CALCIUM	10000070	35	mg	1000138200

Table 4: NHANES 2005-06 Applications. This table uses the linking codes from Table 2 to identify appropriate products, ingredients and ingredient levels in NHANES 2005-06 files for application of predicted ingredient amounts and standard errors. Table 4 includes the ingredient name and the NHANES ingredient ID number for the NHANES 2005-06 labeled levels (per serving) within the labeled range to which the regression can be applied for each ingredient in adult MVMs. Table 4 is formatted to provide information for any or all of the 18 ingredients in each identified adult MVM product in NHANES 2005-06 data files. The linking code is used to extract the appropriate predicted levels and SE from Table 2.

These release files are intended for primary data users, such as researchers who estimate total ingredient intake including both supplements and food. Since some researchers obtain dietary supplement information from NHANES and log supplements and ingredients according to NHANES ID numbers, NDL is providing file formats with codes that are compatible with NHANES data so that users can merge DSID-1 data with NHANES data. For example, users may want to map DSID-1 data in Tables 2, 3 and 4, which show predicted values for calcium in adult MVMs at specific labeled levels, to relevant NHANES products at the same labeled levels, so that the data can be used for better estimates of the population's calcium intake including food and supplements.

DSID data are intended for application to the appropriate NHANES cycles. For example, DSID-1 data, being released in 2009, could be applied to NHANES 2003-04 and 2005-06 dietary supplement data (the two most recent datasets). DSID-1 data are reported by

ingredient and ingredient level, rather than by brand name. DSID-1 data are based on adult MVM products purchased in 2006-07 and chemically analyzed in 2007-08. DSID-1 may also be applied to NHANES 2007-08, the first NHANES period in which DS intake information is being collected using respondents' 24-hour recalls.

Table 5. Ingredients and Units. This table lists the 18 vitamins and minerals analyzed in DSID-1, along with units and abbreviations from NHANES, USDA Standard Reference, and FAO.