

FOOD FREQUENCY QUESTIONNAIRE FOR INFANTS

ID Participant _____

ID staff _____

Date: _____ (month/day/year)

A. Food consumption

In the last 7 days and nights, how many times did your baby eat or drink the following? Include those foods and drinks given to the baby by you and others, such as grandparents, babysitters, and others.

Fill only 1 column for each food:

- If your baby ate a food once per day or more, write the number of times per day in the first column.
- If your baby ate a food less than once a day, write the number of times per week in the second column.
- If your baby did not eat this food in the last week, write 0 in the second column.
- If your baby consumed mixed plates, write each meal separately.

Check only one column for each food

FOODS	TIMES PER DAY	TIMES PER WEEK
1. Breast Milk		
2. Formula - Specify brand (e.g. Similac Advance, etc.) _____		
How did you mix it? ___ powder: ___ number of scoops; ___ ounces of water ___ concentrated liquid: ___ ounces of formula; ___ ounces of water ___ ready to use: ___ ounces		
<i>If your baby did not consume any other foods or drinks, go to section B</i>		
3. Water		
4. Cow's milk - How much did your baby have each time? ___4oz. or less ___ 6oz. ___8oz. ___10oz. ___12oz. or more		
5. Milk with chocolate/strawberry or vanilla (include frozen beverages, shakes, hot chocolate, etc.) - If you added sugar, how much you added? _____ teaspoons - How much did your baby have each time? ___4oz. or less ___ 6oz. ___8oz. ___10oz. ___12oz. or more		
6. Other milks (example: soy, rice, almond, goat, etc.) - Write most common type consumed this week _____ - How much did your baby have each time? ___4oz. or less ___ 6oz. ___8oz. ___10oz. ___12oz. or more		
7. Cheese		

FOODS	TIMES PER DAY	TIMES PER WEEK
8. Ice cream		
9. Yogurt		
10. Soy foods: tofu, soy frozen desserts, etc.		
11. Orange juice 100% (no orange beverage)		
12. 100% fruit or vegetable juice (examples: apple, pear, grape, cranberry, carrot, tomato, etc.) - Write the most common consumed _____ - Specify type: _____ Juice for babies (example: Gerber, Heinz) _____ Regular juice 100% (not baby juice) - How much did your baby have each time? __2oz. __4oz. __6oz. __8oz. __10oz. or more		
13. Other fruit beverages (examples: Hi-C, Space gang, Sunny D, etc.) - How much did your baby have each time?: __2oz. __4oz. __6oz. __8oz. __10oz.		
14. Sodas (examples: Coca-Cola, Pepsi, 7-Up, Root beer, etc.) - How much did your baby have each time?: __2oz. __4oz. __6oz. __8oz. __10oz.		
15. Kool-Aid, Tang, Iced Tea (examples: Nestea, Lipton, etc.) - How much did your baby have each time?: __2oz. __4oz. __6oz. __8oz. __10oz.		
16. Hot cereal (examples: baby rice cereal, cream of wheat, oatmeal, corn mush, etc.) <i>ONLY INCLUDE IF EATEN WITH A SPOON</i> - Write the most common _____ - If you added sugar, ¿How much? _____ teaspoons - How much did your baby eat each time? USE THE PICTURES __1oz. (2 tbsp.) __2.5oz. (5 tbsp.) __4oz. (½ cup/8tbsp.) __6oz. (¾ cup/10tbsp.) __8oz. (1cup)		
17. Baby cereal added to the bottle (examples: baby rice, wheat or corn cereal, mixed cereals, etc.) - How many scoops/teaspoons did you add to the bottle each time? _____		
18. Ready to eat breakfast cereals (examples: Frosted flakes, Fruity Pebbles, etc.) - Write the most common _____ - How much did your baby eat each time? USE THE PICTURES __1oz. (2 tbsp.) __2.5oz. (5 tbsp.) __4oz. (½ cup/8tbsp.) __6oz. (¾ cup/10tbsp.) __8oz. (1cup)		
19. Rice and pasta - Specify most common type: _____Regular _____ Whole grain - How much did your baby eat each time? USE THE PICTURES __1oz. (2 tbsp.) __2.5oz. (5 tbsp.) __4oz. (½ cup/8tbsp.) __6oz. (¾ cup/10tbsp.) __8oz. (1cup)		
20. Bread (examples: sandwich bread, dinner roll, bagel, French bread, tortilla...) - Specify most common type: _____Regular _____ Whole grain		

