



FOR A STRONGER, HEALTHIER AMERICA

THE SPECIAL SUPPLEMENTAL NUTRITION PROGRAM FOR WOMEN, INFANTS AND CHILDREN (WIC) IS A NATIONAL, TARGETED SUPPLEMENTAL PUBLIC-HEALTH NUTRITION PROGRAM WITH TIME-LIMITED PARTICIPATION. EVERY MONTH, THE PROGRAM SERVES ROUGHLY 7.3 MILLION LOW-INCOME MOTHERS, BABIES, AND YOUNG CHILDREN AT NUTRITIONAL RISK ACROSS THE UNITED STATES.

MISSION OF WIC

To assure healthy pregnancies, healthy birth outcomes, and healthy growth and development for women, infants, and children up to age five who are at nutritional risk, by providing nutritious supplemental foods, breastfeeding promotion and support, education on healthy eating, and referrals to healthcare and critical social services.

THE CRITICAL NEED FOR WIC

Across the United States, in urban and rural areas, WIC's time-limited

services and benefits ensure that children get a strong, healthy start in life. There is clear evidence that good nutrition during pregnancy and in the first few years of life has long-term, positive impacts on health. When children have a healthy start, their prospects, and America's prospects, are brighter.

With historically strong bipartisan support and clear evidence demonstrating how WIC is both efficient and effective at improving the health of low-income children, WIC ensures the future health and safety of millions of Americans.

Through quality nutrition, breastfeeding and referral services, WIC addresses critical public health concerns threatening America. Maternal mortality in the United States—26.4 deaths per 100,000 live births in 2015—is rising as it declines in comparable countries.¹ This rate is significantly higher for low-income women. Although the infant mortality rate has been decreasing over recent years, the US still lags behind most developed countries. WIC,

which serves 1.8 million low-income pregnant and postpartum women and 1.8 million infants,² plays a role in helping mothers recognize key risk factors associated with infant and maternal mortality.

Breastfeeding support and promotion are core WIC services. A 2017 research paper estimates that for every 597 women who optimally breastfeed, one maternal or child death is prevented.³ WIC helps moms meet their breastfeeding goals by working with them to overcome breastfeeding barriers. This is reflected in the steady rise in breastfeeding initiation rates in WIC since the 1990s.

WIC PARTICIPATION REQUIREMENTS

- » Income levels less than or equal to 185% of the poverty level or participation in certain eligible programs.
- » At least one documented nutrition risk.
- » Applicants reside in the state of program application.

WHOM DOES WIC SERVE?⁴



7.3 MILLION

women, infants, and young children each month through 10,000 clinics nationwide



668,000

pregnant women



577,000

breastfeeding women



1.8 MILLION

infants (under the age of 1)



3.8 MILLION

children (aged 1 until their 5th birthday)



FAST FACTS: PARTICIPANT CHARACTERISTICS

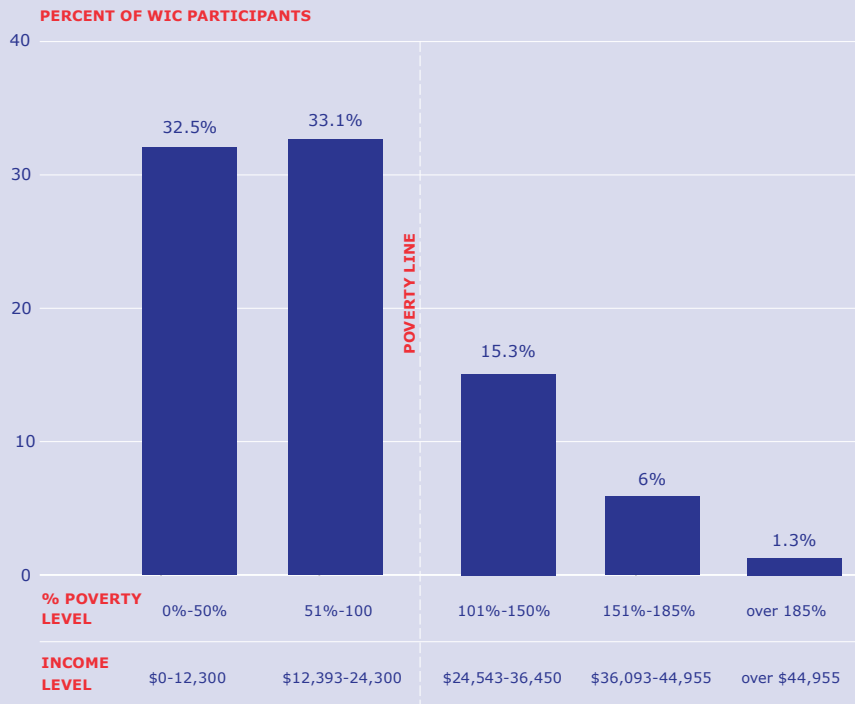
**THE AVERAGE
HOUSEHOLD INCOME
OF WIC FAMILIES IS
\$18,626.⁵**

