Lessons from the Feeding, Infants, and Toddlers Study (FITS)

Webinar 2: Methods for Dietary Assessments in Children 2-5

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RTI INTERNATIONAL

FITS Background

- The Feeding Infants and Toddlers Study (FITS) is a cross-sectional dietary intake study focused on infants, toddlers and preschoolers living in the 50 states and Washington DC.
- Across 3 time periods (2002, 2008, 2016), FITS has surveyed nearly 10,000 caregivers to gain a better understanding of the food and nutrient intakes and related lifestyle behaviors among young children.

Study objectives across the years

FITS 2002:

- Assess food and nutrient intake of **4-24 mths** children

FITS 2008:

- Assess food and nutrient intakes of **0-3 mths** and **24-48 mths** children
- Understand changes in food and nutrient intakes of **4-24 mths** children since 2002

FITS 2016:

- Understand food and nutrient intake of **0-48 mths** children at different ages when child's diet is rapidly changing
- Understand association among lifestyle variables, health related behaviors and attitudes, dietary patterns, and nutrient intakes
- Identify areas of improvement in young children that could make the largest impact on public health, including within **WIC**

2016 key outcomes

- Usual intakes (nutrients and energy)
  - % below estimated average requirement (EAR)
  - % above upper intake level (UL)
- Food, beverage, and supplement sources of energy and nutrients
- Food consumption patterns
  - % consuming
  - Total energy and gram amounts of foods per consumer and per capita
- Meal and snack patterns
  - % consuming
  - Total energy and gram amounts of foods per consumer and per capita
- Contribution from major and minor food groups (kcal and grams)
- Comparison of energy intake to estimated energy requirement (EER)
- Trends across 2002, 2008, 2016

2016 Study design and methods overview

- Enhanced Nutrition Data System for Reporting (NDSR) with current infant and toddler products
- Selected random sample of caregivers for 1 or 2, 24-h recall
  - Included 12 age group sample size targets < 4 y to align with key developmental stages and WIC participation targets for each
- Administered recruitment interviews by telephone or online (n=4830) (respondent and child characteristics, feeding practices, physical activity, screen use, and sleep habits
- Shipped study materials to respondents to assist with 24-h recall
- Certified interviewers called respondents and asked about child's eating behaviors and conducted 24-h recall in NDSR with Dietary Supplement Assessment Module (DSAM) ((n=3248 (67%))
  - Performed second 24-h recall with DSAM on 25% (n=821)
- Calibrated and weighted sample to US population.

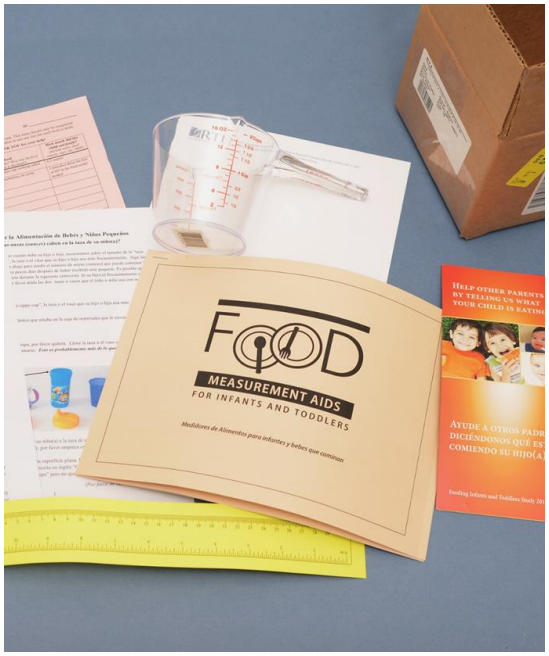
Andrea S Anater, Diane J Catellier, Burton A Levine, Karol P Krotki, Emma F Jacquier, Alison L Eldridge, Katherine E Bronstein, Lisa J Harnack, Julia M Lorenzana Peasley, Anne C Lutes, The Feeding Infants and Toddlers Study (FITS) 2016: Study Design and Methods, *The Journal of Nutrition*, Volume 148, Issue suppl_3, September 2018, Pages 1516S–1524S, https://doi.org/10.1093/jn/nxy035

2016 FITS 24-h recall enhancements

- Frequent reminders to report only foods the child consumed rather than all foods offered
- Probes about whether a food is organic, consumed from a pouch, and 100% fruit juices diluted with water
- Enhancements to food model booklets to reflect current products and serving utensils
- Specific lists of most commonly consumed and frequently forgotten foods to serve as probes for multiple passes used during 24-h recall

Specific young child procedures

- Prior to interview, respondents mailed:
  - "Food Measurement Aids for Infants and Toddlers" booklet
  - "Foods Fed by Other Adults" form
  - Measuring cup
  - Measuring cup Instructions
  - Ruler



