Using Behavioral Science to Improve the WIC Experience

Lessons for the field from San Jose, California

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About The Nutrition Policy Institute (NPI)

The Nutrition Policy Institute (NPI) is housed within the Division of Agriculture and Natural Resources at the University of California and brings together a wide range of experts who develop and conduct research on nutrition, food insecurity, physical activity, wellness, and the prevention of obesity, diabetes and other related health problems. The Institute prizes research that provides a strong basis for public policies and translates findings into evidence-based recommendations that provide a basis for effective decision-making. The policies they strive to inform are those that can eliminate health disparities, especially those stemming from lack of access to healthy foods and opportunities for physical activity. In early 2015 the staff and research projects of the Atkins Center for Weight and Health at UC Berkeley joined NPI, expanding the reach and breadth of NPI's research to support healthy communities.

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Executive Summary

Overview

The Special Supplemental Nutrition Program for Women, Infants, and Children, better known as WIC, serves about 8 million people in the U.S. every month.[1] In addition to providing healthy food, WIC also gives families with low incomes access to a number of services that support health. Since its establishment in 1972, WIC has been a boon to families and to society; its achievements include improvements in infant health[2,3] and reductions in health care costs.[4] Despite the program's clear benefits, not all eligible families enroll, and many drop out of the program before their eligibility lapses. While it may be true that families simply need more information to guide their decisions, we know that information alone is rarely enough to spark action. Instead, we turned to insights into human behavior to understand why families do not enroll and why some stop using these valuable services altogether. What we learned paved the way for new ideas and designs that, if incorporated into WIC, have the potential to impact many lives.

People do not always act as expected. Employing behavioral design means not only acknowledging this, but using insights from behavioral science to design specifically for the way humans actually make decisions. It's important to remember that all people are affected by behavioral tendencies that can seem counterintuitive, and WIC-eligible families are no different. This paper presents instances where the WIC program may be able to improve uptake, compliance, and outcomes by using key principles from behavioral science.

Through a combination of literature review, field observations, and interviews in San Jose, CA, we identified behavioral barriers affecting families' choices and actions throughout what we call the 'WIC lifecycle'—a period that begins when someone becomes eligible for WIC, continues through critical program steps such as visiting the agency and redeeming food vouchers at the store, and ends when the participant "ages out" or is no longer eligible for the program. In the main text, we take an in-depth look at the psychological features of these barriers and offer a range of potential designs—43 in total—aimed at optimizing the experience of engaging with the program. The problems and potential solutions listed here are by no means exhaustive, nor will they necessarily be the most pressing areas in every community. Nonetheless, the problems are likely to be common across other WIC programs in the U.S., and the behaviorally-informed solutions are likely to be applicable beyond San Jose—and perhaps beyond WIC itself.

This piece is the start of our thinking on how behavioral insights might improve outcomes for WIC-eligible families across the U.S. Next, we aim to translate these insights into pilots with local agencies in California over the next year, and then scale up promising interventions into full randomized controlled trials to understand what's working (and how well). We anticipate that this paper will be a jumping off point to help spur innovation.

Problem Statements

Below are the nine problems uncovered in our research that seem the most promising for the behavioral design approach. While there are more problems that can be solved—using both behavioral and structural approaches—this group is where we choose to start. The problems all have the hallmarks of behavioral issues, as they seem to be driven by contextual features and cognitive biases. Furthermore, reducing behavioral barriers surrounding these problems has the potential to create significant positive impact for families with relatively low costs. These problems cut across four stages (Enrollment and Persistence, Building Knowledge and Intention, Healthy Behavior, and Program Exit).

A) Enrolling and Persisting in WIC:

These problems relate to prompt take-up of the WIC program, and to the behaviors associated with persistence in the program while a family is enrolled)

1. *San Jose residents who are eligible for WIC do not enroll immediately or at all. We want them to start utilizing the program at the earliest point that it is helpful to them.*

2. *Participants miss (or are late for) their WIC Agency appointments. We want them to attend their scheduled appointment on time.*

B) Building Nutrition-Related Behavioral Intentions:

These problems relate to the engagement with WIC nutrition education programs, gaining knowledge from those programs, and setting healthy intentions around breastfeeding and family feeding/eating practices

3. *Mothers who are undecided about breastfeeding before giving birth fail to start breast-feeding once formula is available. We want them to set a stronger intention and begin to breastfeed.*

4. *WIC participants are not fully engaging with available nutrition education. We want them to engage more with the education resources.*

C) Following Through on Nutrition-Related Intentions:

These problems relate to the follow-through of healthy intentions that families set – particularly for breastfeeding and food shopping

5. *Mothers with an early intention to breastfeed do not follow through on this intention during their babies' first year. We want them to successfully follow through on their intention and timeline for breastfeeding.*

6. *Some WIC participants aren't shopping at the optimal store(s) for them. We want all partici-pants to find and use the store(s) that will provide them a positive shopping experience.*

7. *WIC participants face multiple difficulties in the shopping and checkout experience. We want their shopping experience to be consistent and easy.*

8. *WIC participants fail to redeem their issued vouchers before they expire. We would like them to pick up the food that they are eligible to receive.*

D) Exiting the WIC Program:

This problem relates to the various reasons people exit WIC before their eligibility expires and to their ability to maintain healthy behavior once they exit

9. *Participants drop out of WIC before their eligibility ends, particularly around the child's first birthday. We would like them to remain in the program as long as they are eligible.*

Design Ideas

Within the main text of this document, we present 43 ***design ideas*** for interventions we generated to overcome ***behavioral barriers*** and ***structural barriers.*** These barriers are the circumstances that prevent optimal outcomes for WIC participants. They may arise from the design of policies, from seemingly minor environmental features or processes of the WIC program, from quirks in human perception or reasoning, or from an interaction of these factors. We identified some of these barriers in our research and hypothesized others based on previous work and research. As with our problem statements, these are neither exhaustive nor universal. Also, not all designs have a one-to-one correspondence with a problem—in our experience, some of the most effective designs tackle multiple problems at once.

To illustrate the design ideas, each section has a summary table describing the targeted barrier, the design idea for addressing it, and finally the level at which the idea would have to be implemented. Below is a segment of the summary table for Problem Statement 9 in *Section D) Exiting the WIC Program*—highlighting potential designs to address the priority issue of program dropout. At the end of this document, there are three appendices listing all of the design ideas organized by implementation level and problem statement.

Problem Statement 9: Participants drop out of WIC before their eligibility ends, particularly around the child's first birthday. We would like them to remain in the program as long as they are eligible.

Barrier	Design Idea	Implementer
People may not realize the magnitude of WIC benefits.	**Use Behaviorally-Informed Messaging and Reminders to Spotlight Program Benefits**: We may be able to help people stay in the program by sending reminders that concretize the long-term benefits of WIC, and that leverage loss aversion. This can be enhanced with additional levers like self-affirmation, Enhanced Active Choice (EAC), and framing techniques.	**Local**
Hassles and time scarcity make WIC seem less necessary for working families, especially when they have to make tradeoffs with work.	**Provide Explicit Support for Working Participants**: Send the message that many working families participate in WIC, and help working families plan their appointments around their busy schedules.	**Local or State**
Many people have inaccurate mental models of what makes someone ineligible for WIC.	**Implement Tools for Simplifying Eligibility Requirement Information**: A behavioral re-design of the CDPH eligibility questions might improve uptake and applications by reducing ambiguity.	**State**
Data sharing is not as effective across agencies as it could be.	**Develop a System of Benefits Onramps**: Creating data systems to alert WIC agencies when families who left become adjunctively eligible again could boost enrollment.	**Federal or State**

Introduction

The WIC Program

Since 1972 the Special Supplemental Nutrition Program for Women, Infants, and Children, better known as WIC, has helped families in need. The program is designed to provide supplemental foods during pregnancy and the early childhood years in order to prevent common forms of malnutrition among families facing financial resource constraints. WIC food packages are tailored to include foods rich in nutrients most needed by pregnant women and young children. In addition to providing supplemental foods, WIC provides breastfeeding support and healthy food and nutritional education, playing a critical role in protecting families' health and preparing future generations for success. As of this writing, WIC serves 8 million families in any given month, and has served tens of millions of families since its inception. Providing healthy food to people who need it during critical windows of nutritional sensitivity is sensible, and research confirms that the program is effective. The array of benefits that WIC generates includes improved health at birth,[2,3] reduced health care costs,[4] decreased child obesity,[5] and improved educational and food security[5] outcomes for children. As with any beneficial program, however, there is always room for improvement. While WIC has helped millions of families who access the program, there are many more who could utilize its benefits, but do not. Nationally, fewer than 65% of eligible families access the program,[6] and the number of participants drops as children age, with more than 20% of eligible participants exiting when their children turn one.[7] While some portion of those families may be making a thoughtful decision about their needs and are choosing to opt out, we believe that a significant number of families are not accessing or fully utilizing WIC services for other reasons, some of which can be solved through policy and program changes. In order to understand where those opportunities are, we embarked on the research that led to this report.

Our Research Approach

Over the course of nearly a year, we worked to understand the decisions and actions of WIC-eligible families in San Jose, California. During the project, we interviewed over 70 people, including 44 current or former WIC participants, 18 staff from three local WIC agencies, and 14 academics and other experts. This work was complemented by secondary research and behavioral mapping—a proprietary process for uncovering the psychological features of human decisions and actions. In addition, we conducted field research, including observations of group and individual sessions at three local offices, firsthand exploration of grocery stores and farmers markets, and walk-throughs of various elements of the WIC application and recertification process. California has an extraordinarily high WIC enrollment rate among eligible families, meaning that in our research we were able to learn about opportunities for process and program improvement, as well as promising practices at the state and local level. In the pages that follow, we present both.

Limitations and Caveats

While we expect many of the findings presented to be broadly applicable to WIC programs across the country, our research approach had inherent limitations. The first limitation relates to selection bias among the research participants we were able to recruit. For the most part, the former participants we spoke with had been highly engaged with the WIC program and persisted

throughout their eligibility period. As with any program or service, people who exit the program are much harder to locate and interview than those who stay. Our conclusions are limited by the relative number of people we were able to speak with who discontinued their participation in WIC despite continuing to be eligible. The second caveat is that this research was concentrated by design on the San Jose area. This means that some of the findings that are particular to the city, its population, or the WIC agencies there, may not apply elsewhere. Finally, we would like to note that this research effort was focused on generating a broad array of potential behavioral insights that could prove effective in WIC programs, and not on developing a deep understanding of any particular issue, context or population. Thus, some of the problems are speculative, anecdotal, or based on our best judgment from experience with analogous programs and/or the behavioral science literature, and we tried, wherever possible, to note this clearly in the descriptions below. Moving forward, we are excited to test our hypotheses by piloting some of our design ideas with WIC agencies, and we hope to launch behaviorally-informed interventions evaluated with randomized controlled trials, the gold standard in experimental social science.

Structure of Findings

To organize our thinking, we divided the WIC experience into a conceptual lifecycle—starting with awareness of the program and application, moving into a series of agency interactions, then on to decisions during shopping, applying nutrition education in the home, and finally transitioning out of the program. In the text that follows, you will see that we mirror these lifecycle stages in the four overarching sections (Enrollment and Persistence, Building Knowledge and Intention, Healthy Behavior, and Program Exit).

The nine problem statements cutting across these sections highlight a sub-optimal behavior followed by the outcome we aim to achieve. Each problem statement includes a set of behavioral barriers preventing the ideal outcome along with design suggestions for addressing those barriers. In addition, each section ends with some consideration of the structural barriers that may also be present and the (often non-behavioral) changes that might be necessary to overcome them. In the appendices is a glossary of behavioral concepts discussed throughout the paper, along with a list of the design ideas organized by the level of implementation required (Local, State or Federal) and by the problem statements they correspond to.

A) Program Logistics: Enrolling and Persisting in WIC

Problem Statement 1: **San Jose residents who are eligible for WIC do not enroll immediately or at all. We want them to start utilizing the program at the earliest point that it is helpful for them.**

Across the U.S., fewer than half of WIC-eligible families receive benefits.[8] Even California, which maintains WIC's highest coverage rate in the nation, shows a trend of lower enrollment rates for families with specific circumstances. For example, families near the income cut off [a,9] are less likely to enroll. In on-the-ground research in San Jose, we identified that these groups on the income border, as well as non-citizens and caregivers who aren't biological mothers, may be affected by biased perceptions of who the program is for. As a result, these groups may experience feelings that the WIC program isn't for someone like them (or perhaps isn't safe or welcoming for someone like them) and postpone enrollment or never enroll at all. To combat this problem, we recommend targeted messaging through a variety of channels.

[a] *This trend is also observed through the entire United States.*

Barrier	Design Idea
Personal social network referrals may be more salient than institutional channel referrals.	**Leverage Social Networks to Promote Participation:** WIC agencies can expand their outreach by using social networks of existing clientele, including through social media. They might motivate client referrals using micro-incentives and gamification.
Underutilization of natural channel factors may limit enrollment.	**Increase Referral Channels:** WIC can expand outreach by using atypical institutional referral channels like insurers, schools, childcare providers, hospitals, Head Start, etc.
WIC eligible families near the income cutoff enroll at lower rates.	**Send Targeted Enrollment Messaging**: Sending messages to WIC-eligible families with Medi-Cal or with private health insurance may boost enrollment in the program.
	Frame the Program in Terms of Health Promotion: Framing WIC as a program to promote health or nutrition (as opposed to a public benefits program) could attract people that might otherwise be deterred by stigma, or the perception that WIC is only for needier people.
WIC appointments introduce various obstacles and transaction costs.	**Increased Accessibility of WIC Sites**: WIC can promote enrollment and retention by choosing more accessible locations and operating hours, and by providing childcare and transportation supports.*

* this design is applicable here, but is fully discussed in Problem Statement 2

Leverage Social Networks to Promote Participation

In our interviews, many families retrospectively identified their personal social networks as the most salient referral channels. Because of this, there seems to be ample opportunity to leverage the social networks of current WIC clients even more effectively. As one staff member suggested, WIC offices might "...host a contest with moms—whoever can bring new people that qualify for the program could win a prize donated by someone." Whether through gamification, micro-incentives, or other tools, the power of personal connections can be leveraged to increase enrollment. The goal here would be to motivate conversations about this available benefit and raise awareness through channels that people know and trust, with the outcome of not just artificially boosting early enrollment numbers but connecting WIC with more people who can benefit from its resources in the long term.

Additionally, social media can become a more standard tool for outreach. Among participants who used social media, we learned that they are hesitant to follow WIC online because of some negative associations with the program. WIC programs might combat those associations by attracting an audience of people inside and outside of WIC with helpful tips about raising and feeding infants and young children, new healthy recipes to try, and recommendations for other

credible sources.[b] Some programs, such as PHFE WIC, have already made a head start on this, mostly focusing on photos and recipes for appetizing meals.[10]

Increase Referral Channels

Beyond personal connections, we also heard that institutional referrals are valued. There may be opportunities to use non-traditional institutional channels (i.e. outside the OB/GYN[c] office or social service programs). Any number of trusted sources might become communication and referral channels for WIC, depending on the audience and vector—recommendations from WIC staff included schools, child care providers, hospitals, pharmacies, Head Start programs, insurance companies and more.

Send Targeted Enrollment Messaging

Additional referral channels may be of particular importance for one population that tends to be underserved by WIC: those who are eligible but have private health insurance. Large health insurers with populations on private health plans like Kaiser Permanente or Anthem Blue Cross[d,11] might be able to partner with WIC to identify families who are eligible but not enrolled, and/or stage behaviorally-informed interventions aimed at increasing uptake. Targeted messaging sent through insurers, including MediCal, could be a promising referral channel.

Frame[12] the Program in Terms of Health Promotion

Many WIC-eligible working families that are near the income cutoff are not receiving benefits, despite struggling financially. Nationally, only 36% of families at the upper end of the WIC-eligible income guidelines[e] participate in the program.[8] What prevents these cash-strapped working families from participating in WIC? For many, it's a **mental model** that suggests the program is only available to families who are unemployed or are in an emergency situation; thus, working families may avoid the program unnecessarily. Making this mental model more pervasive is people's tendency to compare their income to others' in inaccurate ways, which leads many families to assume incorrectly they make too much money to qualify for WIC.[13] The uncertainty about financial eligibility may lead potentially eligible families to avoid the program out of

> "The typical WIC users are mostly those without jobs or single mothers."