**53% OF ALL INFANTS
BORN IN THE US ARE ON
WIC.⁶**

WIC IS HIGHLY EFFICIENT.

**NATIONWIDE,
APPROXIMATELY 10% OF
WIC'S BUDGET IS SPENT ON
ADMINISTRATIVE COSTS.⁷**

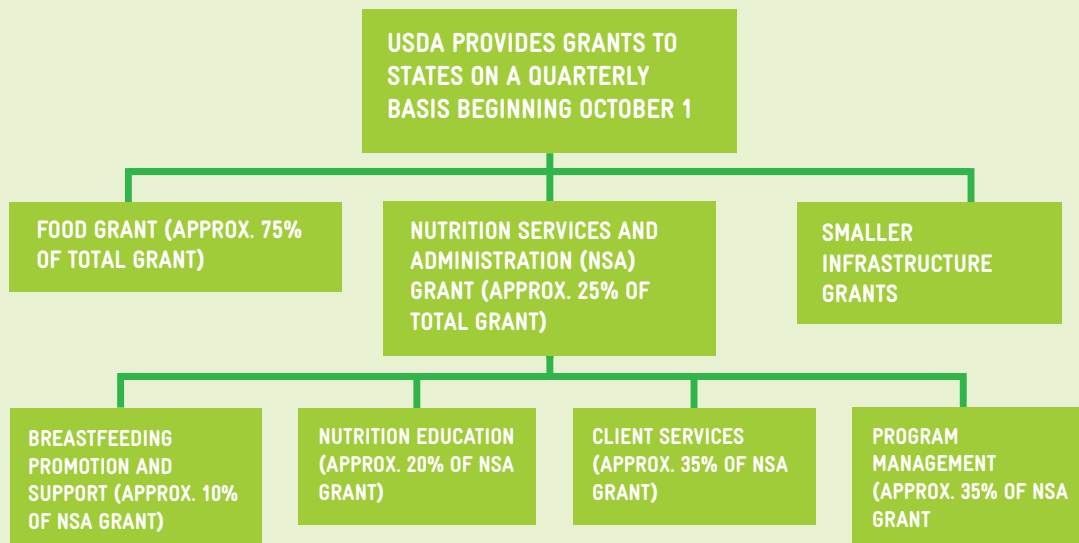
INCOME/POVERTY LEVEL OF WIC PARTICIPANTS



Source: USDA, Table 11.3, p.45 2016 WIC Program and Participants Characteristics Report

Department of Health and Human Services 2014 Poverty Guidelines for a family of four (Average WIC family size was four in 2016)

WIC FUNDING IS SET ANNUALLY BY CONGRESS



Source: Altarum Institute and RTI International (2017) WIC Nutrition Services and Administration Cost Study. US Department of Agriculture Office of Policy Support. Accessed online: <https://fns-prod.azureedge.net/sites/default/files/ops/WICNSACostStudy.pdf>.

