

# New Web-Based Technology: The ASA24 Interview

S Hull, T Zimmerman, S McNutt,  
B Mittl (Westat)

R Buday, R Tapia (Archimage)

P Guenther (CNPP)

T Baranowski, N Islam (Baylor College of  
Medicine)

F Thompson, N Potischman

M Morrissette, A Subar (NCI)



# The ASA24 System

- Respondent Site
  - Report foods consumed
- Researcher Site
  - Add new studies
  - Manage existing studies
- Administrator Site
  - Add new researchers



# System Architecture

- Software comprised of 3 major components
  - User Interface
  - Database
  - Web services



# Adapting the Multiple-Pass Approach

- AMPM

- Quick List
- Forgotten Foods
- Time and Occasion
- Detail Cycle
- Final Probe

- ASA24

- Quick List
  - Includes Time and Occasion
- Detail Cycle
- Final Probe
  - Includes Forgotten Foods



## The Agent

- Engaging interview
- Context-sensitive help
- Entertainment
- User Selected
  - Avoid Bias
  - 4 Different Agents





# Introduction

- Login
- Online Tutorial
- Introductory instructions
- Timeframe of the recall

# Login

5/14/2008



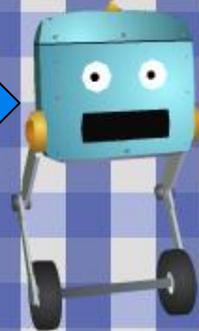
NATIONAL  
CANCER  
INSTITUTE

ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



Hello and welcome to NCI's ASA24.  
Please sign in and you can begin your session for today.



**Sign In**

Username:

Password:

The Agent

# Introductory Instructions

5/14/2008



NATIONAL  
CANCER  
INSTITUTE

ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



In the following screens, please enter everything you had to eat and drink yesterday from midnight to midnight.

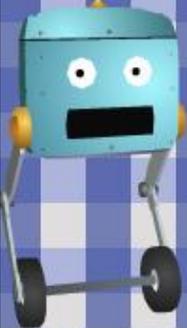
Please include everything you ate and drank at home and away, even snacks, water, coffee, soft drinks, and alcoholic beverages.

## Pilot Test for New Dietary Software

Thank you for participating in this pilot test. In the future, the software will be used to collect diet information for research. Your thoughts and suggestions are very important to us.



Instructions



# Timeframe of the Recall

5/14/2008



NATIONAL  
CANCER  
INSTITUTE

ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall

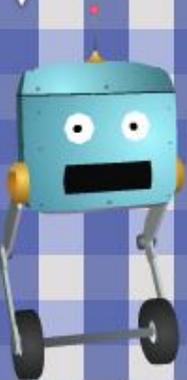


Yesterday's date was: Tue May 6 2008

		May					2008	
S	M	T	W	T	F	S		
				1	2	3		
		6	7	8	9	10		
	12	13	14	15	16	17		
18	19	20	21	22	23	24		
25	26	27	28	29	30	31		

Date of Recall

Yesterday's date was Tuesday, May 6, 2008.





## Quick List

- Build list of foods in the MySelections box
  - Meal-based
  - Occasion, Time, and Location (optional)
- Actions at end of Quick List
  - Reviews
    - Midnight to first occasion
    - Between occasions
    - Last occasion to midnight
  - Multi-ingredient trap

# Quick List

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## ADD A MEAL

Breakfast

Brunch

Lunch

Dinner

Supper

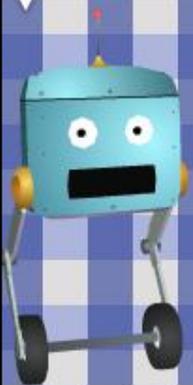
Snack

Just a Drink



Click on a Meal

Click a meal to start.



# Adding a Meal

5/14/2008



NATIONAL  
CANCER  
INSTITUTE

ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## ADD A MEAL

Breakfast 8 : 00 AM

Brunch

Lunch

Dinner

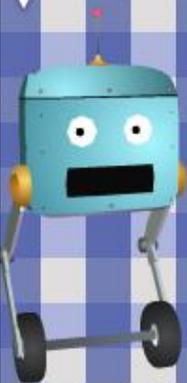
Supper

Snack

Just a Drink



Breakfast. What time did you have Breakfast ?