FOODS	TIMES PER DAY	TIMES PER WEEK
21. Pancake, waffles, French toast, cinnamon rolls, etc. - Specify most common type: ___ Regular ___ Whole grain		
22. Crackers (examples: soda, Ritz, Cheese-it, etc.) - Specify most common type: ___ Regular ___ Whole grain		
23. Pizza, turnovers, tacos, other fried foods, etc.		
<p>How much of breads, pancakes, crackers, pizza did your baby eat each time? USE THE PICTURES</p> <p>___ ½ slice of bread / ½ pancake/waffle (4") / 2 crackers / ¼ slice of medium pizza</p> <p>___ ¾ slice of bread / ¾ pancake/waffle (4") / 3 crackers / 1/3 slice of medium pizza</p> <p>___ 1 slice of bread / 1 pancake/waffle (4") / 4 crackers / ½ slice of medium pizza</p> <p>___ 1.5 slice of bread / 1.5 pancake/waffle (4") / 5 crackers / 2/3 slice of medium pizza</p>		
24. Banana - Specify the most common: ___ fresh ___ baby food		
25. Apple - Specify the most common: ___ fresh ___ baby food ___ jar/canned		
26. Pear - Specify the most common: ___ fresh ___ baby food ___ jar/canned		
27. Citrus fruits (examples: orange, mandarin, etc.) - Specify the most common: ___ fresh ___ baby food ___ jar/canned		
28. Melon - Specify the most common: ___ fresh ___ baby food		
29. Mango and papaya - Specify the most common: ___ fresh ___ baby food		
30. Other fruits, specify: _____ - Specify the most common: ___ fresh ___ baby food ___ jar/canned		
<p>How much of any type of fruit did your baby eat each time? USE THE PICTURES</p> <p>___ 1oz. (2 tbsp.) ___ 2.5oz. (5 tbsp.) ___ 4oz. (½ cup/8tbsp.) ___ 6oz. (¾ cup/10tbsp.) ___ 8oz. (1cup)</p>		
31. Carrot - Specify the most common: ___ raw or cooked at home ___ baby food ___ jar/canned/frozen		
32. Green beans - Specify the most common: ___ raw or cooked at home ___ baby food ___ jar/canned/frozen		
33. Corn - Specify the most common: ___ raw or cooked at home ___ baby food ___ jar/canned/frozen		
34. Pumpkin/squash - Specify the most common: ___ raw or cooked at home ___ baby food ___ jar/canned/frozen		