NUTRITION SERVICES AND ADMINISTRATION (NSA) FUNDING FORMULA:

First, all available NSA funds are driven toward NSA Base Grant funding. An NSA Base Grant is equal to the prior year end-of-year NSA grant. Once base grant funding requests have been met, remaining NSA funds go toward NSA Fair Share funding. NSA fair share is based on the number of participants projected to be served by each agency taking into consideration state reported food cost. Other considerations in fair share determination include state salary levels and the size of the state agency.

WIC: BUILDING HEALTHY FAMILIES

WIC PROVIDES FOUR CORE SERVICES: NUTRITION EDUCATION, BREASTFEEDING SUPPORT, HEALTHY FOOD PACKAGES, AND REFERRALS TO HEALTH AND SOCIAL SERVICES. WIC HELPS ENSURE THAT KIDS ENTER KINDERGARTEN HEALTHY AND READY TO LEARN.

1. NUTRITION EDUCATION – LEARNING TO BE HEALTHY

WIC supports families in making healthy changes to their lifestyle through nutrition education that can take various forms, from online modules to group classes to one-on-one counseling. The nutrition

education in WIC helps families connect the dots among health, growth, and development.

The nutrition counseling approach used by WIC staff is participant-centred. It highlights their capacities, strengths, and needs, rather than their problems or negative behaviors. WIC nutrition educators (i.e. dietitians, nutritionists, and other professionals) are trained in nutrition counseling. They are credible sources of nutrition information.

- » In a new USDA-Food and Nutrition Service (FNS) research study, mothers report that WIC has helped them make positive changes in how they feed themselves and their families.⁸
- » WIC nutrition education helps moms make healthy infant feeding decisions. Twenty plus years ago, early introduction of solid foods to a baby's diet was a significant problem (at least 62% of mothers introduced foods before four months of age). Today, only 20% of WIC mothers are introducing solids before four months.⁹ The current recommendations from the American Academy of Pediatrics are for a variety of healthy complementary solid foods to be introduced around six months.¹⁰

2. BREASTFEEDING SUPPORT AND PROMOTION

Within the US, there is a disparity in breastfeeding rates between low-income and higher-income women. Barriers to breastfeeding for low-income women include family and social pressures, a rapid return to work after delivery, lack of facilities to breastfeed or pump in the workplace, and targeted marketing by the infant formula industry. Despite these, WIC has been successful in supporting

women in the program with breastfeeding initiation and is leading efforts to increase breastfeeding duration. In the last two decades, there was a 29% increase in the number of WIC moms initiating breastfeeding. Breastfeeding rates rose from 42% in 1998 to 71% in 2016.¹¹

FAST FACTS: WIC NUTRITION EDUCATION

RECENT RESEARCH SHOWS THAT HIGH-QUALITY ONLINE NUTRITION EDUCATION IN WIC CAN SUPPORT PARTICIPANT SATISFACTION.¹²

ONE-ON-ONE COUNSELING IS THE PRIMARY DELIVERY METHOD FOR WIC NUTRITION EDUCATION.¹³

WIC NUTRITION EDUCATION HAS BEEN SHOWN TO HELP INCREASE THE CONSUMPTION OF HEALTHFUL FOODS.¹⁴

HOW DOES WIC SUPPORT BREASTFEEDING?

- » Breastfeeding education is integrated into prenatal education for all pregnant WIC participants.
- » WIC mothers choosing to breastfeed are provided information through counseling and breastfeeding education materials.
- » Breastfeeding mothers:
 - › receive follow-up support from trained staff, including peer counselors where available.
 - › are eligible to participate in WIC longer than non-breastfeeding mothers.
 - › can receive breast pumps and breastfeeding accessories to support the initiation and continuation of breastfeeding.
- » Mothers who exclusively breastfeed receive an enhanced food package.
- » WIC helps moms breastfeed for longer. New research shows that at 12 months post-partum 18% of WIC moms are still breastfeeding. This is a vast improvement: 20+ years ago, only 7% of WIC moms were breastfeeding at 12 months.¹⁵
- » WIC staff are trusted sources of breastfeeding information. A recent FNS study shows that WIC staff are the second-most common group that women speak with about breastfeeding after husbands/partners.¹⁶

The long- and short-term benefits of breastfeeding are well established. Research indicates that breastfeeding can help reduce the risk of certain diseases and infections for both the infant and mother and, for infants, reduce the risk of developing obesity later in childhood.

