

Life Course Indicator: WIC Nutrition Services

The Life Course Metrics Project

As MCH programs begin to develop new programming guided by a life course framework, measures are needed to determine the success of their approaches. In response to the need for standardized metrics for the life course approach, AMCHP launched a project designed to identify and promote a set of indicators that can be used to measure progress using the life course approach to improve maternal and child health. This project was funded with support from the [W.K. Kellogg Foundation](#).

Using an RFA process, AMCHP selected seven state teams, Florida, Iowa, Louisiana, Massachusetts, Michigan, Nebraska and North Carolina, to propose, screen, select and develop potential life course indicators across four domains: Capacity, Outcomes, Services, and Risk. The first round of indicators, proposed both by the teams and members of the public included 413 indicators for consideration. The teams distilled the 413 proposed indicators down to 104 indicators that were written up according to three data and five life course criteria for final selection.

In June of 2013, state teams selected 59 indicators for the final set. The indicators were put out for public comment in July 2013, and the final set was released in the Fall of 2013.

Basic Indicator Information

Name of indicator: WIC Nutrition Services (LC-18)

Brief description: Proportion of children aged two to five years receiving WIC services compared to proportion of children <185 percent federal poverty limit (FPL)

Indicator category: Early Life Services

Indicator domain: Service/Capacity

Numerator: Children aged two to five years participating in the WIC program

Denominator: Total children aged two to five years whose income is below 185 percent FPL

Potential modifiers: Categories of FPL, race/ethnicity, adjunctive eligibility in Supplemental Nutrition Assistance Program (SNAP), TANF, Medicaid. Per federal regulations, the WIC Program can use adjunctive eligibility in SNAP, TANF and/or Medicaid for income verification. In some states, the Medicaid eligibility limits are above 185 percent of the FPL.

Data source: WIC program data

Notes on calculation: To maintain a comparable indicator across states and jurisdictions, we recommend using a definition of participation based on the U.S. Department of Agriculture (USDA) regulatory definition for children where participants as those who use their WIC checks or EBT card on a monthly basis.

Similar measures in other indicator sets: Maternal, Infant, and Early Childhood Home Visiting (MIECHV) Benchmark Area Improvements in Family Economic Self-Sufficiency: Household income (including earnings, cash benefits, and in-kind and non-cash benefits)

Life Course Criteria

Introduction

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) provides federal grants to states for supplemental foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, and to infants and children up to age five who are found to be at nutritional risk. WIC nutrition services can reduce a child's risk of malnutrition and nutritional deficiencies, thereby positively impacting the life of low-income children. Additionally, children with improved nutrition are likely to become adults with good nutrition. Good nutrition among adult women, which is encouraged in WIC participants, is important for reducing the risk of poor pregnancy outcomes and for establishing healthy habits for the entire family.

Implications for equity

The WIC program provides nutrition education, breastfeeding support, food, and referrals to health care and social services to nutritionally at-risk low-income pregnant women, postpartum and breastfeeding women, infants, and children until age five years. The USDA Food and Nutrition Service estimated that the average monthly WIC population totaled 14.55 million in 2010. Children aged one to four years made up about 60 percent of the program's eligible population.

The WIC program serves a racially and ethnically diverse population. The WIC Participant and Program Characteristics 2010 study, conducted by Abt Associates for the Food and Nutrition Service, collected information on WIC participant ethnicities and races (information was based on WIC enrollment not program participation). Among 10,021,138 participants in 2010, 6,107,270 (60.9 percent) were White, 1,934,966 (19.3 percent) were Black, 1,054,982 (10.5 percent) were American Indian, 420,407 (4.2 percent) were of multiple races, 273,040 (2.7 percent) were Asian, and 81,610 (0.8 percent) were Hawaiian/Pacific Islander. The 'race not reported' category accounted for the remaining 143,696 (1.4 percent) enrolled participants. Hispanic participants accounted for 4,212,041 (42.0 percent) of the population. Among WIC program enrollees, 2,356,368 (25.5 percent) were women, 2,366,705 (23.6 percent) were infants and 5,298,065 (52.9 percent) were children.

WIC program eligibility is based on income and family size, and the maximum eligibility for any WIC program is 185 percent of the FPL. Consequently, WIC participants come from some of the poorest households in the United States; in 2012, about 75 percent of WIC participants reported an income at or less than 100 percent of the FPL compared with only 15 percent of the general population (USDA 2012). WIC nutrition services can reduce a child's risk of malnutrition and nutritional deficiencies, thereby positively impacting the lives of low-income children. As the risks for low-income populations have shifted to include overnutrition (taking in more calories than required for normal growth and development) and obesity, WIC has maintained efforts to promote and assist families with healthy eating. Children with improved nutrition are more likely to become adults with good nutrition.