FOODS	TIMES PER DAY	TIMES PER WEEK
35. Other vegetables (examples: tomato, lettuce, broccoli, etc.) - Specify the most common: ___ raw or cooked at home ___ baby food ___ jar/canned/frozen		
How much of any type of vegetables did your baby eat each time? <i>USE THE PICTURES</i> ___ 1oz. (2 tbsp.) ___ 2.5oz. (5 tbsp.) ___ 4oz. (½ cup/8tbsp.) ___ 6oz. (¾ cup/10tbsp.) ___ 8oz. (1cup)		
36. Potato or sweet potato		
37. French fries		
38. Plantain		
39. Other starchy vegetables (yucca, cassava, yautia, celery, breadfruit)		
40. Beans, pigeon peas, chickpeas, etc.		
41. Beef or pork (includes hot dogs, sausage; baby foods)		
42. Chicken or turkey (any preparation, includes ham, canned, baby food)		
43. Canned fish (examples: tuna fish or salmon)		
44. Other fish		
45. Egg (whole, egg white or yolk)		
46. Peanuts, peanut butter and other nuts		
How much of beans, meat, chicken, fish, eggs or any nuts did your baby eat each time? <i>USE PICTURES</i> ___ 1oz. (2 tbsp.) ___ 2.5oz. (5 tbsp.) ___ 4oz. (½ cup/8tbsp.) ___ 6oz. (¾ cup/10tbsp.) ___ 8oz. (1cup)		
47. Candies (chocolate, bonbon, lolly pop, etc.)		
48. Cake, muffins, donuts, etc.		
49. Cookies (sugar cookies, chocolate chips, oats, etc.)		
50. Others candies/sweets; Specify: _____		
How much of cookies, cakes, muffins or donuts did your baby eat each time? <i>USE THE PICTURES</i> ___ 1 cookie / ¼ piece of cake / ¼ muffin / ¼ donut ___ 2 cookies / ½ piece of cake / ½ muffin / ½ donut ___ 3 cookies / ¾ piece of cake / ¾ muffin / ¾ donut ___ 4 cookies / 1 piece of cake / 1 muffin / 1 donut		
51. Honey, jam, syrup, agave - How much your baby ate each time? <i>USE THE PICTURES</i> ___ ½ tsp (¼ oz.) ___ 1 tsp (½ oz.) ___ 2 tbsp. (1 oz.) ___ 3 tbsp. (1.5 oz.)		
52. Chips (examples: Doritos, Lays, Cheetos, Tostitos, etc.) - How much of chips your baby ate each time? ___ ¼ oz. or ¼ of a bag ___ ½ oz. or ½ of a bag ___ 1 oz. or 1 bag ___ 2 oz. or a medium bag ___ 3 oz. or 30 chips ___ 4 oz. or 40 chips		
53. Margarine/butter		
54. Oil		

B. Use of vitamin and mineral supplements. ¿How often did you give your baby any of these supplements in the last 7 days? Mark with an X one frequency for each supplement

Supplements	No	1-3 times per week	4-6 times per week	1 per day	2 per day
1. Iron drops					
2. Fluorine drops					
3. Vitamin D drops					
4. Folic acid					
5. Multi-vitamins for babies - Specify name: _____					

Supplementary Table 1. Energy and nutrients intakes in the first and second administration of the FFQ and the first and second administration of the 24-h recall in a sample of infants and toddlers' participants of the WIC program in Puerto Rico (N=241)

Variable	FFQ 1	FFQ 2	Spearman's correlation	24-h recall 1	24-h recall 2	Spearman's correlation
	Median (25 th , 75 th percentiles)		r (95% CI)	Median (25 th , 75 th percentiles)		r (95% CI)
Energy (kcal)	1055 (653, 1640)	1036 (697, 1544)	0.71 (0.64, 0.77)	824 (602, 1109)	834 (604, 1099)	0.74 (0.68, 0.79)
Protein (g)	35.6 (31.9, 41.0)	29.4 (22.2, 36.8)	0.57 (0.47, 0.65)	24.5 (21.2, 31.3)	24.9 (22.1, 29.9)	0.58 (0.49, 0.66)
Carbohydrate (g)	160 (154, 181)	155 (122, 186)	0.43 (0.32, 0.53)	117 (109, 134)	119 (110, 135)	0.53 (0.43, 0.61)
Fat (g)	51.9 (43.2, 54.3)	45.4 (35.7, 53.5)	0.46 (0.35, 0.55)	37.3 (29.1, 43.4)	37.3 (29.4, 42.9)	0.56 (0.47, 0.64)
Saturated fat (g)	21.8 (17.6, 23.1)	19.1 (14.4, 22.2)	0.43 (0.32, 0.53)	15.7 (12.0, 19.2)	15.8 (12.7, 18.7)	0.62 (0.53, 0.69)
Monounsaturated fat (g)	17.3 (14.1, 18.7)	14.9 (11.7, 18.9)	0.49 (0.39, 0.58)	12.3 (8.74, 15.7)	12.4 (9.37, 15.7)	0.6 (0.51, 0.67)
Polyunsaturated fat (g)	8.98 (7.85, 10.7)	8.82 (6.23, 11.0)	0.51 (0.41, 0.6)	5.71 (5.10, 7.43)	5.86 (4.43, 7.62)	0.61 (0.53, 0.69)
Omega 3 Fatty acids (g)	0.77 (0.56, 0.96)	0.80 (0.51, 1.05)	0.65 (0.57, 0.72)	0.61 (0.51, 0.80)	0.59 (0.48, 0.78)	0.56 (0.46, 0.64)
Fiber (g)	7.34 (6.12, 11.0)	7.15 (3.02, 11.3)	0.45 (0.34, 0.54)	4.24 (3.26, 7.16)	4.22 (3.01, 7.33)	0.54 (0.44, 0.62)
Vitamin A-Retinol (µg)	771 (645, 927)	664 (483, 892)	0.55 (0.45, 0.64)	513 (411, 590)	504 (400, 592)	0.53 (0.43, 0.61)
Vitamin D (µg)	11.2 (7.13, 15.2)	10.4 (5.80, 14.6)	0.66 (0.58, 0.73)	6.24 (2.48, 8.99)	6.06 (2.86, 8.72)	0.8 (0.75, 0.84)
Vitamin E (mg)	7.27 (4.86, 11.5)	7.58 (4.78, 11.2)	0.68 (0.6, 0.74)	3.41 (1.86, 7.19)	3.62 (1.67, 7.10)	0.79 (0.74, 0.84)

