CALIFORNIA FOOD IS MEDICINE COALITION

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Rising Food Insecurity and Health Inequities Highlight the Urgent Need For Medically Tailored Meal Support

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Summary

The COVID-19 pandemic has contributed to a significant increase in food and nutrition insecurity, along with adverse impacts on mental and physical health, a decline in economic well-being, and rising health and economic disparities across the United States. In order to increase access to nutritious foods and relieve the economic and health impacts associated with the pandemic and other serious illnesses, there is a crucial need to increase support for **medically tailored meal (MTM)** programs that provide home-delivered, nutritious food to individuals living with chronic health conditions and/or those experiencing nutrition insecurity. While MTM fits within the continuum of nutrition security programs in the U.S., it is not yet fully integrated into healthcare systems.

This brief focuses on food and nutrition insecurity, linkages to serious diseases, economic and racial disparities, and the significance of MTM in advancing nutrition and health in California and beyond, particularly in the context of COVID-19. It explains the importance of fully integrating MTM into healthcare as an effective approach to address the burdens of both chronic diseases and nutrition insecurity, especially for racial/ethnic minorities and low-income populations.

The brief will also elucidate that MTM programs contribute to the *triple aim of a national healthcare reform framework,* which encompasses the goals of 1) better health outcomes, 2) lower healthcare costs, and 3) improved patient satisfaction.

Food and Nutrition Insecurity Before and During the COVID-19 Pandemic

Before the COVID-19 pandemic began in the United States, the overall rate of food insecurity was the lowest it had been in more than twenty years, with 10.5% of U.S. households experiencing food insecurity.[1] However, in 2020 a national survey found that during the start of the pandemic, food insecurity more than tripled to 38% of households.[2] Furthermore, Feeding America projected that in 2021, 42 million people including 13 million children would face food insecurity across the nation, with California as the state with the most people experiencing food insecurity (5.4 million, compared with 4.0 million in 2019).[3]

The Household Pulse Survey provides data on a range of ways in which the pandemic has impacted people's lives. This survey documented an increase in the number of adults in households experiencing food scarcity – defined as sometimes or often not having enough food to eat in the last seven days – during the pandemic. The prevalence of food scarcity ranged from 9.7% to 14.4% between April 2020 and March 2021. In June and December 2020, food scarcity almost doubled across California and the U.S. (~14%) compared to pre-pandemic months (~8%), coinciding with peaks in the COVID-19 case rate waves. Importantly, even in the months with lower COVID-19 cases, food scarcity was higher than in pre-pandemic months (See Figure 1).[4]

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The **California Food Is Medicine Coalition** is a network of community based non-profit organizations that are leading providers of medically tailored meal programs and other nutrition services to vulnerable Californians.

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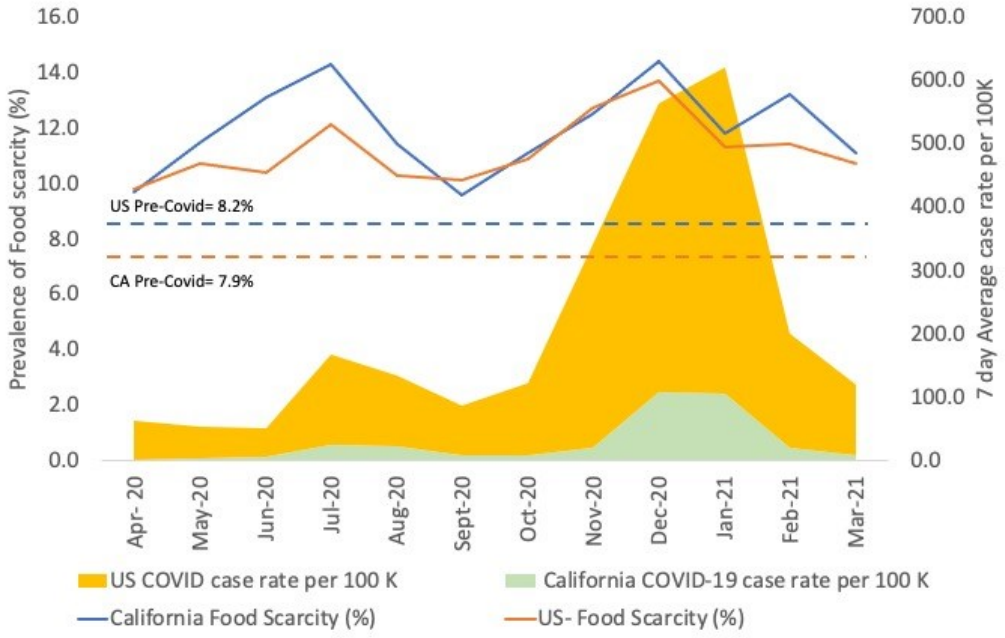
Figure 1. Prevalence of food scarcity & rate of COVID-19 cases in California and U.S. (April 2020-March 2021)