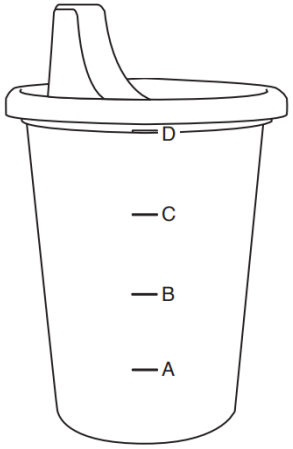
STEP 1. If the cup has a lid, remove it. Fill the cup or glass with water to the very TOP. The water will actually overflow. ***This is probably higher than you would normally fill it.***

STEP 2. Pour the water from your child's cup into the measuring cup. If any water spills into the sink instead of the measuring cup, please start over.

STEP 3. Put the measuring cup on a flat surface. Turn the measuring cup until the ounces (OZ) markings are facing you. (The measuring cup also has markings for cups, but we don't want to use those.)

STEP 4. Bend or squat down so your eyes are level with the measuring cup to see how many ounces of water are in the measuring cup. Do not hold the measuring cup in your hand and raise it to eye level.

Food measurement aid booklet



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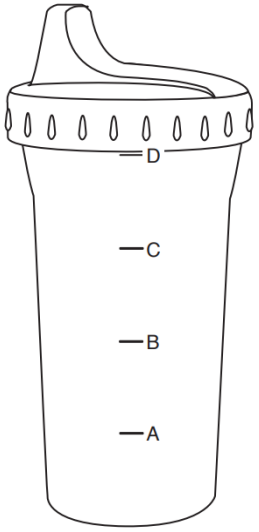

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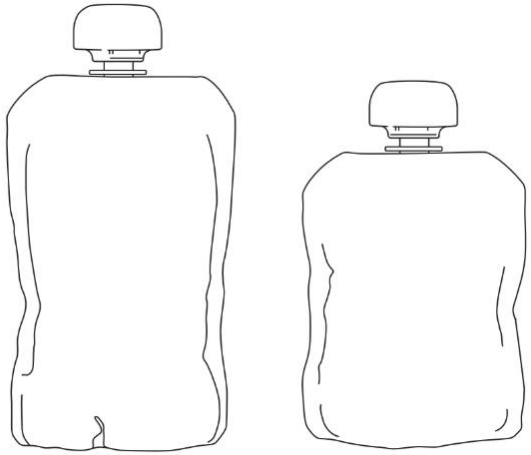

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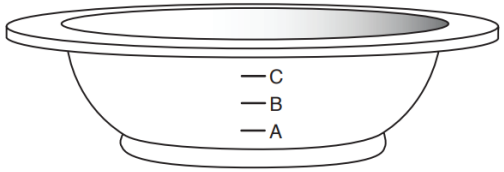

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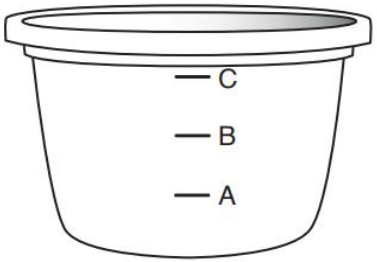

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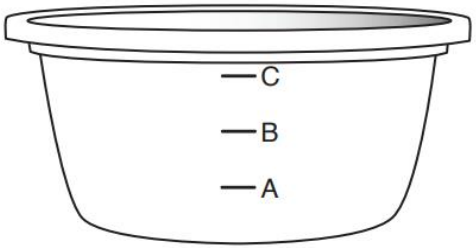

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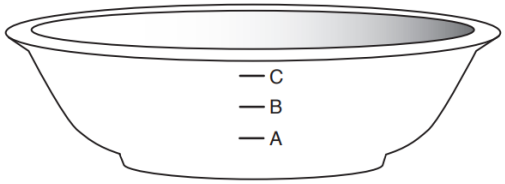