Vitamin K (µg)	52.2 (24.6, 78.3)	46.5 (22.4, 76.1)	0.62 (0.53, 0.69)	26.6 (7.76, 57.1)	26.6 (7.67, 52.4)	0.74 (0.67, 0.79)
Vitamin C (mg)	111 (94.7, 137)	93.3 (58.8, 126)	0.57 (0.47, 0.65)	75.4 (44.8, 89.8)	67.8 (45.6, 86.6)	0.48 (0.38, 0.57)
Vitamin B1 (mg)	1.06 (0.86, 1.19)	0.95 (0.67, 1.16)	0.66 (0.58, 0.73)	0.71 (0.48, 0.86)	0.71 (0.48, 0.88)	0.62 (0.54, 0.7)
Vitamin B2 (mg)	1.55 (1.26, 1.87)	1.29 (0.81, 1.71)	0.64 (0.55, 0.71)	0.93 (0.71, 1.24)	0.97 (0.72, 1.23)	0.66 (0.58, 0.72)
Vitamin B3 (mg)	11.9 (8.68, 14.6)	10.5 (7.62, 14.0)	0.65 (0.57, 0.72)	8.36 (5.07, 10.7)	8.76 (5.28, 10.7)	0.43 (0.32, 0.53)
Vitamin B5 (mg)	4.80 (3.95, 5.51)	4.22 (3.05, 5.20)	0.64 (0.56, 0.71)	3.32 (2.81, 3.85)	3.22 (2.68, 3.72)	0.71 (0.64, 0.77)
Vitamin B6 (mg)	1.02 (0.85, 1.22)	0.97 (0.67, 1.32)	0.47 (0.36, 0.56)	0.73 (0.49, 0.89)	0.72 (0.51, 0.89)	0.46 (0.36, 0.56)
Vitamin B9 (µg)	268 (243, 326)	223 (170, 302)	0.36 (0.24, 0.47)	138 (105, 168)	143 (115, 173)	0.48 (0.38, 0.57)
Vitamin B12 (µg)	3.95 (3.48, 4.65)	3.19 (2.40, 4.56)	0.41 (0.3, 0.52)	2.10 (1.38, 2.82)	2.33 (1.46, 2.87)	0.64 (0.56, 0.71)
Calcium (mg)	949 (827, 1108)	794 (571, 1023)	0.58 (0.49, 0.66)	605 (475, 757)	593 (484, 756)	0.62 (0.54, 0.69)
Phosphorus (mg)	736 (647, 872)	616 (455, 869)	0.62 (0.53, 0.69)	493 (388, 643)	489 (399, 647)	0.68 (0.6, 0.74)
Magnesium (mg)	151 (140, 186)	137 (102, 184)	0.4 (0.29, 0.5)	107 (82.4, 131)	103 (79.8, 131)	0.62 (0.53, 0.69)
Iron (mg)	12.9 (8.79, 18.5)	11.4 (6.49, 17.4)	0.63 (0.55, 0.7)	8.52 (4.04, 12.8)	8.38 (4.04, 13.2)	0.73 (0.66, 0.78)
Zinc (mg)	8.05 (6.20, 10.0)	6.88 (4.71, 9.3)	0.65 (0.57, 0.72)	4.77 (3.42, 6.17)	4.99 (3.55, 6.28)	0.63 (0.55, 0.7)
Copper (mg)	0.95 (0.83, 1.09)	0.86 (0.68, 1.07)	0.61 (0.52, 0.68)	0.66 (0.60, 0.74)	0.65 (0.58, 0.75)	0.5 (0.4, 0.59)
Potassium (mg)	1636 (1533, 1979)	1497 (1130, 2008)	0.49 (0.38, 0.58)	1163 (961, 1417)	1149 (952, 1390)	0.52 (0.42, 0.61)

