

Impact of Revised Food Packages on Participants' Food Purchases



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HEALTH

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Obesity Rate for Young Children Plummets 43% in a Decade

By **SABRINA TAVERNISE** FEB. 25, 2014

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Federal health authorities on Tuesday reported a 43 percent drop in the [obesity](#) rate among 2- to 5-year-old children over the past decade, the first broad decline in an epidemic that often leads to lifelong struggles with weight and higher risks for [cancer](#), heart disease and stroke.

The drop emerged from a major federal health survey that experts say is the gold standard for evidence on what Americans weigh. The trend came as a welcome surprise to researchers. New evidence has shown that [obesity](#) takes hold young: Children who are overweight or obese at 3 to 5 years old are five times as likely to be overweight or obese as adults.

A smattering of states have reported modest progress in reducing childhood obesity in recent years, and last year the federal authorities noted a slight decline in the obesity rate among low-income children. But the figures on Tuesday showed a sharp fall in obesity rates among all 2- to 5-year-olds, offering the first clear evidence that America's youngest children have turned a corner in the obesity epidemic. About 8 percent of 2- to 5-year-olds were obese in 2012, down from 14 percent in 2004.

"This is the first time we've seen any indication of any significant decrease in any group," said Cynthia L. Ogden, a researcher for the [Centers for Disease Control and Prevention](#), and the lead author of [the report](#), which will be published in JAMA, The Journal of the American Medical Association, on Wednesday. "It was exciting."

She cautioned that these very young children make up a tiny fraction of the



Oumou Balde, 4, left, with her teacher, Jacqualine Sanchez, in a nutrition program in New York. Seth Wenig/Associated Press

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Food Purchase Analysis

Track grocery store purchases among WIC households in CT and MA, 2009-2010

- Milk and cheese
- Whole grain bread and allowable substitutes
- 100% juice
- Fruit and vegetables

Grocery Store Scanner Data

- Regional New England supermarket chain with over 60 stores
- Loyalty card users
- Known source of payment (WIC, SNAP, cash)
- No socio-demographic information on customers
- Only data on households that used WIC benefits
- All grocery purchases

Our Sample

- WIC participants before and after revisions
 - Jan-Sep 2009 and Jan-Sep 2010
 - Implementation Oct 2009
 - Transition period of Oct-Dec 2009 excluded
 - Used WIC benefits each quarter
 - N = 2,137 households
 - 18 months of data on the same WIC households
- Multivariate regression models

Juice Study

Juice consumption among 2-5 year old children exceeds dietary recommendations

- Juice allowances in new WIC food packages significantly reduced
- Effects unknown
 - Juice substitution from non-WIC funds
 - Substitution into less healthy beverages

Analyzed products

- 100% juice (615 UPCs)
- Soda, fruit drinks, water, new age beverages

Juice Study

Effects of Reduced Juice Allowances in Food Packages for the Women, Infants, and Children Program

- **24% less juice purchased after WIC revisions**
- **Little compensation from purchases with non-WIC funds**
- **No shifts to soda purchases**

Hope for less sugar in diets of WIC participants

Milk and Cheese Study

State differences

- CT allows 2%, 1% and skim milk
- MA allows 1% and skim milk
- MA started gradual implementation in early 2008
- Use only CT in milk analysis (515 WIC HHs)

Analyzed products

- Cow's milk of any fat (208 UPCs)
- WIC-eligible cheese (199 UPCs)

Milk and Cheese Study

- **Large decrease in whole milk and cheese purchases**
 - 49% less whole milk, 37% less cheese
 - 56% more reduced-fat milk
- **Weak compensation from purchases using non-WIC funds**
 - None for whole milk, little for cheese
- **Milk with highest allowable fat purchased**
 - 2% in CT, 1% in MA

Whole Grain Study

Questions on new whole grains for WIC

- Substitution for white bread vs. getting more bread overall
- Learning to like whole grains: Use of non-WIC funds

Analyzed products

- Bread (1130 UPCs)
 - 100% whole grain, some whole grain, non-whole grain
- Rice (194 UPCs)
 - White, brown
- Tortillas (58 UPCs)

Whole Grain Study

- **Increase in whole grain bread & rice purchases**
 - >300% growth, all explained by WIC revisions
 - Very low baseline
- **Replacing white bread with whole grain**
 - Substitution, not addition
 - 12% less white bread purchased
- **No evidence (yet) of spillovers into non-WIC purchases**
 - No significant change within a year