In the United States, there are racial and ethnic disparities in breastfeeding. Breastfeeding rates are lowest among African American women.¹⁷ WIC services improve breastfeeding rates among diverse populations of low-income women.¹⁸ Participation in the WIC breastfeeding peer counseling program is associated with an increased rate of breastfeeding initiation.¹⁹ In addition, women who attend WIC breastfeeding support groups are twice as likely to plan to breastfeed as those who do not.²⁰

Recent analysis of food package prescriptions indicate that the proportion of infants being prescribed formula in WIC is decreasing. The proportion of infants prescribed any formula fell 0.7 percentage points between 2012 and 2014, and then fell by 0.2 percentage points between 2014 and 2016.²¹

FAST FACTS: BREASTFEEDING IN WIC

BREASTFEEDING INITIATION RATES IN WIC HAVE INCREASED FROM 42% IN 1998 TO 71% IN 2016.²²

MATERNAL WIC PARTICIPATION HAS BEEN SHOWN TO IMPROVE BREASTFEEDING RATES.²³

3. SCIENCE BASED, HEALTHY FOOD – FUELING HEALTHY GROWTH AND DEVELOPMENT

The WIC food package provides a wide range of healthy foods to supplement the diets of WIC mothers and young children. A pregnant woman, postpartum mother, breastfed infant formula-fed infant, or a young child, receives different foods tailored to meet their nutritional needs.

The WIC food package is reviewed at least every 10 years by a National Academy of Sciences, Engineering, and Medicine (NASEM) independent committee. The latest review concluded in 2017. The NASEM review process ensures that the food package: (1) is science-based and aligned with the most up-to-date Dietary Guidelines for Americans, (2) meets the nutritional needs of WIC families, (3) is culturally appropriate, and (4) includes foods that appeal to WIC families. This process ensures that the foods included are scientifically proven to supplement the nutrients lacking in the participants diet.

WIC families shop for their WIC foods using either an Electronic Benefits Transfer (EBT/eWIC) card or paper vouchers. By 2020, all states must transition to using EBT/eWIC cards. As of January 2019, 46 states and Indian Nations have fully implemented EBT/eWIC statewide.²⁴ The transition to EBT/eWIC will reduce opportunities for fraud and abuse, ensuring WIC remains efficient and effective.

WHAT FOODS DOES WIC OFFER?*

The WIC food package includes a variety of healthy options to help pave the way for a lifetime of nutritious eating.

 <p>BEANS</p>	 <p>WHOLE GRAINS</p>	 <p>FRUITS & VEGETABLES</p>
 <p>CHEESE</p>	 <p>CEREAL</p>	 <p>EGGS</p>
 <p>CANNED FISH</p>	 <p>PEANUT BUTTER</p>	 <p>MILK</p>
 <p>100% FRUIT JUICE</p>	 <p>INFANT FORMULA</p>	 <p>INFANT CEREAL & BABY FOOD</p>

*Check your state for specific guidelines.

In addition to the WIC food package, WIC mothers and young children receive a Cash Value Benefit (CVB) to spend on fruits and vegetables of their choice at the grocery store. Some states also allow CVB to be used at farmers' markets. The current value of CVB is \$8 for children, \$10 for pregnant and partially breastfeeding mothers, and \$11 for postpartum and breastfeeding women.

The food package was last updated in 2009 after an independent scientific review in 2006. Since that update, a growing body of literature has emerged that demonstrates the positive impact of WIC foods have on the families served by WIC.^{25 26 27 28 29 30 31}

FAST FACTS: THE WIC FOOD PACKAGE

CHANGES TO THE WIC FOOD PACKAGE HELPED CHILDREN SCORE HIGHER ON THE HEALTHY EATING INDEX.³²

SINCE THE FOOD PACKAGE UPDATES, WIC FAMILIES' FOOD PURCHASING HABITS HAVE BECOME HEALTHIER.³³

HOUSEHOLDS ENROLLED IN WIC TEND TO PURCHASE MORE WHOLE GRAIN BREADS AND BROWN RICE.³⁴

4. SCREENING AND REFERRALS: BRIDGING IMPORTANT HEALTH AND SOCIAL SERVICES

Referrals or connections to other services such as prenatal or pediatric care, dental care, and social services are part of the core services provided through WIC. Through referrals, WIC builds bridges, connecting families to primary and preventive health care and social service resources.

