

## Online Supporting Material

**Supplemental Table 1 Targeted foods and beverages and corresponding substitution foods and beverages used for simulations<sup>1</sup>**

Targeted Food/Beverage		Substitution Food/Beverage	
Description	Amount, g	Description	Amount, g
White Bread, Spaghetti, and Rice			
Bread, white	26 (1 regular slice)	Bread, wheat	28 (1 regular slice)
Toast, white	23 (1 regular slice)	Toast, wheat	25 (1 regular slice)
Bread, white, homemade/bakery	44 (1 regular slice)	Bread, wheat, homemade/bakery	44 (1 regular slice)
Roll, white (footlong)	86 (1 bun)	Roll, wheat (HB/HD)	86 (2 buns)
Roll, white (HB/HD)	43 (1 bun)	Roll, wheat (HB/HD)	43 (1 bun)
Roll, white (NFS)	43 (1 bun)	Roll, wheat (HB/HD)	43 (1 bun)
Roll, white (medium)	36 (1 bun)	Roll, wheat (medium)	36 (1 bun)
Roll, white (crescent)	28 (1 bun)	Roll, wheat (small)	28 (1 bun)
Roll, white (small)	28 (1 bun)	Roll, wheat (small)	28 (1 bun)
Roll, white, homemade/bakery (large)	43 (1 bun)	Roll, wheat, homemade/bakery (HB/HD)	43 (1 bun)
Roll, white, homemade/bakery (HB/HD)	43 (1 bun)	Roll, wheat, homemade/bakery (HB/HD)	43 (1 bun)
Roll, white, homemade/bakery (NFS)	43 (1 bun)	Roll, wheat, homemade/bakery (HB/HD)	43 (1 bun)
Roll, white, homemade/bakery (medium)	36 (1 bun)	Roll, wheat, homemade/bakery (HB/HD)	36 (1 bun)
Roll, white, homemade/bakery (small)	28 (1 bun)	Roll, wheat, homemade/bakery (HB/HD)	36 (1 bun)
Biscuit, white, refrigerated dough	19 (1 medium)	Biscuit, wheat	60 (1 medium)
Biscuit, white, commercial baked	51 (1 medium)	Biscuit, wheat	60 (1 medium)
Biscuit, white, homemade	30 (1 medium)	Biscuit, wheat	60 (1 medium)
Spaghetti, white	140 (1 cup) cooked	Spaghetti, wheat	140 (1 cup) cooked
Rice, white, regular (NFS)	158 (1 cup) cooked	Rice, brown, regular, NF	195 (1 cup) cooked
Rice (NFS)	158 (1 cup) cooked	Rice, brown, regular, NF	195 (1 cup) cooked
Rice, white, regular, NF	158 (1 cup) cooked	Rice, brown, regular, NF	195 (1 cup) cooked
Rice, white, instant (NFS)	165 (1 cup) cooked	Rice, brown, regular, NF	195 (1 cup) cooked
Rice, white, instant, NF	165 (1 cup) cooked	Rice, brown, regular, NF	195 (1 cup) cooked
Rice, white, regular, fat	163 (1 cup) cooked	Rice, brown, regular, NF	195 (1 cup) cooked
Rice, white, instant, fat	166 (1 cup) cooked	Rice, brown, regular, NF	195 (1 cup) cooked