Supplementary Table 2. Food groups intakes in the first and second administration of the FFQ and the first and second administration of the 24-h recall in a sample of infants and toddlers' participants of the WIC program in Puerto Rico (N=241)

Variable	FFQ 1	FFQ 2	Spearman's correlation	24-h recall 1	24-h recall 2	Spearman's correlation
	Median (25 th , 75 th percentiles)		r (95% CI)	Median (25 th , 75 th percentiles)		r (95% CI)
Breast-milk (ml)	105 (4.13, 444)	84.7 (20.6, 466)	0.75 (0.69, 0.80)	40.8 (15.7, 595)	26.9 (21.1, 563)	0.78 (0.73, 0.83)
Formula (ml)	33.5 (0.63, 604)	90.3 (9.89, 733)	0.76 (0.70, 0.81)	607 (155, 824)	584 (156, 787)	0.78 (0.73, 0.83)
Milk (ml)	284 (82.2, 428)	133 (25.6, 348)	0.69 (0.62, 0.75)	146 (39.6, 218)	155 (45.7, 246)	0.68 (0.61, 0.74)
Formula or milk (ml)	639 (352, 921)	615 (266, 899)	0.64 (0.56, 0.71)	778 (545, 908)	752 (532, 864)	0.68 (0.61, 0.74)
Cheese (serving)	0.18 (0.03, 0.25)	0.13 (0.04, 0.21)	0.38 (0.27, 0.49)	0.03 (0.03, 0.08)	0.09 (0.02, 0.17)	0.40 (0.29, 0.50)
Ice cream & yogurt (serving)	0.15 (0.03, 0.19)	0.12 (0.02, 0.15)	0.59 (0.49, 0.66)	0.03 (0.02, 0.07)	0.03 (0.02, 0.06)	0.55 (0.45, 0.63)
Juice (100%) (ml)	138 (41.4, 173)	89.3 (37.4, 146)	0.33 (0.21, 0.44)	50.1 (12.5, 98.8)	43.2 (12.6, 96.1)	0.45 (0.35, 0.55)
Sugary sweetened beverages (SSB) (ml)	8.79 (1.69, 15.9)	14.3 (5.27, 31.4)	0.44 (0.33, 0.54)	4.38 (1.96, 8.80)	9.93 (2.30, 16.4)	0.41 (0.30, 0.51)
Juice (100%) or SSB (ml)	152 (59.7, 195)	112 (51.9, 166)	0.35 (0.23, 0.46)	60.7 (19.7, 111)	60.4 (27.5, 120)	0.56 (0.47, 0.64)
Refined grains (cereals, rice, pasta)	0.97 (0.54, 1.20)	0.85 (0.44, 1.16)	0.39 (0.27, 0.49)	0.87 (0.44, 1.50)	0.99 (0.53, 1.61)	0.43 (0.32, 0.52)

(serving)

Whole grains

(cereals, rice, pasta) 0.15 (0.00, 0.22) 0.03 (0.00, 0.06) 0.19 (0.06, 0.31) 0.34 (0.10, 0.74) 0.27 (0.10, 0.78) 0.36 (0.25, 0.47)

(serving)

Fruits (serving) 0.56 (0.38, 1.37) 0.51 (0.23, 0.89) 0.38 (0.27, 0.49) 0.24 (0.08, 0.72) 0.21 (0.08, 0.66) 0.42 (0.31, 0.52)