- » The healthcare needs of children participating in both WIC and Medicaid are better met than low-income children not participating in WIC.³⁵
- » Children who participate in WIC are more likely to have immunization rates comparable to children with higher incomes.³⁶

WIC: A BRIDGE TO PEDIATRIC DENTAL CARE

Tooth decay is one of the most common chronic childhood conditions.³⁷ One study found that children who participated in WIC were more likely to have a dental visit and use preventive dental services and less likely to use emergency services for dental problems.³⁸ Results from the same study also indicated that children who participated in WIC for a full year were about 1.7 times more likely to have two or more dental visits per year than those who never participated in WIC.³⁹ Likewise, WIC children between ages one and two have lower dental-related Medicaid costs compared to those who do not participate in WIC.⁴⁰

WIC IS GOOD FOR OUR ECONOMY: CONTRIBUTING TO SUBSTANTIAL HEALTHCARE COSTS SAVINGS

The US spends 17% of our Gross Domestic Product (GDP) on healthcare costs, almost twice as much as other developed countries.⁴¹ Despite the high spending, life expectancy in the US is shorter, while the prevalence of chronic conditions is higher. By providing preventive health services during critical periods of growth and development, WIC helps to lower healthcare costs and improve health outcomes for its participants. In addition, by reducing the number of pre-term births and low birth-weight babies, WIC is contributing to substantial healthcare cost savings.

- » WIC reduces the likelihood of adverse birth outcomes, including very low birth-weight babies.⁴²
- » WIC improves birth outcomes for high-risk mothers.^{43 44}
- » Preterm births cost the US over \$26 billion a year, with average first-year medical costs for a premature/low birth-weight baby of \$49,033 compared to \$4,551 for a baby born without complications.⁴⁵
- » For very low birth-weight babies, an increase of one pound at birth saves approximately \$28,000 in first year's medical costs.⁴⁶
- » The annual cost of WIC participation per participant is approximately \$856,⁴⁷ making WIC a wise investment.
- » It has been estimated that \$13 billion per year would be saved if 90% of US infants were breastfed exclusively for six months.⁴⁸ Currently, only 25% of all American infants are exclusively breastfed at six months.⁴⁹ As

a nation, we have a long way to go. WIC is playing a critical role in supporting moms and babies to breastfeed. This is why making the investment in WIC breastfeeding peer counselors and other breastfeeding support efforts is so critical.

- » It has been estimated that if 90 percent of WIC infants were breastfed for 12 months and received no infant formula during that time, health-related cost savings would total about \$9.1 billion.⁵⁰

WIC IS A SMART INVESTMENT, CONTRIBUTING TO SUBSTANTIAL HEALTHCARE COST SAVINGS AND ASSURING HEALTHIER OUTCOMES FOR OUR NATION'S FAMILIES AND OUR FUTURE.

WIC: EMPOWERING FAMILIES, STRENGTHENING COMMUNITIES

Please direct all questions to Brian Dittmeier, Senior Public Policy Counsel, at bdittmeier@nwica.org or 202-232-5492.

¹ GBD Maternal Mortality Collaborators (2016) Global, regional, and national levels of maternal mortality, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet*: Vol.338, No.10053. pp.1775-1812.

² United States Department of Agriculture, Food and Nutrition Service (2017) WIC Program Data. Accessed online: <https://www.fns.usda.gov/pd/wic-program>.

³ Bartick M, Schwarz EB, Green BD, Jegier BJ, Reinhold AG, Colaizy TT, Bogen DL, Schaefer AJ, Steube AM (2017) Suboptimal Breastfeeding in

the United States: Maternal and pediatric health outcomes and costs. *Journal of Maternal and Child Health*. Vol. 13, Issue 2.