> "My friend was making good money but stopped for maternity leave and was surprised she was eligible, but then enrolled. I also thought she wouldn't qualify but luckily suggested she just try. The income cutoff is higher than most people think."
>
> —*Current WIC participants*

Mental model: *an umbrella term that captures the concepts, stereotypes and causal narratives that shape our ideas about the world and our place within it*

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[b] *A catchy and witty tag line for WIC's social media presence, as suggested by Charles Garciduenas at the Gardner WIC agency, is 'WIC is Wellness'. He created a proposed framework for an engaging social media strategy using platforms like Facebook, YouTube and Pinterest.*

[c] *OB/GYN clinics use participation in Medi-Cal to determine WIC-eligibility.*

[d] *Both of these insurers also offer Medi-Cal plans in some California counties. Anthem currently offers Medi-Cal in Santa Clara county, whereas Kaiser is currently offering Medi-Cal in Santa Clara to those who were already a Kaiser member in the past 6 months or has immediate family that is a member.*

[e] *WIC serves families that have an income less than 185% of the federal poverty level (FPL), currently an equivalent of $44,863. (WIC Eligibility Requirements, USDA, 2016)*

Program Logistics: Enrolling and Persisting in WIC

fear that they would be rejected from being admitted,[f] which acts as a behavioral barrier to getting an actual determination of eligibility.

The way a program is framed can be used to shape perceptions of the program and the people it serves. Small differences in program descriptions can drastically change the perception of what being a participant means, which can affect people's decisions about whether to enroll. Tweaking descriptions can be effective for addressing populations, such as those on the income border, who hold inaccurate beliefs about the program not being accessible or useful to them. For example, Medi-Cal might be framed as a program for families who can't afford health services on their own, or it could be framed as a program that provides important medical support without the worry of cost. Which description of Medi-Cal feels more inclusive and appealing to you?

WIC currently is framed as a public benefits program, which might actually deter people from enrolling, or even realizing they are eligible. Indeed, when we asked respondents if they participated in any public benefits programs they often responded 'no,' but when we asked specifically if they participated in Medi-Cal or CalFresh, many of them responded 'yes.' Reframing WIC with different language, focusing on health for example, might encourage more participation. This could be especially effective among people influenced by public perceptions of what it means to participate in WIC. To effectively leverage the effects of framing, it will be important to first understand the messages that might attract under-enrolled populations, and then target them with rebranded messages. For example, it might be the case that income-border families in certain neighborhoods tend to access WIC if they see it as a program with expert nutrition consultation and a goal of improving family and child health. There has already been some good outreach material created at the state level that begins to leverage this framing.[14] Marketing material can focus on the qualifying attributes (i.e. being pregnant and/or having a child under 5) and health benefits without mentioning more negatively associated attributes, such as the term 'low income,' or any specific income information (which changes more frequently than the other information).[g,h]

Structural Barriers and Suggestions

While the barriers above may be solved with behavioral interventions, it is important to note additional barriers that are structural, rather than

> **Framing:** *the way in which a choice is presented, which can have an outsized influence on the outcome of the choice*

> " A friend of mine was on WIC and she stopped going because she just figured she wouldn't qualify anymore since her husband got hired. I told her to check because maybe she'd still qualify. But she just assumed she wouldn't qualify and she didn't want to take the chance on getting rejected. So she ended up really struggling. She didn't want to go just for fear of being denied."
>
> —Past WIC Participant

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[f] *This belief was commonly referenced in our interviews as well as reinforced by an expert at the Center on Budget and Policy Priorities*

[g] *To counteract the potential for increasing application by non-eligible families, these designs should be combined with more transparent eligibility requirements or even a change in the eligibility cut-off itself (see PS9).*

[h] *Potentially 'medium income or below' instead of 'low to medium income'.*

behavioral, in nature. Below, we outline various structural barriers to optimal WIC utilization and suggest possible approaches to addressing them.

The role of identity in WIC enrollment

Fathers, grandparents and substitute caregivers of WIC-eligible children are some groups that may experience a mismatch between their *identity* and their participation in the WIC program. It is true that there are some differences in the program for them compared to biological mothers, as the latter receives a food package (while they are pregnant and up to 6-12 months after they give birth) as well as additional breastfeeding education and lactation support. Regardless of these differences, the WIC program's goal is for every eligible child to benefit from the program no matter the gender or status of their guardian, yet we have often heard about men underutilizing the opportunity to enroll. Additionally, the strong brand and long history of the WIC program as one for women may be a slight barrier to some potential clients. It makes very little sense to curtail mother-based programming, or to re-name the program at this point in its history, but the strong focus on biological mothers does introduce potential belief- or perception-based barriers among male caregivers, and/or substitute caregivers such as foster parents.

The California WIC Association has recently taken measures to address this by creating a Toolkit for Men that details actionable steps agencies can take to increase men's involvement in their child's health through WIC.[15] At the agency level, this can continue to be improved on by identifying and updating the many cues that reinforce an implicit bias that the program is only for women, including posters exclusively of women and children, and classes marketed to women and children (rather than parents and children). Such improvements could include creating more WIC materials that feature fathers and alternative caregivers and reference their importance to children's successful growth and development. Channels for disseminating these materials should include programs or organizations that target these subgroups such as fatherhood programs, foster care agencies, or support groups for grandparents raising grandchildren. We also suggest further researching an estimate of the current and potential uptake among these populations before considering any rebranding or retooling of the overall program.

Cost of living

San Jose's cost of living is 60% higher than the national average, and the price of housing is 181% higher than the national average.[16] Since WIC income guidelines apply across the entire country without consideration of local cost of living differences,[17] many families in San Jose who don't meet WIC's income eligibility criteria may still be struggling financially. Furthermore, families at the upper edge of the eligibility spectrum in San Jose may need the program more than their peers in lower-cost areas.

Identity:
a collection of beliefs individuals hold about themselves

"

[When people are considering the program] all of the Republicans come out and tell you [that you] don't need it and to keep it for someone who needs it more."

—Past WIC Participant

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Constraints on public outreach

Given the limited resources within WIC overall, spending on outreach, marketing or advertising (either broad or targeted) are unlikely to take precedence over more basic components of the program despite the need for effective public communication tools. Given the resource constraints, public communication efforts are likely to remain modest and budgets might not be capable of sustaining campaigns that include research components to measure conversion rates (evaluating whether the investment is well spent).

Lack of program bundling

Other federal health and nutrition programs, such as Medicaid (Medi-Cal in California), CalFresh and the National School Lunch Program (NSLP), offer their services in bundles from which WIC is frequently excluded. For low-income families with scarce resources including time and attention, it is particularly important for benefits and programs to be accessible with minimal time and energy costs and friction—ideally all in the same place. For example, in California the Express Lane Enrollment Project uses CalFresh enrollment to automatically qualify children for Medi-Cal without the need for an application or determination for twelve months. In another case, school districts in California automatically enroll students in CalFresh for free school lunches.[18] WIC has not been included in the default safety net health and nutrition benefits for children, limiting access for some families in need.

Immigration

By law, undocumented immigrants can participate in WIC as long as they live in the U.S.,[19] but we heard that there may be a reluctance to formally participate in a government program, particularly if the political environment is perceived to be hostile to immigrants. Many eligible families associate WIC with public benefits programs that restrict the participation of immigrants—and bar all undocumented immigrants from participation. This association leads some immigrants to form false mental models that they are not eligible for the WIC program.[20] Similarly, and understandably, under heightened general anxiety about immigration status in the socio-political environment, immigrants of any legal status may steer clear of contact with government agencies. For these families, the decision to enroll in WIC is stress-inducing and complex, as they weigh their perceived value of WIC participation against the potential risk of identifying themselves to a federal program and creating a 'public charge.' Such a context is likely to curtail enrollment in areas with high immigrant populations, like Santa Clara County, where 38% of the population (or almost 2 million people) are immigrants.[21]

> "What's missing is in the larger perception of WIC—the state puts it on each agency to do their own advertising – [we] would love the state to help us promote more professionally and through larger channels."
>
> —WIC staff

> "I want to get in where people apply for Medi-Cal and Food Stamps. I don't know why you can't apply for WIC there, but I've been having a hard time getting into that building. I gave out a flyer in front of there and said I was with the county but the supervisor asked who I was and if I was going to stay long. I stayed for 15 more minutes and then left."
>
> —WIC staff

Program Logistics: Enrolling and Persisting in WIC

Problem Statement 2: **Participants miss (or are late for) their WIC Agency appointment. We want them to attend their scheduled appointment on time.**

WIC participants need to return to the agency regularly: every 1-3 months to pick up their vouchers and every 6-12 months for recertification to remain enrolled. These appointments are crucial channels to receive and maintain the benefits of the program. Additionally, although showing up itself is important, it is also very beneficial to arrive on time. Not only does this help the agency stick to their schedule and continue seeing other WIC users on time, it also prevents the negative consequences of lateness like an excessive wait or perceived rudeness at reception that might skew participants' perception of the overall program. Many participants intend to go to their appointment on time but may fail to do so for any number of reasons. This section focuses on the behavioral drivers of this "intention-action" gap, while the final section on "Exiting WIC" examines reasons that participants may not form intentions to go to appointments at all.

Barrier	Design Idea
Appointments can be hard to keep and difficult to reschedule.	**Adopt Flexible Appointments to Reduce Hassles**: WIC can reduce hassles by offering walk-in appointments, online appointment booking, or simply reducing the number of necessary in-person visits. WIC can still ensure interpersonal connectedness by allowing people to select staff they meet with, and by offering two-way texting between visits.
Appointments, and the documents needed for them, are easy to forget.	**Creating Cognitive Slack to Ease Appointment Follow-Through**: By using timely reminders and plan-making prompts, WIC agencies can help clients attend more appointments, and be prepared with necessary paperwork. Advanced reminders might also leverage loss aversion and other psychological levers.
WIC appointments introduce various obstacles and transaction costs.	**Increased Accessibility of WIC Sites**: WIC can promote enrollment and retention by choosing more accessible locations and operating hours, and by providing childcare and transportation supports.
WIC staff negativity toward participants can create negative impacts on families.	**Overcoming Staff Biases Using Training Exercises**: We might improve families' interactions at WIC offices by helping WIC staff mitigate their own biases. Perspective-taking exercises are a promising approach.
Some WIC participants feel worse after attending a WIC agency appointment.	**Shaping the Reception Area**: Small tweaks like color on the walls and a friendly welcome can improve people's perception of a space and what it means to be in it.

Program Logistics: Enrolling and Persisting in WIC

Adopt Flexible Appointments to Reduce Hassles

Any parent faces many competing tasks during the day that can prevent them from following through on their intentions. These seemingly minor inconveniences—what we call **hassle factors**—interfere with a person's ability to juggle all the tasks they need and want to complete. Hassles pose an even more serious threat to parents living in a state of **chronic scarcity** because the deterrent effect is intensified by a lack of key resources such as a living wage or reliable transportation. These same people happen to be the families who would benefit the most from WIC.[22] Using behavioral design to eliminate or reduce hassles, when possible, can be extremely influential in helping families meet their intention to attend appointments on time.[i,20]

Unfortunately, fitting WIC appointments into hectic schedules can magnify parents' hassle factors. Our interview subjects reported many appointment challenges including scheduling-related wait times, trouble with commutes on public transportation, and difficulty making it to appointments due to inconsistent work schedules. Even minor setbacks or delays can totally derail a participant from making an appointment they fully intend to keep.

Building less rigidity into appointments can go a long way toward reducing hassles. Some agencies (like Public Health Foundation WIC in Los Angeles) currently use a walk-in model for appointments, and staff will attempt to see anyone who walks in that day. Since many WIC participants may have sudden changes in their schedule or responsibilities, this model allows people to come to the agency when they are free rather than having to follow a rigid schedule. Agencies in San Jose allow walk-ins also, but operate mostly on an appointment-based model. In any case, the benefits of walk-in appointments stretch only as far as participants can recognize them as an option. It is important to make this best practice salient to participants so they do not needlessly endure the hassles or stress that this system it is intended to eliminate.

If the inherent uncertainty of walk-ins is impractical, agencies may consider a more accessible appointment system. We observed many staff booking follow up appointments while participants were at the agency and giving them flexibility in choosing the best time. However, a lot can change before the next visit and rescheduling can be (or seem) inconvenient or uncomfortable. Implementing a digital booking platform (like many doctors have) may ease the burden and discomfort. Advanced options might include staff member selection to encourage

Hassle factors: *seemingly minor inconveniences that interfere with a person's ability to act on their intentions*

Chronic scarcity: *the cognitive depletion that results from constantly living with inadequate resources*

> I left [WIC] when my son was 1. I moved and didn't drive so I stopped. I asked if there was one closer but all the ones I was referred to required at least two buses. I was discouraged."
>
> *—Past WIC Participant*

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[i] *Although our focus is behaviorally informed improvement, changing structural barriers to reduce hassle such as necessitating less in-person agency visits overall is certainly important and encouraged. In areas where program policy and structure is fixed (even if just in the short term), behavioral design helps to reduce perceived hassles and bridge the intention-action gap for WIC participants.*

Program Logistics: Enrolling and Persisting in WIC

stronger interpersonal relationships, which boosts reciprocity and connectedness and, in turn, motivates future appointment attendance.[23]

It is also worth exploring how much latitude agencies have over policies covering the frequency of in-person appointments. There are indications that "WIC participation is higher in states having program rules that reduce the transactions costs of using the program (such as fewer required visits)."[24] The advent of Electronic Benefits Transfer (EBT) offers an opportunity to update agency visit policies to require fewer in-person visits. If the EBT card can be re-loaded online, participants will no longer have to pick up vouchers in person, and online nutrition education may reduce the need for in-person visits further (see *Problem Statement 4* for more ideas on this topic). Even participants who only come in once or twice a year may be able to maintain personal connections to staff through online appointments or two-way texting.

Creating Cognitive Slack to Ease Appointment Follow-Through

Even where additional resources or scheduling flexibility are impossible, there are less costly ways to improve the odds of remembering and attending appointments. In many contexts, the simple tool of a well-timed reminder has been used to combat forgetfulness—a universal human tendency that can be exacerbated by chronic scarcity. Agencies in San Jose currently call participants a day or two before their appointments as a reminder. However, some participants still forget their appointment, others do not answer the call, and some may remember but then forget their paperwork or fail to arrive on time.

A behaviorally optimized reminder can relieve the cognitive burden of having to remember all of the details associated with an appointment. With proper timing and content, a text message can highlight an upcoming deadline and provide small practical steps to prepare. SMS messages have worked as appointment reminders in many settings, including doctor's appointments.[25] Their reach is excellent, as 90% of all text messages are read within three minutes, and texts also fit comfortably into participants' lives as SMS messages are the most frequent form of communication among people ages 10-29.[26,27]

Beyond simple date and time reminders, agencies can also use behavioral reminders to prompt people to bring their WIC folders, blood work, and other necessary items. More ambitious reminders might also include behavioral levers aimed at helping people do more of what they want. Highlighting what participants give up when missing appointments is a way to leverage **loss aversion.**[28] Plan-making prompts can nudge users to think through the details of an action (e.g. travel or childcare plans), further solidifying their intention.[29]

Loss aversion: *losses feel much worse than equivalent gains feel good*

Program Logistics: Enrolling and Persisting in WIC

Increased Accessibility of WIC Sites

As any parent knows, it can be a massive challenge to get anything done when they have their kids in tow. WIC appointments are no exception here, and while children are required to be at certain appointments, they are often brought along at other times when child-care is not available. Naturally rambunctious children can be a barrier to consultations or educational sessions, and just having a child in the room can significantly divert attention. When WIC cannot provide childcare to overcome this barrier, appointments become even more problematic for families than they otherwise would be.

Having on-site childcare can be an excellent measure, where feasible, to overcome these hassles. When that isn't possible, finding ways to accommodate children within the office (like having a dedicated play space) is another viable practice we observed at local agencies in San Jose. There are also great existing examples of partnerships across community organizations. For example, some of the FIRST 5 Santa Clara County Family Resource Centers have separate spaces that allow parents to focus on class material while their children are learning nearby.[30] These partnerships free up WIC participants' attention while funneling more children to partner organizations.

Overcoming Staff Biases Using Training Exercises

When a participant misses or arrives late to an appointment, the hassles they encountered are not always obvious to the staff. Without knowing why a participant or caregiver is absent or late, staff may assume that it is due to irresponsibility or a disrespect or devaluation of the program.[31] This is likely an instance of the **fundamental attribution error.**[32] This bias may lead some staff to exude frustration or impatience, which may in turn amplify the negative aspects of a participant's experience. Unfortunately, another bias known as **negativity dominance** can come into play here as well. Even if the typical WIC experience is neutral or positive, the negative ones are more memorable and have a larger influence on overall perception. Even a few instances of perceived maltreatment at WIC can lead participants to choose to miss an appointment if they are running late, or dissuade them from returning at all.