# Adding a Meal (cont.)

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## MySelections

- Brunch
- Lunch
- Dinner
- Supper
- Snack
- Just a Drink



Create a list of your foods/drinks you ate or drank yesterday:

Click on a food/drink category to browse OR

Type a food/drink into the Search box and click.

### MY SELECTIONS

Breakfast - 6:00 AM

CHANGE

### ADD FOODS

Search:

#### Browse

- ▶ Beans, peas, nuts, soy products
- ▶ Beverages
- ▶ Breads, other baked goods
- ▶ Cereals and energy bars
- ▶ Chicken, turkey, poultry
- ▶ Dairy, dairy substitutes
- ▶ Desserts and sweets
- ▶ Eggs
- ▶ Fats, Oils, Dressings, Spreads
- ▶ Fish, shellfish
- ▶ Fruit
- ▶ Meat
- ▶ Mixtures
- ▶ Pancakes, waffles, crepes
- ▶ Pasta, noodles, and spaghetti
- ▶ Rice and other grains
- ▶ Salads
- ▶ Salty snacks
- ▶ Sandwiches
- ▶ Soup





# Adding Foods

- Finding a food
  - Browse method
    - 23 Food Groups
    - 237 Sub-groups
    - ~7,000 Food List Terms
  - Search method
  - Food not found
- Adding a food
  - The MySelections Box

# Browse Method

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## ADD A MEAL

Breakfast  
Brunch  
Lunch  
Dinner  
Supper  
Snack  
Just a Drink



## MY SELECTIONS

Breakfast - 6:00 AM

Click Here to Browse

CHANGE

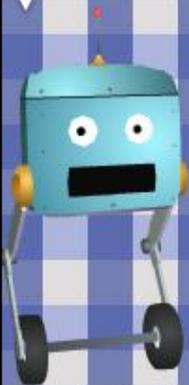
## ADD FOODS

Search:

### Browse

- ▶ Cereals and energy bars
  - ▶ Breakfast bars
  - ▶ Cooked cereals
  - ▶ Energy bars
  - ▶ Granola bars
  - ▶ Meal replacement bars
  - ▶ Ready-to-eat cereals
  - ▶ Other
- ▶ Chicken, turkey, poultry
- ▶ Dairy, dairy substitutes
- ▶ Desserts and sweets
- ▶ Eggs
- ▶ Fats, Oils, Dressings, Spreads
- ▶ Fish, shellfish
- ▶ Fruit
- ▶ Meat
- ▶ Mixtures
- ▶ Pancakes, waffles, crepes
- ▶ Pasta, noodles, and spaghetti
- ▶ Rice and other grains

Cereals and energy bars



# Browse Method (cont.)

5/14/2008



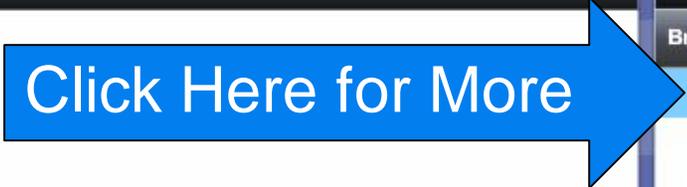
### ADD A MEAL

- Breakfast
- Brunch
- Lunch
- Dinner
- Supper
- Snack
- Just a Drink



### MY SELECTIONS

 Breakfast - 6:00 AM

**Click Here for More** 

**CHANGE** ▾

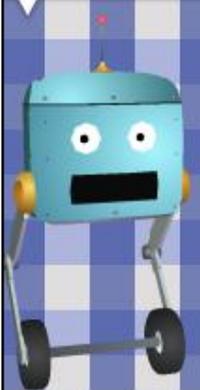
### ADD FOODS

Search:

Browse

- Ready-to-eat cereals
  - 100% Bran
  - 100% Natural Cereal
  - All-Bran (plain)
  - All-Bran Bran Buds
  - All-Bran with Extra Fiber
  - Alpha-Bits
  - Amaranth Flakes
  - Apple Jacks
  - Banana Nut Crunch Cereal
  - Basic 4
  - Blueberry Morning
  - Boobery
  - Bran (raw or unprocessed)
  - Bran flakes (Kellogg's)
  - Bran flakes (other brand)
  - Bran flakes (Post)
  - Bran flakes (unknown brand)
  - Cap'n Crunch (other kind)
  - Cap'n Crunch (plain)

Ready-to-eat cereals



# Browse Method (cont.)

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## ADD A MEAL

- Breakfast
- Brunch
- Lunch
- Dinner
- Supper
- Snack
- Just a Drink



## MY SELECTIONS

Breakfast - 6:00 AM

CHANGE

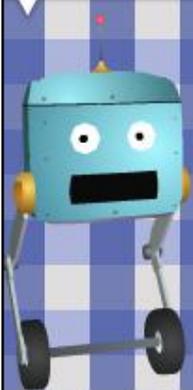
## ADD FOODS

Search:

### Browse

- Cap'n Crunch (plain)
- Cap'n Crunch (unknown kind)
- Cap'n Crunch's Crunch Berries
- Cap'n Crunch's Peanut Butter Crunch
- Cereal (other kind)
- Cereal (ready to eat, other kind)
- Cereal (ready to eat, unknown kind)
- Cereal (unknown kind)
- Cheerios (Apple Cinnamon)
- Cheerios (Frosted)
- Cheerios (Honey Nut)
- Cheerios (MultiGrain)
- Cheerios (other kind)
- Cheerios (plain)
- Cheerios (unknown kind)
- Chex (Bran)
- Chex (Corn)
- Chex (Honey Nut)
- Chex (Morning Mix Honey Nut)
- Chex (Multi-Bran)

Cheerios (plain)



Click Here to Select



# MySelections Box

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## MySelections

- Brunch
- Lunch
- Dinner
- Supper
- Snack
- Just a Drink



### MY SELECTIONS

Breakfast - 6:00 AM

Cheerios (plain)

CHANGE

### ADD FOODS

Search:

#### Browse

- ▶ Chicken, turkey, poultry
- ▶ Dairy, dairy substitutes
- ▶ Desserts and sweets
- ▶ Eggs
- ▶ Fats, Oils, Dressings, Spreads
- ▶ Fish, shellfish
- ▶ Fruit
- ▶ Meat
- ▶ Mixtures
- ▶ Pancakes, waffles, crepes
- ▶ Pasta, noodles, and spaghetti
- ▶ Rice and other grains
- ▶ Salads
- ▶ Salty snacks
- ▶ Sandwiches
- ▶ Soup
- ▶ Sugars and sweeteners
- ▶ Vegetables and vegetable juice
- ▶ Miscellaneous



CLICK HERE WHEN FINISHED ENTERING ALL FOODS AN...

# Search Method

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## ADD A MEAL

Breakfast  
Brunch  
Lunch  
Dinner  
Supper  
Snack  
Just a Drink



## MY SELECTIONS

Cheerios (plain)

CHANGE ▾

Type Here to Search

## ADD FOODS

Search:

### Browse

- ▶ Chicken, turkey, poultry
- ▶ Dairy, dairy substitutes
- ▶ Desserts and sweets
- ▶ Eggs
- ▶ Fats, Oils, Dressings, Spreads
- ▶ Fish, shellfish
- ▶ Fruit
- ▶ Meat
- ▶ Mixtures
- ▶ Pancakes, waffles, crepes
- ▶ Pasta, noodles, and spaghetti
- ▶ Rice and other grains
- ▶ Salads
- ▶ Salty snacks
- ▶ Sandwiches
- ▶ Soup
- ▶ Sugars and sweeteners
- ▶ Vegetables and vegetable juice
- ▶ Miscellaneous



CLICK HERE WHEN FINISHED ENTERING ALL FOODS AN...