⁴ United States Department of Agriculture, Food and Nutrition Service (2017) WIC Program Data. Accessed online: <https://www.fns.usda.gov/pd/wic-program>.

⁵ Thorn, B., Kline, N., Tadler, C., Budge, E., Wilcox-Cook, E., Michaels, J., Mendelson, M., Patlan, K. L., & Tran, V. (2018). WIC Participant and Program Characteristics 2016. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service. Available online at: www.fns.usda.gov/research-and-analysis.

⁶ United States Department of Agriculture, Food and Nutrition Service (2016) WIC at a Glance. Accessed online: <https://www.fns.usda.gov/wic/about-wic-glance>

⁷ U.S. Department of Agriculture, Food and Nutrition Service (2017) WIC Combined Federal and State WIC NSA Outlays and In-Kind Report FY2015 (FNS-798A).

⁸ May L, Borger C, Weinfield N, MacAllum C, DeMatteis J, McNutt S, Whaley S, Ritchie L, Sallack L. (2016) WIC Infant and Toddler Feeding Practices Study 2: Infant Year Report. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service. Accessed online: <https://www.fns.usda.gov/wic/wic-infant-and-toddler-feeding-practices-study-2-infant-year-report>.

⁹ May L, Borger C, Weinfield N, MacAllum C, DeMatteis J, McNutt S, Whaley S, Ritchie L, Sallack L. (2016) WIC Infant and Toddler Feeding Practices Study 2: Infant Year Report. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service. Accessed online: <https://www.fns.usda.gov/wic/wic-infant-and-toddler-feeding-practices-study-2-infant-year-report>.

¹⁰ American Academy of Pediatrics (2018) *Infant Food and Feeding*. Accessed online: <https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/half-implementation-guide/age-specific-content/pages/infant-food-and-feeding.aspx>.

¹¹ Thorn, B., Kline, N., Tadler, C., Budge, E., Wilcox-Cook, E., Michaels, J., Mendelson, M., Patlan, K. L., & Tran, V. (2018). WIC Participant and Program Characteristics 2016. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service. Available online at: www.fns.usda.gov/research-and-analysis.

¹² Au L, Whaley S, Gurzo K, Meza M, Ritchie L (2016) If You Build It They Will Come: Satisfaction of WIC Participants With Online and Traditional In-Person Nutrition Education *Journal of Nutrition Education and Behavior*: Vol.45 Issue.8.

¹³ Cates S, Capogrossi K, Sallack L, Deehy K, Eicheldinger C, Karns S, Bradley S, Kosa K, and Brophy J. (2016) *WIC Nutrition Education Study: Phase I Report*. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support.

¹⁴ May L, Borger C, Weinfield N, MacAllum C, DeMatteis J, McNutt S, Whaley S, Ritchie L, Sallack L. (2016) WIC Infant and Toddler Feeding Practices Study 2: Infant Year Report. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service.

¹⁵ May L, Borger C, Weinfield N, MacAllum C, DeMatteis J, McNutt S, Whaley S, Ritchie L, Sallack L. (2016) WIC Infant and Toddler Feeding Practices Study 2: Infant Year Report. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service.

¹⁶ Lorrene D. Ritchie, Shannon E. Whaley, Phil Spector, Judy Gomez, Patricia Crawford (2010) Favorable Impact of Nutrition Education on California WIC Families. *Journal of Nutrition*

Education and Behavior: Vol.43 Issue 3.pp. S2-S10.

¹⁷ Jones K, Power M, Quennan JT, Schulkin J (2015) Racial and Ethnic Disparities in Breastfeeding. *Breastfeeding Medicine*: Vol. 10, Number 4.

¹⁸ Forrestal S, Briefel R, Mabli J (2015) WIC Breastfeeding Policy Inventory. Prepared by Mathematica Policy Research under Contract No.AG-3198-B-10-0015. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service.