To overcome some of the potential negative emotional experiences participants might have at WIC offices, agencies could consider interventions with staff. These could take multiple forms, but all would be designed to help WIC staff deliver the excellent customer service and positive interpersonal interactions they aim for, and many already succeed at. An example of such an intervention is a perspective-taking exercise—these brief thought exercises have been found to help people understand the situational difficulties of others before making a judgment about them.[33] While the delivery channel, timing and frequency of such

> " The appointment to recertify is about 25 minutes or so. It depends on the child. If the child is screaming and fussing it will take longer."
>
> *—WIC Staff*

> " I don't drive so I have to use the bus. Sometimes when I was late because of the bus, the receptionists were rude. It's a sensitive moment because it's a brand new baby and you are already doubting taking the baby out since they are still fragile."
>
> *—Past WIC participant*

Fundamental attribution error: *the human tendency to attribute other people's behavior to their character instead of their circumstances*

Negativity dominance: *negative experiences are more memorable than neutral or positive experiences, and have a larger influence on overall perception*

Program Logistics: Enrolling and Persisting in WIC

an exercise would vary from agency to agency, front-line staff could use them to improve interactions with participants, especially during or before potentially high-stress interactions.

Similarly, a staff-facing intervention could also help encourage participants to set appointments that work within their schedules. A focus group conducted by the Center on Budget and Policy Priorities found that participants were less likely to commit to an appointment at an inconvenient time when they were asked "What's a convenient time of day for you to come in?" rather than "Can you come in at X time?" Though it may seem like a small difference in language, the former framing (see *Problem Statement 1*) of the question prompts the participant to make an active choice about when they can come in for an appointment, while the latter framing sets a **default** time that requires opting out. Because people often go along with the default choice, even when it isn't best for them,[16] staff intentionally framing the conversation to help participants schedule according to their needs can make a big difference.

Structural Barriers and Suggestions

Paperwork requirements

Getting doctors to comply with the hemoglobin tests that WIC requires and collecting all of the necessary recertification paperwork can be an another seemingly small but potentially derailing hassle for WIC participants. Although there are some behaviorally-informed solutions to help reduce the difficulty, like providing reminders and plan-making prompts, another solution would be to actually reduce the complexity of the requirements. This may include shortening the list of necessary materials or using other government databases to verify information where possible.

Agency location

Perhaps the most notable structural barrier when it comes to appointments is physical. Local WIC agencies are not always accessible to public transit, nor do they always have an abundance of parking. This reality is something we can't nudge our way out of, but is simply a geographic and financial fact. While some agencies might be able to arrange for more flexible hours, provide transportation supports, or even move to more accessible locations, most will have to find ways to accommodate the requirements of the program and the constraints of their clientele in more inventive ways. If there is any way to reduce the costs in participants' time by choosing a highly accessible location this (admittedly difficult) step should be taken. Similarly, it may be feasible to provide taxi or ride-sharing credits, or to use an agency vehicle. This would be part of the increased accessibility design from above.

> **"**
> If we have a company car, couldn't we just go to the homes for those families we've known for years, and then just mail them the vouchers?"
>
> *—WIC Staff*

> **Default effect:** *people are influenced by an initial choice, even if it is selected for them, such that they tend to stick with this decision over time*[16]

Program Logistics: Enrolling and Persisting in WIC

B) Building Nutrition Knowledge and Intentions

Problem Statement 3: Mothers who are undecided about breastfeeding before giving birth fail to start breastfeeding once formula is available. We want them to set a stronger intention and begin to breastfeed.

WIC plays a critical role for many mothers learning about breastfeeding. Over the past 20 years, breastfeeding rates for mothers participating in WIC have increased from just over half (56%) to well over three-quarters (83%) of participants at the time that the baby is born. This is a significant achievement. Yet there are still many mothers who are able to breastfeed but choose not to. Additionally, after the first month, the breastfeeding rate drops to 61%.[34]

Equally important are the choices mothers make about intentions to breastfeed, and plans they make to implement their intentions. The educational components of breastfeeding support only achieve their intended effects if families can follow through on the information. While medical professionals often recommend breastfeeding, a number of questions may arise for new mothers. *Should I breastfeed at all if I can't breastfeed all the time? How long should I keep breastfeeding? What if I am not producing enough milk, or my child won't breastfeed?* And all of those questions presume that mothers have figured out the fundamentals of breastfeeding in the first place. Our research revealed multiple barriers to mothers beginning to breastfeed in the way they want to; below we consider those barriers and some ways to address them.

Barrier	Design Idea
Some mothers have internalized myths that deter them from breastfeeding.	**Resetting Mental Models About Breastfeeding**: Interventions that use descriptive social norms and peer influence may be used to shift incorrect beliefs about breastfeeding before they influence the breastfeeding decision.
Breastfeeding choices are complex, and may be avoided once the baby is born.	**Use Pre-Commitment to Support Follow-Through With Breastfeeding Intentions**: We might help mothers breastfeed more by making complex choices easier to navigate, and by helping them make and commit to concrete plans in advance.
WIC staff members want to encourage breastfeeding, but also want to keep families engaged – these purposes can sometimes be at odds.	**Help Staff Overcome Dissonance Related to Infant Feeding Advice**: WIC staff can use structured choice tools to help families make breastfeeding decisions that are right for them. This may preserve family autonomy while also helping WIC staff to feel more confident in their advice.

Resetting Mental Models About Breastfeeding

Parents may internalize misinformation about breastfeeding. WIC staff reported many examples of beliefs about breastfeeding that don't reflect the best scientific knowledge, including having to follow unnecessary dietary restrictions (needing to drink excessive amounts of milk, being unable to eat spicy foods or take vitamins), the likelihood of hair loss, and exaggerated likelihood of experiencing pain. When those concerns are integrated into a mental model (see *Problem Statement 1*) of breast-feeding, it is unsurprising that some mothers would avoid it.

WIC agencies can attempt a variety of strategies to help dispel myths about breastfeeding, or reset people's perceived norms. For example, in class settings, WIC agencies might consider exercises that give new mothers a chance to discuss some of their received wisdom about breastfeeding and help establish new perceptions or beliefs to reset mental models in the company of peers. Group exercises that welcome experienced mothers can also help transmit helpful practices and knowledge in a way that is plausible and authoritative. Finding ways to turn these exercises into a game may have the added benefit for increasing engagement in classes.

When perceived norms are driving inaccurate mental models, there is ample evidence that **descriptive norm** interventions can successfully reshape both beliefs and behaviors.[35] Some mothers may perceive breastfeeding to be uncommon if they do not have a large number

> "Family members will tell them things like formula is healthier. Some people think it's painful. It could be that they're doing something wrong and that's why it hurts. Most of the new moms think it should be super quick for babies to latch but it's kind of a process you need to do with the baby."
>
> —WIC Staff

Descriptive norm: *one's belief about how popular an action or decision is among their peers*

Building Nutrition Knowledge and Intentions

of friends or family members they have observed breastfeeding. This perception may depress their likelihood of breastfeeding themselves. Finding avenues to showcase how prevalent breastfeeding is among a peer group or within a community could be quite effective in this context. Descriptive norm interventions can also reset beliefs based in memory; for example, framing second children as a fresh start for breastfeeding since every child is different.

Use Pre-Commitment to Support Follow-Through With Breastfeeding Intentions

When possible, WIC aims to help mothers make a formalized intention to breastfeed before delivery, but some remain undecided. A barrier mothers might face in making the decision is the sheer complexity of the topic: the seemingly endless amounts of information from competing sources about infant nutrition and breastfeeding. Enhanced Active Choice (EAC), a decision tool that helps people realize the relative benefits of one outcome over another, could be used to help expectant mothers formalize an intention to breastfeed. The EAC approach would frame the choice between breastfeeding or formula in a simple, straight-forward way by presenting everything a mother and baby will miss out on if they choose to use formula supplements instead of breastfeed. Due to **loss aversion** (see *Problem Statement 2),* people tend to focus on losses more than gains, and EAC has been shown to be an effective motivator in health behaviors, such as enrolling in an online prescription refill program.[36] This tactic could be especially effective in the context of nursing, considering that most mothers are unaware of the health risks that are reduced for mothers and babies through breastfeeding.[37]

For mothers who have a strong intention to breastfeed, but are likely to face an array of hassles like workplace inflexibility, plan-making can be an effective intervention. Mothers could be assisted in generating concrete implementation plans (including timing and placement of nursing or pumping) with implementation intention prompts, which have shown to be effective in many situations, including helping people to follow through on getting flu vaccines.[38,39] Incorporating if/then planning statements about probable barriers, like finding time to breastfeed or pump during the work day (see *Problem Statement* 5), can enhance this approach.

Help Staff Overcome Dissonance Related to Infant Feeding Advice

WIC staff may also experience behavioral barriers that interfere with their efforts to encourage breastfeeding. WIC has a strong program-matic intention to encourage all mothers to breastfeed if they are able. Our interviews indicate a tension, however. The push for breastfeeding sometimes conflicts with staff members' strong desire to make clients

> "
> A couple moms would try for a month and that's it – they had to go back to work. [They should] understand other options – what it would look like to at least try continuing to breastfeed and pump."
>
> *—WIC staff*

Building Nutrition Knowledge and Intentions

feel comfortable in order to keep them engaged and enrolled in the program. When a mother is resistant to breastfeeding, these two strong intentions oppose each other and create the uncomfortable feeling of **cognitive dissonance** for staff. As a result, staff members may risk pushing a participant out of the program by encouraging breastfeeding too forcefully, or may make too weak of a recommendation to breastfeed in hopes of accommodating a mother's resistance. Without clear guidance or frameworks to help staff select the right approach to breastfeeding advice, this dissonance can result in one-size-fits-all advice for families. Having only observed this in the context of our site visits, we suggest follow-up research to further understand the wider extent and impact this may have.

Where WIC staff are experiencing cognitive dissonance about breastfeeding guidance, there is a promising practice from the realm of family planning. The Balanced Counseling[40] approach could be adapted to support staff in giving structured guidance to families about breastfeeding that best meets their needs. This approach starts from the priorities, capacities, and intentions of a family and filters out impractical or undesirable choices, ultimately reducing choice conflict for families while retaining their autonomy of choice. It also has the benefit of reducing guesswork and discomfort for staff. Adapting this approach to breastfeeding would require significant effort and user testing, but it is promising.

Structural Barriers and Suggestions

One of the most obvious structural barriers we heard about was the limited availability to breastfeed—especially for mothers returning to the workforce. Without easy access to their children at work, and/or convenient and comfortable access to a room for pumping, it is completely reasonable to expect that mothers would opt out of breastfeeding. Some agencies in California have enforced a policy of not granting formula to infant mothers during their first month on the program. While this practice can certainly encourage women to breastfeed who might otherwise not, it should also be flexible enough to accommodate parents whose circumstances contraindicate breastfeeding.

Cognitive dissonance: the uncomfortable feeling of experiencing beliefs that contradict each other

"
I can't force moms to breastfeed, I can just tell them to look at concrete things like hunger cues. If they want formula, they can have formula. I can refer them to books. Generally it's not up to me, you can't change someone's mind. I want them to be supported."

—WIC Staff

Building Nutrition Knowledge and Intentions

Problem Statement 4: WIC Participants are not fully engaging with available nutrition education. We want them to engage more with the education resources.

Nutrition education is a mandatory aspect of the WIC program and was created to promote promising practices across many facets of child and family health that participants can use in their daily lives. Traditionally at the San Jose WIC agencies, group classes have been the default format for educational components (the other options are one-on-one, and more recently, online). However, the San Jose WIC staff and directors expressed concern that there has been reduced attendance and engagement with group classes. As nutrition education is a requirement, not attending puts a participant's other WIC benefits in jeopardy and reduces their opportunity to learn valuable nutritional insights. Additionally, lower participation has consequences on participants' memory of the material, their likelihood of applying the material outside the agency, as well as their perception of the classes. Below are several designs aimed at increasing participation and engagement in education, and at strengthening the impact of the WIC program outside of the classroom.

Barrier	Design Idea
Classroom education is hard to retain and recall, making it less useful in moments of choice or action.	**Use Heuristic-Based Nutrition Education Curricula**: We may be able to help families absorb and act on information more effectively by using educational programs based on rules of thumb.
	Use Rule of Thumb Reminders for Home Feeding Practice: Rules of thumb around nutritional practices may be more effective with visible and tangible reminders in the home.
Children are distracting while participants are trying to learn and engage in class.	**Offer Childcare During WIC Classes**: We might increase the efficacy of WIC education by providing in-agency childcare.
Classes often start late to accommodate tardiness, but this leaves people idle and promotes isolation.	**Add Interactive Wait Time Activities**: Adding activities to create a more sociable classroom may promote trust and highlight pro-social norms to boost class engagement.
Many families may not select the optimal education format because they are unfamiliar with all of the options at the moment of choice.	**Personalizing Class Recommendations**: Helping families opt in to their preferred class type may help them engage more; this can be done with some guided/structured choice activities.

Building Nutrition Knowledge and Intentions

Use Heuristic-Based Nutrition Education Curricula

Heuristics or 'rules of thumb' are "decision-making aids that help people to make 'reasonably good' decisions without needing to understand all the complex nuances of a situation."[41] If humans were able to collect and rationally consider all of the necessarily information for every decision, heuristics would not be useful. However, given humans' innately **limited attention**, it can be difficult to remember complex decision rules, let alone correctly apply them at the correct moment. In many cases, heuristics can act as beneficial guidelines that people can recall and use to make better decisions.[42]

A consequence of limited attention is that getting a lot of information at once can lead people to miss key concepts. Each hour-long group nutrition class is filled with beneficial but sometimes complex information. Even important information is difficult to understand and remember when there is a lot to take in at once. Additionally, the amount of attention available at any one time is largely dependent on a person's present and past contexts. For many of the classes, attendees are in the midst of raising at least one young child with scarce resources, which is very cognitively demanding.[j] This can make it even more difficult for participants to engage and absorb the material, particularly when bringing their child(ren) into the classroom with them.

Replacing more complex information with both verbal and written heuristics is a behaviorally-informed way to address limited attention. We observed that for some staff, it is tempting to provide parents with all of the intricacies of a best practice upfront, but if a learner gets lost, it is often difficult to re-engage them.[43] In an analogous program on financial literacy for small business owners, heuristic-based education created large increases in the adoption of beneficial practices like separating business and personal accounts, as well as an increase in profitability.[44] While the California Department of Public Health WIC (CDPH WIC) has developed worksheets that incorporate heuristics,[45] it is not standard practice to make this the core of the curriculum. Including these worksheets, and using heuristics more broadly within the WIC curriculum, could help participants stay engaged and put more lessons from the class into action.

Offer Childcare During WIC Classes

Bringing children to classes when they are not required can be very distracting for both their parent and all of the other learners. Extra noise and interruption in a learning environment has been shown to have a negative impact on learning and memory.[46] As mentioned in Problem Statement 2, having childcare options within the WIC agency during

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[j] *Some classes are for pregnant women who may or may not be pregnant for the first time.*

> "I wish clients engaged more during classes. We'll often have only 5 people in the classes and 2 moms are interested and 3 want to leave."
>
> —WIC Staff

Limited attention: *attention is a finite resource for all people that is constantly split and reallocated. When our capacity is depleted we are left effectively blind to information we'd easily notice under normal circumstances*

> "During the class, all the info from the video just comes at you."
>
> —Current WIC Participant

> "Having 2 little ones, it would've been easier [to take the online instead of group classes]. It was very distracting with all the kids in class."
>
> —Past WIC Participant

Building Nutrition Knowledge and Intentions

class time would not only make planning to attend the nutrition class easier but would also free up attention during class time.

Rule of Thumb Reminders for Home Use

When people need to remember to take a future action, they are often overconfident that they will remember and act at the right time. This type of memory, called prospective memory, is often fallible given people's naturally limited attention and forgetfulness. In the case of nutrition classes, many parents appreciate the information they receive, but don't always remember the tips and tricks when making decisions at home. For example, a handout on portion sizes is helpful only if a parent remembers to refer to it before preparing a meal. This may not always be easy given the many competing demands on their attention in that context. Many educational materials created to summarize lesson highlights are provided in just one form—a standard piece of paper. However, insights from behavioral science suggest that these materials should be designed to be noticed in the moment that they are useful. For example, creating refrigerator magnets or place mats that indicate portion size can ensure that a parent will see the information as they are preparing or serving a meal.

Add Interactive Wait Time Activities

Research has shown that social interaction within a classroom is a critical element for building understanding.[47] Teacher-set norms and peer support can also have an important impact on academic motivation and engagement. Incorporating activities that promote social interactions during class can help to facilitate a more effective learning environment.[48,49] In our observations, the classroom set-up and learning plan are not always conducive to sharing between parents. A few past and current participants reported that discussion time was not built into the class and that they often felt uncomfortable asking questions out of fear of being rushed or judged by other classmates. This perceived **social norm**[50] of class interaction being unwelcome can inhibit others from participating who would otherwise be engaged.