# Search Method (cont.)

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## ADD A MEAL

- Breakfast
- Brunch
- Lunch
- Dinner
- Supper
- Snack
- Just a Drink



## MY SELECTIONS

Breakfast - 6:00 AM

Cheerios (plain)

The Results List

CHANGE

## ADD FOODS

Search: orange juice

- Orange juice
- Banana-orange juice
- Orange juice drink
- Orange-banana juice
- Orange-cranberry juice drink (low calorie)
- Orange-cranberry juice drink (regular)
- Orange-cranberry juice drink (unknown kind)
- Orange-mango juice drink
- Orange-peach juice drink
- Orange-raspberry juice drink
- Pineapple-orange juice
- Pineapple-orange-banana juice
- Strawberry-banana-orange juice

Your search for orange juice found these results



Foods not found ?

Click here to continue browsing



CLICK HERE WHEN FINISHED ENTERING ALL FOODS AN...

# Search Method (cont.)

5/14/2008

## ADD A MEAL

- Breakfast
- Brunch
- Lunch
- Dinner
- Supper
- Snack
- Just a Drink



## MY SELECTIONS

Breakfast - 6:00 AM

Click Here to Select

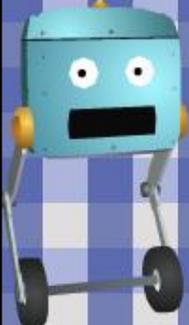
CHANGE ▾

## ADD FOODS

Search:

- Orange juice
- Banana-orange juice
- Orange juice drink
- Orange-banana juice
- Orange-cranberry juice drink (low calorie)
- Orange-cranberry juice drink (regular)
- Orange-cranberry juice drink (unknown kind)
- Orange-mango juice drink
- Orange-peach juice drink
- Orange-raspberry juice drink
- Pineapple-orange juice
- Pineapple-orange-banana juice
- Strawberry-banana-orange juice

Orange juice



Foods not found ?

[Click here to continue browsing](#)



CLICK HERE WHEN FINISHED ENTERING ALL FOODS AN...

# MySelections Box

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## MySelections

- Brunch
- Lunch
- Dinner
- Supper
- Snack
- Just a Drink



### MY SELECTIONS

Breakfast - 6:00 AM

- Cheerios (plain)
- Orange juice

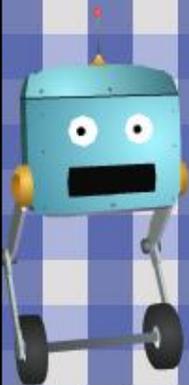
CHANGE

### ADD FOODS

Search:

#### Browse

- ▶ Chicken, turkey, poultry
- ▶ Dairy, dairy substitutes
- ▶ Desserts and sweets
- ▶ Eggs
- ▶ Fats, Oils, Dressings, Spreads
- ▶ Fish, shellfish
- ▶ Fruit
- ▶ Meat
- ▶ Mixtures
- ▶ Pancakes, waffles, crepes
- ▶ Pasta, noodles, and spaghetti
- ▶ Rice and other grains
- ▶ Salads
- ▶ Salty snacks
- ▶ Sandwiches
- ▶ Soup
- ▶ Sugars and sweeteners
- ▶ Vegetables and vegetable juice
- ▶ Miscellaneous



CLICK HERE WHEN FINISHED ENTERING ALL FOODS AN...



## Detail Pass

- Detail Questions
  - 65% of foods have no detail questions (...excluding portion questions)
- Portion Questions
  - Food portions
    - Volume, weight, or package
  - Beverage portions
    - Container
    - Slider
    - Spin dial for larger portions
- Additions to Foods
  - Ex. Cream added to Coffee, Milk added to Cereal

# MySelections Box

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## MySelections

- Brunch
- Lunch
- Dinner
- Supper
- Snack
- Just a Drink



### MY SELECTIONS

- Breakfast - 6:00 AM ▲
- Lunch - 1:00 PM ▲
- Dinner - 7:00 PM ▼

- Steak (New York strip)
- Baked potato (plain)

CHANGE ▼

### ADD FOODS

Search:

#### Browse

- Beans, peas, nuts, soy products
- Beverages
- Breads, other baked goods
- Cereals and energy bars
- Chicken, turkey, poultry
- Dairy, dairy substitutes
- Desserts and sweets
- Eggs
- Fats, Oils, Dressings, Spreads
- Fish, shellfish
- Fruit
- Meat
- Mixtures
- Pancakes, waffles, crepes
- Pasta, noodles, and spaghetti
- Rice and other grains
- Sandwiches
- Soup

Click Here When Finished



CLICK HERE WHEN FINISHED ENTERING ALL FOODS AN...

