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## How WIC Can Help Enhance Water Security for At-Risk Populations

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Water security at the household level means having consistent access to a sufficient quantity of safe water to support good nutrition and health.<sup>1,2</sup> Water insecurity is often studied in other countries, but also occurs in the United States due to problems with water quality such as source water contamination, unreliable water treatment, or potentially hazardous water infrastructure like lead service lines.<sup>3,4</sup> In 2019, 7 percent of children in the U.S. were served by a public drinking water system that did not meet all health-based water quality standards.<sup>5</sup> In addition, an estimated 37 million people get their drinking water from private wells that may be unsafe due to naturally occurring (e.g., arsenic) or manmade contaminants, and are not subject to federal water monitoring or quality standards.<sup>6</sup>

Families with low incomes are disproportionately affected by exposure to unsafe drinking water.<sup>7</sup> Communities of color and non-native English speakers are also especially likely to live where there have been Safe Drinking Water Act violations.<sup>8</sup> Contaminants such as E. coli, lead, arsenic, and nitrates are particularly harmful to pregnant people, infants, and very young children.<sup>3,9,10</sup> Drinking water contaminants can cause serious adverse maternal and fetal health outcomes, including preterm delivery and miscarriage,<sup>11</sup> can affect an infant's brain development, and can cause gastrointestinal illness, endocrine disruption, and cancer in children.<sup>5</sup> Water testing, bottled water, bulk water, and water filters can be effective

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Author Contributions

CW conceptualized the commentary and EN provided research assistance in reviewing policy documents. CW and EN wrote the initial draft with contributions from AC. All authors reviewed and commented on subsequent drafts of the manuscript.

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solutions for unsafe home drinking water, but they can be inaccessible to families lacking the financial resources to purchase them.<sup>3,12</sup>

The Special Supplemental Nutrition Program for Women, Infants and Children (WIC) program regularly serves pregnant people and infants, individuals who are most vulnerable to water contaminants. This commentary describes strategies that WIC programs and their strategic partners can use to support water-insecure families under existing WIC policy and highlights examples of the ways that WIC programs have supported community efforts to improve access to safe drinking water.

## Strategies to Enhance Water Security Through WIC

WIC provides federal grants to states for supplemental foods, infant formula, breastfeeding promotion and support, nutrition education and referrals to additional resources for pregnant and breastfeeding parents, infants, and children up to age five who have low incomes and are at nutritional risk.<sup>13</sup> WIC reaches 6.2 million individuals annually,<sup>14</sup> including nearly all eligible infants and 85 percent of postpartum people.<sup>15</sup>

WIC is also the nation's largest purchaser of infant formula, and powdered infant formula is the default option in the WIC food package.<sup>16</sup> In 2020, nearly two-thirds of the 1.6 million infants served by WIC were exclusively fed infant formula.<sup>17</sup> Preparation of powdered formula requires access to drinking water that is safe for infant consumption.<sup>13</sup> Under existing WIC guidance and policy, state and local WIC programs have implemented actions to promote water security including using water screening tools during the initial nutrition assessment to identify water-insecure pregnant people and families; providing educational programming about water quality; and engaging in strategic partnerships to refer WIC participants to affordable solutions like water quality testing, water filters, and bottled water.

### Screening WIC Families for Water Security

The United States Department of Agriculture (USDA), which provides federal oversight for the WIC program, requires that state WIC programs assess an applicant's nutrition risk to determine their program eligibility. State programs must use an assessment tool that is at least as stringent as the USDA Food and Nutrition Service's Value Enhanced Nutrition Assessment (VENA).<sup>18</sup> VENA guidance generally lists "safe and adequate water" as a protective factor that may promote a positive health outcome.<sup>19</sup> Water-related nutritional risk factors included in VENA are: a lack of access to safe water for food preparation due to homelessness, migrant status, or being a recipient of abuse; and inability to safely prepare infant formula.<sup>19</sup>

WIC is well-positioned to assess nutritional risks, like water insecurity, through its existing infrastructure for screening and referral. However, assessment tools used by state WIC programs do not systematically capture the type of water source (e.g., public water supplier or private well) or water quality information from clients. As a result, additional screening tools have been used in areas where water contaminants like nitrates and arsenic that are especially harmful to pregnant people and infants are a known issue.

In 2017, a Porterville, CA WIC clinic partnered with a non-profit organization to pilot a program to address the potential hazard of elevated nitrates in private well water.<sup>20</sup> The WIC clinicians screened participants to identify those with a home well. Then, the non-profit organization conducted water sampling and testing for nitrates, notified families of testing results, and arranged for bottled water delivery or water filtration system installations in homes with elevated nitrate levels. In 2020, the New Hampshire Department of Environmental Services and the New Hampshire Department of Health and Human Services collaborated to launch a five-year statewide program to conduct additional screening of pregnant WIC participants for a home well during the initial nutrition assessment, provide water testing for arsenic, and supply filter pitchers when a well exceeds the state limit for arsenic.<sup>21</sup> A program pilot conducted in two counties screened 677 pregnant people, identifying 44 with a private well who were then offered water testing for arsenic, copper, lead, manganese, and uranium.<sup>22</sup> The initial success of this pilot suggests that WIC is well-positioned to implement such screening strategies, and those activities could be expanded in areas with known drinking water contaminant concerns to improve water security among WIC participants.

