

National Human Exposure Assessment Survey (NHEXAS)

Maryland Study

Quality Systems and Implementation Plan for Human Exposure Assessment

Emory University
Atlanta, GA 30322

Cooperative Agreement CR 822038

Standard Operating Procedure

NHX/SOP-F09

Title: Administration and Analysis of Food Checklist and
Purchase of Mini-Market Basket Food

Source: Harvard University/Johns Hopkins University

U.S. Environmental Protection Agency
Office of Research and Development
Human Exposure & Atmospheric Sciences Division
Human Exposure Research Branch

Notice: The U.S. Environmental Protection Agency (EPA), through its Office of Research and Development (ORD), partially funded and collaborated in the research described here. This protocol is part of the Quality Systems Implementation Plan (QSIP) that was reviewed by the EPA and approved for use in this demonstration/scoping study. Mention of trade names or commercial products does not constitute endorsement or recommendation by EPA for use.

1 Title of Standard Operating Procedure

NHEXAS Harvard/Emory/Johns Hopkins Standard Operating Procedures:

F09 Administration and Analysis of Food Checklist and Purchase of Mini-Market Basket Food, Rev. 1.0

2 Overview and Purpose

The purpose of this SOP is to describe the procedures for:

- training the target individual to fill out the food checklist and collecting the completed checklist
- using the data collected from the Food Checklist to determine which foods are to be purchased at local grocery stores for later analysis (for metals, pesticides, and PAHs) in conjunction with the mini-market basket survey.
- buying, preparing, storing, and shipping the food.

3 Discussion

The Mini-Market Basket Approach to collect information on food exposures is based on the premise that a respondent can fill out a checklist of types and amounts of foods eaten and portion size in such a manner as to allow easy assessment of total food intake. The results from this survey will be used by technicians to purchase food at local grocery stores to be later analyzed for pollutant content. The analysis will be compared with analyses of the food from the duplicate diet investigation. If the analyses are sufficiently similar, the mini-market basket technique will afford description of the pollutant content in food eaten by a population for low cost and with minimum burden on the respondents.

4 Personnel Responsibilities

4.1 Sampler Preparation

Preparation of the Food Checklist, Instructions, and checklist analysis software is the responsibility of Emory.

Printing ID labels, affixing them to checklists and logsheets, and assembling the Field Packet are the responsibility of the Field Coordination Center (FCC) Clerk.

Examining the computer output and preparing the shopping lists are the responsibility of the Data Coordinator at Emory.

4.2 Sample Collection

Instruction of the target individual and collection of the completed checklist are the responsibility of the Interviewer.

Purchase and processing of food are the responsibility of FCC staff.

4.3 Storage

Storage of the Food Checklist in the field after collection is the responsibility of the Interviewer.

Storage of the Food Checklist at the FCC is the responsibility of the FCC Clerk.

Storage of food until ready for shipping is the responsibility of FCC staff.

4.4 Shipment

Shipment of checklists from the FCC to Emory will be the responsibility of the FCC staff.

Shipment of checklists to a data entry firm, National Business Systems in Atlanta, GA, and receiving the disks or other media, will be the responsibility of the Data Coordinator.

Shipment of food and beverages to the FDA laboratory in Kansas City is the responsibility of the FCC Supervisor.

4.5 Analysis

Input of checklist data to a computer database is the responsibility of a commercial data entry firm, National Business Systems.

Running the checklist analysis software is the responsibility of the Data Coordinator.

Analysis of food and beverages is the responsibility of FDA contract laboratories.

