

Food Security Program Expansion Can Help Reduce Preterm Birth

Research Brief for Policymakers



One in four San Francisco residents is at risk of hunger due to low-income, and over half of low-income pregnant women are food insecure.ⁱ For pregnant women, poor nutrition and the stress of food insecurity can lead to preterm birth (delivery before 37 weeks),ⁱⁱ a leading cause of infant death and poor health.ⁱⁱⁱ This transmission of disadvantage during pregnancy may explain the intergenerational persistence of health disparities in San Francisco and throughout the United States.

The UCSF California Preterm Birth Initiative (PTBi-CA) has conducted research on the improvements to WIC (the Special Supplemental Nutrition Program for Women, Infants, and Children).^{iv} We found that a major 2009 revision to incorporate more fruits and vegetables in the WIC meal plan was shown to significantly improve maternal and infant health in California. A separate study of the EatSF Voucher Program, which added \$10 a week of vouchers for fruits and vegetables to existing WIC benefits, found that the addition improves food security and supports healthier dietary intake for low-income pregnant women.^v

Preterm birth is a story of inequity.

- 1 in 12 babies (8.3% of live births) was born preterm in San Francisco in 2016.^{vi}
- The rate of preterm birth in San Francisco is highest for Black infants (11.9%), followed by Asian/Pacific Islanders (8.4%), Hispanics (7.9%) and Whites
- In the United States, the rate of infant deaths is five times higher for Black women than for White women.^{vii}
- Black women are three to four times more likely to die during or after delivery than are White women.^{viii}
- Experiences of racism are a risk factor for preterm birth.

Food insecurity increases risk of preterm birth.

- Food and nutrition are critically important to support a healthy pregnancy, and it impacts preterm birth and low birth weight, which are leading causes of infant morbidity and mortality.^{ix}
- Women in food insecure households can suffer from poor nutrition and excess weight/weight gain, which can increase the risk for pregnancy complications such as gestational diabetes, preeclampsia (a pregnancy complication characterized by high blood pressure and signs of other organ damage) and fetal growth

problems. These factors may lead to worse birth outcomes including shorter gestations and lower birth weights.

- Food insecurity is also associated with depression and anxiety among mothers, which can increase the risk of preterm birth.
- Women in low-income households frequently report challenges affording the healthy foods they would prefer to eat, particularly fruits and vegetables.
- The tension between a limited food budget and the desire to eat a healthier diet is often strongest during pregnancy, when mothers most want to eat a healthy diet in order to support their developing baby.

WIC revisions improve maternal nutrition.

- In July 2019, PTBi-CA published a study of nearly 3 million infants to examine the effects of the October 2009 revisions to the WIC food packages, which increased access to whole grains, fruits, vegetables, and low-fat milk.
- The revisions led to significant improvements in maternal and infant health, including reduced maternal preeclampsia by 17 percent and excessive weight gain in pregnancy by 8 percent. It also resulted in longer pregnancies.¹

- PTBi also funded a study of the SFDPH-supported EatSF program, which allows participants to exchange \$10 vouchers weekly for fruits and vegetables.
- The researchers collected surveys from 592 pregnant women from all six WIC locations in SF, both before starting in EatSF and after 3-6 months of participation.
- The preliminary analysis has suggested that adding fruit and vegetables vouchers to existing WIC benefits improves food security and supports healthier dietary intake for low-income pregnant women.
- The period in which vouchers were distributed was also associated with a decrease in preterm birth rates, compared to women enrolled in WIC the previous year.

Considerations for Policymakers

- PTBi-CA's recent studies suggests that improving women's nutrition may be an important target for policy and clinical interventions. These findings should be incorporated into future cost-benefit analyses of WIC and other food security programs.
- Increased investment in improving the nutrition of low-income pregnant women could potentially improve not only their health but also the health of their children.
- Policymakers should consider expanding on the WIC benefit and other relevant food security programs to ensure that all women can have healthy pregnancies and all babies have a healthy start in life.

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ⁱ San Francisco Food Security Task Force, 2018 Assessment of Food Security

ⁱⁱ Lاراia BA, Leung CW, Murphy AM. Health and developmental correlates of child food insecurity from pregnancy to early childhood. Workshop on Research Gaps and Opportunities on the Causes and Consequences of Child Hunger. https://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_084309.pdf

ⁱⁱⁱ 2018 Black/African-American Health Report, San Francisco Department of Public Health. <https://www.sfdph.org/dph/files/reports/StudiesData/BAAHI-2018-Black-Health-Report.pdf>

^{iv} Hamad R, Collin DF, Baer RJ, Jelliffe-Pawlowski LL. Association of revised WIC food package with perinatal and birth outcomes. JAMA Pediatrics 173(9):845-852, 2019. <https://jamanetwork.com/journals/jamapediatrics/article-abstract/2737097>

^v Seligman H. EastSF: Fruit and vegetable vouchers to support pregnant mothers in San Francisco with food security and health dietary intake. <https://pretermbirthca.ucsf.edu/funded-projects>

^{vi} Quick Facts: Preterm Birth. March of Dimes, Peristats. National Center for Health Statistics. <https://www.marchofdimes.org/Peristats/ViewTopic.aspx?reg=06075&top=3&lev=0&slev=5>

^{vii} Centers for Disease Control and Prevention. Infant Mortality. Atlanta: U.S. Department of Health and Human Services. <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/infantmortality.htm>

^{viii} Centers for Disease Control and Prevention. Pregnancy-Related Deaths. Atlanta: U.S. Department of Health and Human Services. <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy-relatedmortality.htm>

^{ix} Grilo SA, Earnshaw VA, Lewis JB, Stasko EC, Magriples U. Food matters: Food insecurity among pregnant adolescents and infant birth outcomes. Journal of Applied Research on Children: Informing policy for children at risk 6(2)4: 1-14, 2015. <https://www.sfdph.org/dph/files/reports/StudiesData/BAAHI-2018-Black-Health-Report.pdf>