# Hawaii Physical Activity and Nutrition Plan Supplement

*2010-2012*

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The Hawaii Physical Activity and Nutrition (PAN) Plan Supplement represents the time and effort of individuals around our state who contributed to its development. Partners statewide came together to share their thoughts and ideas on how to add additional focus areas to the current Hawaii Physical Activity and Nutrition Plan, 2007-2012. The commitment demonstrated by these individuals throughout the development of the Supplement is evidence that improving physical activity and nutrition continues to be recognized as a priority for Hawaii. The Hawaii State Department of Health (DOH) would like to thank everyone who participated in the development of the Hawaii PAN Plan Supplement.

**Thank you to the individuals who made significant contributions in the analysis, writing, and editing of the supplement:**

Bronwyn M. Sinclair
*Healthy Hawaii Initiative*
*Hawaii State Department of Health*

Heidi Hansen Smith
*Healthy Hawaii Initiative*
*Hawaii State Department of Health*

Nalani Aki
*Healthy Hawaii Initiative*
*Hawaii State Department of Health*

Grace Matsuura
*Healthy Hawaii Initiative*
*Hawaii State Department of Health*

Lola Irvin
*Healthy Hawaii Initiative*
*Hawaii State Department of Health*

Jay Maddock
*Department of Public Health Sciences*
*University of Hawaii*

Alice Malepeai Silbanuz
*Healthy Hawaii Initiative*
*Hawaii State Department of Health*

Tonya Lowery St. John
*Healthy Hawaii Initiative*
*Hawaii State Department of Health*

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Sammee Albano
*Hi'ilei Kauai Perinatal Program*

Lois Arakaki
*Kalihi Palama Health Center*

Pat Bilyk
*Hawaii Breastfeeding Coalition*

Jeny Bissell
*Family Health Services*
*Maui District Health Office*

Jennifer Bloom
*ESP Wellness*

Dominic Bojorquez
*ISI Health Enhancement Services*

Bev Brody
*Nutrition & Physical Activity Coalition - Kauai*

Lisa Caldwell
*Kalihi Palama Health Center*

Lehua Choy
*Department of Public Health Sciences*
*University of Hawaii*

Jane Dade
*Lanai Community Health Center*

Jennifer Dang
*State Nutrition & Physical Activity Coalition*

Lisa Dau
*Kapiolani Medical Center for Women and Children*

Elise Davis
*Healthy Hawaii Initiative*
*Hawaii State Department of Health*

Honorah Domizio
*Women Infants & Children (WIC) Services*
*Pahoa & Keaau Clinic*
*Hawaii State Department of Health*

Carolyn Donohoe Mather
*Women Infants & Children (WIC) Services Branch*
*Hawaii State Department of Health*

Jodi Drisko
*Drisko Consulting*

Cheryl Ann Farrell
*Hearts 4 Kauai*

Jeanie Flood
*School of Nursing University of Hawaii*

Eleanore Fong-Severance
*Office of Hawaii Child Nutrition Programs*
*Hawaii State Department of Education*

Kapuaola Gellert
*Na Pu'uwai*

Kelly Go
*Molokai Drugs*

Sharon Gonsalves
*Birthing a New Humanity Center*

Nancy Graf
*Health & Physical Education Resources*
*Hawaii State Department of Education*

Linda Green
*Chronic Disease Management & Control*
*Hawaii State Department of Health*

Lehua Hauanio
*Ka 'Umeke Ka'eo Public Charter School*

Stacy Haumea
*Bay Clinic Inc.*

Katie Heinrich
*Department of Public Health Sciences*
*University of Hawaii*

Shawndra Holmberg
*Nutrition & Physical Activity Coalition - East Hawaii*

Audrey Inaba
*Maternal & Child Support Services*
*Hawaii State Department of Health*

Ana Jimenez McMillan
*Consultant*

Lila Johnson
*Tobacco Prevention & Control*
*Hawaii State Department of Health*

Margaret Kalamau
*Ke Ola Mamo*

Joan Kaneshiro
*PACT KPT Family Center*

Lorena Kashiwamura
*Women Infants & Children (WIC) Services*
*Maui District Health Office*

Laura Jean Kawamura
*College of Tropical Agriculture and Human Resources*
*University of Hawaii*