5 Required Equipment and Reagents

5.1 Preparation for Visit 1 (FCC)

8 ID labels with sample type 07 for Food Checklist (1 for Food Checklist,
1 for Chain-of-Custody form, 3 for field logsheet, 3 spare)
Field Packet for household: Food Checklist, field logsheet, instructions
plastic bags, resealable (Ziplok or equivalent), 6" x 9"
marker for bag

5.2 Food Purchase and Preparation

cash or credit cards (preferred) for supermarket purchases

9 sets of ID labels, one set for each store in each stratum, a set consisting of:

20 ID labels with store and stratum ID number, and sample type 55 for solid foods (3 for
FCC logsheet, 3 for shopping lists, 3 for shopping bags, 8 for bulk food jars, 3 spare)
20 ID labels with store and stratum ID number, and sample type 56 for beverages

3 sets of ID labels for daughter samples (division by FDA): sample types
5M & 5N (solids & beverages for metals), 5P & 5Q (solids & beverages for pesticides),
5R & 5S (solids & beverages for PAHs), 5T & 5U (solids & beverages for archive)
FCC logsheet, clipboard, pen

5.3 Food Preparation (FCC)

knives etc. for dividing food
scale for weighing food
measuring cups
8 plastic jars (4-liter, with lids) for food and beverages
ID labels
laboratory tape and marker

6 Procedure

Overview: The Target Individual, with guidance from the Interviewer, keeps a Food Checklist for the same four days when s/he saves duplicate food. The completed checklist is sent to a company for data input. Software written at Emory calculates the average number of servings of each food for all target individuals in the Cycle and stratum (urban, suburban, or rural). A shopping list is prepared from the output. Food is purchased at three markets in each stratum, the two most frequently shopped markets and a market that was shopped only once. Ties in frequency will be broken based on the percentage of groceries obtained from each market averaged across respondents. The food from each market is prepared to represent the average diet for that stratum. Nine samples (3 markets in each of 3 strata) are prepared during each Cycle. Solid foods and beverages are kept separate. Samples are sent to the FDA, where they are homogenized and aliquots are taken for analysis and storage.

6.1 Preparation for Collection

The FCC Clerk will:

- print ID labels, inspect them to make sure that they are correct for the household, stratum, Cycle, and sample type.
- affix ID labels to the Food Checklist, Chain-of-Custody form, and field logsheet.
- prepare the Field Packet for the household. Seal the spare ID labels into a plastic bag, mark it MMB and the 3-digit Household Identification Number, and include it in the Field Packet.

6.2 Selection of Sampling Location

The target individual will complete the Food Checklist in his or her home. The Food Checklist asks the respondent the names and locations of the stores where the household buys groceries, and the percent of groceries purchased at each store.

The Data Coordinator will compile the results from the households and prepare a list of stores for each stratum, ranked by percent. Assign each store a 3-digit number taken from the unused higher digits of the Household Identification Number, starting with 600.

In each Cycle, three stores in each geographic stratum (nine stores) will be chosen for purchase of food.

6.3 Sample Collection Procedure

6.3.1 Administration of Food Checklist

The Interviewer will:

- On Day 1 at the residence, give the target individual the Food Checklist and Instructions, and instruct the target individual on the proper method for filling out the Food Checklist. (See Food Checklist Instructions.) Sign and date the logsheet, and note any comments.
- On Day 8 at the residence, collect the Food Checklist, inspect it for completeness, and ask the Target Individual if s/he had any questions or difficulties with it. If s/he did or if the checklist is incomplete, explain and help complete it if possible. Sign and date the logsheet, and note any comments.
- Return the Food Checklist to the FCC and transfer custody to the FCC Supervisor or his designate. Both Interviewer and FCC-S will sign the Chain-of-Custody form. The FCC-S will store the checklists in a locked filing cabinet at the FCC prior to shipment to Emory.
- The FCC-S will ship the checklists to Emory.

6.3.2 Receiving and Data Entry of Food Checklists

At Emory, the Data Coordinator will:

- Receive custody of all the Food Checklists from the FCC-S.
- When all checklists for a Cycle are received, send them to the company that will do the data entry.
- When checklists and disks are returned by the data entry company, log in each checklist.