## Online Supporting Material

Milk and Cheese			
Milk (NFS)	244 (237 mL)	Milk, NF	245 (237 mL)
Milk, whole	244 (237 mL)	Milk, NF	245 (237 mL)
Milk, RF	244 (237 mL)	Milk, NF	245 (237 mL)
Milk, chocolate (NFS)	250 (237 mL)	Milk, NF chocolate	250 (237 mL)
Milk, whole, chocolate	250 (237 mL)	Milk, NF chocolate	250 (237 mL)
Cheese (NFS)	24 (1 slice)	Cheese, processed, cheddar/American, RF	21 (1 slice)
Cheese, cheddar/American (NFS)	24 (1 slice)	Cheese, processed, cheddar/American, RF	21 (1 slice)
Cheese, natural, cheddar/American	28 (1 slice)	Cheese, processed, cheddar/American, RF	21 (1 slice)
Cheese, processed, cheddar/American	28 (1 slice)	Cheese, processed, cheddar/American, RF	21 (1 slice)
Cheese spread, cheddar/American based	34 (1 slice)	Cheese, processed, cheddar/American, RF	21 (1 slice)
White Potatoes			
Potato, white, baked, no peel	98 (1 medium)	Potato, sweet, baked, NF (medium)	114 (1 medium)
Potato, white, baked, peel	122 (1 medium)	Potato, sweet, baked, NF (medium)	114 (1 medium)
Potato, white, boiled, NF	122 (1 medium)	Potato, sweet, baked, NF (medium)	114 (1 medium)
Potato, white, boiled, fat	127 (1 medium)	Potato, sweet, baked, NF (medium)	114 (1 medium)
French fries, fresh, deep fried	57 (1 cup)	Potato, sweet, baked, NF (medium)	114 (1 medium)
French fries, frozen, baked	57 (1 cup)	Potato, sweet, baked, NF (medium)	114 (1 medium)
Potato, white, mashed, NF	105 (1/2 cup)	Potato, sweet, baked, NF (medium)	114 (1 medium)
Potato, white, mashed, fat	105 (1/2 cup)	Potato, sweet, baked, NF (medium)	114 (1 medium)
Potato, white, instant, mashed, fat	105 (1/2 cup)	Potato, sweet, baked, NF (medium)	114 (1 medium)
Potato chip, white	20 (1 cup)	Popcorn, air-popped, NF	24 (3 cups)
French fries, frozen, deep fried	57 (1 cup)	Salad & Dressing <sup>2</sup>	73 (1 cup) & 28 ( 2 T)
White potato puffs (tater tots)	128 (1 cup)	Salad & Dressing <sup>2</sup>	73 (1 cup) & 28 ( 2 T)
Grain Snacks			
Corn chips	26 (1 cup)	Popcorn, air-popped, NF	24 (3 cups)
Corn puffs	35 (1 cup)	Popcorn, air-popped, NF	24 (3 cups)
Tortilla chips	26 (1 cup)	Popcorn, air-popped, NF	24 (3 cups)
Popcorn, in oil, no butter	33 (3 cups)	Popcorn, air-popped, NF	24 (3 cups)
Popcorn, in oil, butter	42 (3 cups)	Popcorn, air-popped, NF	24 (3 cups)

## Online Supporting Material

Ground beef (NFS)	113 (patty)
Ground beef, regular	113 (patty)
Ham (NFS)	28 (1 ounce) cooked
Bacon (NFS)	8 (1 medium slice)
Bacon, pork (NFS)	8 (1 medium slice)
Bacon, pork, smoked/cured	8 (1 medium slice)
Chicken wing, baked/fried, skin	19 (1 drummette)
Chicken patty/fillet/tender, breaded	36 (1 cubic inch)
Hot dog, beef	57 (1 link)
Bologna (NFS)	28 (1 medium slice)
Salami (NFS)	23 (1 medium slice)
Pork sausage, bulk/link/patty	18 (1 cubic inch)
Pork sausage, link, smoked	17 (1 cubic inch)
Pork sausage, brown & serve	13 (1 link)
Catfish, breaded, fried	75 (1 fillet)
Catfish, battered, fried	75 (1 fillet)
Shrimp, breaded/battered, fried	129 (1 cup)
Cakes	varied
Cookies	varied
Pies	varied
Pastries	varied

## Meat

Ground beef, lean	113 (patty)
Ground beef, lean	113 (patty)
Ham, lean only eaten	28 (1 ounce) cooked
Turkey bacon	11 (1 medium slice)
Turkey bacon	11 (1 medium slice)
Turkey bacon	11 (1 medium slice)
Chicken wing, broiled/roasted, no skin	12 (1 drummette)
Chicken breast, broiled/roasted, no skin	51 (1 cubic inch)
Hot dog, beef, LF	57 (1 link)
Turkey/chicken breast, prepack/deli, lunch meat	28 (1 medium slice)
Turkey/chicken breast, prepack/deli, lunch meat	28 (1 medium slice)
Turkey/pork/beef sausage, smoked, LF	16 (1 cubic inch)
Turkey/pork/beef sausage, smoked, LF	16 (1 cubic inch)
Turkey sausage, brown & serve, RF	20 (1 link)
Catfish, baked/broiled	63 (1 fillet)
Catfish, baked/broiled	63 (1 fillet)
Shrimp, steamed/boiled	145 (1 cup)
<b>Grain Desserts</b>	
Fruit cocktail, cooked/canned, juice pack	119 (1/2 cup)
Fruit cocktail, cooked/canned, juice pack	119 (1/2 cup)
Fruit cocktail, cooked/canned, juice pack	119 (1/2 cup)
Fruit cocktail, cooked/canned, juice pack	119 (1/2 cup)