According to staff and participants, it is standard to wait up to 10 minutes past the official start time of a class to accommodate lateness. In our observations, participants that arrive on time are idle in this waiting period—they may play with their child or look at their phones. Currently, these empty 10 minutes may be doing more harm than good. Cell phone use in a public place inhibits social interactions with the people around you.[51] This avoidance is biased because although people tend to overestimate the likelihood of a negative experience when talking to a stranger, on average they actually prefer these connections over solitude.[52]

Social norm: *a perception of the common actions of others that is used as a guide, consciously or unconsciously, to determine acceptable behavior within a group*[11]

" No, I never made any connections in class. Once you would go to the class you would listen and then by the end of the class people scattered and went their own way."

–Past Participant

Building Nutrition Knowledge and Intentions

Staff might instead use this idle period to engage parents and facilitate connections. One way might be small group discussion prompts based on the topic of the lesson. This will simultaneously make the wait seem shorter while also giving parents a chance upfront to ask questions and interact with others instead of feeling rushed at the end. It may also help participants feel more comfortable asking for clarifications throughout the lesson and have a better experience of the class overall.

Personalizing Class Recommendations

California WIC has begun to offer online nutrition education within the past few years. This delivery method has been found to be as effective as in-person lessons for knowledge and behavior change. It also gives participants more freedom in finding an option that is potentially more convenient and conducive to their learning style.[53] A portion of participants we talked to did not know that their agency offered online education, even though they reported this as their preferred method of learning.[k] This may be due to the **default effect** (see *Problem Statement 2*) and/or **uncertainty aversion**.[54] In other words, participants might: a) remain with the education channel they start with rather than exploring other available options, or b) prefer to avoid the uncertainty of different class structures. If participants are matched sub-optimally with an education channel, they may be less engaged in learning than with an alternative channel. To promote better matching, staff might ask a few upfront questions to gauge receptivity to online classes. If participants are interested, staff can then walk through this option so they are less likely to be stymied by hassle or confusion when they first try to use the platform at home.[l]

> **Uncertainty aversion:** *a tendency to prefer risks that are known to risks that are unknown*

Structural Barriers and Suggestions

As online nutrition education becomes more prevalent, and a portion of participants continue to use one-on-one counseling, the percentage of people taking group classes will likely continue to drop regardless of improvements to class content. In order to have a schedule that most effectively uses staff time, while also providing enough flexibility for group class participants, agencies may need to transition out of the current model of predetermined class times. While it may not be feasible for all agencies, one approach would be to flexibly arrange class times around the availability of attendees. This could help ensure that scheduled classes have more consistent attendance.

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[k] *Additionally, the number of participants who prefer online education will likely increase when the EBT system is rolled out because it will remove the need to go the agency simply to pick up vouchers.*

[l] *As hassle can disproportionally affect follow through (see definition of hassle factor in PS2), it is important to reduce hassle when trying to increase uptake of a technological tool.*

Building Nutrition Knowledge and Intentions

C) Follow Through of Health-Promoting Behaviors

Problem Statement 5: **Mothers with an early intention to breastfeed do not follow through on this intention during their babies' first year. We want them to successfully follow through on their intention and timeline to breastfeed.**

While visiting WIC agencies, we talked to many mothers who initiated breastfeeding, but stopped before the six-month mark recommended by WIC. For some mothers, the trouble with breastfeeding came from the complexity of the practice. For others, it was their busy schedule. Behavioral strategies, such as planning prompts and heuristics, can help make it easier for mothers to consistently breastfeed long term.

Barrier	Design Idea
Breastfeeding can be hard to maintain, especially as mothers return to work.	**Use Planning Techniques to Avoid Future Challenges**: Anticipating challenges around breastfeeding, and making plans to overcome them, might make continued breastfeeding more likely.
Some mothers have inaccurate mental models about breastfeeding – this can create ambiguity and perceived risk, either of which may deter continued breastfeeding.	**Creating Points of Positive Feedback in Infant Feeding**: Using rules of thumb and other techniques may help new mothers feel more confident that their feeding routines are healthy, and thus promote more breastfeeding.
It is difficult for WIC agencies to offer support at all crucial times a mother is in need.	**Increased Breastfeeding Support at Local Agencies**: It may be beneficial to have FT lactation consultants, tele-consults, online classes, and heightened empathy for women who can't breastfeed.

Follow Through of
Health-Promoting Behaviors

Use Planning Techniques to Avoid Future Challenges

Following through on an intention to breastfeed isn't always easy. Many mothers run into unanticipated **hassle factors** (see *Problem Statement 2*), like having to find a space they feel comfortable nursing. Additionally, new inconveniences can be introduced as life circumstances change, like returning to work or school.[55] In some cases, the experience of these small hassles may be enough to deter continued breastfeeding altogether. One way to help mitigate these hassles is to assist mothers in generating concrete plans for their breastfeeding goals with implementation intention prompts**,** which have been effective in promoting habitual health-related behaviors like dieting or exercising.[38,39]

Implementation planning prompts help mothers make concrete plans in advance of the busy situations when they have a very hungry baby to feed. Additionally, these prompts can be made especially powerful by incorporating if/then planning statements about likely barriers (e.g. not having a nursing area at work) in a mom's busy, often changing, life context. Helping mothers anticipate obstacles and formulate action plans to overcome them can help to foster empowerment in the face of tough situations, such as when workplaces don't comply with laws to offer mothers time and/or a non-intrusive space for lactation purposes.[56]

Creating Points of Positive Feedback in Infant Feeding

Many mothers said that they stopped breastfeeding because they believed they weren't producing enough milk. However, both the literature[57] and our conversations with WIC participants and staff suggest that the problem may not be the mother's milk supply, but an understanding of what normal well-fed baby behavior looks like. Why do moms form a perception that they aren't producing enough milk and turn to formula instead? Without the feedback necessary to be absolutely certain that their baby isn't going hungry, the second-choice formula diet suddenly becomes attractive because it's sure to sate the baby's hunger. This preference for a secondary (but certain) solution over a better (but seemingly riskier) alternative is called **risk aversion.** To prevent this tradeoff, some simple rules-of-thumb could be used to point out when a breastfed baby is well fed. For example, one WIC staff member uses a rule of thumb that a well-fed baby will produce one dirty diaper the day after birth, and an additional dirty diaper each day thereafter (i.e. two diapers on the second day, three diapers on the third day, etc.). Introducing more simple rules like this can help eliminate the anxiety and uncertainty that nudges some breastfeeding moms toward formula supplements.

> "Once I went back to work things slowed back down. I was still pumping when went back to work but there was less pumping and because of that it reduced my breastmilk. I know that we can pump at work but I feel peer pressure to not. I feel like there isn't really a spot for me. The room I'm supposed to breastfeed in is a public space and I have to kick them out. I feel embarrassed."
>
> —*Current WIC Participant*

Risk aversion: *forming a preference for an option based on certainty, rather than potential benefits*

Follow Through of Health-Promoting Behaviors

Structural Barriers and Suggestions

Increased breastfeeding support at local agencies

Because problems with breastfeeding can be urgent and unanticipated, it is difficult for WIC agencies to offer support at all crucial times a mother is in need. To mitigate this gap, agencies with sufficient resources could hire full-time lactation consultants, open phone lines for breastfeeding support, or offer online breastfeeding classes for mothers to access at their own convenience. WIC has historically supported initiatives like this, such as the Loving Support© campaign to increase the number of breastfeeding peer counselors at WIC state and local agencies.[58] Additionally, mothers may experience obstacles to breastfeeding that are legitimate and outside of the realm of WIC's intervention. It is important for staff members to be sensitive to these situations, in tandem with encouraging breastfeeding behavior.

> "
> I noticed at the hospital that I didn't have enough milk. The lactation doctor came in to talk to me and said she should be on breastmilk exclusively. But then I'm with her and she's so fussy and cranky and I just have a feeling that she's not drinking enough."
>
> *—Current WIC Participant*

Problem Statement 6: **Some WIC participants aren't shopping at the optimal store(s) for them. We want all participants to find and use the store(s) that will provide them a positive shopping experience.**

Before WIC participants begin redeeming vouchers, they must choose the store where they will shop for WIC items. As of January 2017, there were around 75 WIC-authorized store locations in San Jose, which include (in order of prevalence) national and large store chains, independently-owned small stores, and 'A-50' or 'WIC-only' stores.[m,59] More than half of the total stores are national chains; WIC-only stores account for fewer than one-tenth of the stores.[n,o,60] Currently, WIC users have two main channels for choosing a store tailored to their needs and context. The first channel is technology, specifically a mobile WIC platform and online data portal, both of which provide a list of vendors. We will discuss these later in this section. The second channel is interaction with WIC staff. Despite the availability of these tools, many current and past participants we spoke to never utilized them. Some never considered the full range of available options, even when they were dissatisfied with their current stores.

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[m] *A WIC-only stores is one that derives more than 50 percent of their annual food sales revenue from WIC (also known as Above-50 percent or A-50 stores). These stores are subject to special regulations whereby their allowable reimbursements are capped at the State average to ensure they are cost-neutral to the program. State agencies that choose to authorize WIC-only and A-50 stores must comply with additional certification requirements and obtain approval from the USDA Food and Nutrition Services.*

[n] *Statewide, WIC-only stores capture 17% of all redeemed vouchers.*

[o] *The categorization in order of proportion of WIC vouchers redeemed is slightly different. From highest to lowest it is national and large store chains, WIC-only stores and then smaller stores.*

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As long as a participant's initially selected store remains convenient, their uncertainty about other options is not a problem. But if participants move to a new area of San Jose, if their current store closes or stops accepting WIC, or even if they simply have trouble shopping, they may struggle to find a new store. For example, we heard from some clients who had been part of the program for years that they had either never heard of a WIC-only store[p] or only learned about them serendipitously. This is worrisome since we heard repeatedly in our interviews that retailer difficulties, paired with ambiguity about what other shopping options are available, can lead to dropout (see definitions of **default effect** in *Problem Statement 2* and **uncertainty aversion** in *Problem Statement 4)*. Below, we examine the barriers that may prevent families from shopping at the best store for them, including uncertainty about available vendor locations, uncertainty about vendor types, and aversion among WIC staff to the risk of 'conflict of interest' when providing store information.

Barrier	Design Idea
Many WIC staff avoid giving advice about where to shop unless directly asked.	**Reduce Staff Conflict of Interest Concerns Through Clearer Guidelines**: We might improve the family shopping experience by clarifying what kinds of advice WIC staff can give about where families can shop.
Many families get non-standard shopping advice and may not ask the questions they need to.	**Develop and Use an Enrollment Meeting Checklist**: Standardizing early conversations about shopping guidance can ensure families get the advice and information they need.
Without asking families what their shopping priorities and needs are, it's hard to provide well-tailored advice	**Provide Guided Choice for Choosing Shopping Venues**: Giving WIC staff a tool to filter in the most important store characteristics (e.g. location, transit proximity) can help them give families optimal personalized shopping guidance. This can also be used to select a nutrition education format.
There are existing tools to find WIC vendors, but they are hard to find and hard to navigate.	**Reduce Hassles and Uptake Barriers for Online Search Tools**: Improving online searchability, and user-defined filtering will enable families to get more out of existing web-based shopping option resources
There are limited shopping options in some communities, and challenges to WIC participation among some vendors.	**Structural Shopping Changes**: Recruit more WIC vendors in under-served communities to improve store accessibility; consider WIC-only and other small stores' needs in EBT rollout

[p] *This is also true about knowledge of farmers markets, which is a great step toward offering families more fruits and vegetables as well as more flexibility in their choices.*

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Reduce Staff Conflict of Interest Concerns Through Clearer Guidelines

While a bit of extra help and guidance from WIC agencies can lead people to make more informed and active choices based on their own priorities, **risk aversion** (see *Problem Statement 5*) among staff regarding possible conflicts of interest seems to be a barrier in providing tailored vendor information to participants. The California WIC Program Manual requires each staff member to sign an Employee Conflict of Interest Statement[61] that includes several mandates, including a promise not to endorse or discourage use of any specific WIC authorized vendor. For the many conscientious staff we spoke with, abiding by this rule not only meant following the directions as stated, but also refraining from providing general lists of WIC-authorized stores without first being asked (despite having the ability to search for stores by zip code in their computer system). When speaking with staff members about why they don't provide this information by default, they reported that doing so could constitute a conflict of interest. This unintentionally puts the burden on participants to know the right questions to ask early in the program, creating hassles and narrowing their choice set.

We suggest that local WIC directors make it clear that the 'conflict of interest' regulations do not preclude staff from initiating conversations about store choice. Clarifying that staff can initiate this conversation can help them overcome risk aversion and provide more families with the shopping information and guidance they need. As newer participants may not be aware of the best questions to ask, or may not feel comfortable asking, staff should also provide information about store categories and the available search tools to allow participants to find store locations on their own. This may require setting aside additional time for open discussion and questions on the topic.

Develop and Use an Enrollment Meeting Checklist

In order to help guarantee that shopping guidance is consistent and standardized across staff, and to make the details easier to remember, staff can be provided with an enrollment meeting checklist to help participants ask the beneficial questions that they might not yet know, or feel empowered, to ask.

Provide Guided Choice for Choosing Shopping Venues

A more ambitious design would be a guided interview tool embedded in the staff computer system (or as a paper/online questionnaire) that helps families identify the characteristics most important to them and tailors a set of possible choices based on the answers. For example, some families may value proximity to a workplace over proximity to home, whereas others might make hours of operation their first priority. This can extend beyond vendor location decisions, to simplifying eligible

> "
> Not all of them [participants] know about WIC only stores but I am not allowed to tell them. We don't really discuss the stores."
>
> —WIC Staff

Example of Staff Shopping Guidance:

Bring up the conversation of WIC Authorized store locations in the enrollment meeting regardless of whether participants ask explicitly. In order to keep within the bounds of the conflict of interest contract:

Do say: *"There are large and small stores in the area, some of which are WIC-only (explain WIC-only store if necessary). I can use a zip code to look for some options that are convenient for you and print that out."*

Instead of: *"I'd suggest shopping at store X because many people have mentioned that it eliminates many of the hassles of shopping in a bigger store."*

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food options (see section *Problem Statement 7*) and identifying a partic-
ipant's optimal channel for nutrition education (see section *Problem
Statement 4*).

Reduce Hassles and Uptake Barriers for Online Search Tools

Since families move, and their jobs and routines change, they must be
able to adapt their shopping decisions. Giving families the tools to drive
their own adaptation is key, and California WIC has given participants
the ability to search for San Jose WIC vendors online. On the mobile
site,[62] participants enter their zip code to get a list of nearby locations in
order of distance. Through the data portal,[60,61] they can filter the provided
spreadsheet by city and/or zip code. Despite this, many participants
don't engage with these tools. Luckily, there are a few simple behavioral
tactics that can help. In early conversations about store location, staff
should introduce the WIC mobile site, possibly walking through it briefly
with participants, while they follow on their own phone if possible.[q]
Getting families acclimated to the online tools early can ensure that
they're empowered to make their own informed choices down the road,
pre-empting hassles and uncertainty.

Regardless of who is using the mobile and online search tools, behav-
ioral science can offer improvements to help people find them and make
them more useable. This could be achieved by both SEO (search engine
optimization) and behaviorally-informed user-experience (UX) design.
SEO is important because finding the data portal is not particularly easy.
When using Google to search for something like 'WIC stores in California,'
the first suggested website is a platform created by a Google developer
(not California WIC) whose aim was to help WIC shoppers with the same
function of searching vendors by zip code.[r] Using SEO best practices
can help smooth the hassle of finding the right information on the web.
If a participant finds their way to the open data portal, they are greeted
by a spreadsheet with hundreds of entries, which requires a rather high
level of tech savvy to navigate and parse. To address this, we suggest
the creation of a user-friendly landing page that is easily searchable,
plainly explains the tool's capability to find the stores closest to them,
and points to the list with an easy-to-spot link. Engaging a UX designer
will help with this, as will user testing with the target population of WIC
families.

Good navigation and design can be further boosted with some behav-
ioral techniques. For both the mobile site and spreadsheet, the ***choice
architecture*** can be behaviorally informed.[63] These online tools can be

Choice architecture:
*the design of the
environment in
which people
make choices.
Every decision is
within a choice
architecture
whether it
is mindfully
organized (like
a grocery isle)
or a product of
random chance
(like which
products are
easiest to see in
your kitchen)*

[q] *If the participant is tech-savvy, staff might could additionally email or text them the link to the vendor location spreadsheet in the data portal.*

[r] *The platform's search tool seems to no longer be functional as of early 2017.*

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designed to facilitate the tailored guidance discussed earlier. It would be preferable to provide options like address-based search, direction integration, visual symbols that easily indicate store type, as well as map-based and list-based visualization of store locations. We also suggest the ability to filter by store type, hours of operation and perhaps transportation type, with the option to only include locations accessible by public transportation. Any of these additions would ideally be built into staff's search capability as well.