WIC also provides low-income families with opportunities to improve on early childhood developmental outcomes through nutrition. Children whose mothers participated in the program prenatally had improved vocabulary scores, and children who participated in WIC after the first year of life experienced significantly improved memory (USDA 1987). In addition to nutrition services, the WIC program is often used as an entry point to assist families with other needed services or to introduce enhanced opportunities. For example, the Contra Costa health department has developed an initiative called Building Economic Security Today (BEST), which is an asset development pilot project that utilizes innovative strategies to reduce inequities in health outcomes for low-income Contra Costa families by improving their financial security and stability, for this and future generations; BEST is being rolled out with the WIC program and includes financial education classes to WIC clients and asset development educational materials and referrals for all clients (Contra Costa Health Services 2014).

Public health impact

The WIC program provides specifically designated supplemental foods, nutritional counseling and referrals to health and social programs with a goal of counteracting the impact of poverty on prenatal, infant and early childhood health. Childhood poverty is known to have lasting impacts on health outcomes (Sell et al 2010). Malnutrition affects brain development and contributes to child mortality worldwide (Bryce et al 2005). Iron deficiency negatively impacts motor and mental development, which can have delayed effects later in childhood (Lozoff et al., 2000). Nutrition interventions early in life, such as WIC, are especially important among lower income populations because lower income populations have

higher rates of diabetes, obesity and other chronic diseases. Trevino et al. demonstrated that low-income children have high levels of diabetes risk factors due to high obesity rates, consumption of high-energy low-nutrient foods, and low levels of physical activity (2008).

The USDA Office of Research and Analysis recently (January 2012) published a review of 16 studies conducted during 2002 to 2010 that evaluated WIC participation and infant and child dietary intake, food security, and related outcomes (USDA 2012). These studies also included data on diet quality, knowledge of infant feeding practices, and food labeling behaviors. Overall, the studies suggested that WIC participation is associated with improved diets, including increased iron density, fewer added sugars, and a greater variety of foods. WIC participation also is positively associated with gestational age and mean birth weight (USDA 2012) and WIC participants were more likely to be up-to-date on immunizations compared to non-eligible children of the same age cohort and WIC-eligible children who did not participate (Luman, 2003). WIC participation was associated with greater use of health care including preventative and restorative dental care (USDA 2012).

A major goal of the WIC Program is to improve the nutritional status of infants. Research has shown that there is no better food than breast milk for a baby's first year of life. Given this, WIC mothers are encouraged to breastfeed their infants. WIC provides ongoing support to breastfeeding mothers by providing peer counseling, extended participation in the WIC program, and enhanced food packages (USDA 2013a). This ongoing support provides many health, nutritional, economical and emotional benefits to mother and baby (USDA 2013b).

In addition to improving diets, WIC is a cost-effective program. As early as 1990, the federal government avoided \$853 million in health expenditures for infant care by investing \$296 million in prenatal WIC benefits (USGAO, 1992). This expenditure translated to \$1 billion savings in health and education related expenditures for the first 18 years of life. Investment in WIC also has saved Medicaid money. Every dollar spent on pregnant WIC participants saved Medicaid between \$1.92 to \$4.21 (Devaney, Bilheimer, & Schore, 1991). Additionally, the nutrition benefits given to pregnant WIC participants reduced their risk of delivering a low birth weight infant, which resulted in further Medicaid savings (Devaney, 1992).

Leverage or realign resources

This indicator presents opportunities for leveraging and realigning resources in sectors such as health care, employers, education, childcare facilities, and government programs, all of which are a critical touch point for pregnant and postpartum women, and infants. WIC is administered by state agencies and operated through local agencies in clinic sites, state health departments, and Indian Tribal Organizations. Specific examples of agencies that administer WIC services include county health departments, hospitals, schools, public housing sites, community centers, hospitals, and migrant health centers and camps.

The number of women, infants, and children receiving WIC benefits in FY2013 was nearly nine million per month (USDA 2013a). Since 1996, the USDA Food and Nutrition System has allocated a minimum expenditure for breastfeeding promotion and support activities equal to \$21 multiplied by the number of pregnant and breastfeeding women in the WIC Program, based on the average of the last three months for which USDA has final data. State agencies must spend a specified amount of the total funding for breastfeeding promotion and support. Efforts to increase and support the number of women breastfeeding have also included enhanced food packages for women breastfeeding up to 12 months and the implementation of the Peer Counseling Program (USDA 2013b).

The target population for WIC participants is low-income, nutritionally at risk pregnant women, breastfeeding women, non-breastfeeding postpartum women, infants and children up to their 5th birthday (USDA 2013b). Given this, there is an additional opportunity for leveraging and aligning resources with early childhood centers, such as Head Start. Head Start promotes the school readiness of young children from low-income families through agencies in their local community (ACF About Head Start 2013). WIC and Head Start share common goals to promote health and nutrition for young families, and assistance in accessing on-going preventive health care. By working together, these programs have an opportunity to promote health to families and support their continuum of care, making a positive impact on good health and nutrition.