Fruit and Vegetable Study

Questions

- Substitution for fruit and vegetables purchased using non-WIC funds vs. buying more FVs

Analyzed products

- Fruit (1733 UPCs) and vegetables (3,229 UPCs)
- Fresh, canned, frozen
 - Excluding white potatoes, canned/frozen products with added sugars, cream, oils

Fruit and Vegetable Study

- **Increase in fruit and vegetable purchases**
 - 29% more fresh fruit and 17% more fresh veggies
- **Fresh fruit more popular than vegetables**
 - 3 times higher spending
- **Limited role of WIC in fruit and vegetable purchases**
 - 15% for veggies, 25% for fruit
- **Small substitution effects for non-WIC purchases**

Source: Andreyeva, Luedicke. Under review.

Summary

- We showed improved food purchases of WIC participants after WIC revisions (MA and CT)
- This could mean (should be tested):
 - Improved diet quality
 - Reduced BMI /obesity
- We also showed better availability of healthy foods as a result of WIC revisions (multiple regions)
- All of these at no additional cost to taxpayers (by design)

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- **Confidential grocery store chain**

Thank You!



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Appendix

background tables in case Qs

Milk: Total Purchases

	exp(b)	Marginal predicted means <u>Oz per HH per month</u>	
		2009	2010
Total milk	0.86***	503	431
Whole milk	0.51***	280	142
2% milk	1.56***	110	172
1% milk	1.04	97	101
Skim milk	1.22	18	22
WIC-eligible cheese	0.63***	24	15

Note: Data for CT. Source: Andreyeva et al. JAND 2013.

Milk: Non-WIC Purchases

	exp(b)	Marginal predicted means Oz per HH per month	
		2009	2010
Total milk	1.01	126	127
Whole milk	0.86	73	62
2% milk	1.08	27	29
1% milk	1.37**	20	28
Skim milk	1.54	4	6
WIC-eligible cheese	1.17***	10	12

Note: Data for CT. Source: Andreyeva et al. JAND 2013.

Milk: WIC Purchases

	exp(b)	Marginal predicted means	
		<u>Oz per HH per month</u>	
		2009	2010
Total milk	0.81***	375	302
Whole milk	0.37***	205	75
2% milk	1.72***	82	142
1% milk	0.95	76	72
Skim milk	1.13	13	14
WIC-eligible cheese	0.23***	14	3

Note: Data for CT. Source: Andreyeva et al. JAND 2013.

Juice: Changes by Payment

100% Juice	exp(b)	Marginal predicted means <u>Oz per HH per month</u>	
		2009	2010
Total, any type of payment	0.77***	238	182
Purchased with WIC benefits	0.57***	154	87
Purchased with non-WIC funds	1.14***	84	95

Grains: Non-WIC Purchases

	exp(b)	Marginal predicted means (oz/HH-mo)	
		2009	2010
White bread	0.88***	60	53
100% whole grain bread	0.79***	6	5
White rice	1.03	5.5	5.7
Brown rice	0.99	0.3	0.3

Source: Andreyeva, Luedicke. AJPM 2013, 45(4).

Grains: Total Purchases

	exp(b)	Marginal predicted means (oz/HH-mo)	
		2009	2010
White bread	0.88***	60	53
100% whole grain bread	3.11***	6	20
White rice	1.03	5.5	5.7
Brown rice	8.38***	0.3	2.4

Source: Andreyeva, Luedicke. AJPM 2013, 45(4).

Produce Purchases

	exp(b)	Marginal predicted means <u>Pounds</u> per HH per month	
		2009	2010
Total purchases			
Fresh fruit	1.25***	7.1	8.9
Fresh veggies	1.11***	4.9	5.5
Purchases with non-WIC funds			
Fresh fruit	0.93***	7.1	6.6
Fresh veggies	0.96**	4.9	4.7

Veggies exclude white potatoes

Produce Purchases

	exp(b)	Marginal predicted means	
		<u>Serving cups</u> per HH per month	
		2009	2010
Total purchases			
Fresh fruit	1.27***	16	20
Fresh veggies	1.05***	14	15
Purchases with non-WIC funds			
Fresh fruit	0.94***	16	15
Fresh veggies	0.92**	14	13

Veggies exclude white potatoes