Source: Created by authors using publicly available data from the Household Pulse Survey 2020,

Racial/Ethnic Disparities During the COVID-19 Pandemic

For many decades, racial and ethnic minorities have suffered from disproportionately high levels of chronic diseases throughout the U.S.,[7–9] mainly due to disparities in health insurance coverage, and serious inequities in access to healthcare, along with other social determinants of health.[10] The impacts of the COVID-19 pandemic have illuminated and drawn attention to these significant health inequities. Cumulative health and racial disparities put racial/ethnic minorities at higher risk for poor outcomes during COVID-19.[11] Black and Hispanic/Latinx individuals are more than twice as likely to die from COVID-19, and up to 4 times more likely to require hospitalization for severe COVID-19 infection.[12] These outcomes can be explained by greater health risk factors for developing severe COVID-19, along with unequal exposure to transmission risks, such as inability to work from home, larger household size with crowded conditions, and lack of healthcare access that can prevent timely testing and diagnosis to break transmission chains. In California, 1 in 4 Latinx people lives in a crowded household with an essential worker, compared with 1 in 33 white people.[13]

Black, Hispanic/Latinx, and low-income populations have been more economically affected by the pandemic compared with other populations. During the beginning of pandemic shelter-in-place orders (April 2020), 61% and 44% of Latinx and Black adults, respectively, reported that they or someone in their household had lost a job or taken a pay cut due to the pandemic, compared with 38% of white adults.[14] Likewise, Black and Hispanic/Latinx households, and households with children, reported higher rates of food insecurity: in 2020, 1 in 2 Black or Latinx households experienced food insecurity, compared with 1 in 3 white households.[15] These racial disparities further highlight the pandemic's disproportionate burden on communities of color.[16]

Importantly, immigrants — many of whom are Latinx — are especially vulnerable to food insecurity. Further, non-citizen immigrants do not benefit from government relief programs, either because they are not eligible or because they do not apply due to immigration-related fears or misinformation. At the pandemic's start, 7 in 10 Hispanic families with non-citizen members reported that one family member lost a job or work-related income because of the pandemic, compared with 5 in 10 Hispanic families whose members were all citizens. In addition, families with non-citizen members, compared with citizen families, were more likely to reduce spending on food (63% vs. 48%) and have food insecurity (42% vs. 28%).[17]

Although COVID-19 vaccines are widely available in the U.S., the Black and Hispanic populations have the lowest vaccination rates. For example, as of July 25, 2021, 64% of the eligible population in California have received at

least one dose of COVID-19 vaccine. However, 60% of the white population received at least one dose, compared with 44% and 45% of the Hispanic and Black populations, respectively.[18]

Health and racial inequities will continue to rise as the pandemic leads to significant reductions in income and increases in unemployment, morbidity, and mortality.[19] The COVID-19 pandemic has contributed to an estimated overall decline in life expectancy of 1.1 years. However, the estimated rate is 4.4 times higher in Latinx populations (-3.0 years) and 3 times higher in Black populations (-2.1 years) compared with white populations (-0.68 years).[20] Furthermore, COVID-19 repercussions such as cognitive dysfunction can also increase financial constraints due to job loss and out-of-pocket health expenses, putting households at risk of food insecurity.[21]