6.3.3 Analysis of Food Checklist Data

At Emory, the Data Coordinator will:

- When data from all food checklists for a given stratum and Cycle have been received, run the software to produce a normalized diet for the stratum and Cycle and edit

the normalized diet to produce a shopping list. Save the file with the filename MMB-Cycle-stratum.prn where Cycle is 1-8 and stratum is U, S, or R.

Example: MMB-2-U.prn for Cycle 2, urban stratum. Print the files and forward them to the Food Resource Specialist in paper and electronic form.

At the FCC, the FCC staff will:

- Print three sets of "55" and "56" ID labels for the stratum, each set having the ID number for one of the three stores to be used this Cycle. Affix three ID labels (one for each store) to the printout. Seal the rest of the ID labels into a plastic bag and attach it to the printout.
- Print three sets of ID labels with sample types 5M, 5N, 5P, 5Q, 5R, 5S, 5T, and 5U. Seal these labels into a separate plastic bag and attach it to the printout. Give the labels to the Food Resource Specialist.

6.3.4 Preparation of Shopping List

The FCC Clerk will:

- Print out three copies of the new list. To each copy, affix the ID label indicating one of the three stores.
- Get the three new FCC logsheets for the stratum. To each page of each logsheet, affix the ID labels for the appropriate store for solid foods and beverages.
- Give the new lists, the Food Resource Specialist's edited printout of the normalized diet, the logsheets, and the ID labels to the Food Resource Specialist.

The Food Resource Specialist will:

- Check the new lists against the edited printout. If any changes are necessary, give the lists back to the FCC Clerk for correction. If the lists are acceptable, give them to the FCC staff person who will do the shopping.

6.3.5 Purchase of Food

The FCC staff person will:

- Receive from the Food Resource Specialist the shopping lists and the names and addresses of the three stores in each stratum.
- Make sure that you have the lists, logsheets, clipboard, pen, spare ID labels, a credit card, and cash.
- Go to each store and purchase the food:

- Mark each item on the list as you put it into the cart.
 - Choose the smallest package of each food that contains enough servings. For example, if the list specifies 8 oz. of skim milk, buy the smallest container of skim milk that contains at least 8 oz.
 - If it is necessary to buy more than one container of a food, choose different brands if available.
 - Fresh and frozen foods are equivalent. Frozen forms of some foods, e.g, peas, are preferred because they are more convenient.
 - Foods such as fruits or tomato sauce in jars (not cans) may be substituted for fresh food.
 - Ready-to-use juices and soups are preferred over condensed ones.
 - For meats such as ham and turkey, packaged slices are acceptable. Choose a brand with minimum additives.
 - Ground meat (particularly beef) is convenient because it is easily divided.
 - For coffee and tea, buy instant coffee or tea with no additional flavorings or sweeteners if available.
 - If a food is not available in the store, note it on the logsheet. At the next store, purchase any items not available at the previous store.
 - If an item is purchased at Store B because it was unavailable at Store A, write on the Store A logsheet that it was purchased at Store B.
 - If an item is not available at any of the three stores, note this on the logsheet to be reported to the FCC Supervisor.
 - Save the receipt to be given to the FCC Supervisor.
 - After loading the groceries into the car, affix an ID label with the appropriate store number to each bag. It is not necessary to separate solids from beverages at this point.
- Take the food to the FCC and transfer custody to the FCC Supervisor, who will label it “unprocessed food” and store it (in the refrigerator for food that needs refrigeration).

6.3.6 Processing of Food

At the FCC, FCC staff will process the food from one store at a time:

- Receive custody of the unprocessed food from the FCC Supervisor.
- Affix ID labels with the store number to 8 jars: labels with sample type 55 for solid foods to 4 jars, labels with sample type 56 for beverages to 4 jars. Leave the lid on each jar until ready to fill it.
- Process the food:
 - For each food, note the amount on the list.
 - Remove any inedible parts such as bones, eggshells, or apple cores.
 - Reconstitute coffee, tea, frozen juice, condensed soup, etc., with tap water from the FCC.
 - Measure the needed amount by mass or volume as specified on the list.
 - Place solids and beverages in the appropriate jars. Eggs and yogurt go with solids. For soup, pour the broth into a beverage jar and the solids into a solids jar.
 - Mark each food on the list after you put it into a jar.
 - If you need a utensil to divide a food, get a clean one. After using it, put it in the designated place to be washed.
 - If not all of a food is required, repackage the leftover food and put it in the designated place (labeled carton or bag, in the refrigerator if appropriate) to be taken to a shelter or other recipient.
 - When each jar is full, replace the lid and tighten it securely.
 - When you have put all the solids and beverages into jars, count the number of jars of each. Use laboratory tape and a marker to label each jar "1 of 3," etc. Affix this label below the ID label.
 - Pack the jars for shipping.
 - If there are any unused jars, remove the ID labels and return them to storage.
 - Wash the used utensils and clean up the workspace.
- Transfer custody of the jars of prepared solids and beverages to the FCC Supervisor.

The FCC Supervisor will:

- Receive custody of the jars of prepared solids and beverages from the FCC staff member. Both will sign the chain-of-custody form.

- Store the jars in a refrigerator until shipping.

6.4 Sample Labeling

A unique ID number will be assigned for each sample (see HSPH SOP G03 "Identification Numbers"), which will afford data tracking to the specific grocery store, stratum, and Cycle. (The highest digits of the Household Identification Number part of the ID number will be used for stores.) Printed ID labels will show the ID number in bar-code and human-readable format. The field technician will affix identical labels to the sample container, and logsheet, and the Chain-of-Custody form.

6.5 Preservation and Storage

Samples will be preserved and stored in a manner consistent with HSPH SOPs F08 "Collection, Storage, and Shipment of Duplicate Diet Samples for Metal, Pesticide, and PAH Analysis" and G05 "Storage and Shipping of Samples." The food will not be cooked. Inedible parts such as eggshells, bones, and pits will be removed. Samples will be refrigerated.

6.6 Handling and Shipping

Samples will be handled and shipped and stored in a manner consistent with HSPH SOPs F08 "Collection, Storage, and Shipment of Duplicate Diet Samples for Metal, Pesticide, and PAH Analysis" and G05 "Storage and Shipping of Samples."

6.7 Laboratory Analysis

Laboratory analysis procedures will be in accordance with standard operating procedures for the cooperating analysis laboratory, presumed to be FDA.

6.8 Data Workup

Field and laboratory data will be returned to Emory in both magnetic and hardcopy format. Data will be coded and checked, computer entry verified, and discrepancies resolved. Analytical results will then be merged with questionnaires and other data, using the ID number as the merge parameter.

Upon receipt of the data on pollutant concentrations, several comparisons will be made. For each Cycle, a comparison in mean pollutant concentrations between strata will be made. Additionally, an estimate of the variability within strata will be made using the data from the three different grocery stores. This will be compared for magnitude differences relative to the between-strata differences. Data will also be compared to the distributions determined from the duplicate diet studies. A direct comparison will be made to the mean for each stratum from the duplicate diet with the data collected for each stratum in the mini-market basket study. Further, tracking between Cycles will be done to explore the prediction of pollutant variability in food by both techniques.

6.9 Sample Tracking

The ID number will allow tracking of each sample. A data base management system will ensure knowledge of the status and location of any sample at any time including retrospectively.

The chain-of-custody form will accompany the sample wherever it goes. Anyone who receives, transfers, or ships the sample will sign and date it, and keep a photocopy. It must clearly contain all necessary information so that the custody of the sample can be determined at any time. Airbills, bills of lading, etc., are acceptable substitutes when a commercial or government carrier is used; copies of such bills will be attached to the chain-of-custody form.

7 Quality Assurance Procedures

7.1 Laboratory and Field Blanks

Laboratory blanks will be prepared by the FDA-Kansas City laboratory.

7.2 Duplicate Sampling

Duplicate mini-market basket samples will not be collected due to budgetary constraints.