¹⁹ Gross S, Resnick A, Cross-Barnet C, Nanda P, Augustyn M, Paige D. (2009). The differential impact of WIC Peer Counseling programs on breastfeeding initiation across the state of Maryland. *Journal of Human Lactation*: Vol. 26 Issue 4, pp 435-43.

²⁰ Mickens AD, Modeste N, Montgomery S, Taylor N (2009) Peer support and breastfeeding intentions among black WIC participants. *Journal of Human Lactation*: Vol.25 Issue 2.

²¹ Patlan, K. L. & Mendelson, M. (2018). WIC Participant and Program Characteristics 2016: Food Package Report. Prepared by Insight Policy Research. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Project Officer: Anthony Panzera. Available online at www.fns.usda.gov/research-and-analysis.

²² Thorn, B., Kline, N., Tadler, C., Budge, E., Wilcox-Cook, E., Michaels, J., Mendelson, M., Patlan, K. L., & Tran, V. (2018). WIC Participant and Program Characteristics 2016. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service. Available online at: www.fns.usda.gov/research-and-analysis.

²³ Metallinos-Katsaras E, Brown L, Cochamiro R (2013) Maternal WIC Participation Improves Breastfeeding Rates: A Statewide Analysis of WIC Participants *FASEB Journal*: Vol.27 No.1 Supplement 122.7.

²⁴ U.S. Department of Agriculture, Food and Nutrition Service (2018) WIC EBT Detail Status Report. Accessed online: <http://www.fns.usda.gov/sites/default/files/wic/WIC-detailstatusreport.pdf>.

²⁵ Andreyeva T, Luedicke J, Middleton AE, Long MW, Schwartz MB (2012) Positive influence of the revised Special Supplemental Nutrition Program for Women, Infants, and Children food packages on access to healthy foods. *Journal of the Academy of Nutrition and Dietetics*: Vol. 112 Issue 6, pp. 850-858.

²⁶ Hillier A, McLaughlin J, Cannuscio CC, Chilton M, Krasny S, Karpyn A. (2012) The impact of WIC food package changes on access to healthful food in two low income urban neighborhoods. *Journal of Nutrition Education and Behavior*: Vol. 4, Issue 3, pp.210-216.

²⁷ Chiasson M, Findley S, Sekhobo J, Scheinmann R, Edmunds L, Faly, A, McLeod N. (2013) Changing WIC Changes What Children Eat, *Pediatric Obesity*: Vol. 21 Issue 7, pp. 1423-1429.

²⁸ Whaley S, Ritchie L, Spector P, & Gomez J (2012) Research article: revised WIC food package improves diets of WIC families, *Journal of Nutrition Education and Behavior*: Vol. 44 Issue 3, pp. 204-209.

²⁹ Havens EK, Martin KS, Jan J, Dauser-Forrest D, Ferris AM. (2012) Federal nutrition program changes and healthy food availability. *American Journal of Preventive Medicine*. Vol.43 Issue.4, pp. 419-422.

³⁰ Ng S, Hollingsworth B, Busey E, Wandell J, Miles D, Poti J (2018) 'Federal Nutrition Program Revisions Impact Low-Income Households' Food Purchases'. *American Journal Of Preventive Medicine*: Vol. 54, Issue 3, pp. 403-412. Available



online: [http://www.ajponline.org/article/S0749-3797\(17\)30714-6/fulltext](http://www.ajponline.org/article/S0749-3797(17)30714-6/fulltext).

³¹ Khan R, Zhu T, Dhar S, (2017) 'The Effect of the WIC Program on Consumption Patterns in the Cereal Category'. *Quantitative Marketing and Economics*: Vol. 16, Issue 1, pp. 79-109. Available online: <https://link.springer.com/article/10.1007/s11129-017-9191-z>.

³² Tester J, Leung C, Crawford P (2016) Revised WIC Food Package and Children's Diet Quality. *Pediatrics*. April 2016. Available online: <http://pediatrics.aappublications.org/content/early/2016/04/05/peds.2015-3557>.

³³ Andreyeva T, Tipp A (2016) The healthfulness of food and beverage purchases after the federal food package revisions: The case of two New England states. *Preventive Medicine*: Vol.91.pp.204-2010.