Sue Kiang
*Parks and Recreation County of Maui*

Louise Kido-Iwaishi
*Kapiolani Hospital*

Dexter Kishida
*Kokua Hawaii Foundation*

Akiko Kitamura
*Loma Linda University - Student*

Kawika Liu
*Healthy Hawaii Initiative*
*Hawaii State Department of Health*

Arlene Masulit
*Healthy Hawaii Initiative Hawaii State Department of Health*

Anna Mayeda
*American Cancer Society*

Sandra McGuinness
*Nutrition & Physical Activity Coalition - Maui*

Pua Mendonca
*Ka 'Umeke Ka'eo Public Charter School*

Kristen Mitchell
*University of Hawaii - Student*

Cecily Nago
*American Cancer Society*

Lance Niimi
*Queen Liliuokalani Children's Center - Hilo*

Krista Olson
*Family Support Services of West Hawaii*

Sylvia Pager
*Hawaii Breastfeeding Coalition*

Lourdes Paller
*Queen Liliuokalani Children's Center - Hilo*

Jan Pascua
*Chronic Disease Management & Control Section*
*Kauai District Health Office*

Kathie Pomeroy
*Nutrition & Physical Activity Coalition - West Hawaii*

Vickie Ramirez
*Department of Public Health Sciences*
*University of Hawaii*

Katherine Richards
*Healthy Hawaii Initiative*
*Hawaii State Department of Health*

Jennifer Ryan
*Healthy Hawaii Initiative*
*Hawaii State Department of Health*

Lorilyn Salamanca
*Women Infants & Children (WIC) Services*
*Hawaii State Department of Health*

Greg Sanders
*Lanai High & Elementary School*
*Hawaii State Department of Education*

Mary Santa Maria
*Maui District Health Office*
*Hawaii State Department of Health*

Martha Schaffer
*Women Infants & Children (WIC) Services*
*Hawaii State Department of Health*

Shirley Simbre-Medeiros
*Alu Like Kauai*

Susan Smith
*Kapa'a Health Center Hawaii Nutrition Education Network*

Maylyn Tallett
*Maternal & Child Support Services*
*Hawaii State Department of Health*

Tina Tamai
*Healthy Hawaii Initiative*
*Hawaii State Department of Health*

Cathy Tanaka
*Healthy Hawaii Initiative*
*Hawaii State Department of Health*

Danette Tomiyasu
*Chronic Disease Management & Control*
*Hawaii State Department of Health*

Kelly Torok
*Hawaii Breastfeeding Coalition*

Susan Uyehara
*Office of Hawaii Child Nutrition Programs*
*Hawaii State Department of Education*

Don Weisman
*American Heart Association*

Colleen Welty
*National Kidney Foundation of Hawaii*

Sasha Williams
*Hawaii Breastfeeding Coalition*

Mary Williamson
*American Cancer Society*

Valerie Yontz
*Office of Public Health Studies*
*University of Hawaii*

Amy Yoshihara
*Malama Ke Ola Health Center*

Graphic By: Andrew Yee,
*DOH Student Intern*

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# Executive Summary

The proportion of Hawaii's obese population has nearly doubled between 1996 and 2009 from 12.9% to 22.9% (BRFSS, 2009). A lack of physical activity and poor nutrition are major contributing factors of obesity. Since the publication of the Hawaii Physical Activity and Nutrition Plan, four additional focus areas —increasing breastfeeding rates, reducing screen time and reducing the consumption of sugar-sweetened beverages and energy dense foods— have been recommended by the Centers for Disease Control and Prevention for decreasing obesity and promoting healthy behavior. These four interventions make up the Supplement to the first Hawaii Physical Activity and Nutrition Plan, 2007-2012.

Developing and implementing the objectives and strategies outlined herein requires collaboration, commitment, and creativity. Stakeholders representing community organizations, government agencies, and nonprofit programs across Hawaii met between May and June 2010 in a series of seven meetings held throughout the state. Additional feedback from partners was gathered via a file-sharing web portal, which provided a platform for continued communication with stakeholders throughout the development of the objectives which make up this Supplement. The Social-Ecological Model and guiding principles were used to develop objectives and strategies that would promote healthy behaviors and improve the lifestyles of Hawaii residents.

# Vision

We envision a future for Hawaii in which all residents are physically active, eat healthy foods, and live in healthy communities.