7.3 Tolerance Limits, Detection Limits, and Sensitivity Limits

Tolerance limits, detection limits, and sensitivity limits will be established with the collaborating laboratory as a Method Sensitivity Limit. Such limits will be related to the variability in exposure estimate obtained within a given stratum among the types of markets. Additional analytical chemistry parameters will be developed in light of limitations in analytical techniques.

7.4 Tolerance Limits, Detection Limits, and Sensitivity Limits

See SOP F08 "Collection, Storage, and Shipment of Duplicate Diet Samples for Metal, Pesticide, and PAH Analysis."

8 References

NHEXAS Harvard/Emory/Johns Hopkins Standard Operating Procedures:

G03 Identification Numbers

G04 Chain-of-Custody and Sample Tracking

G05 Storage and Shipment of Samples

G06 Problem Management

F08 Collection, Storage, and Shipment of Duplicate Diet Samples for Metal, Pesticide, and PAH Analysis

L15 Preparation of Food and Beverages by Homogenization

D07 Coding and Entry Protocol for Hand-Entered Data

U.S. Food and Drug Administration Standard Operating Procedures:

See SOP F08 "Collection, Storage, and Shipment of Duplicate Diet Samples for Metal, Pesticide, and PAH Analysis."

Instructions for Participants

Sample ID Label
ST = 07 Food Checklist

Keep the food checklist for the same meals for which you save duplicate food. In the table below, write the day for each meal included.

It may be most convenient to choose days 3-6 (Wednesday through Saturday if Day 1 is Monday). If you will be unable to collect duplicate food for a particular day or meal (for example, if you are a dinner guest at someone else's home), you may substitute another day or meal. Write the day and date in the table below. Four full days' meals must be collected.

Meal	Day 3	Day 4	Day 5	Day 6
Breakfast	Date: Day of week:	Date: Day of week:	Date: Day of week:	Date: Day of week:
Lunch	Date: Day of week:	Date: Day of week:	Date: Day of week:	Date: Day of week:
Dinner	Date: Day of week:	Date: Day of week:	Date: Day of week:	Date: Day of week:
Snack	Date: Day of week:	Date: Day of week:	Date: Day of week:	Date: Day of week:

If you eat or drink something that is not on the list, write the food or beverage at the bottom of the page in the closest category.

On Day 5 or 6, someone will call to confirm the visit on Day 8, and will ask how many beverage containers and solid food bags s/he has used. At that time you can ask any questions you may have. If you have questions at another time, you may call 1-800-648-0530.

Please list the stores in which the food you eat this week was purchased, and how much of the food is from each store.

Store Name or Chain	Location	% of Groceries

[illegible]

		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6

Food	Serving Size	Number of Servings			
		Day 3	Day 4	Day 5	Day 6
FRUITS					
raisins	1 oz. or small pack	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
prunes	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
banana	1	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
cantaloupe	1/8 melon	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
watermelon	1 slice	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
apple or pear, fresh	1	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
apple juice or cider, fresh or frozen	6 oz. glass	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
apple juice or cider, canned	6 oz. glass	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
orange	1	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
orange juice, fresh or frozen	6 oz. glass	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
orange juice, canned	6 oz. glass	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
grapefruit	1/2	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
grapefruit juice, fresh or frozen	6 oz. glass	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
grapefruit juice, canned	6 oz. glass	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
other fruit juices, fresh or frozen	6 oz. glass	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
other fruit juices, canned	6 oz. glass	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
strawberries, fresh or frozen	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
strawberries, canned	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
blueberries, fresh or frozen	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
blueberries, canned	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
peaches, fresh or frozen	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
peaches, canned	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
mixed fruit, canned	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
OTHER FRUITS (specify):					
		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6