Diet-related Disease Burdens and Nutrition Insecurity in the COVID-19 Era

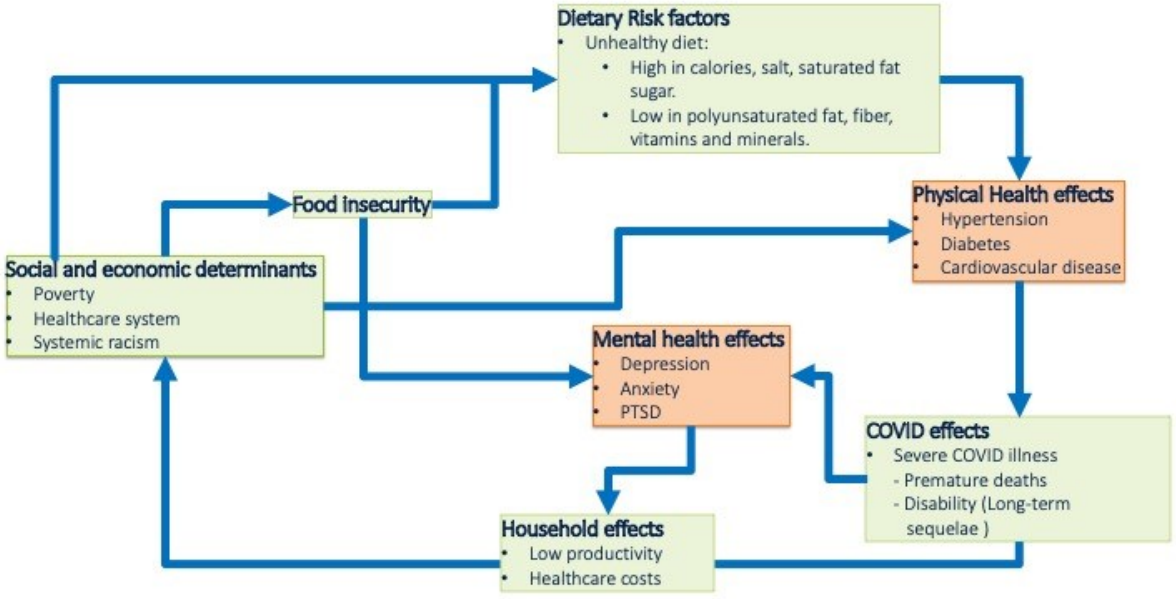
Although the definition of food security generally considers access and availability of nutritious food, it is important to highlight the importance of **nutrition security**, which is defined as having access to healthy and adequate food to prevent and treat health conditions.[22] A high prevalence of nutrition *insecurity* is contributing to diseases in the U.S. and worldwide. High consumption of ultra-processed food (characterized as ready-to-eat food with high amounts of saturated fat, sugar and sodium) increases the risk of cardiovascular and heart disease mortality.[23] According to the National Health and Nutrition Survey, the quality of diet in U.S. adults is generally low: an estimated 58% of adults' caloric intake comes from ultra-processed food, with 90% of the energy intake from added sugars.[24]

Unhealthful dietary practices increase the risks of chronic diseases such as obesity, hypertension, cardiovascular disease, and some types of cancer.[25–28] Poor diet was responsible for 10.9 million deaths, or 22% of all deaths among adults, in 2017. Cardiovascular disease (CVD) was the leading cause, followed by cancers and diabetes.[29] These conditions have a major impact on public health costs. Nationally, 86% of healthcare spending is for patients with at least one chronic disease condition,[30] and many of these conditions are linked to inadequate nutrition.

In California alone, $98 billion is spent annually on treating chronic conditions, or 42% of all healthcare costs in the state.[31] Of the chronic disease conditions, chronic vascular disease (including congestive heart failure, congenital heart disease, and stroke) is associated with the greatest expense, accounting for $37 billion annually (or 16% of all healthcare costs in California), followed by diabetes at $13 billion.[31]

COVID-19 has affected medical attention for these chronic health conditions, which could be reflected in missed opportunities to diagnose new conditions. Another pandemic result has been poor management and control of chronic diseases, increasing the morbidity and mortality for other conditions not related to COVID-19. For example, in the 10 weeks following the

Figure 2: The Poverty, food insecurity and disease cycle



Source: Created by authors based on Leddy et al[21]. and Beaglehole R et al.[39]

declaration of COVID-19 as a national health emergency, emergency visits declined 23% for heart attack, 20% for stroke, and 10% for a hyperglycemic crisis.[32] In addition, a study evaluating the delay or avoidance of urgent, emergency, or routine medical care during June 2020 found that 4 out of 10 adults reported having delayed any medical care because of COVID-19 concerns. Patients with two or more health conditions were two times more likely to delay or avoid urgent medical care than those without medical conditions. Likewise, Black and Latinx adults were more likely to avoid or delay medical attention than white adults,[33] exacerbating the health disparities among vulnerable and chronically ill populations.

