

ENVIRONMENTAL AND SYSTEMS INTERVENTIONS

Environmental changes to promote healthy diet, physical activity and breastfeeding, such as those addressing roads, sidewalks, housing, parks, businesses, urban sprawl, and lactation accommodation, can have a significant effect on the health of the community.¹ These environmental locales are also referred to as the “built environment.” Advice to breastfeed our babies or to eat well and exercise often does not take into account that the environment may not be conducive to these healthy activities.² However, numerous organizations and authors have identified environmental changes as the most promising strategy for creating population-wide improvements in nutrition and physical activity.²⁻⁴ By addressing these specific environmental approaches, Maternal, Child, and Adolescent Health (MCAH) programs have a unique perspective and role in tackling the rise of chronic diseases such as obesity and diabetes as outlined in the state obesity plan.⁵ Specifically, MCAH can be change agents in improving the nutrition, physical activity, and breastfeeding environments in California.

NUTRITION

There are four main types of nutrition environments: the community, consumer, organizational and information.² The community nutrition environment includes the type, location, and accessibility of food outlets such as stores and restaurants. The consumer nutrition environment includes the availability of healthy options, price, promotion, placement and nutrition information. The organizational nutrition environment encompasses the home, school, work, and other affiliations. The information environment covers the media and advertising of food items.² These environments are not mutually exclusive and often overlap one another. Conceptualizing these different environments and their variables is useful in establishing the type of food people are exposed and have access to, and allow for targeted interventions to address their specific needs.

Nutrition plays an important role in the prevention of chronic diseases, and changing the food people eat has been defined as “one of the major modifiable determinants of chronic diseases.”^{6,7} However, our current food system and environment do not encourage people to eat healthy. California Center for Public Health Advocacy’s 2007 study found that California has more than four times as many fast-food restaurants and convenience stores as grocery stores and produce vendors.⁸ It has been demonstrated that access to high-calorie, low nutrition foods and convenience stores increases the risk of being overweight and obese.⁹ Obesity prevalence is highest for California adults who have high Retail Food Environment Indexes (RFEIs), which is the ratio of fast food-restaurants and convenience stores relative to grocery stores and produce vendors near their homes.⁹ Here are some ideas for interventions to change the food environments and make it easier for people to make healthier eating choices.

Farmers' Markets

There are several low-difficulty to implement interventions aimed at changing food environments that can have a huge impact on what people choose to eat. First, research has shown that access to farmers' markets increases fruit and vegetable consumption among participants and that access to neighborhood supermarkets and farmers' markets reduces the risk of overweight and obesity.^{10, 11} This is especially effective in low income communities where fresh produce is less accessible and more expensive. Farmers' markets can increase the availability of healthy foods and lower the overall food costs for the neighborhood.¹² Since locally-grown produce is sold by local farmers, the cost of a middleman and transportation can be avoided making the sale prices competitive compared to grocery stores.¹³ Ultimately, farmers' markets can alter the community nutrition environment by making fresh fruits and vegetables more available and affordable, ensuring that more people have the opportunity to make healthier nutrition decisions.

Community Gardens

Another strategy to improve nutrition is implementing community gardens. One study reported that adults with a household member that participated in a community garden consumed fruits and vegetables 1.4 times more per day and were 3.5 times more likely to consume fruits and vegetables five times a day than those who did not participate.¹⁴ Another study reported that community gardeners consumed fruits and vegetables 5.7 times per day compared with 4.6 times per day for home gardeners and 3.9 times per day for nongardeners, suggesting that community gardens may benefit the health of its participants more so than private home gardens.¹⁵ Community gardens can also increase one's willingness to try the fruits and vegetables grown in a garden, which could prove useful to change younger picky eaters.¹⁶ By improving the community nutrition environment with community gardens, participants may increase their fruits and vegetable consumption and better their health outcomes.

Farm-to-Institution

Programs such as Farm-to-School change the food environment in a school setting and help to increase the intake of fruits and vegetables in children.¹⁷ It has been reported that by changing the organizational nutrition environment through school lunches, children consume an increase of one serving of fruits a vegetables per day, which could help alleviate diseases such as obesity and diabetes.¹⁸ In working with various stakeholders involved with farming, institutions such as schools, and the community, we can improve the nutrition, and therefore the health outcomes, of mothers and their respective families.

PHYSICAL ACTIVITY

Residents of walkable neighborhoods who have good access to recreation facilities are more likely to be physically active and less likely to be overweight or obese.⁴ One study concluded that residents of easily (high) walkable neighborhoods get an extra 70 minutes of physical activity each week and are 2.4 times more likely to meet physical activity recommendations than residents that live in not very (low) walkable neighborhoods.¹⁹ However, less than a third of California adults reported participating in vigorous physical activity at least three times per week.²⁰ Therefore, creating safe and inviting areas to walk and bike through and ensuring that recreational facilities are accessible may increase physical activity levels and improve the well-being of the entire family. Below are highlighted interventions to address physical activity in the built environment.