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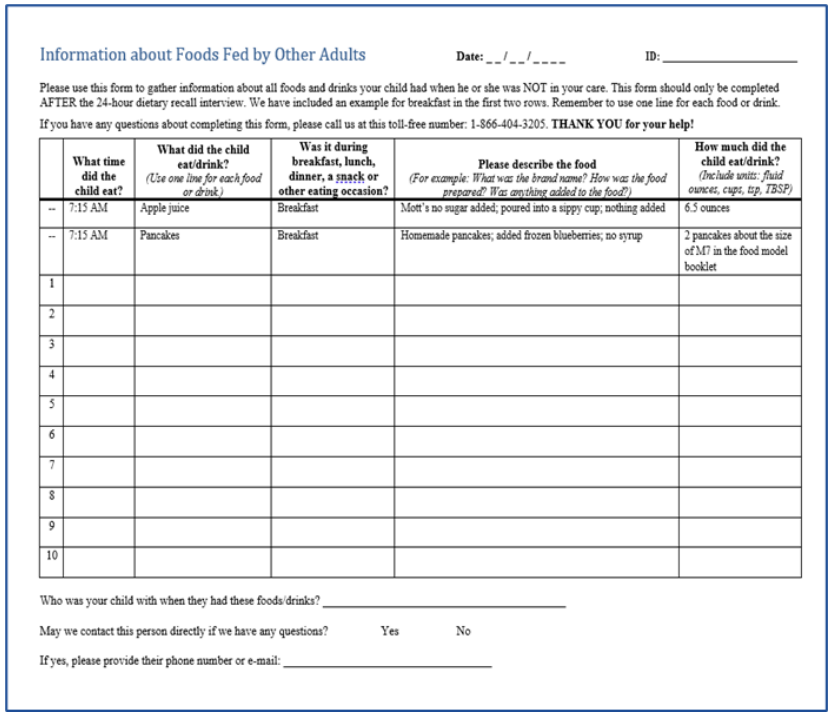
Child-care follow up

- It is possible for child-care to provide food and beverages and the respondent to know what and how much was eaten by the child
- If follow up required:
  - Noted day of week of intake
  - Planned for collecting daycare information within 2 weeks
    - Scheduled call back
    - Emailed form
  - Collected information using "Foods Fed by Other Adults" form
  - If unknown amounts (e.g. school menu), best estimate of usual intake collected from respondent or USDA Child Care Meal Pattern guidelines followed



Information about Foods Fed by Other Adults Date: __/__/____ ID: _____

Please use this form to gather information about all foods and drinks your child had when he or she was NOT in your care. This form should only be completed AFTER the 24-hour dietary recall interview. We have included an example for breakfast in the first two rows. Remember to use one line for each food or drink.

If you have any questions about completing this form, please call us at this toll-free number: 1-866-404-3205. **THANK YOU for your help!**

	What time did the child eat?	**What did the child eat/drink?** *(Use one line for each food or drink.)*	**Was it during breakfast, lunch, dinner, a snack or other eating occasion?**	**Please describe the food** *(For example: What was the brand name? How was the food prepared? Was anything added to the food?)*	**How much did the child eat/drink?** *(Include units: fluid ounces, cups, tsp, TBSP)*
--	7:15 AM	Apple juice	Breakfast	Mott's no sugar added; poured into a sippy cup; nothing added	6.5 ounces
--	7:15 AM	Pancakes	Breakfast	Homemade pancakes; added frozen blueberries; no syrup	2 pancakes about the size of M7 in the food model booklet
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Who was your child with when they had these foods/drinks? _____

May we contact this person directly if we have any questions? Yes No

If yes, please provide their phone number or e-mail: _____

NDSR Database

- > 18,000 foods and 163 nutrients, nutrient ratios, serving counts for food groups, brand name products
- Updated food and nutrient values to reflect current market
- Updated with releases of USDA National Nutrient Database for Standard Reference (SR) and USDA Food and Nutrient Database for Dietary Studies (FNDDS)
- Enhanced with baby and toddler brand-name products on the market
- Missing foods resolved with recipe calculations from ingredients, and nutrient information on labels
- 2016: 351 new foods, 243 User Recipes; 4623 unique foods collected

Dietary Supplements

- Reported supplement intake over the past 24 hours for multivitamins, vitamins, and minerals; prescription vitamins or minerals; fiber supplements; and over-the-counter antacids
- Following screening questions, asked to gather product containers to capture detail
  - Located supplement in database
  - Captured amount taken
  - Times taken in past 24 hours
- If couldn't locate container or provide details, DSAM database defaulted to or closely matched generic product
- If product not available in DSAM, entered as missing and respondent asked for as much detail as possible: name, ingredients, serving size quantity, serving size unit.
  - User product created similar to missing food

QA/QC 24HR procedures

- Immediately, reviewed for completeness and adherence to protocols
- Resolved missing foods
- Evaluated extent of incomplete childcare information about an unknown meal, food and portion size
- Confirmed units, food IDs and note codes appropriate
- Identified food and nutrient outliers that warrant investigation
- Considered complete if:
  - No more than one unknown snack eating occasion was reported.
  - Basic information provided for a meal or food (e.g., food category such as cereal) to allow NCC to impute (1) the most frequently reported food in the reported food category (e.g., if cereal is reported, then NCC imputes oat-ring cereal), and (2) the portion size based on age of child

Take home messages

- Flexibility in enhancing food database important
- Robust, flexible, and “updated” tools to enhance portion size reporting key
- Strategies to enhance portion size estimates important too
- Systematic methods for maximizing the quality of information obtained from multiple caregivers who are responsible for child feeding important

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