# Goals

Through healthful eating and regular physical activity, the people of Hawaii will:

1. Reduce their burden of disease;
2. Increase years of healthy life; and
3. Reduce health disparities.

# Objectives and Strategies

We will achieve our goal through the following additional objectives:

***Objective 1*** *Increase the rate of mothers who exclusively breastfeed their babies for six months after birth*

***Objective 2*** *Reduce sedentary screen time among adults and youth*

***Objective 3*** *Decrease consumption of sugar-sweetened beverages among adults and youth*

***Objective 4*** *Decrease consumption of energy dense foods among adults and youth*

Strategies have also been developed in order to accomplish the objectives. These strategies apply to all of the objectives listed above:

- Policy & Systems Change
- Public Education
- Support & Promote Community Interventions

Additional strategies that are specific to each objective have also been included:

- Support for Pregnant Women & Mothers - *Objective 1*
- Education of Healthcare Staff - *Objective 1*
- Increase Physical Activity Breaks in Schools & After School Programs - *Objective 2*
- Increase Water Consumption in Schools & After School Programs - *Objective 3*
- Increase Nutrition Education in Schools & After School Programs - *Objective 4*

*Note: Please refer to section 5.0 for the complete list of objectives and strategies, as well as their corresponding recommended activities.*

# Section 1.0 Introduction

## 1.1 Purpose of the Supplement

The Hawaii Physical Activity and Nutrition Plan Supplement describes objectives, strategies and recommended activities designed to target four areas of physical activity and nutrition not outlined in the current Hawaii Physical Activity and Nutrition (PAN) Plan. The addition of these four areas —breastfeeding, screen time, sugar-sweetened beverages and energy dense foods— came upon recommendation from the Centers for Disease Control and Prevention as part of a cooperative agreement with the Department of Health (DOH). The Supplement is designed to be used in conjunction with the current PAN Plan.

The purpose of the PAN Plan and the purpose of the Supplement is to provide a framework for policy makers and public and private organizations to work together to educate, advocate for policies, and design communities that allow our residents to embrace a physically active and nutritionally sound lifestyle. The PAN Plan and Supplement were created for community-based organizations, public health professionals, and decision-makers to address physical activity and nutrition in the following ways:

- Increase awareness among key decision-makers at the state and local levels of the current assessment of physical activity and nutrition behaviors
- Provide information to reinforce evidence-based decision-making for physical activity and healthy nutrition
- Provide direction for work on sustainable changes so that daily physical activity and healthy eating become the expectation of every Hawaii resident
- Provide baseline measures for health-related objectives to measure and evaluate progress towards stated goals
- Serve as a resource for developing action plans to address physical activity and nutrition at the state, county, and local levels
- Strengthen grant funding at the state, county, and local levels

The following sections provide suggested strategies for agencies to utilize in their efforts to increase breastfeeding rates, reduce screen time, and reduce both the consumption of sugar-sweetened beverages and energy-dense foods. The Supplement also outlines benchmarks to monitor the effectiveness of each objective, which stakeholders can use as a guide for implementation and evaluation.

# 1.2 About the Data

The data presented in this report represents the most relevant and current data available for tracking health indicators that address the objectives herein. The data used are from the following surveys:

### Pregnancy Risk Assessment Monitoring System (PRAMS)

The PRAMS is a surveillance project of the Centers for Disease Control and Prevention (CDC) and state health departments. This survey collects state-specific, population-based data from women in Hawaii who have recently given birth in order to assess their maternal attitudes and experiences before, during and shortly after pregnancy. The Perinatal Health Services Section within the Department of Health's (DOH) Maternal and Child Health Branch oversees the PRAMS program.

### Youth Risk Behavior Survey (YRBS)

The YRBS was developed by the Division of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, in collaboration with state and local health and education departments and other federal agencies, to monitor priority health-risk behaviors. The YRBS monitors six categories of priority health risk behaviors among public school students ages six to12 in Hawaii, including behaviors that contribute to unintentional injuries and violence; tobacco use; alcohol and other drug use; sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases (STDs); unhealthy dietary behaviors; and physical inactivity.

### Healthy Hawaii Initiative Mediators Survey (HHIMS)

The HHIMS is an evaluation tool used by the Hawaii State Department of Health's Healthy Hawaii Initiative (HHI). HHI is a statewide program to reduce tobacco use, increase physical activity, and improve nutrition. Researchers at the University of Hawaii implemented a psychosocial surveillance system of non-institutionalized adults in Hawaii to assess changes in hypothesized mediators: stage of change, attitude, social norms, and self efficacy. Two sample designs were created, one for the cross-sectional survey and the second for the longitudinal survey. The surveys include questions about sweetened beverage consumption, energy dense foods and screen time.

### National Survey of Children's Health (NSCH) State & Local Area Integrated Telephone Survey (SLAIT)

The NSCH is a survey sponsored by the Maternal and Child Health Bureau of the Health Resources and Services Administration examining the physical and emotional health of children in Hawaii zero to 17 years of age. There is special emphasis placed on factors that may relate to the well-being of children, including medical homes, parental health, family interactions, school and after-school experiences, and safe neighborhoods.