Structural Barriers and Suggestions

Store accessibility

According to a recent report, participants tend to travel less distance to shop for WIC foods than they do to shop for non-WIC foods and get there by foot more than half of the time.[64] Both these findings, and conversations with families about their struggles to reach stores with young children in tow, suggest that travel is a critical criterion for where people decide to do WIC shopping. This makes it challenging to switch stores when the most convenient one does not provide an adequate shoppingexperience, and can lead to dropout if a reasonably convenient option is not available. To counter this, WIC might consider cultivating vendor relations in geographies where WIC-authorized stores are sparser.[s]

WIC-only store limitations

Around a quarter of all states in the U.S. authorize WIC-only stores, and California has one of the highest percentages of these stores in the country.[t] Since these stores depend heavily on business from WIC participants, they have a strong built-in incentive to make the shopping experience as hassle- and stigma-free as possible, which aligns directly with the goal of the WIC program.[u] However, from the perspective of WIC-only vendors (and small stores more broadly), there are multiple barriers in place that limit their opportunity to remain competitive amid a growing number of large chain locations.[v] Additionally, the implementation of EBT cards could make sustainability more difficult for these stores. With the implementation of EBT, vendors will need to update their technology to process transactions, and shoppers will have the new ability to split their purchases across multiple shopping trips and stores. States like Kentucky, where WIC EBT has already been introduced, have seen disproportionately negative consequences for smaller stores.[w]

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[s] *Vendor relations and requirements have a behavioral component as well. For example, a behavioral approach may be useful in helping small vendors feel comfortable to making the upfront authorization investment by concretizing long-term increases in returns and increase access for their community.*

[t] *17%, based on data from 2012.*

[u] *It is also not completely clear whether building shopping habits predominantly at WIC-only stores has tradeoffs in sustained healthy shopping habits once participants leave the WIC program. Although our interview suggest that many participants continue buying many of the same healthy products in the transition from WIC-only to regular stores, more research should be done to build a stronger understanding of this potential tradeoff.*

[v] *See endnote 62*

[w] *See endnote 60*

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Problem Statement 7: WIC participants face multiple difficulties in the shopping and checkout experience. We want their shopping experience to be consistent and easy.

For WIC participants that are new to the program, or new to a particular grocery store, shopping for WIC-eligible items can be intimidating and confusing. With specific limitations on the types of foods and quantities available to participants, navigating WIC benefits in a store packed with many other ineligible items can be quite complex. When participants are met with these shopping difficulties, especially early on in their WIC experience, it can negatively influence their perception of the program. This may motivate some people to drop out, and discourage others from joining. Currently the only context for making WIC shopping decisions is at the grocery store. However, many participants expressed dealing with uncertainty when trying to determine the correct WIC-eligible products while shopping. At larger stores, the sheer number of products increases the likelihood of a participant choosing the wrong item. On top of this, participants often have to do in-store calculations to make sure multiple packages add up to the specified size limit, for example when selecting cereal. Although the voucher list and food shopping guide can be helpful,[x] it is very easy to accidentally make a misstep in finding the correct combination of item, brand, and size for multiple products. Once a participant gets to checkout there are multiple potentially confusing steps that they must be aware of, particularly early on. As in other circumstances, further guidance can significantly boost follow-through.[65] To help more people overcome their uncertainty and persist, we can consider adding decision-related help both before their first shopping trip, as well as during in-store moments of ambiguity. Below we consider several designs aimed at improving the shopping experience.

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[x] *It may be possible to the improve the shopping guide by working with participants to determine where there are common points of confusion, and by incorporating behavioral insights into the layout and prose of the guide.*

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Barrier	Design Idea
It can be very difficult to get the information needed in the moment of choice while shopping for WIC foods.	**Support Product Selection Through Mobile or In-Store Technology**: Helping families get immediate answers about which foods are WIC-eligible may improve the shopping experience, especially at checkout. This can be done with the use of texting services and phone or in-store scanning.
Checking out can be painful and stigmatizing, but practice can help.	**Smoother Checkout Through Practice**: Getting early firsthand practice in the checkout process, even at WIC offices, may improve families' experiences at the store.
Shopping can be time-consuming and full of hassles.	**Updating Choice Architecture for WIC Foods**: Creating tools to pre-plan (or even pre-select) foods before a shopping trip may save energy and time for families.
Most food, like yogurt or dried beans, comes in a form or package that doesn't fit with people's lifestyles.	**Improve the Packaging Convenience of WIC Foods**: Increasing the number and types of eligible foods that cater to families on the go can help them eat healthy in a way that fits their lives.
WIC shopping can be challenging, and most retailers could do more to help WIC shoppers.	**Encourage Retailers to Adopt Promising Practices**: Retailers can help families by grouping WIC-eligible foods, training their staff well around WIC, and offering delivery or pre-packing options for WIC shoppers. Staff and participants can help retailers by giving them performance feedback on customer service (like Yelp), which might also help guide shoppers

Supporting Product Selection Through Mobile or In-Store Technology

Enabling two-way texting between participants and their local WIC agency can provide shoppers a valuable channel for additional helpful information right at the moment of choice (although receiving an answer is limited by office hours). It can be doubly beneficial as these texts will generate a written record of questions that can be more deeply addressed at office appointments (also see Problem Statement 9). With the switch to EBT, we suggest creating a mobile-based functionality for participants to scan an item to check if it is WIC eligible while shopping, as a few states have already done.[y] Similarly, stores might consider placing physical scanners that will help participants be sure that they have selected eligible items before getting to checkout.

> " When I first starting shopping for WIC, I tried to use the voucher that lists the foods but I didn't understand how the measurements (16oz) matched with the food label. It was tough because the vouchers are only printed in English but I speak mainly Vietnamese."
>
> —*Current WIC Participant*

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[y] *Many states have enabled the WIC Shopper App for their WIC participants (http://www.ebtshopper.com)*

Follow Through of Health-Promoting Behaviors

Smoother Checkout Through Practice

Mistakes at checkout can make the shopping experience significantly more difficult; trying to ring up an ineligible product can often lead to extra hassles like walking across the store to pick up the correct item, sometimes with children in tow, as people in line continue to wait. Even simply displaying WIC vouchers can induce negative reactions from cashiers or other shoppers, which may then trigger stigma. Even if cashiers or customers don't intend negative judgment, this may still cause WIC users to feel ashamed or belittled. Helping WIC participants feel confident and efficient can improve the checkout process by reducing hassle and stigma. Ambiguity about the best way to proceed at checkout can also be a problem. Promising practices exist that can help here, such as sorting items based on the voucher. WIC agencies can help participants acquire these skills in a variety of ways. One strategy would be to walk through a simulated checkout experience one-on-one with new participants. This can help internalize information and identify areas of confusion before using the voucher for the first time at the store. More ambitiously, WIC staff could lead shopping trips for new WIC participants as a nutrition class option so that the instructions and best practices are learned directly in the context they will be applied. This takes advantage of encoding specificity, or the tendency to recall information better when the context in which you need to remember is the same as the one in which you learned it.[66]

Updating Choice Architecture For WIC Foods

Another strategy to improve the shopping experience is behaviorally informed **choice architecture** (see *Problem Statement 6*) that prompts planning and simplifies decision-making around food selection. One version of this is a structured choice tool that sorts the options within each food category on the voucher and prompts families to pre-select their items before getting to the grocery store. This tool could be a worksheet attached to the shopping guide, or a personalized decision tree created on a website or mobile app—similar to making a 'cart' of items during online shopping without actually purchasing it at the end.[z] The most streamlined version of WIC shopping might allow participants to select all of their WIC items through an app or website to be picked up from the grocery store or delivered to their home address. Beyond the convenience factor, this can also help participants select healthier overall foods; there is evidence that pre-selecting food in a "cold state" can increase healthy eating.[67] The U.S. Department of Agriculture and Amazon are actually testing this for Supplemental Nutrition Assistance Program (SNAP) participants.[68] This model has great potential to reduce

> "I used to tell the person behind me [in line] I'm sorry. Now I recommend they go to a different line."
>
> —*Current WIC Participant*

> Sometimes when I shop, they make you feel bad that you are receiving WIC. The line is really long, and they make them feel stupid when using the check, especially if you don't know English very well. At the end there is always a survey on the receipt but it isn't on the receipt for WIC customers. They [store staff] won't let me use the express lane or self check-out even if they are all open and sometimes they don't think I can use my food stamps or other coupons with my vouchers."
>
> —*Current WIC Participant*

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[z] *If vendors are not likely to have all of the brand and type options for each item available, it may be best not to get to the level of brand in the decision tree. For example, list the option for type (canned or dry, black or red) without listing brands.*

the complexity, hassle, and stigma of WIC shopping and is much more feasible now with the upcoming transition to EBT.

Structured choice interventions such as these could help to enhance feelings of control and flexibility among participants. Perceived inflexibility was a widespread **mental model** (see *Problem Statement 1*) among people we spoke with. While this is certainly true—unlike SNAP, WIC has many detailed limitations—almost every participant we spoke with reported that their family enjoyed most WIC foods. By helping mitigate perceived inflexibility, we can prevent the potential for devaluation of WIC, and even dropout from the program.

Structural Barriers and Suggestions

Improve the packaging convenience of WIC foods

Currently, there are a few items catered to on-the-go meals or snacks like string cheese and cereal; options like these should be expanded. Baby food can only be acquired in jars, rather than pouches. Yogurt is only available in large tubs, not travel sized containers. There is also some ambiguity among participants we interviewed about when and whether they can get canned beans versus dried beans that take hours to prepare. Between storage, portability and prep time, some WIC foods introduce significant hassles and transaction costs. Although this is a change that can only be made at the federal level, it would be beneficial to consider changes to the food package that will respond to the needs of on-the-go families while still according with USDA's own guidelines. Convenience makes life easier for parents, but it also makes it more likely that families will consume these foods regularly and frequently.

Encourage retailers to adopt promising practices

The circumstances at each grocery can sometimes be a barrier. Some stock correct products and brands but not in WIC-eligible sizes. Some have cashiers that are not trained in using WIC, and some may denote WIC items inconsistently. While we only have anecdotal evidence about the prevalence of these retailer-derived challenges, the stories of WIC participants suggest that retailers unevenly implement best practices and state guidelines. Starting at the food selection moment, it is critical that retailers stock and properly label WIC-eligible products. They might even consider helpful and intuitive groupings of commonly paired items in a WIC package (e.g. milk and cheese). Staff knowledge is also critical, and retailers should ensure cashiers are well trained in WIC redemption, and generally familiar with WIC-eligible items. Subtler supports include practices like turning off the checkout line light to keep others from forming a line behind the WIC participant. Many retailers already help WIC shoppers in these ways, and expanding those promising practices would be beneficial.

> " When I shopped often the book would say yes but the register would say no. Then I'd go back to check – they'd have the right type, like black beans or string cheese, but not the WIC eligible size or brand. Most stores didn't even carry the right size that was eligible."
>
> *—Past WIC Participant*

> " The store staff would tell you to follow the signs but they were misleading. I would grab things labeled for WIC and they would tell me at the register it was wrong."
>
> *—Current WIC Participant*

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Feedback may also be a solution, especially for retailers that want to improve customer service. Without a frequent and actionable feedback loop, it is difficult to identify or change sub-optimal behavior, or to increase and strengthen optimal behavior. Many retailers only get occasional feedback from frustrated customers. Introducing regular feedback from customers, and/or from state or local agencies, might improve overall service by praising what works and making sugges-tions for specific improvements. Whether through surveys or experience sampling, vendor liaisons can use this information to provide more evidence-backed feedback to stores. Also, if permissible, participant feedback for stores might be aggregated like a Yelp for WIC vendors.

> "
> I did find that the brands that were available for WIC were different at different stores. Sometimes they have labels and sometimes they don't."
>
> —*Current WIC Participants*

Problem Statement 8: WIC participants fail to redeem their issued vouchers before they expire. We would like them to pick up the food that they are eligible to receive.

WIC participants do not always purchase and eat all of the food available to them. Nationally, fewer than 35% of families with fully breastfed infants used all of their vouchers for meat, fewer than 50% did so for fruits and vegetables,[69] and 13% of mothers reported not fully redeeming their vouchers for dried beans or peas.[70] At Santa Clara WIC, 16-19% of issued paper vouchers went unused every month of 2016. In this population, 8% of participants did not redeem any voucher, and the rest redeemed some but not all. Some of the participants who did not redeem any vouchers decided to stop using the program but have not done so for long enough to be labeled 'inactive.' We will talk about them in the last section on exiting the program. In this section, we will focus on the group that is only partially redeeming their issued vouchers.

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Barrier	Design Idea
It's easy to forget your vouchers, and their expiration dates aren't always salient.	**Use Text Reminders to Prompt Voucher Use**: We may help families use all of their vouchers before they expire by sending timely reminders (or helping families create their own). These reminders can be enhanced by using loss aversion and other techniques.
EBT will remove the built-in shopping list and remove the need to redeem vouchers in their entirety.	**Make Pre-Checkout EBT Balance Updates Available**: Giving families concrete reminders of what foods they still have available to purchase may help them purchase them all, especially after EBT roll-out. Useful approaches to this might include physical lists or tech-based approaches like apps or texting services.
It can be very difficult to get the information needed in the moment of choice while shopping for WIC foods.	**Support Product Selection Through Mobile or In-Store Technology**: Helping families get immediate answers about which foods are WIC-eligible may improve the shopping experience, especially at checkout. This can be done with the use of texting services and phone or in-store scanning.
People won't buy food that they can't or won't use.	**Provide More Choice in Food Package Redemption**: Allowing families more autonomy in the size and composition of their food package may result in more voucher redemptions.

Use Text Reminders to Prompt Voucher Use

Participants usually get three to five vouchers a month, more if they have multiple children in the program. In our interviews we heard that most participants do not use all of their vouchers at once. Doing so would give them too much of the same products upfront and leave less for later in the month.

Participants often use some vouchers soon after receiving them, and hold on to the others for later. Here again, prospective memory and its fallibility play a role. Successfully following up with a desired action at the correct time in the future requires a serendipitous or premeditated reminder, and/or having a sufficient amount of mental bandwidth or attention available when the right moment comes. Understanding participants in this context of **limited attention** (see *Problem Statement 4*) and **chronic scarcity** (see *Problem Statement 2*) can explain why trying to save a few vouchers until later in the month can lead to them expiring before use. The main method participants currently have to remember the eligibility window for their remaining vouchers is by looking at the dates printed on the voucher itself. If the paper is tucked away, or a participant does not take a hard look at it during this window, the expiration date may easily pass.

> "
> They give you certain days for when you can spend the voucher, sometimes you can't go in that time but you have to go. If I have milk already that hasn't expired but I have to go. Then when I go the extra milk only last 3-4 days and it all expires the same day."
>
> —*Current WIC Participant*

Currently, WIC regulations in California require agencies to give verbal or written notice to a participant 15 days before expiration, which is certainly helpful.[71] Behavioral levers may also be integrated in wording and timing, as mentioned in section 2, to help to guarantee the effectiveness of these reminders. Furthermore, a text message before vouchers are about to expire can be just as helpful as the current practice of calls or texts for appointment reminders. Agencies can introduce enhanced active choice (see *Problem Statement 3*) questions in these texts pointing out that participants' opportunity to use their monthly food benefits will end soon. This will continue to help as EBT is rolled out.

A non-technological alternative would be for staff to work with participants to create strategies for remembering to use all vouchers before they expire. Some examples could be marking the expiration date on a calendar, placing notes on the refrigerator, or forming habits around the times of the month they use the vouchers (i.e. the first and fourth Sundays of the month).

> "
> There's a reason why [vouchers are] so broken up but it's a pain. There are long lines and you have eight transactions. I'm doing shopping all at the same time, need to check the dates and verify everything — it's a lengthy process. I get over 20 coupons for me and my two kids. I have two hours with no babies and have 45 min to shop and 45 min to go through line. I feel bad for the poor soul behind me in line. You do it because you have to."
>
> —*Current WIC Participant*

Example Text Message:

[Sent on 5/22] Hi Matt, your WIC vouchers for this month will expire on May 26th. Please reply: **A)** I have used this month's vouchers, **B)** I will use this month's vouchers this week, **C)** I have decided not to pick up the free healthy food available

Automated replies (if possible):
If A- Great! We will not text again until next month!
If B- Great! What day and time you will go to the store?
If C- If you end up going to the grocery store, bring along your vouchers just in case there are a few items you want to get for free!