It is expected that COVID-19 consequences will also increase the burden of these diet-related chronic conditions and food insecurity. For example, a study evaluating 6-month COVID-19 repercussions[34] found that COVID-19 survivors exhibit a higher risk of death, increased health resource utilization, and higher burden of health loss (e.g., higher new cases of nervous system and neurocognitive disorders, fatigue, musculoskeletal pain, anemia, mental health, metabolic, cardiovascular, and gastrointestinal disorders) compared with those who have not had COVID-19, further increasing the risk of malnutrition and food insecurity.[35]

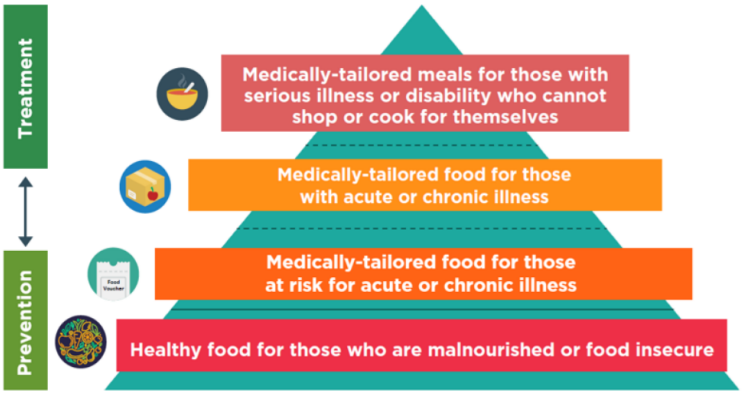
Food and nutrition insecurity in the U.S. and California have had sweeping impacts on physical and mental health and economic well-being, both before COVID-19 and intensifying throughout the pandemic. COVID-19 pandemic has increased the risk of food insecurity due to unemployment, economic constraints, and social distancing policies. Adults in households experiencing food and nutrition insecurity are more likely to develop chronic diseases such as obesity, diabetes, hypertension, and cardiovascular disease[36] – conditions that put subjects at risk of severe COVID-19.[37] Food insecurity also increases the risk of anxiety, depression, and post-traumatic stress disorder that has been worsened by COVID-19 shelter-in-place restrictions, stress, and job losses.[38] These conditions increase households' economic burden by increasing out-of-pocket health expenses.[39] In addition, these health conditions can reduce the probability of gaining full-time employment or limit the capacity to maintain employment. Such effects further increase economic constraints, exacerbate poverty and food and nutrition insecurity, and create a vicious cycle that perpetuates health and economic inequities.[40] (See Figure 2)

Addressing Nutrition Insecurity and Chronic Health Conditions During the Pandemic and Beyond

Over the last two decades, medically tailored meal (MTM) services have emerged as an effective intervention to help address both chronic diseases and nutrition insecurity. MTM programs are part of a spectrum of nutrition interventions known as "Food Is Medicine" (see Figure 3). Medically tailored meal programs consist of home-delivered meals designed by registered dietitian nutritionists (RDNs) that reflect appropriate dietary therapy, follow evidence-based practice guidelines, and include nutrition counseling and education.[41] The meals are tailored for people with serious illnesses who generally cannot shop or cook for themselves. Researchers have documented growing evidence of the positive health outcomes of MTM.[42]

Due to the vicious cycle of food insecurity–chronic health conditions that put subjects at risk of severe

Figure 3: Medically tailored meal programs within "Food Is Medicine"



Medically-tailored meal (MTM) programs consist of meals designed by a Registered Dietitian Nutritionist (RDN) reflecting **appropriate dietary therapy** based on evidence-based practice guidelines. Tailored to individual conditions, MTM services are more than home-delivered meals; they generally include **nutrition counseling and education,** supporting self-management and **social connection**