Vegetables

(serving) 0.36 (0.18, 0.90) 0.36 (0.19, 0.80) 0.45 (0.34, 0.55) 0.11 (0.05, 0.77) 0.14 (0.05, 0.49) 0.29 (0.16, 0.40)

Starchy roots

(serving) 0.06 (0.02, 0.10) 0.07 (0.03, 0.11) 0.36 (0.24, 0.47) 0.13 (0.00, 0.20) 0.10 (0.01, 0.15) 0.41 (0.30, 0.51)

Beans (serving) 0.27 (0.09, 0.36) 0.21 (0.07, 0.28) 0.43 (0.31, 0.52) 0.06 (0.00, 0.09) 0.04 (0.00, 0.07) 0.28 (0.16, 0.40)

Meats (serving) 0.41 (0.15, 0.52) 0.37 (0.11, 0.52) 0.52 (0.41, 0.60) 0.75 (0.31, 1.26) 0.75 (0.21, 1.22) 0.33 (0.21, 0.44)

Eggs (unit) 0.33 (0.06, 0.51) 0.14 (0.02, 0.25) 0.48 (0.37, 0.57) 0.02 (0.02, 0.06) 0.04 (0.02, 0.07) 0.56 (0.46, 0.64)

Nuts and seeds

(serving) 0.07 (0.05, 0.16) 0.09 (0.06, 0.20) 0.57 (0.48, 0.65) 0.00 (0.00, 0.00) 0.00 (0.00, 0.00) 0.67 (0.60, 0.74)

Sweets (serving) 0.54 (0.09, 0.88) 0.48 (0.07, 0.86) 0.50 (0.39, 0.59) 0.18 (0.02, 0.30) 0.18 (0.01, 0.28) 0.27 (0.15, 0.38)

Salty snacks

(serving) 0.01 (0.00, 0.01) 0.02 (0.01, 0.05) 0.51 (0.40, 0.60) 0.00 (0.01, 0.02) 0.02 (0.03, 0.06) 0.73 (0.66, 0.78)

Added fat (serving) 0.29 (0.07, 0.37) 0.42 (0.15, 0.70) 0.30 (0.18, 0.41) 0.46 (0.10, 0.67) 0.45 (0.11, 0.64) 0.35 (0.23, 0.46)

Supplementary Table 3. Agreement between methods for energy and nutrient quartiles in a sample of infants and toddlers' participants of the WIC program in Puerto Rico (N=241)

Variable	Correctly classified (%)	Classified within one quartile (%)	Grossly misclassified (%)
Energy (kcal)	52.7	38.6	8.70
Protein (g)	44.8	33.6	21.6
Carbohydrate (g)	36.5	41.9	21.6
Fat (g)	42.3	39.8	17.8
Saturated fat (g)	37.8	39.0	23.2
Monounsaturated fat (g)	36.9	43.6	19.5
Polyunsaturated fat (g)	53.5	30.7	15.8
Omega 3 Fatty acids (g)	39.4	45.6	14.9
Fiber (g)	39.0	37.8	23.2
Vitamin A-Retinol (μg)	42.7	34.9	22.4
Vitamin D (μg)	56.0	35.7	8.30
Vitamin E (mg)	43.6	49.4	7.10
Vitamin K (μg)	46.5	44.4	9.10
Vitamin C (mg)	54.4	28.2	17.4
Vitamin B1 (mg)	47.3	40.7	12.0

Vitamin B2 (mg)	48.6	34.4	17.0
Vitamin B3 (mg)	38.6	43.2	18.3
Vitamin B5 (mg)	47.7	39.8	12.5
Vitamin B6 (mg)	46.1	33.2	20.8
Vitamin B9 (µg)	37.3	38.2	24.5
Vitamin B12 (µg)	37.3	43.2	19.5
Calcium (mg)	42.7	39.4	17.8
Phosphorus (mg)	45.6	35.3	19.1
Magnesium (mg)	35.7	43.2	21.2
Iron (mg)	39.0	49.8	11.2
Zinc (mg)	50.2	42.3	7.50
Copper (mg)	25.7	44.4	29.9
Potassium (mg)	35.7	41.9	22.4