Make Pre-Checkout EBT Balance Updates Available

With every state mandated to have an EBT system by 2020, it is important to consider how this change may shape the context of food redemption decisions. The introduction of EBT will make the checkout experience quicker and less conspicuous, reducing behavioral bottlenecks like hassles or stigma and increasing the likelihood that participants redeem their vouchers.[72] Additionally, an EBT system will allow participants to redeem their benefits in unlimited shopping trips, giving participants more flexibility.

However, the other side of increasing flexibility is decreasing the consistency of full redemption throughout the month. Currently, participants are supposed to purchase every item on the voucher they redeem, and many vendors mandate this rule at checkout. Although participants often follow this requirement, many prefer to leave one or more items, and will likely do so when EBT cards are in use. A forthcoming white paper

> "
> [I prepare meals now] mostly every night. That wasn't the norm before WIC. I didn't know how to cook at all before WIC. I had to learn once we had the eggs and all that. Now it's working that we cook all the time."
>
> —*Past WIC Participant*

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from researchers at Ohio State found that when stores switched to EBT, participants redeemed fewer food benefits overall.[73] This is corroborated by an Altarum Institute study looking at EBT redemption data from Kentucky, Michigan and Nevada from January through March 2012. The highest full redemption rate among the three states was just 16.4%, with a majority partial redemption (76-84%) and 4-8% non-redemption.[74,75] This trend may be emerging because a remaining balance seems less salient when using EBT than when using paper vouchers, increasing the effects of limited attention and potentially making these items more likely to be forgotten and not taken up by WIC participants.[aa] Vouchers not being redeemed because they were forgotten is a very different problem than unredeemed vouchers due to unwanted or unneeded food items.

For many states that have already implemented EBT, people often check their available food balance by logging on to an online portal, or by keeping a receipt displaying the remaining items after shopping. Although these both provide the necessary information, they may also introduce hassles. Participants have to remember their login information or keep and consult their receipt each time they shop.[ab] Once EBT is implemented, a printed checklist of each month's items may be helpful. Since participants will only need their EBT card, however, it is less likely that they will bring along their WIC folder, shopping guide, or checklist. To provide support at the moment of choice, on-card checklist printing or a checklist on a card holder may be helpful. Even better would be mobile or in-store capacity to display or print a list of what remains for the month. Tech-based solutions might include an app[ac] or texting service that reminds participants of the foods still remaining in their account—integrating pieces from both solutions can help address the needs of people across a range of technology comfort and accessibility levels (like available phone data).

Support Product Selection Through Mobile or In-Store Technology

Another consequence of the ability to redeem WIC items individually through EBT is the increased influence of biases like uncertainty and **risk aversion** (see *Problem Statement 5*). If a person is unsure about an item, they can now more easily decide to not get it (at least for now). Beyond the issue of partial redemption, not acquiring a recommended item means that they won't try to cook it, or serve it to their child. The

> "
> The lentils are tough. My sons are anti-beans and I don't know how to prepare them. [I've] never asked at WIC. Sometimes I wouldn't get them. In the trainings they would give examples of recipes but the ingredients didn't fit what I had."
>
> *—Past WIC participant*

[aa] *Despite the many setbacks of paper-based food instruments, they do act as a de facto shopping list.*

[ab] *If going either of these routes it is also important to consider a) the ease of finding the online portal and b) whether the information printed on the receipt is salient and easily comprehensible.*

[ac] *The WICShopper app used in over a dozen states across the country allows participants to register their WIC Card in order to directly see their available balance as well as scan foods to see if they are eligible, all right in the store.*

Follow Through of Health-Promoting Behaviors

participants we spoke with who did use unfamiliar foods tended to fully redeem their vouchers (a helpful nudge in this case!) and reported slowly incorporating some of these new items into their meals. Exposure to unfamiliar items through occasional tastings or recipes could be a motivating factor in redemption decisions. The Food Trust encourages sampling in their Health Corner Store Network (with a few locations in San Jose) with cooking demonstrations and tastings that promote the store and show customers dishes made with an array of healthy WIC items.[76]

Structural Barriers and Suggestions

Provide more choice in food package redemption

The quantity provided for some WIC items is more than some families need (or can use) at one time, particularly for perishables. Participants often rationally decide to leave an item at the store—for example, if their family goes through one jug of milk in a week and already have two at home, they probably won't get through three more before they expire. It would be ideal to give families with an oversupply more decision-making power over the quantity of a single item they must receive. Flexibility of choice in quantity would increase the likelihood of redeemed items actually being consumed, while also providing valuable insight to WIC policy makers and staff about actual consumption. This would ideally be done in a manner beyond self-report, which introduces multiple potential biases.[ad,77]

When EBT is implemented, some of the drop in full redemption will be due to participants making more individual decisions about quantity. Therefore, overall redemption rates may not be an ideal metric for measuring success of the program moving forward. It will be important to track the number of participants that do not redeem any of their items, and to determine the items most commonly left at the store. The former can be used as an early indicator of disengagement and the latter as a guide for updating the food package, or for using nutrition education to help nudge participants' perceptions.

> "
> They give cheese but nobody [in my family] likes cheese; I wanted a check for a different one but they didn't allow it. I have to buy it but then just throw it away because nobody eats it and I don't know anybody that could use it."
>
> *—Current WIC Participant*

[ad] *Misremembering or incorrectly estimating past actions like cooking or eating (recall bias) and the desire to give the 'right' answers (social desirability bias) can greatly skew self-report data on dietary compliance.*

D) Exiting the WIC Program

Problem Statement 9: **Participants drop out of WIC before their eligibility ends, particularly around the child's first birthday. We would like them to remain in the program.**

There is a crucial question that all participants consider at least once throughout the WIC lifecycle—'Is this program right for me?' The decision may be an intuitive gut reaction, a deep evaluation of time and value trade-offs, or something in between.

When someone takes the first steps toward enrollment, they probably believe the program has value to them. However, for those who become participants, their answer to that question may change. Whether the program is a fit will be an ongoing choice the family makes throughout their participation in the program, and is thus a "metacontext"—framing the entire WIC experience, and crucial to lasting engagement *(see visual example at right).*
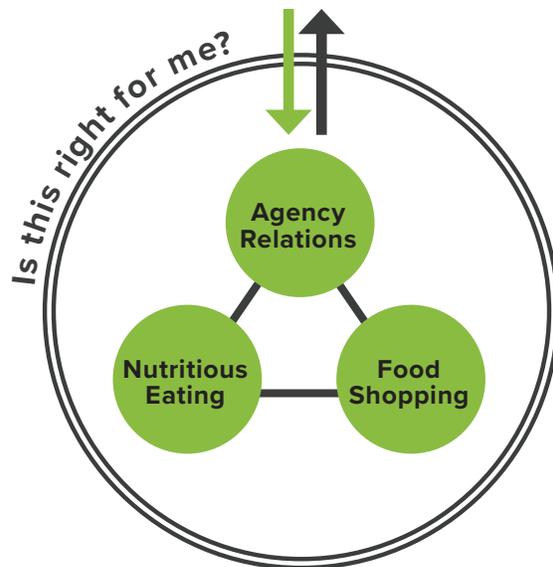
Visual Example of WIC Lifecycle

As WIC participants move through the sequence of agency visits, food shopping, and everyday decisions of what to eat, perceptions or experiences both inside and outside of the program may lead them to question their participation. If families no longer see themselves as "fitting in" to WIC, they may temporarily or permanently withdraw—leading many eligible families and children to forgo the benefits available to them.

Throughout this paper, we have discussed difficulties that can arise in all three of the major WIC contexts. In the agency setting, participants might have trouble sticking to their appointments and engaging with the education resources, and they may not always feel welcomed and empowered by staff. While shopping, participants might have a hard time finding and choosing the correct items, feel stigmatized by the grocery staff or those waiting in line behind them, or take longer to shop. Finally, in making everyday nutritional decisions, participants may not persist in breastfeeding as long as they intended, or they might be unsure how to fit cooking into their busy schedules or even how to prepare their WIC items so that their child will eat them. Although many of these barriers may seem like small issues, particularly when compared to the benefit of improved future health, any one of these problems can skew the perception of cost and benefit toward reconsidering program fit which may lead to dropout.

An important note on this section: it was difficult to find and speak with former WIC participants who did not persist through the full program. Their inaccessibility might be explained by any one of the reasons that dropout occurs, like feeling too busy or being deterred by hassles. Therefore, the behavioral barriers we describe below stem from the both biases we've observed first hand, and those we hypothesize based on biases in similar contexts. We hope to continue exploring the validity and prominence of such biases in this context in our continued work with WIC in California.

Exiting the WIC Program

Barrier	Design Idea
People may not recognize the magnitude of WIC benefits.	**Use Behaviorally-Informed Messaging and Reminders to Spotlight Program Benefits**: We may be able to help people stay in the program by sending reminders that concretize the long-term benefits of WIC, and that leverage loss aversion. This can be enhanced with additional levers like self-affirmation, Enhanced Active Choice (EAC), and framing techniques.
Present bias and hassles can deter people from recertification.	**Exercises to Build Commitment and Identity Around Healthy Family Behaviors**: Reminding people of their values and hopes for their children's well-being may help them persist in WIC and overcome hassles in the process
Some families come in and out of eligibility due to seasonal employment but do not re-enroll.	**Develop Targeted Re-Enrollment Systems**: Using cross agency data can help identify families who become eligible for WIC again after losing their eligibility. Behaviorally-informed messaging might increase re-enrollment for people who become eligible again.
Data sharing is not as effective across agencies as it could be	**Develop a System of Benefits Onramps**: Creating data systems to alert WIC agencies when families who left become adjunctively eligible again could boost enrollment
Hassles and time scarcity make WIC seem less necessary for working families, especially when they have to make tradeoffs with work.	**Provide Explicit Support for Working Participants**: Send the message that many working families participate in WIC, and help working families plan their appointments around their busy schedules.
Some people have an inaccurate belief that healthy foods have to cost more.	**Reduce Food Price Myths Through Gamification**: Games can help people maintain healthy eating after leaving WIC by shifting mental models about the price of healthy food.

What drives dropout?

Speaking with current and past participants, we observed multiple nuanced views of the value of WIC vouchers and food packages. Some participants highlighted family health as an important benefit of the program, while others valued the nutrition education. Many, including those who dropped out early, found the early financial support to be a major draw, and noted the value shifts as they moved through the different age stages. In order to emphasize WIC's long-term benefits, WIC can provide behaviorally-informed communications in the months leading up to recertification—particularly around the one-year mark.

The behavioral levers we suggest for these communications, such as **loss aversion** (see *Problem Statement 2*)[78] and **framing,**[79] stem directly from the biases we've observed in our interviews, and from those we hypothesize based on our work in similar contexts. The transition from infant to child at age one brings fundamental changes to the program, including the removal of a food package for the mother (if fully or mostly breastfeeding), and the transition from the infant to the child food package. Even if a family knows that the program continues past infancy, and that they remain eligible, they may undervalue the food package that has changed to meet the needs of a growing child. One of the most common reasons for this, as recognized by those who work for and participate in WIC, is that a sizable portion of WIC participants value the program mostly for the support in buying infant formula. Multiple studies show the particularly high value WIC participants place on the infant formula subsidy. In a survey of WIC participants in the nearby state of Arizona, over one third of participants reported formula or milk as the most important benefit of WIC, and another third said that the most common reason for applying to WIC at all (in a survey of English-speaking participants) was the formula.[80,81] Similarly, one national study found that mothers who didn't breastfeed, or stopped early, were the population most likely to drop out of WIC once their child turned one, particularly if they had a higher income or more education.[82]

Before accounting for the rebate that WIC provides on infant formula, the infant package for non-breastfeeding mothers has an average monthly value of $114. Post-rebate, this same food package costs the government an average of $49 to subsidize, which is still one of the highest value packages, equal only to the package for fully breastfeeding women (which has the same pre- and post-rebate value). Mothers that get formula through WIC are effectively saving over $100 every month until their child is one, which is a major draw for eligible families even if they think they can afford other groceries or do not feel completely comfortable using a public benefits program. When considering the post-rebate value, the difference from the infant to children package is just $12 (from an average value of $49 to $37, respectively).[83] However, the salient price of the infant package—from the regular market value they see for formula at the store—is much more expensive, making the drop seem significantly steeper.

Although $40 a month is not negligible, participants often judge the child food package in comparison to the value of pre-rebate infant formula. This framing makes the child package seem less worthwhile. Another comparison that frames the package for children as less beneficial is its value against overall monthly grocery costs. Data from the U.S. Department of Agriculture shows that the average monthly food cost for a family of four with two children under five is around $550 on the 'thriftiest' plan.[84] Looking at just one month, the voucher covers less

> "That was it [why I enrolled in WIC]. It was either my pride or the formula. I was like should I either tough it out or get this formula?"
>
> —*Past WIC Participant*

Exiting the WIC Program

than one tenth of the purchase, which is certainly helpful but may not seem overwhelmingly valuable, despite the fact that WIC is meant to be a *supplemental* program. Although participants may not be making judgments based on such specific numbers, the relative magnitude of each makes it easy to see why this perspective may diminish the perceived benefit of the program. People generally tend to disregard the value of seemingly small amounts accumulating over time. For example, it is hard for people to grasp how small contributions to savings can really add up in the long run. In psychology, this is the difference between assessing a choice in narrow brackets—making each choice in isolation—or broad brackets that take into consideration all of the cumulative consequences of a choice. Although many people default to the narrow view, a broad look at WIC shows that the child package with one child in the program adds up a value of just under $2,000 in savings over the course of four years.[85]

Beyond the financial perspective, living in the context of **chronic scarcity** (see *Problem Statement 2*) also increases the likelihood of **present bias**, the tendency to overvalue the immediate moment, even at the expense of long-term intentions or outcomes. Some families may want to continue WIC, but find themselves deterred by smaller but more urgent actions.

Present bias: *the tendency to overvalue the immediate moment, even at the expense of long-term intentions or outcomes*

Use Behaviorally-Informed Messaging and Reminders to Spotlight Program Benefits

To address present bias and narrow bracketing around the time of recertification, behaviorally-informed framing can be used to better emphasize the future benefits of staying in WIC. This can be presented in the meeting before their child's one-year recertification. Instead of simply listing WIC program benefits, one strategy might include appealing to loss aversion. Based on the average value of the food package for children, dropping out when a child is one costs a family almost $2,000 of food. That is $2,000 that could be used for transportation, monthly bills, or set aside for the child's future education. In San Jose, this money is particularly important because of the high cost of living. Mentioning this loss may counteract not only present bias, but also a threat to **identity** (see *Problem Statement 1*) from needing the help, or the misperception that WIC is only a program for emergencies. This monetary framing might also include testimonials about how the program has an important impact on health and educational prospects.[86,87] For example, children of participants that have dropped out of WIC are more likely to be overweight, and are less frequently classified as 'well' than children of current participants.[88]

Similarly, behavioral messaging can iteratively improve the promising practice of sending appointment reminders. For example, participants in their first or second appointment can be asked to write a short motivational message to themselves about their reasons for enrolling

Exiting the WIC Program

in WIC. Future reminders can then include this self-written motivational message. If using an SMS system, participants might also be given the option to text back to confirm by offering an enhanced active choice such as: 'A. Yes, I will drop by to pick up my vouchers for free healthy food, B. I will call [Number] now to reschedule, C. I will miss out on my free food for this month.'

Exercises to Build Commitment and Identity Around Healthy Family Behaviors

A number of participants mentioned that a factor in joining the program was WIC's ability to support their parental goal of raising a healthy child. Present bias may begin to cloud this motivation when parents have to follow through on multiple recertification steps, so it is helpful to strengthen their motivation by leveraging their **identity** (see *Problem Statement 1*) as a responsible and tenacious parent. For example, in the meeting three months before recertification, staff could ask participants to write down or talk through a few ways that WIC has helped and a few reasons they foresee WIC continuing to be beneficial as their child grows. This might even include a signed affirmation of their commitment to helping their family to be healthy now and in the future.