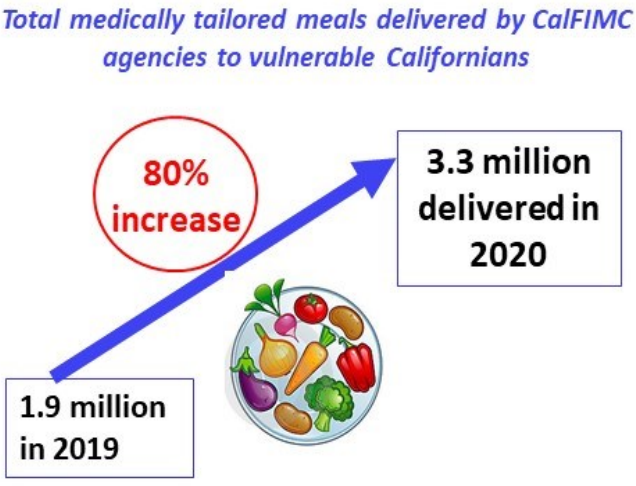
Source: Food Is Medicine Coalition, and Center for Health Law and Policy Innovation at Harvard Law School

COVID-19, and the pandemic's economic impacts on households facing food and nutrition insecurity, there is a crucial need to increase public support of MTM programs that provide home-delivered, nutritious food and nutrition counseling and education. These interventions can help break the disease-poverty cycle and address several barriers for good health, including the inability to afford or access recommended foods and alleviating budget constraints that prevent patients from affording medications and paying bills.

The California Food Is Medicine (CalFIMC) is an association of non-profit community-based organizations that provide medically tailored meals and other nutrition services to people with chronic serious illnesses, and are dedicated to advancing health equity. CalFIMC's member agencies collectively have over 150 years of experience in providing MTM to individuals with chronic health conditions in California. During 2020-21, they have played a pivotal role in providing MTM to the escalating number of people who are confined to their homes and are especially vulnerable to COVID-19's impacts. The number of MTM delivered and the number of clients enrolled in CalFIMC member agencies increased by 80%: in 2020, 3.3 million MTM were delivered, compared with 1.8 million in 2019.[43] Fifty-two percent of clients served by CalFIMC agencies are people of color, and over half are living in poverty.

Although vaccines have helped reduce the number of COVID-19 infections, morbidity and mortality, along with the pandemic's long-term health and economic effects, will require sustained provision of MTM to homes. Moreover, the heavy burden of COVID-19's physical and mental health risks for vulnerable individuals highlights the need for a holistic long-term approach to care, including MTM services, to those affected by the pandemic.

Figure 4: Medically tailored meals delivered by CalFIMC agencies in 2019 & 2020



Source: CalFIMC, 2021

Outcomes of Medically Tailored Meals from Peer-reviewed Studies

In the past 10 years, studies have evaluated the impact of food interventions on health, healthcare costs, and patient satisfaction. This peer-reviewed evidence reveals the following outcomes of MTM and related programs:

1. Better health outcomes

- Fewer hypoglycemic episodes, fewer diabetes distress and depressive symptoms, and better glycosylated hemoglobin (HbA1c) control in patients with diabetes.[44–46]
- Better diet quality, with high consumption of fruit and vegetables and lower consumption of fat, alcohol, and added sugars.[45–48]
- Reduction in weight and/or body mass index (BMI).[47,49]
- Reduction in systolic and diastolic blood pressure.[47, 50]
- Improved mental health.[46]

2. Lower healthcare costs

- Reductions of 16%-55% in net healthcare costs and medical spending.[51–53]
- Better medication adherence and a decrease in trade-offs between food versus medication or supplies.[46]
- Fewer inpatient and emergency room (ER) admissions.[51,53]
- Fewer skilled nursing facilities admissions.[51,52,54]
- Less use of emergency transportation.[51,53]
- Shorter inpatient length of stay.[53]
- Lower hospital readmission rates.[55]
- Savings to state Medicaid programs would exceed $109 million for the country, with 10 states saving more than $3 million annually.[53]
- Return on investment: An MTM intervention to prevent hospital readmission for discharged patients found that the benefit-cost ratio was $3.87 for every dollar spent – or a return on investment of 387%.[55]