		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6

Food	Serving Size	Number of Servings			
		Day 3	Day 4	Day 5	Day 6
VEGETABLES					
tomato, fresh	1	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
tomato, canned	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
tomato juice, fresh or frozen	6 oz. glass	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
tomato juice, canned	6 oz. glass	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
tomato sauce, e.g. spaghetti sauce: fresh, jar, or frozen	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
tomato sauce, e.g. spaghetti sauce, canned	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
red chili sauce	1 Tbs	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
tofu or soybeans	3-4 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
string beans, fresh or frozen	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
string beans, canned	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
broccoli	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
cabbage or cole slaw	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
cauliflower	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
brussels sprouts	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
carrots, raw	1/2 carrot or 2-4 sticks	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
carrots, cooked, fresh or frozen	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
carrots, canned	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
corn, fresh or frozen	1 ear or 1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
corn, canned	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
peas, fresh or frozen	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
peas, canned	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
lima beans, fresh or frozen	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
lima beans, canned	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
mixed vegetables, fresh or frozen	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
mixed vegetables, canned	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
baked beans or lentils, fresh, dried, or frozen	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6

baked beans or lentils, canned	1/2 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
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		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
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Food	Serving Size	Number of Servings			
		Day 3	Day 4	Day 5	Day 6
EGGS, MEAT, FISH, ETC.					
egg	1	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
chicken	4-6 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
turkey	4-6 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
chicken or turkey, canned	4-6 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
bacon	2 slices	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
hot dog	1	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
processed meats, e.g. sausage, salami, bologna, etc.	1 piece or slice	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
canned meat	1 piece or slice	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
liver	3-4 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
hamburger	1 patty	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
beef in a sandwich or mixed dish, e.g. stew, casserole, lasagna, etc.	4-6 oz. 4-6 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
pork in a sandwich or mixed dish, e.g. stew, casserole, etc.	4-6 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
lamb in a sandwich or mixed dish, e.g. stew, casserole, etc.	4-6 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
beef, as a main dish, e.g. steak, roast etc.	4-6 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
pork, as a main dish, e.g. chop, roast, ham, etc.	4-6 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
lamb as a main dish, e.g. stew, roast, etc.	4-6 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
canned tuna fish	3-4 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
canned dark meat fish, e.g. mackerel, salmon, sardines, bluefish, swordfish	3-5 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
dark meat fish, fresh or frozen	3-5 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
other fish, fresh or frozen	3-5 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
other fish, canned	3-5 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
shrimp, lobster, scallops, fresh or frozen	3-5 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
shrimp, lobster, scallops, canned	3-5 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6

[illegible]

NHEXAS Food Checklist

February 7, 1996

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[illegible]

		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
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[illegible]

		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6

Food	Serving Size	Number of Servings			
		Day 3	Day 4	Day 5	Day 6
SWEETS, BAKED GOODS, MISCELLANEOUS					
chocolate, e.g., Hershey's, M&Ms	1 bar or 1 oz	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
candy bars, e.g., Snickers, Milky Way, Reese's	1 bar	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
candy without chocolate	1 oz.	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
cookies, home baked	1 (2"-3")	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
cookies, ready made	1 (2"-3")	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
brownies	1	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
doughnuts	1	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
cake, home baked	1 slice	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
cake, ready made	1 slice	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
sweet roll, coffee cake or other pastry, home baked	2 oz	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
sweet roll, coffee cake or other pastry, ready made	2 oz	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
pie, home made	1 slice	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
pie, ready made	1 slice	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
jams, jellies, preserves, syrup or honey	1 Tbs	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
peanut butter	1 Tbs	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
popcorn	1 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
nuts	1 oz	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
bran, added to food	1 Tbs	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
wheat germ	1 Tbs	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
chowder or cream soup	1 cup	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
oil and vinegar dressing, e.g., Italian	1 Tbs	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
mayonnaise, or other creamy salad dressing	1 Tbs	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
mustard, dry or prepared	1 tsp	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
pepper	1 shake	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
salt	1 shake	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
OTHER (specify):					
		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6

		1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
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(More blanks for “Other” on page 7.)