Another reason we frequently heard for dropout was that participants felt that they no longer needed the help, and wanted to leave the food for those who could use it more. Both of these rationales are often influenced by misperception. The former is largely based on the **mental model** (see *Problem Statement 1*) that WIC, and public benefits programs in general, are only for people who are in emergency situations. Just as families near the income cutoff may believe they are not eligible, or that they are not in need to begin with, WIC participants whose income increases while in the program may begin to develop similar perceptions. A study by Mathematica on WIC entry and exit found that over one third of dropouts were preceded by increases in earnings of 40% or more. Also, families with at least a 20% income increase and exit from any other form of public assistance are almost two times as likely to exit WIC.[ae] As described elsewhere, uncertainty about the eligibility criteria may also drive dropouts. Participants may never be told which circumstances would make them ineligible. This can lead to dropout because of incorrect assumptions about work status, income or other circumstances. Participants may also mistakenly believe that their participation in the program prevents some other eligible family (potentially more in-need) from joining the program,[af] whereas the fact is that WIC has been fully funded in recent history.[89]

> **If you really need the help then yeah you'll do everything you can to do all of the paperwork and stay in. But if you just want a little bit of help [you may not]. My husband got a better job so we were like we'll leave it to someone who actually needs it now rather than taking space in the program."**
>
> *—Past WIC Participant*

[ae] *See endnote 88*

[af] *Focus groups conducted by the Center on Budget and Public Policy found that this belief was especially pervasive when there were perceived funding shortages (ex. during the government shut down).*

These perceptions and beliefs about eligibility may be modifiable. There is currently a set of questions that people can answer on the CDPH website to check WIC eligibility. A behaviorally-informed strategy to improve this helpful tool would focus on reducing **hassles**, including removing (and/or more plainly explaining) jargon. For example, does gross income include just the mother's income, or anyone else's in the household? The **choice architecture** (see *Problem Statement 6*) might also be improved, perhaps by starting with the number of people in the family unit, and then being directed on how to find gross income information. The goal would be to provide as much certainty as possible around eligibility before requiring a call or visit to the WIC agency.

Develop Targeted Re-Enrollment Systems

Staff members often try to call people who have stopped returning to WIC for their vouchers or recertification. Not all of these calls are answered, but when they are, it is an important opportunity. A behaviorally-informed phone script may help participants follow through on their intention to persist, and may renew their motivations and plans to remain.

In addition to making these calls following missed appointments, calls can be made to families that had to leave the program due to income ineligibility but have since returned to the eligibility range. One way that it might be possible to highlight the call recipients would be through implementation of a system within WIC that alerts local agencies whenever a family can re-enroll based on return to other public benefits programs that make them adjunctively eligible. This would reduce the hassle and possible uncertainty that may keep families from trying to re-enroll themselves.

Develop a System of Benefits On-ramps

It would also be advantageous if there were a way for CDPH or WIC agencies to track re-enrollment in other public benefits programs so they can reach out to past participants who become WIC-eligible again. This would allow re-enrollment through what is known as "adjunctive eligibility." Re-enrollment into WIC is very uncommon after dropout, as less than 10% of children who leave the program re-enter within a two-year period.[ag] However, since families sometimes move over the income cutoff due to seasonal or sporadic employment, some participants will be eligible again before their child ages out. If WIC agencies had a proxy to determine renewed eligibility, they could proactively notify former participants that they can re-enroll in the program.

[ag] *See endnote 82*

Exiting the WIC Program

Provide Explicit Support for Working Participants

Going back to work adds another critical layer of complexity for people remaining in the WIC program, especially for single parents or those with a small social network. Even living in California, a state with some of the best family leave policies in the country, new mothers may get only four to six weeks off work with partial pay as part of the California Paid Family Leave (PFL).[ah,90] The longest leave (if a mother qualifies under both the Pregnancy Disability Leave and California Family Rights Act) can be up to seven months, but this requires that the new mother has worked for the same company for over a year, or with a company larger than 50 employees, and not all of that time is guaranteed to be paid.[ai,91,92] The transition back to employment introduces an additional constraint. As parents return to work while simultaneously taking care of children that are becoming more mobile and verbal, it is unsurprising that their WIC participation rates begin to drop.[93] One study found that children with guardians who work full- or part-time are less likely to remain in WIC throughout the next year of the program.[aj]

Work worsens time scarcity, and increases the need to think in terms of trade-offs. Get fast food, or cook a meal with leftovers? Continue going to the WIC agency, or get a few more hours at work? These trade-offs are difficult because the value comparison is not always clear. The full cash equivalent of the WIC voucher is not apparent and hourly wages may not be consistent.[ak,94] Just as WIC expressly supports both biological and non-biological caregivers of all backgrounds, there could be additional focus on the publicized inclusion of working parents and mothers. This can include behaviorally-informed practices like promoting **descriptive norms** (see *Problem Statement 3*) about how many WIC participants are working, supporting the social norm that getting WIC while working is both possible and normal. Also, as mentioned earlier, **plan making** can be quite helpful in promoting behavior that people want to do, but get easily deterred from.

Reduce Food Price Myths Through Gamification

Finally, we share a few last comments about children aging out of the program, a transition that often works well. We heard that families often continue to eat the same foods they were getting through WIC, but that the main threat to healthy eating habits becomes price, with many stating that healthier foods are also more expensive. This very common mental

> "I left [WIC] after [the] first year for [my] youngest because I was no longer eligible at recertification. They don't consider the other expenses in the family we need to pay for – there is little that is left at the end [of the month]."
>
> —*Past WIC Participant*

[ah] *Mothers who qualify for the 4-6 weeks of partial pay must have earned at least $300, contributed to State Disability Insurance and not already using any other disability benefits.*

[ai] *During this time, the mother may qualify for paid leave, but it is not guaranteed.*

[aj] *See endnote 88*

[ak] *It is not only part-time or sporadically employed families that remain within the eligible income range. 14% of single mother households with children under 18 live in poverty even when the mother is working full time and year-round.[92]*

model was called into question by a USDA study which found that healthy foods cost less than less-healthy foods in price per weight and price per portion—particularly grains, dairy and fruit.[al,95] Since WIC eliminates price signals for certain items, participants may not be as prepared to incorporate them into their budget once the program is over, even if they wish to keep them in their diet. When the time comes to make shopping decisions, the mental model about expense may keep them from buying affordable and healthy options. There is an opportunity for participants to leave the program more equipped and confident to continue the eating habits they built during WIC without feeling the need to overspend. A shift in mental models will be needed to dispel the myth that all healthy food is more expensive. This might take the form of an online or in-person game that compares healthy and unhealthy dishes on the basis of cost. Seeing examples that disprove the "healthy = expensive" heuristic can boost purchases of healthy foods once the program ends.

Structural Barriers and Suggestions

Although some participants leave the program because they wrongly assume that their income no longer fits the eligibility criteria, others feel that they could still very much use the help despite having incomes just above the cutoff. Of course, the upper bound of income cannot be adjusted to accommodate everyone that is interested, but the policy of judging eligibility based on a hard line (185% of the U.S. Poverty Income Guidelines)[17] does a significant disservice to those families that lose their benefits because of a wage increase that puts them just above it. These "benefits cliffs"—points at which increased earning can result in a decrease in benefits worth the same or more than the wage gain— are particularly harsh if the wage increase is temporary, as many of the families we spoke with have a wide variation in seasonal income. If an unexpected emergency brings them back into the eligibility range, they are at a particularly inopportune time to have to go through all the steps of re-application. One strategy to mitigate hassles for these families would be to determine income based on the average in a broader time period, so they can maintain benefits throughout fluctuations in wages— and save the effort of reapplying at the onset of the most difficult times.

The income cutoff, which is set by the federal government, and is the same around the country regardless of cost of living, becomes an even more pertinent issue in particularly expensive areas like San Jose. Making a wage that is 190% over the national poverty line doesn't go

> "We just got kicked off of [Medi-Cal] and food stamps because my husband is earning a bit more than usual. It was just one month that he was working overtime. They said we could get right back on after more proof of income but I'll have to come back and reapply – it's a hassle! Now the insurance went up."
>
> *–Past WIC Participant*

[al] *This was based on comparisons of price per edible weight and price per average portion. When the researchers used another metric, price per calorie, their findings regarding the relative expense of healthy foods was more mixed. However, the authors conclude that "Regardless of the metric used, the analysis makes clear that it is not possible to conclude that healthy foods are more expensive than less healthy foods."*

as far as it would in many cities in the Midwest or South. With the rise of minimum wage without a simultaneous rise in income eligibility, some people now have to choose between barely making a living wage and remaining in the program—they cannot have both.

Beyond expanding the period of time income is determined by, this can be taken one step further by providing some WIC services for an additional fee for pregnant women and parents of young children above the income cutoff. Regardless of income, many families want and need nutrition information and counseling. Expanding service, while only providing free educational services and food package benefits to those with qualifying incomes, has the potential to benefit the entire population while also reducing the stigma of participating.

Exiting the WIC Program

Conclusion

In this paper, we tried to summarize an incredibly broad range of findings about the experiences of WIC participants in San Jose, California. In our typical approach to behavioral design we would have selected only one of the nine problem statements to dig into, and we would have gone much deeper into administrative data, contextual reconnaissance, and user experience work to create a more robust set of diagnoses and designs. Our remit in this instance was quite different, however, as our aim was to surface as many behavioral problems as we could across the entire WIC program. As with any investment of time and energy, this entailed trade-offs—in this case, depth was sacrificed for breadth. Despite this, we feel confident that there is an incredible opportunity to improve outcomes by ameliorating the barriers we hypothesize here, and we look forward to the next stage of our WIC work to reality-test a handful of our ideas.

This piece is simply the start of our thinking on how behavioral insights might improve outcomes for WIC-eligible families across the U.S. We see immense promise in taking a behavioral design approach to re-thinking WIC processes and services, both for the families and for WIC staff. Our aim will be to translate these insights into a handful of concrete pilots with local agencies in California over the next year, and to scale up promising interventions into full RCTs to understand what's working (and how well). We expect that this paper will be a jumping off point to help spur innovation beyond San Jose. Not only can the ideas here be translated to offices outside California, but also they can be applied to programs beyond WIC. As always, we welcome any dialogue that can help behavioral science improve people's lives.

Conclusion

In reflecting on our findings, we had a desire to point to the best or most promising ideas. Unfortunately, given the limitations on available data, it is difficult to estimate how prevalent some of these problems are, or how impactful their solutions would be in the long term. In actuality, the best measure of potential impact will come from the field-testing that is yet to come. Despite this, there are two areas that are worth noting—the low-hanging fruit of communication-based interventions, and the inevitable changes coming with EBT rollout. For anyone in the WIC system, these areas are ripe for behavioral interventions.

Communications-based interventions are always attractive vectors for intervention because of their relatively high return on investment. All WIC agencies already communicate with their participants and the broader community, so the channel for an intervention already exists. If some simple language or graphics changes can boost participation or compliance rates by a few percentage points for the price of a redesigned postcard or letter, the business case makes itself. For agencies using email and text messaging already, the ability to test and scale behavioral redesigns becomes even quicker and less expensive.

EBT rollout, on the other hand, is neither quick nor cheap. It is, however, an incredible opportunity to build a behaviorally-informed system from the ground up, rather than trying to tweak an existing system. While the diagnosis and design work surrounding a behaviorally-savvy EBT system would be rather more complex than for a set of SMS messages, the potential impact is enormous. The opportunities span everything from the framing and branding of the program, to the potential for planning prompts and timely reminders, to the creation of smart choice architecture to nudge participants. With rollout right around the corner, now is a critical time to insert good behavioral design into a system that may persist for decades.

As we move into piloting some of the ideas in this paper, we know that we will continue to learn more about WIC and the families it serves. We welcome feedback and questions on this content and look forward to sharing our insights with the WIC community and the broader public. We expect that the lessons here will be applicable across state lines and other issues, despite the fact that they were derived from a specific program tailored to one community. Stay tuned and stay in touch!

Conclusion

Appendix I
Psychology Definitions

Term	Definition	Page No.
choice architecture	The design of the environment in which people make choices. Every decision is within a choice architecture whether it is mindfully organized (like a grocery isle) or a product of random chance (like which products are easiest to see in your kitchen)	32
chronic scarcity	The cognitive depletion that results from constantly living with too little resources	15
cognitive dissonance	The uncomfortable feeling of experiencing beliefs that contradict each other	22
default effect	People are influenced by the initial choice, even if it is selected for them, such that they tend to stick with this decision over time	18
descriptive norm	One's belief about how popular an action or decision is among their peers	20
framing	The way in which a choice is presented, which can have an outsized influence on the outcome of the choice	11
fundamental attribution error	The human tendency to attribute other people's behavior to their character instead of their circumstances	17
hassle factors	Seemingly minor inconveniences that interfere with a person's ability to act on their intentions	15
identity	A collection of beliefs about oneself	12
limited attention	For all people, attention is a finite resource. Attention is constantly split and reallocated and when our capacity is depleted we are left effectively blind to information we'd easily notice under normal circumstances	24
loss aversion	Loss feels much worse than equivalent gains. Highlighting loss can nudge people toward decisions that avoid it	16
mental model	An umbrella term that captures the concepts, stereotypes, and causal narratives that shape our ideas about the world and our place within it	10
negativity dominance	Negative experiences are more memorable than neutral or positive experiences, and have a larger influence on overall perception	17
present bias	The tendency to overvalue the immediate moment, even at the expense of long-term intentions or outcomes	47
risk aversion	Forming a preference for an option based on certainty, rather than potential benefits	28
social norm	A perception of the common actions of others that is used as a guide, consciously or unconsciously, to determine acceptable behavior within a group	25
uncertainty aversion	A tendency to prefer risks that are known to risks that are unknown	26

Appendix II
List of Designs Implementable at the <u>LOCAL LEVEL</u>

Problem Addressed	Short Design Descriptions
ENROLLMENT *(Problem Statement 1)*	
WIC eligible families near the income cutoff enroll at lower rates.	**Frame the Program in Terms of Health Promotion**: Framing WIC as a program to promote health or nutrition (as opposed to a public benefits program) could attract people that might otherwise be deterred by stigma, or the perception that WIC is only for needier people.
	Send Targeted Enrollment Messaging: Sending messages to WIC-eligible families with Medi-Cal or with private health insurance may boost enrollment in the program
Personal social network referrals may be more salient than institutional channel referrals.	**Leverage Social Networks to Promote Participation**: WIC agencies can expand their outreach by using social networks of existing clientele, including through social media. They might motivate client referrals using micro-incentives and gamification.
Underutilization of natural channel factors may limit enrollment	**Increase Referral Channels**: WIC can expand outreach by using atypical institutional referral channels like insurers, schools, childcare providers, hospitals, Head Start, etc.
WIC appointments introduce various obstacles and transaction costs.	**Increased Accessibility of WIC Sites**: WIC can promote enrollment and retention by choosing more accessible locations and operating hours, and by providing childcare and transportation supports.
APPOINTMENT ATTENDANCE *(Problem Statement 2)*	
Appointments can be hard to keep and difficult to reschedule.	**Adopt Flexible Appointments to Reduce Hassles**: WIC can reduce hassles by offering walk-in appointments, online appointment booking, or simply reducing the number of necessary in-person visits. WIC can still ensure interpersonal connectedness by allowing people to select staff they meet with, and by offering two-way texting between visits.
Appointments, and the documents needed for them, are easy to forget.	**Creating Cognitive Slack to Ease Appointment Follow-Through**: By using timely reminders and plan-making prompts, WIC agencies can help clients attend more appointments, and be prepared with necessary paperwork. Advanced reminders might also leverage loss aversion and other psychological levers.
WIC appointments introduce various obstacles and transaction costs.	**Increased Accessibility of WIC Sites**: WIC can promote enrollment and retention by choosing more accessible locations and operating hours, and by providing childcare and transportation supports.

WIC staff negativity toward participants can create negative impacts on families.	**Overcoming Staff Biases Using Training Exercises**: We might improve families' interactions at WIC offices by helping WIC staff mitigate their own biases. Perspective-taking exercises are a promising approach.

BREASTFEEDING *(Problem Statements 3 & 5)*

Some mothers have internalized myths that deter them from breastfeeding.	**Resetting Mental Models About Breastfeeding**: Interventions that use descriptive social norms and peer influence may be used to shift incorrect beliefs about breastfeeding before they influence the breastfeeding decision.
Breastfeeding choices are complex, and may be avoided once the baby is born.	**Use Pre-Commitment to Support Follow-Through With Breastfeeding Intentions**: We might help mothers breastfeed more by making complex choices easier to navigate, and by helping them make and commit to concrete plans in advance.
WIC staff members want to encourage breastfeeding, but also want to keep families engaged – these purposes can sometimes be at odds.	**Help Staff Overcome Dissonance Related to Infant Feeding Advice**: WIC staff can use structured choice tools to help families make breastfeeding decisions that are right for them. This may preserve family autonomy while also helping WIC staff to feel more confident in their advice.
Breastfeeding can be hard to maintain, especially as mothers return to work.	**Use Planning Techniques to Avoid Future Challenges**: Anticipating challenges around breastfeeding, and making plans to overcome them, might make continued breastfeeding more likely.
Some mothers have inaccurate mental models about breastfeeding – this can create ambiguity and perceived risk, either of which may deter continued breastfeeding.	**Creating Points of Positive Feedback in Infant Feeding**: Using rules of thumb and other techniques may help new mothers feel more confident that their feeding routines are healthy, and thus promote more breastfeeding.
It is difficult for WIC agencies to offer support at all crucial times a mother is in need.	**Increased Breastfeeding Support at Local Agencies**: It may be beneficial to have FT lactation consultants, tele-consults, online classes, and heightened empathy for women who can't breastfeed.