³⁴ Andreyeva, T, Luedicke J (2013) Federal Food Package Revisions Effects on Purchases of Whole Grain Products. *American Journal of Preventive Medicine*: Vol. 45, Issue 4. pp. 422-429.

³⁵ Buescher A, Horton J, Devaney B, Roholt S, Lenihan A, Whitmore T, and Kotch J. (2003) Child Participation in WIC: Medicaid Costs and Use of Health Care Services, *American Journal of Public Health*: Vol. 93 No.1, pp.145-150.

³⁶ Thomas TN, Kolasa MS, Zhang F, Shefer AM (2014) Assessing immunization interventions in the women, infants, and children (WIC) program. *American Journal of Preventive Medicine*: Vol.47 Issue 5, pp. 624-628.

³⁷ Buescher A, Horton J, Devaney B, Roholt S, Lenihan A, Whitmore T, and Kotch J. (2003) Child Participation in WIC: Medicaid Costs and Use of Health Care Services: *American Journal of Public Health*: Vol. 93 No.1, pp. 145-150.

³⁸ Lee, Rozier, Norton, Kotch and Vann Jr. (2004) Effects of WIC Participation on Children's Use of Oral Health Services. *American Journal of Public Health*: Vol. 94 No.4.

³⁹ Lee, Rozier, Norton, Kotch and Vann Jr. (2004) Effects of WIC Participation on Children's Use of Oral Health Services. *American Journal of Public Health*: Vol. 94 No.4.

⁴⁰ Lee JY, Rozier RG, Norton EC. (2004) The effects of the Women, Infants, and Children's Supplemental Food Program on dentally related Medicaid expenditures, *Journal of Public Health Dentistry*: Vol. 64 No.2, pp.76-81.

⁴¹ These countries include: Australia, Canada, Denmark, France, Germany, Japan, Netherlands, New Zealand, Norway, Sweden, Switzerland and the United Kingdom.

⁴² Hilary H, Page M, Huff Stevens A. (2011). Can targeted transfers improve birth outcomes? Evidence from the introduction of the WIC program. *Journal of Public Economics*: Vol. 95, pp.813-827.

⁴³ Figlio D, Hamersma S, Rith J. (2009) Does prenatal WIC participation improve birth outcomes? New evidence from Florida. *Journal of Public Economics*: Vol.93, pp 235-245.

⁴⁴ Gueorguieva R, Morse SB, Roth, J. (2009) Length of prenatal participation in WIC and risk of delivering a small for gestational age infant: Florida, 1996-2004, *Journal of Maternal Child Health*: Vol. 13 Issue 4, pp. 479-88.

⁴⁵ Institute of Medicine. (2006). *Preterm Birth: Causes, Consequences and Prevention*. Washington DC: National Academy of Sciences.

⁴⁶ Thomson Reuters. (2008). *The cost of Prematurity and Complicated Deliveries to U.S. Employers*. Report prepared for March of Dimes.

⁴⁷ Total FY 2017 WIC grant amount (\$6,512,689,161) divided by FY2017 total (women, infants and children) average participation (7,286,161). Data from United States Department of Agriculture Food and Nutrition Service WIC

program and funding data. Accessed online: <https://www.fns.usda.gov/wic/wic-funding-and-program-data> and <https://www.fns.usda.gov/pd/wic-program>.

⁴⁸ Bartick M, Reinhold A. (2010) The burden of suboptimal breastfeeding in the United States: A pediatric cost analysis. *Pediatrics*: Vol.125 Issue 5, pp. e1048-e1056.

⁴⁹ Centers for Disease Control and Prevention (2018) National Immunization Surveys 2016 and 2017, among children born in 2015. Available online: <https://www.cdc.gov/breastfeeding/data/reportcard.htm>

⁵⁰ Oliveira V, Prell M, and Cheng X. (2019) The Economic Impacts of Breastfeeding: A Focus on USDA's Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), ERR-261, U.S. Department of Agriculture, Economic Research Service, February 2019.