## Online Supporting Material

	Sugar-sweetened Beverages		
Tea, PS (NFS)	237 (237 mL)	Water, tap	239 (237 mL)
Tea, PLES (NFS)	237 (237 mL)	Water, tap	239 (237 mL)
Tea, presweetened (NFS)	237 (237 mL)	Water, tap	239 (237 mL)
Tea, decaffeinated, PLES (NFS)	237 (237 mL)	Water, tap	239 (237 mL)
Tea, leaf, PS	237 (237 mL)	Water, tap	239 (237 mL)
Tea, leaf, PLES	237 (237 mL)	Water, tap	239 (237 mL)
Tea, leaf, presweetened (NFS)	237 (237 mL)	Water, tap	239 (237 mL)
Tea, leaf, decaffeinated, PS	237 (237 mL)	Water, tap	239 (237 mL)
Tea, leaf, decaffeinated, PLES	237 (237 mL)	Water, tap	239 (237 mL)
Tea, instant, presweetened (NFS)	237 (237 mL)	Water, tap	239 (237 mL)
Tea, instant, PS	237 (237 mL)	Water, tap	239 (237 mL)
Tea, instant, PLES	237 (237 mL)	Water, tap	239 (237 mL)
Tea, instant, decaffeinated, PLES	237 (237 mL)	Water, tap	239 (237 mL)
Carbonated water, sweetened	237 (237 mL)	Water, tap	239 (237 mL)
Soft drink, cola-type	248 (237 mL)	Water, tap	239 (237 mL)
Soft drink, cola-type, decaffeinated	246 (237 mL)	Water, tap	239 (237 mL)
Soft drink, pepper-type	248 (237 mL)	Water, tap	239 (237 mL)
Soft drink, pepper-type, decaffeinated	239 (237 mL)	Water, tap	239 (237 mL)
Cream soda	247 (237 mL)	Water, tap	239 (237 mL)
Soft drink, fruit-flavored, caffeine-free	246 (237 mL)	Water, tap	239 (237 mL)
Soft drink, fruit-flavored, caffeine containing	248 (237 mL)	Water, tap	239 (237 mL)
Ginger ale	244 (237 mL)	Water, tap	239 (237 mL)
Root beer	246 (237 mL)	Water, tap	239 (237 mL)
Cola with fruit or vanilla flavor	248 (237 mL)	Water, tap	239 (237 mL)
Carbonated noncitrus juice drink	248 (237 mL)	Water, tap	239 (237 mL)
Fruit drinks	231-256 (237 mL)	Water, tap	239 (237 mL)
Fruit-flavored drink, non-carbonated, PMS	240 (237 mL)	Water, tap	239 (237 mL)
Fruit-flavored drink, non-carbonated, PMLES	240 (237 mL)	Water, tap	239 (237 mL)

HB/HD, hamburger/hot dog; NFS, not further specified; NF, no fat/nonfat; RF, reduced fat; LF, low fat; T, tablespoon; PS, presweetened with sugar; PLES, presweetened with low energy sweetener; PMS, powdered mix with sugar; PMLES, powdered mix with low energy sweetener.

## Online Supporting Material

<sup>1</sup> Example: Substituting one regular slice of whole wheat bread (28 g) for white bread (26 g) involved the following algorithm for a 25% substitution. Where food code equals white bread, reduce grams, carbohydrate, energy, saturated fat, and sodium amounts by 25% and insert food code for whole wheat bread with its respective nutrient profile: new grams = 0.25 x white bread gram amount consumed x (28 g/26 g); carbohydrates = new grams x (12.9 g carbohydrates/28 g); energy = new grams x (68.9 kcal/28 g); saturated fat = new grams x (0.3 g saturated fat/28 g); sodium = new grams x (147.6 mg sodium/28 g). Although tap water does not contain any carbohydrates, energy, or saturated fat, it does contain a small amount of sodium. Hence it was necessary to insert nutrient data for tap water into the data set.

<sup>2</sup> Salad & Dressing = lettuce salad with assorted vegetables including tomatoes and carrots & reduced energy fat-free Italian dressing.