Children living below the 185 percent FPL (maximum qualification for any WIC program) are more likely to qualify for SNAP benefits later and free or reduced school lunches and they are more likely to experience developmental delays due to poor nutrition and limited resources. Given this, education and social services are more likely to work with these children after they no longer qualify for WIC. WIC participation is associated with better nutrition among school-aged children, and those children are likely to perform better in school, further supporting education's interest in WIC (Carlson & Senauer, 2003; Schneider et al., 2008; Siega-Riz et al., 2004; Rush et al., 1986 and USDA, 2013a). Given the overlap, education and social services may be interested in supporting WIC services in order to support families being healthy and also to reduce the need for costly services later.

Predict an individual's health and wellness and/or that of their offspring

WIC produces positive prenatal outcomes. WIC participation is especially protective for high-risk women (El-Bastawissi et al., 2007), and significantly increases the number of women receiving adequate prenatal care (Rush et al., 1986). WIC participation is associated with improved birth outcomes (Bitler and Currie 2005, USGAO, 1993) and reduces low birth weight among WIC participants (Figlio et al., 2009). Improving the health and pregnancy outcomes of mothers lays the foundation for improving the nutrition of their children.

WIC improves infant health. WIC participation reduced infant mortality during the first 28 days in four out of five states (Devaney & Schirm, 1993). It contributed to increased breastfeeding rates among participating mothers (USGAO, 1993) and had a positive impact on infant weights, statures and health compared to eligible non-participating infants (Black et al 2004). More recently, a study demonstrated that WIC participation had a positive impact on increasing average infant birth weight and was able to decreased the proportion of births categorized as low birth weight (Hoynes et al 2011).

WIC improves children's health so that they start school ready to learn (Rush et al., 1986). WIC reduces the prevalence of iron deficiency anemia (Schneider 2008). Children in households participating in the WIC program are significantly more likely to be in excellent health (Carlson and Senauer 2003). WIC participation has a positive impact on preschoolers' diets (Siega-Riz et al., 2004) and has beneficial effects on change in height for age (USDA 2013a). Addressing adequate nutrition at critical and sensitive periods in the life course, through prenatal and early childhood nutritional support of the WIC program, provides families with the opportunity for a healthier life trajectory through improved health and developmental outcomes as well reduced economic stress and support through connection to other public programs and partnerships.

Data Criteria

Data availability

To calculate the numerator, data can be obtained from a state health department WIC program. Potential regulations regarding state data may mean the data are less accessible, but the data are available. Every state WIC program collects data for the number of children aged two to five years participating in the WIC program and report the data to the USDA, ensuring data reliability. Therefore, the USDA may be another potential source for obtaining WIC data. Publicly available data for WIC do not include the specific age range needed for this indicator by state so a special request might need to be made.

WIC programs also maintain the numbers of WIC eligibles, which is the denominator for this indicator. USDA uses the American Community Surveys (ACS) as the basis for state WIC eligibility estimates. Medicaid enrollment information is used for estimating adjunctive eligibility. The number of children ages two to five below 185 percent of the FPL can also be obtained from Current Population Surveys (CPS). The CPS is a household survey primarily used to collect employment data. The sample universe for the basic CPS consists of the resident civilian non-institutionalized population of the United States. Therefore, persons living in institutions and homeless persons are not included in the sample. Some states use Current Population Surveys – Annual Social and Economic Supplement (CPS-ASEC), while others use the ACS in addition to CPS. Because of its detailed questionnaire and its experienced staff, the CPS ASEC is a high-quality source of information used to produce the official annual estimate of poverty and estimates of a number of other socioeconomic and demographic characteristics.

Data quality

The U.S. Census Bureau's quality standards apply to all products released, including the CPS ASEC and the ACS. The Census Bureau makes every effort to ensure the data are accurate and reliable. The Office of Management and Budget (OMB) released Standards and Guidelines for Statistical Surveys with requirements for federal statistical agencies in 2006 (OMB 2006). In 2012, the U.S. Census Bureau reissued their statistical quality standards in 2012, which complement the 2006 OMB standards ensuring data quality (USCB 2012).

Simplicity of indicator

Calculating this indicator is straightforward. It compares the number of children participating in WIC to the total number of children below 185 percent FPL who are eligible for WIC. There are few points that may impact the interpretation of the indicator. For example, the term "participating" can have more than one meaning. A participant can be enrolled in the program but not use their benefits every month. This participant would be active in the state system but not be considered participating for USDA reimbursement purposes. USDA pays states based on the numbers of participants that use their WIC checks or EBT card on a monthly basis. Participation based on the USDA definition would allow consistency of the metric across states.

Explaining the indicator is slightly more difficult but still straightforward. WIC nutrition services are important for ensuring low-income children receive the nutrients they need to stay healthy and grow. The majority of people would understand using a measure to monitor the number of children utilizing WIC services. The challenge might be in explaining the particular definition chosen for WIC participation and why all children below 185 percent FPL is the comparison population, since each state WIC program sets its own income standard eligibility requirement that can range from 100 to 185 percent. The cutoff of 185 percent of the FPL was chosen to demonstrate the capacity of the WIC program to serve all potentially eligible children in the United States.

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