Pedestrian Safety and Walkability

Environments that encourage physical activities such as walking and biking through complete and safe streets are ideal for addressing chronic illnesses.²¹ First, it is important to note that mixed land use, connectivity, safety, and aesthetic qualities all contribute to the “walkability” of a place.⁷ “Walkability” refers to how safe, convenient, and usable facilities are for pedestrians and bikers to get to their destinations. Safe and attractive sidewalks that are destination-oriented, especially with required mixed-land use zoning so that people live near where they work, shop, and play, may encourage more members of communities to walk or bike as their primary mode of transportation.⁴

Joint Use Agreements

Increasing levels of physical activity do not always require long-term development projects, but can be done by increasing access to existing recreational facilities. Establishing joint-use agreements such as opening up school yards after-hours to the community for physical activity is one way to reduce these barriers to safe places and provide opportunities for engaging in physical activity.²² Joint-use agreements can be formal or informal partnerships between two entities – usually a school and a city – to share indoor and outdoor spaces such as gymnasiums and athletic fields to increase opportunities for communities to be more physically active.²³ For example, a school could share their pool with a swim team or a school employee could unlock the school gate after hours so people have access to the basketball courts. This agreement is ideal for rural or low-income populations that may lack access to physical activity facilities.²⁴ In one New Orleans community, it was reported that children with after-hours access to a safe schoolyard were 84% more active than those without schoolyard access.²⁵

Safe Routes to School

Initiatives such as Safe Routes to School provide a safe way for children to exercise regularly by actively commuting to school, and have been reported to increase personal active commuting patterns of children.²⁶ From 1969 to 2009, the percentage of

children 5-14 years of age walking or bicycling to school dropped from 48% to just 13%.²⁷ This difference can be due to environmental factors, such as distance to school, traffic-related danger, and crime danger or perceived safety. Safe Routes to School addresses these issues in infrastructural and non-infrastructural interventions. Infrastructural interventions may include grants for better crosswalks and signage. Non-infrastructural interventions may include Walk to School Day or organizing Walking School Buses so groups of children have adult chaperones when walking to school.²⁸ A California study reported that schools that implemented infrastructure interventions through Safe Routes to School demonstrated walking and bicycling increases in the range of 20 to 200%.²⁹ In Marin County's second year of enacting the Safe Routes to School Program, participating schools reported an increase of 64% in school trips made by walking, 114% by biking, and 91% by carpooling. They reported a 39% decrease in trips by private vehicles carrying only one student.³⁰ Moreover, a safety analysis estimated that the safety benefit of the program was approximately 49% decrease in the childhood bicycle and pedestrian collision rates.²⁹

BREASTFEEDING

Even during infancy, the environment can have the effect of protecting or jeopardizing the health of our population. Not breastfeeding has been shown to endanger the physical and psychosocial health of mothers, babies, and, as a result, increases costs to the community.³¹ Women who have not breastfed have great risks of breast and ovarian cancer, anemia, and osteoporosis.³¹ Babies who are not breastfed have a greater risk of sudden infant death syndrome (SIDS), childhood cancer and diabetes.^{31, 32} A mother's surroundings impact her decision to consider initiating breastfeeding, to breastfeed exclusively for the recommended 6 months, and to continue to breastfeed with appropriate foods as recommended by the American Academy of Pediatrics. It is vital to ensure that her environment, whether that be a hospital, worksite, or childcare environment, accommodates and encourages breastfeeding.

Hospital Environments

California Hospitals are working hard to change policies and procedures, educate staff and alter their physical facilities to support breastfeeding. Many are seeking the Baby-Friendly™ Designation. The Baby-Friendly™ Hospital Initiative (BFHI), launched in 1991, is an effort by United Nations Children's Fund (UNICEF) and the World Health Organization to ensure that all facilities that provide maternity care, whether free-standing or in a hospital, adopt evidence-based maternity care practices that support breastfeeding families.^{33, 34} Hospitals that receive the designation of "Baby Friendly Hospital" report an increase in exclusive breastfeeding initiation rates.^{35, 36} Environmental changes in the hospital, such as purchasing equipment to enhance the care provided to mothers and babies, have a positive impact on increasing hospital exclusive

breastfeeding initiation rates. Labor and Delivery and even Operating Room areas can be altered to facilitate skin-to-skin contact immediately after birth. Hospitals can facilitate keeping mothers and babies in the same room, called “rooming-in.”³⁴ Hospitals can also avoid implied endorsement by not including industry-sponsored marketing formula packs in the materials mothers take home from the hospital.³⁷

Worksite Environments

By Federal and California law, employers are required to provide lactation accommodation to their employees, specifically providing unpaid break time and access to a private space other than a bathroom for mothers to pump and store their milk.³⁸ Returning to work has been cited as a main factor that decreases the duration of breastfeeding, so addressing lactation accommodation in the workplace can work to reduce this disparity.³⁹ Many studies have shown that workplace lactation support has positive impacts on the duration of breastfeeding for participating women.⁴⁰ Also, employers benefit from providing worksite lactation support and accommodations through retention of experienced employees, reduction in sick time leave for children’s illnesses and lower health care and insurance costs.⁴¹

Childcare Environments

An intention to work full time is associated with lower rates of breastfeeding initiation and shorter duration.³⁹ It is thus relevant that childcare settings be designed to support breastfeeding.⁴² As mothers are often concerned about milk production, it is advisable to have childcare supportive environments. Such environments may include staff educated on supporting the breastfed dyad and surroundings that reduces the mother’s stress when she arrives, drops off and picks up her baby. This can be done by designating an area for mothers to express or breastfeed their baby when they drop them off, pick them up or during breaks at work, if this is possible. Having a clean and well-identified area to store breast milk labeled with the child’s name will give the mother reassurance her baby will get her milk.⁴³ Staff that provides accurate information and support and demonstrate confidence that the mother will be able to provide what her baby needs will make mothers feel empowered. It will also encourage mothers to initiate and continue breastfeeding after returning to work.⁴⁴

CONCLUSION

Maternal, Child, and Adolescent Health programs have a unique role in addressing environmental system changes. Their work with various local and governmental organizations and the vast population they serve allow for many collaborations and partnerships to be formed and expertise to be shared. Focusing on nutrition, physical activity, and breastfeeding environmental change can lead to sustainable and cost effective methods of promoting the well-being of the MCAH population.

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