CLICK HERE WHEN FINISHED ENTERING ALL FOODS AND DRINKS

# End of Quick List

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## ADD A MEAL

- Breakfast
- Brunch
- Lunch
- Dinner
- Supper
- Snack
- Just a Drink



## MY SELECTIONS

- Breakfast - 6:00 AM
- Lunch - 1:00 PM
- Dinner - 7:00 PM
  - Steak (New York strip)
  - Baked potato (plain)

## ADD FOODS

Search:

### Browse

- Beans, peas, nuts, soy products
- Beverages
- Breads, other baked goods
- Cereals and energy bars
- Chicken, turkey, poultry
- Dairy, dairy substitutes
- Desserts and sweets
- Eggs
- Fats, Oils, Dressings, Spreads
- Fish, shellfish
- Fruit
- Meat
- Mixtures
- Pancakes, waffles, crepes
- Pasta, noodles, and spaghetti
- Rice and other grains
- Salads
- Salty snacks
- Sandwiches
- Soup

### Finished?

Are you sure you have finished entering everything you ate or drank yesterday?



If Yes, you will begin to enter details about everything you ate or drank.

If No, you can add more foods to your meals or click to add a different meal, snack, or just a drink.

Yes

No

Confirmation



CLICK HERE WHEN FINISHED ENTERING ALL FOODS AN...

# Detail Questions (Single Select)

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## MY SELECTIONS

Breakfast - 6:00 AM

Cheerios (plain)

Orange juice

100% juice?

Yes

## ADD DETAILS

Orange juice >> Yes

Calcium fortified?

Yes

No

Don't know



Orange juice: Was the juice calcium fortified?



PM

Lunch - 1:00 PM



# Detail Questions (Multiple Select)

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## MY SELECTIONS

Breakfast - 6:00 AM

Lunch - 1:00 PM

▼ Cheeseburger on bread or bun

▶ Meat?

▼ Bread or Bun?

▼ Hamburger bun

▼ Bread grain?

▶ Wheat

French fries (home prepared)

Cheeseburger on bread or bun: Was anything spread on the sandwich?



Dinner - 7:00 PM



## ADD DETAILS

Cheeseburger on bread or bun

Spread?

No

Catsup

Ketchup

Mustard

Relish

Mayonnaise (real)

Miracle Whip

Salad dressing

Butter

Margarine

Hot sauce

Tartar sauce

Other

Don't know kind



# Detail Questions (Multiple Select)

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## MY SELECTIONS

Breakfast - 6:00 AM

Lunch - 1:00 PM

▼ Cheeseburger on bread or bun

▶ Meat?

▼ Bread or Bun?

▼ Hamburger bun

▼ Bread grain?

▶ Wheat

French fries (home prepared)

Dinner - 7:00 PM



## ADD DETAILS

Cheeseburger on bread or bun

Spread?

No

Catsup

Ketchup

Mustard

Relish

Mayonnaise (real)

Miracle Whip

Salad dressing

Butter

Margarine

Hot sauce

Tartar sauce

Other

Don't know kind



Click Here

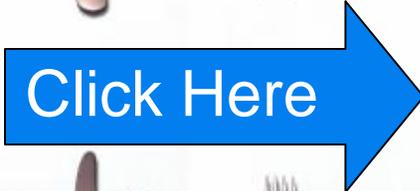
# Food Portions (Volume)

5/14/2008

Cheerios (plain) : Amount eaten?