3. Improved patient satisfaction

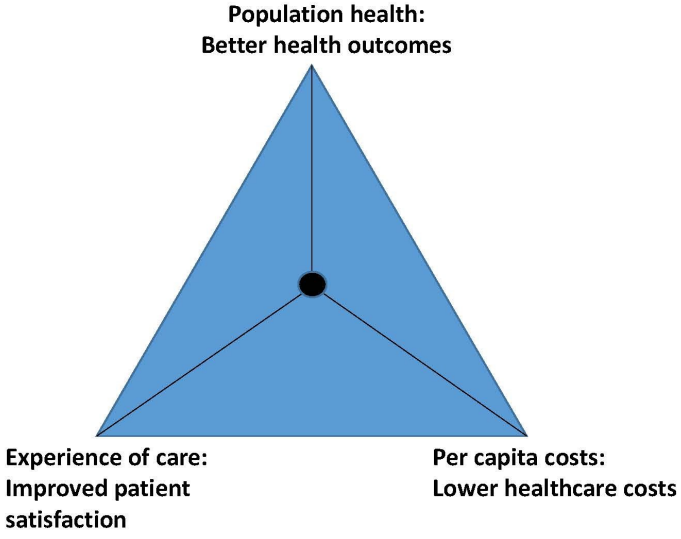
- Improvement in emotional health by reducing social isolation and increasing well-being.[56] This benefit is proving to be particularly important during the COVID -19 era, as meal deliveries by MTM provider staff enable valuable social interaction with clients.
- Improvement in quality of life, ability to manage diabetes, and stress reduction among participants with diabetes receiving MTM.[57]

"When I started this program, they had to teach me how much food I have to eat and all the protein I have to get. And then through the program my A1C [glycosylated hemoglobin] went down. And my PCP [primary care provider], they tell me everything that was perfect and that she's so happy, and I'm so happy right now I know how I have to eat." [57]

- MTM beneficiary

These positive outcomes show that MTM can help insurers and medical providers meet the Triple Aim of a healthcare reform framework.[58] The Triple Aim encompasses three goals for optimizing health system performance, as set forth by the Institute for Healthcare Improvement: better health outcomes, improved patient satisfaction, and lower healthcare costs (Figure 5).

Figure 5: Triple Aim of healthcare reform framework



Source: Adapted from Triple Aim for Populations, Institute for Healthcare Improvement[59]

Conclusion

It is vital that the state, health plans and healthcare providers collaborate to support nutrition security programs and home-delivered MTM to vulnerable populations. While MTM fits within the continuum of nutrition security programs in the U.S., and may be supported in California through the new CalAIM (California Advancing and Innovating Medi-Cal) statewide initiative, much work remains to integrate it into health plan benefits, public investments and healthcare systems.

Acknowledging that access to healthy and nutritious food is a human right[60] and can have profound health and healthcare benefits, the healthcare sector can lead the change to ensure access to healthy nutritious foods by supporting medically tailored meal programs. MTM programs are crucial in ensuring that vulnerable individuals with chronic conditions and/or who are nutrition insecure have access to healthy foods and nutrition that can help them improve their health outcomes and well-being. MTM programs also reduce healthcare costs, increase return on investment for health plans and payers, and support greater health equity.

In addition, it is now more vitally important than ever to address the unequal burdens of health disparities *and* nutrition insecurity faced by communities of color and low-income households in the U.S. Doing so requires the engagement of public and private institutions to address systemic barriers,[61] and provide services such as MTM programs. Healthcare providers, insurers and public health departments can partner with experienced non-profit MTM providers such as CalFIMC member agencies to help alleviate the pandemic's disproportionate burden on low-income communities and people of color, and help improve the health and quality of life of many vulnerable individuals.

Further information about the California Food Is Medicine Coalition (CalFIMC)

The California Food Is Medicine Coalition is a network of community-based non-profit organizations that provide medically tailored meal programs and other nutrition services. The following are CalFIMC member agencies and the counties they serve:

- Ceres Community Project (Sonoma and Marin)
- Food For Thought (Sonoma)
- Fresno EOC (Fresno, Kings, Tulare and Madera)
- The Health Trust (Santa Clara)
- Mama's Kitchen (San Diego)
- Project Angel Food (Los Angeles)
- Project Open Hand (San Francisco, Alameda, and Contra Costa)
- Teen Kitchen Project (Santa Cruz)

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