### **Infant Feeding Guidance & Breastfeeding Support**

WIC programs can attend to drinking water knowledge gaps through infant feeding guidance and nutrition education and breastfeeding support for pregnant people and breastfeeding parents. WIC's 2019 *Infant Nutrition and Feeding Guide* instructs staff that when there is a concern about the use of home tap water for formula preparation, families are to be referred to their health care provider and to the local health department.<sup>23</sup> The Guide also counsels WIC staff to direct participants to Centers for Disease Control and Prevention and Environmental Protection Agency resources on water safety as needed.<sup>23</sup> The Guide highlights safe drinking water as a key aspect of food safety, especially when mixing formula, and covers the recommended total water intake for infants up to 12 months.<sup>23</sup> It discusses local public water quality, private wells, bottled water use, and home water treatment units.<sup>23</sup> It also discusses health risks to infants' from specific contaminants like lead, arsenic, nitrate, mercury, and other heavy metals.<sup>23</sup>

All WIC programs are required to provide breastfeeding support services and nutrition education to pregnant, postpartum, and breastfeeding parents.<sup>24</sup> These services can include individual consultations, group counseling sessions, and online education. WIC participants commonly inquire about the recommended levels of water intake for lactating parents.<sup>25</sup> A USDA online fact sheet called "Nutrition While Breastfeeding" suggests that breastfeeding parents drink enough water to quench their thirst.<sup>26</sup> These educational materials and services could be further tailored to the local context in areas with inconsistent access to safe drinking water, and represent opportunities to link WIC participants to locally available services providing resources to mitigate unsafe water.

### **Water & the WIC Food Package**

Currently, products such as bottled water or water filters to ensure that safe water is available to prepare infant formula and support the drinking water needs of pregnant and lactating people and children up to five years old are not allowable purchases within the WIC food

package.<sup>27</sup> State representatives in Michigan have urged Congress to enact legislation to add bottled water to the list of WIC-eligible foods, noting that “the purchase of bottled water with WIC benefits would ensure a clean, healthy source of water for WIC participants.”<sup>28</sup> To do this, a statutory change would be required, and new federal funding would be needed to expand the WIC food package to include bottled water, so as not to displace other important WIC purchases of healthy foods such as fruits and vegetables.<sup>29</sup>

### **Distribution of Water-Related Resources and Infant Formula Alternatives**

Under current policy, WIC offices can distribute water-related supplies and link WIC participants to services provided by other government agencies and local organizations. For example, since 2011, San Francisco WIC offices have distributed vouchers for free home drinking water lead testing provided by the City and County of San Francisco Public Utilities Commission. The Public Utilities Commission picks up user-collected samples, conducts the laboratory analysis, and notifies participants of their results.<sup>30</sup> In 2017, the Newark Health Department WIC program collaborated with the City of Newark to distribute cases of bottled water to their clients as an interim solution to address elevated lead levels in home tap water. WIC participants could pick up two cases of bottled water from WIC offices every two weeks.<sup>31</sup> In 2019, the City of Milwaukee Health Department, in response to lead in local drinking water, developed a Point-of-Use (POU) Water Filtration Device Distribution Plan to distribute about 600 POU filtration devices via six Milwaukee WIC offices.<sup>32</sup>

WIC programs also can provide pre-mixed infant formula and support water quality programming by other entities. Under federal WIC policy, when an initial nutrition assessment determines that a participant’s household “has an unsanitary or restricted water supply or poor refrigeration,” ready-to-feed infant formula may be issued in place of powdered infant formula as part of a WIC food package benefit.<sup>27</sup> This tailored approach to include ready-to-feed formula happens on a case-by-case basis, including during a natural disaster or when a local water supply is interrupted.<sup>27</sup>

### **Conclusion**

Strategic partnerships between WIC agencies, water utilities, departments of health and environment, and other community organizations are essential to support access to home water quality testing, water filters, and bottled water under existing WIC policy. Table 1 summarizes WIC policies, guidance, programs, and partnerships that could be widely used to support greater water security among WIC participants. In particular, WIC programs can supplement the initial nutrition assessment with water security-specific screenings to identify families experiencing water insecurity, connect them with tailored interventions, and link participants to resources provided through local partnerships. Broader replication of these strategies that focus on water security could strengthen WIC’s nutrition programming and support a universal approach for ensuring safe drinking water access for all WIC participants.

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**Table 1:**

WIC Strategies to Improve Water Security

<b>Strategies Identified Under Current Policy</b>	
<b>WIC Programming Element</b>	<b>Strategy</b>
Initial Nutrition Assessment	Utilize the initial nutrition risk assessment to determine whether a family gets water from a public water system or a private well and whether water quality is known or unknown. Create materials and work with participants with unknown water quality and known water quality issues to get the information they need to make informed decisions about their home tap water. Provide referrals as appropriate to participants who lack safe water to assist with testing and obtaining water filters or bottled water as needed. Tailor food packages to provide ready-to-feed formula as needed.
WIC Breastfeeding Promotion and Support	Create training and program materials for breastfeeding promotion and support staff with information about adequate water intake during pregnancy and while nursing. Promote adequate water intake during pregnancy and while nursing.
WIC Nutrition Education	Create additional training for WIC staff and create clientspecific educational materials about water quality issues affecting public water systems and private wells relevant to the community served.
Strategic Partnerships	Partner with state and local agencies and organizations to distribute water-related supplies and economic supports (filters, coupons, vouchers for testing, etc.).

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