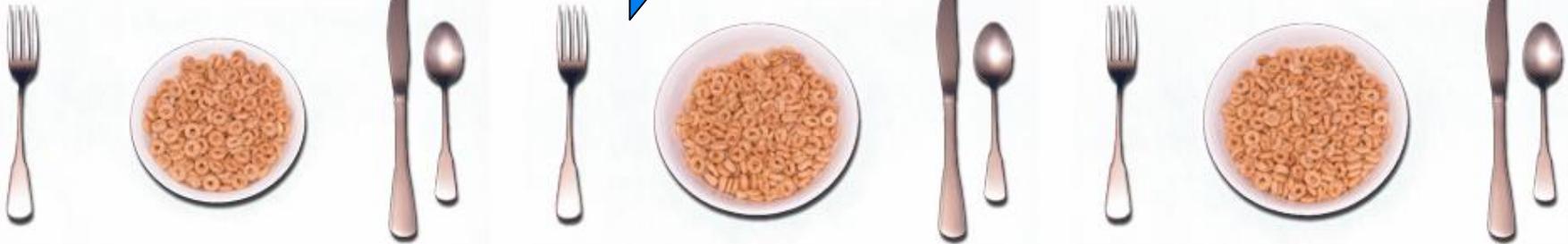


1/4 cup



1/2 cup

3/4 cup



1 cup

1 1/4 cups

1 1/2 cups



Less than 1/4 cup

More than 2 cups

Don't know

1 3/4 cups

2 cups

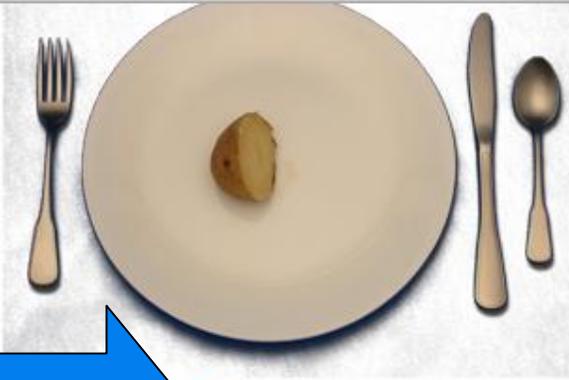
# Food Portions (Item)

5/14/2008

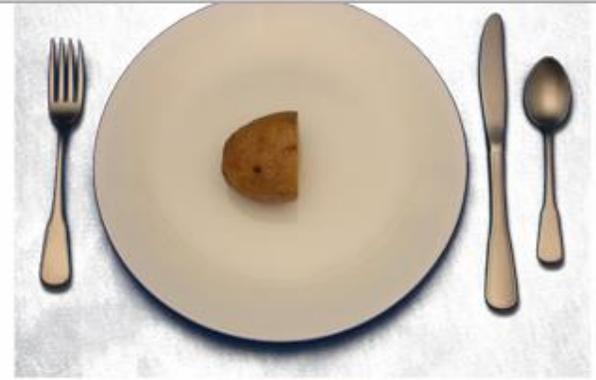
Baked potato (plain) >> Medium : Amount eaten?



1/4 potato

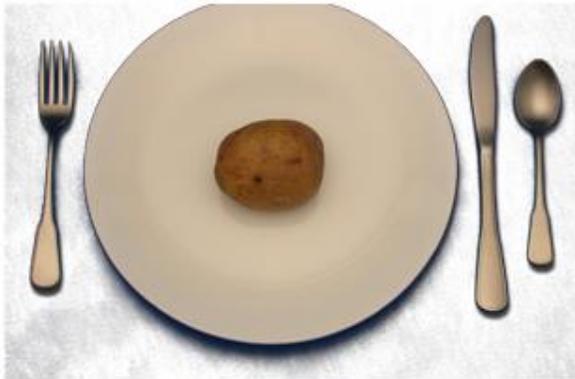


1/2 potato



3/4 potato

Click Here



1 potato

Less than 1/4 potato

More than 1 potato

Don't know

# Beverage Portions (Container)

5/14/2008

Orange juice >> Carton : Container type?



Bottle



Can



Carton



Cup



Glass



Mug



Pouch

- Added to another food
- Other
- Don't know

# Beverage Portions (Size)

5/14/2008

Orange juice >> Glass : Container size?