NUTRITION EDUCATION *(Problem Statement 4)*

Classroom education is hard to retain and recall, making it less useful in moments of choice or action.	**Use Heuristic-Based Nutrition Education Curricula**: We may be able to help families absorb and act on information more effectively by using educational programs based on rules of thumb.
	Use Rule of Thumb Reminders for Home Feeding Practice: Rules of thumb around nutritional practices may be more effective with visible and tangible reminders in the home.

Children are distracting while participants are trying to learn and engage in class.	**Offer Childcare During WIC Classes**: We might increase the efficacy of WIC education by providing in-agency childcare.
Classes often start late to accommodate tardiness, but this leaves people idle and promotes isolation.	**Add Interactive Wait Time Activities**: Adding activities to create a more sociable classroom may promote trust and highlight pro-social norms to boost class engagement.
Many families may not select the optimal education format because they are unfamiliar with all of the options at the moment of choice.	**Personalizing Class Recommendations**: Helping families opt in to their preferred class type may help them engage more; this can be done with some guided/structured choice activities.

SHOPPING *(Problem Statements 6-8)*

Many WIC staff avoid giving advice about where to shop unless directly asked.	**Reduce Staff Conflict of Interest Concerns Through Clearer Guidelines**: We might improve the family shopping experience by clarifying what kinds of advice WIC staff can give about where families can shop.
There are existing tools to find WIC vendors, but they are hard to find and hard to navigate.	**Reduce Hassles and Uptake Barriers for Online Search Tools**: Improving online searchability, and user-defined filtering will enable families to get more out of existing web-based shopping option resources
Many families get non-standard shopping advice and may not ask the questions they need to.	**Develop and Use an Enrollment Meeting Checklist**: Standardizing early conversations about shopping guidance can ensure families get the advice and information they need.
Without asking families what their shopping priorities and needs are, it's hard to provide well-tailored advice.	**Provide Guided Choice for Choosing Shopping Venues**: Giving WIC staff a tool to filter in the most important store characteristics (e.g. location, transit proximity) can help them give families optimal personalized shopping guidance. This can also be used to select a nutrition education format.
It can be very difficult to get the information needed in the moment of choice while shopping for WIC foods.	**Support Product Selection Through Mobile or In-Store Technology**: Helping families get immediate answers about which foods are WIC-eligible may improve the shopping experience, especially at checkout. This can be done with the use of texting services and phone or in-store scanning.
Checking out can be painful and stigmatizing, but practice can help.	**Smoother Checkout Through Practice**: Getting early first-hand practice in the checkout process, even at WIC offices, may improve families' experiences at the store.
Shopping can be time-consuming and full of hassles.	**Updating Choice Architecture for WIC Foods**: Creating tools to pre-plan (or even pre-select) foods before a shopping trip may save energy and time for families.

It's easy to forget your vouchers, and their expiration dates aren't always salient.	**Use Text Reminders to Prompt Voucher Use**: We may help families use all of their vouchers before they expire by sending timely reminders (or helping families create their own). These reminders can be enhanced by using loss aversion and other techniques.
EBT will remove the built-in shopping list and remove the need to redeem vouchers in their entirety.	**Make Pre-Checkout EBT Balance Updates Available**: Giving families concrete reminders of what foods they still have available to purchase may help them purchase them all, especially after EBT roll-out. Useful approaches to this might include physical lists or tech-based approaches like apps or texting services.
People may not purchase unfamiliar foods, especially if they don't know how to prepare them in a way their family will like.	**Expanding Food Choice Set**: Exposing families to various foods and techniques to prepare them may make them more likely to purchase and eat them. This can be done through recipe contests, tasting events, etc.

WIC DROPOUT OR EXIT *(Problem Statement 9)*

People may not recognize the magnitude of WIC benefits.	**Use Behaviorally-Informed Messaging and Reminders to Spotlight Program Benefits**: We may be able to help people stay in the program by sending reminders that concretize the long-term benefits of WIC, and that leverage loss aversion. This can be enhanced with additional levers like self-affirmation, Enhanced Active Choice (EAC), and framing techniques.
Present bias and hassles can deter people from recertification.	**Exercises to Build Commitment and Identity Around Healthy Family Behaviors**: Reminding people of their values and hopes for their children's well-being may help them persist in WIC and overcome hassles in the process
Some families come in and out of eligibility due to seasonal employment but do not re-enroll.	**Develop Targeted Re-Enrollment Systems**: Using cross agency data can help identify families who become eligible for WIC again after losing their eligibility. Behaviorally-informed messaging might increase re-enrollment for people who become eligible again.
Hassles and time scarcity make WIC seem less necessary for working families, especially when they have to make tradeoffs with work.	**Provide Explicit Support for Working Participants**: Send the message that many working families participate in WIC, and help working families plan their appointments around their busy schedules.
Some people have an inaccurate belief that healthy foods have to cost more.	**Reduce Food Price Myths Through Gamification**: Games can help people maintain healthy eating after leaving WIC by shifting mental models about the price of healthy food.

Appendix III
List of Designs Implementable at the <u>STATE LEVEL</u>

Problem Addressed	Short Design Descriptions
ENROLLMENT *(Problem Statement 1)*	
WIC eligible families near the income cutoff enroll at lower rates.	**Frame the Program in Terms of Health Promotion**: Framing WIC as a program to promote health or nutrition (as opposed to a public benefits program) could attract people that might otherwise be deterred by stigma, or the perception that WIC is only for needier people.
Underutilization of natural channel factors may limit enrollment	**Increase Referral Channels**: WIC can expand outreach by using atypical institutional referral channels like insurers, schools, childcare providers, hospitals, Head Start, etc.
Personal social network referrals may be more salient than institutional channel referrals.	**Leverage Social Networks to Promote Participation**: WIC agencies can expand their outreach by using social networks of existing clientele, including through social media. They might motivate client referrals using micro-incentives and gamification.
Disparate enrollment and eligibility processes create additional burden for eligible enrollees.	**Bundle WIC with Similar Benefits Accessed by Participants**: WIC may expand its reach and enrollment if it gets bundled with other programs for eligibility and enrollment purposes.
WIC appointments introduce various obstacles and transaction costs.	**Increased Accessibility of WIC Sites**: WIC can promote enrollment and retention by choosing more accessible locations and operating hours, and by providing childcare and transportation supports.
WIC eligible families near the income cutoff enroll at lower rates.	**Send Targeted Enrollment Messaging**: Sending messages to WIC-eligible families with Medi-Cal or with private health insurance may boost enrollment in the program
APPOINTMENT ATTENDANCE *(Problem Statement 2)*	
WIC appointments introduce various obstacles and transaction costs	**Increased Accessibility of WIC Sites**: WIC can promote enrollment and retention by choosing more accessible locations and operating hours, and by providing childcare and transportation supports.
Appointments can be hard to keep and difficult to reschedule.	**Adopt Flexible Appointments to Reduce Hassles**: WIC can reduce hassles by offering walk-in appointments, online appointment booking, or simply reducing the number of necessary in-person visits. WIC can still ensure interpersonal connectedness by allowing people to select staff they meet with, and by offering two-way texting between visits.

BREASTFEEDING *(Problem Statements 3 & 5)*

Some mothers have internalized myths that deter them from breastfeeding.	**Resetting Mental Models About Breastfeeding**: Interventions that use descriptive social norms and peer influence may be used to shift incorrect beliefs about breastfeeding before they influence the breastfeeding decision.
Breastfeeding choices are complex, and may be avoided once the baby is born.	**Use Pre-Commitment to Support Follow-Through With Breastfeeding Intentions**: We might help mothers breastfeed more by making complex choices easier to navigate, and by helping them make and commit to concrete plans in advance.
WIC staff members want to encourage breastfeeding, but also want to keep families engaged – these purposes can sometimes be at odds.	**Help Staff Overcome Dissonance Related to Infant Feeding Advice**: WIC staff can use structured choice tools to help families make breastfeeding decisions that are right for them. This may preserve family autonomy while also helping WIC staff to feel more confident in their advice.
It is difficult for WIC agencies to offer support at all crucial times a mother is in need.	**Increased Breastfeeding Support at Local Agencies**: It may be beneficial to have FT lactation consultants, tele-consults, online classes, and heightened empathy for women who can't breastfeed.
Breastfeeding can be hard to maintain, especially as mothers return to work.	**Use Planning Techniques to Avoid Future Challenges**: Anticipating challenges around breastfeeding, and making plans to overcome them, might make continued breastfeeding more likely.
Some mothers have inaccurate mental models about breastfeeding – this can create ambiguity and perceived risk, either of which may deter continued breastfeeding.	**Creating Points of Positive Feedback in Infant Feeding**: Using rules of thumb and other techniques may help new mothers feel more confident that their feeding routines are healthy, and thus promote more breastfeeding.

NUTRITION EDUCATION *(Problem Statement 4)*

Children are distracting while participants are trying to learn and engage in class.	**Offer Childcare During WIC Classes**: We might increase the efficacy of WIC education by providing in-agency childcare.
Many families may not select the optimal education format because they are unfamiliar with all of the options at the moment of choice.	**Personalizing Class Recommendations**: Helping families opt in to their preferred class type may help them engage more; this can be done with some guided/structured choice activities.

Classroom education is hard to retain and recall, making it less useful in moments of choice or action.	**Use Heuristic-Based Nutrition Education Curricula**: We may be able to help families absorb and act on information more effectively by using educational programs based on rules of thumb.
	Use Rule of Thumb Reminders for Home Feeding Practice: Rules of thumb around nutritional practices may be more effective with visible and tangible reminders in the home.

SHOPPING *(Problem Statements 6-8)*

Many WIC staff avoid giving advice about where to shop unless directly asked.	**Reduce Staff Conflict of Interest Concerns Through Clearer Guidelines**: We might improve the family shopping experience by clarifying what kinds of advice WIC staff can give about where families can shop.
Many families get non-standard shopping advice and may not ask the questions they need to.	**Develop and Use an Enrollment Meeting Checklist**: Standardizing early conversations about shopping guidance can ensure families get the advice and information they need.
Without asking families what their shopping priorities and needs are, it's hard to provide well-tailored advice	**Provide Guided Choice for Choosing Shopping Venues**: Giving WIC staff a tool to filter in the most important store characteristics (e.g. location, transit proximity) can help them give families optimal personalized shopping guidance. This can also be used to select a nutrition education format.
There are existing tools to find WIC vendors, but they are hard to find and hard to navigate.	**Reduce Hassles and Uptake Barriers for Online Search Tools**: Improving online searchability, and user-defined filtering will enable families to get more out of existing web-based shopping option resources
It can be very difficult to get the information needed in the moment of choice while shopping for WIC foods.	**Support Product Selection Through Mobile or In-Store Technology**: Helping families get immediate answers about which foods are WIC-eligible may improve the shopping experience, especially at checkout. This can be done with the use of texting services and phone or in-store scanning.
There are limited shopping options in some communities, and challenges to WIC participation among some vendors.	**Structural Shopping Changes**: Recruit more WIC vendors in under-served communities; support more A50s; assist small stores with EBT rollout
WIC shopping can be challenging, and most retailers could do more to help WIC shoppers.	**Encourage Retailers to Adopt Promising Practices**: Retailers can help families by grouping WIC-eligible foods, training their staff well around WIC, and offering delivery or pre-packing options for WIC shoppers. Staff and participants can help retailers by giving them performance feedback on customer service (like Yelp), which might also help guide shoppers

Shopping can be time-consuming and full of hassles.	**Updating Choice Architecture for WIC Foods**: Creating tools to pre-plan (or even pre-select) foods before a shopping trip may save energy and time for families.
It's easy to forget your vouchers, and their expiration dates aren't always salient.	**Use Text Reminders to Prompt Voucher Use**: We may help families use all of their vouchers before they expire by sending timely reminders (or helping families create their own). These reminders can be enhanced by using loss aversion and other techniques.
EBT will remove the built-in shopping list and remove the need to redeem vouchers in their entirety.	**Make Pre-Checkout EBT Balance Updates Available**: Giving families concrete reminders of what foods they still have available to purchase may help them purchase them all, especially after EBT roll-out. Useful approaches to this might include physical lists or tech-based approaches like apps or texting services.
People won't buy food that they can't or won't use.	**Provide More Choice in Food Package Redemption**: Allowing families more autonomy in the size and composition of their food package may result in more voucher redemptions.

WIC DROPOUT OR EXIT *(Problem Statement 9)*	
Data sharing is not as effective across agencies as it could be	**Develop a System of Benefits Onramps**: Creating data systems to alert WIC agencies when families who left become adjunctively eligible again could boost enrollment
Many people have inaccurate mental models of what makes them ineligible for WIC	**Implement Tools for Simplifying Eligibility Requirement Information**: A behavioral re-design of the CDPH eligibility questions might improve uptake and applications by reducing ambiguity.
Some families come in and out of eligibility due to seasonal employment but do not re-enroll.	**Develop Targeted Re-Enrollment Systems**: Using cross agency data can help identify families who become eligible for WIC again after losing their eligibility. Behaviorally-informed messaging might increase re-enrollment for people who become eligible again.
Hassles and time scarcity make WIC seem less necessary for working families, especially when they have to make tradeoffs with work.	**Provide Explicit Support for Working Participants**: Send the message that many working families participate in WIC, and help working families plan their appointments around their busy schedules.

Appendix IV
List of Designs Implementable at the <u>FEDERAL LEVEL</u>

Problem Addressed	Short Design Descriptions
ENROLLMENT *(Problem Statement 1)*	
Disparate enrollment and eligibility processes create additional burden for eligible enrollees.	**Bundle WIC with Similar Benefits Accessed by Participants**: WIC may expand its reach and enrollment if it gets bundled with other programs for eligibility and enrollment purposes.
APPOINTMENT ATTENDANCE *(Problem Statement 2)*	
Appointments can be hard to keep and difficult to reschedule.	**Adopt Flexible Appointments to Reduce Hassles**: WIC can reduce hassles by offering walk-in appointments, online appointment booking, or simply reducing the number of necessary in-person visits. WIC can still ensure interpersonal connectedness by allowing people to select staff they meet with, and by offering two-way texting between visits.
BREASTFEEDING *(Problem Statements 3 & 5)*	
It is difficult for WIC agencies to offer support at all crucial times a mother is in need.	**Increased Breastfeeding Support at Local Agencies**: It may be beneficial to have FT lactation consultants, tele-consults, online classes, and heightened empathy for women who can't breastfeed.
NUTRITION EDUCATION *(Problem Statement 4)*	
Classroom education is hard to retain and recall, making it less useful in moments of choice or action.	**Use Heuristic-Based Nutrition Education Curricula**: We may be able to help families absorb and act on information more effectively by using educational programs based on rules of thumb.
SHOPPING *(Problem Statements 6-8)*	
Many WIC staff avoid giving advice about where to shop unless directly asked.	**Reduce Staff Conflict of Interest Concerns Through Clearer Guidelines**: We might improve the family shopping experience by clarifying what kinds of advice WIC staff can give about where families can shop.
WIC shopping can be challenging, and most retailers could do more to help WIC shoppers.	**Encourage Retailers to Adopt Promising Practices**: Retailers can help families by grouping WIC-eligible foods, training their staff well around WIC, and offering delivery or pre-packing options for WIC shoppers. Staff and participants can help retailers by giving them performance feedback on customer service (like Yelp), which might also help guide shoppers

Most food, like yogurt or dried beans, comes in a form or package that doesn't fit with people's lifestyles	**Improve the Packaging Convenience of WIC Foods**: Increasing the number and types of eligible foods that cater to families on the go can help them eat healthy in a way that fits their lives.
People won't buy food that they can't or won't use.	**Provide More Choice in Food Package Redemption**: Allowing families more autonomy in the size and composition of their food package may result in more voucher redemptions.
WIC *(Problem Statements 6-8)*	
Benefits cliffs create arbitrary and harsh cutoffs	**Create Benefits Slopes, Rather Than Cliffs**: Expanding the range of eligible incomes and ratcheting down how much they get in benefits as they earn more money might help more families in need
Data sharing is not as effective across agencies as it could be	**Develop a System of Benefits Onramps**: Creating data systems to alert WIC agencies when families who left become adjunctively eligible again could boost enrollment

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