6 fluid ounces



12 fluid ounces



12 fluid ounces



16 fluid ounces



6 fluid ounces



8 fluid ounces



10 fluid ounces

Other

Don't know



# Beverage Portions (Slider)

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## MY SELECTIONS

Breakfast - 6:00 AM

Cheerios (plain)

Orange juice

100% juice?

Yes

Form?

Carton

Container

Glass

Container

12

Orange juice >> 12 fluid ounces

### Amount you drank?

- Less than 10%
- 10%
- 20%
- 30%
- 40%
- 50% (half)
- 60%
- 70%
- 80%
- 90%
- 100% (all)
- More than 1 glass
  
- Don't know

Click and Drag



Orange juice: How much did you actually drink?



PM

Lunch - 1:00 PM

OK



# Additions Questions

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## MY SELECTIONS

Breakfast - 6:00 AM

Cheerios (plain)

Amount eaten?

1 cup

Orange juice

Click Here to Browse

## ADD DETAILS

Cheerios (plain) >> 1 cup

Anything added?

Nothing Added

Fruit

Milk

Sugar and sweeteners

Other

Don't know

Cheerios (plain): Did you add anything to your Cheerios (plain) that you haven't already reported?



PM

Lunch - 1:00 PM



# Additions Questions

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## MY SELECTIONS

Breakfast - 6:00 AM

Cheerios (plain)

Amount eaten?

1 cup

Orange juice

Select One or More

## ADD DETAILS

Cheerios (plain) >> 1 cup

### Anything added?

Nothing Added

Fruit

Milk

1% milk

2% milk

Lactaid milk (1% fat)

Lactaid milk (2% fat)

Lactaid milk (lowfat)

Lactaid milk (reduced fat)

Lactaid milk (skim/nonfat)

Lactaid milk (unknown type)

Lactaid milk (whole)

Skim/Nonfat milk

Sugar and sweeteners

Other

Don't know



PM

Lunch - 1:00 PM



# End of Detail Cycle

5/14/2008

## MY SELECTIONS

Breakfast - 6:00 AM

Lunch - 1:00 PM

Dinner - 7:00 PM

Steak (New York strip)

Baked potato (plain)

Peel eaten?

No

Report as?

Number of potatoes

Size?

Medium

Amount eaten

1 potato

## ADD DETAILS

### Finished?

You have finished the detailed questions for the list of foods and drinks that you have now.



Are you sure that you listed everything that you ate and drank yesterday in the My Selections box?

If no, click on the "Add" button and select "Add Foods" to add a food or drink to your list.

If yes, click on the "Finished" button to go on to the Final Review.

Finished

Add More Foods

Confirmation





## Final Review

- Review foods for entire recall
- Forgotten foods pass
  - Snacks
  - Drinks
  - Breads
  - Etc.

# Final Review

5/14/2008



ASA24 v0.4.2a

Automated Self Administered 24-hour Dietary Recall



## FINAL REVIEW OF MY SELECTIONS

- ▼ Breakfast - 6:00 AM
  - ▶  Cheerios (plain)
  - ▶  Orange juice
- ▼ Lunch - 1:00 PM
  - ▶  Cheeseburger on bread or bun
  - ▶  French fries (home prepared)
- ▼ Dinner - 7:00 PM
  - ▶  Steak (New York strip)
  - ▶  Baked potato (plain)

This is your last chance to add or modify the meals and foods you reported for yesterday. Please review carefully.

To add or delete foods, click the button at the bottom of the Final Review box.

Click on a food to see the details you reported for it.

When you are completely done, click the button at the bottom of the screen.



Click to Add More

Add Meal or Food

Delete Meal or Food

Click Here When Finished

CLICK HERE WHEN FINISHED





## Supplements

- Optional Module
- Modeled after food recall
- 12 Categories
- 138 Sub-categories
- Uses NHANES Supplement Database



## The ASA24 Demo

- Alpha Version
- Login and Initial Screens
- Add a Meal and Add Foods to the Meal
- Answering the Detail Questions for Foods
- Final Review
- Supplements



Thank you!