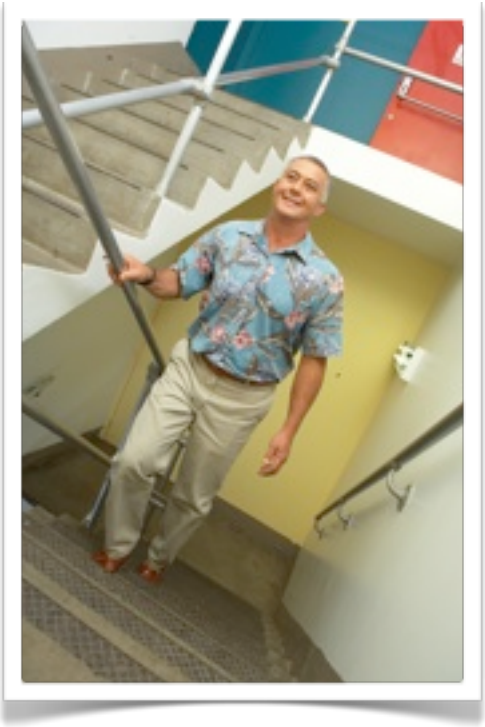
# 1.3 The Planning Process

The planning process began with the convening of DOH staff and public health professionals from the University of Hawaii, Manoa. The process was once again guided by elements from the Social-Ecological Model, and focused on improving methods for engaging stakeholders and collecting feedback around our state. The Hawaii State Department of Health Healthy Hawaii Initiative (DOH HHI) uses the Social Ecological Model in its programs to address tobacco, physical activity and nutrition issues among Hawaii residents.

## 1.3.1 Healthy Hawaii Initiative

In 1999, Act 304 mandated the DOH to expend 25% of the tobacco settlement money for health promotion and disease prevention programs, promotion of healthy lifestyles (including physical fitness, nutrition and tobacco control), and prevention-oriented public health programs. In collaboration with its Health and Wellness Advisory Group and the CDC, DOH created the Healthy Hawaii Initiative. Launched in 2000, the HHI has been a major statewide effort to encourage healthy lifestyles and the environments to support them emphasizing the healthy development of children and adolescents in relation to three critical shared risk factors —unhealthy eating, lack of physical activity, and tobacco use— all of which contribute significantly to the economic and health burdens of chronic disease. The HHI takes a multifaceted approach to improving health in the state of Hawaii by focusing on eight of the ten essential services of public health:

1. Monitor and report on population health status
2. Inform, educate and empower people about health programs
3. Mobilize partnerships
4. Develop plans and policies
5. Revise and enforce laws
6. Ensure a competent workforce
7. Evaluate to ensure effectiveness, accessibility and quality
8. Research



## 1.3.2 Plan Framework: Social-Ecological Model

The Social-Ecological Model serves as the framework for the PAN Plan and Supplement. This is a theoretical model that takes a broad view of behaviors and works from the premise that "understanding health promotion includes not only educational activities but also advocacy, organizational change efforts, policy development, economic supports, environmental change and multi-method strategies."[1] This ecological perspective highlights the need for approaching public health challenges on multiple levels and stresses interaction and integration of factors within and across all levels. The levels of influence within the Social-Ecological Model include the individual, interpersonal, organizational, community and society. Research has shown that behavior change is more likely to endure when we address both the individual and the environment where the individual lives.[1] This approach has a far greater influence on individuals, organizations, communities, and society as a whole, than either individual or environmental strategies could alone. The objectives and strategies included in the Supplement were developed to address each level outlined in the Social-Ecological Model.

## 1.3.3 Conducting the Background Assessment

A literature review of the four areas addressed in the Supplement helped to guide its development. The following issues were researched for each of the four supplemental target areas (breastfeeding, sweetened beverages, energy dense foods, and screen time):

- health implications
- impact on obesity
- economic benefits
- national recommendations
- current policies
- available health data

The results of this research were made into briefing documents —toolkits, fact sheets, and presentations— for stakeholders that would participate in the development of the Supplement.

## 1.3.4 Engaging Stakeholders

The DOH HHI invited private and public stakeholders to engage in a discussion of objectives, strategies and activities appropriate for the four target areas. Seven meetings were facilitated across the state from May through June 2010. Over 70 individuals participated, representing community organizations, government agencies, and nonprofit programs across Hawaii. Stakeholders heard presentations on the issues surrounding each of the four areas and were briefed on the process for the development of the Supplement. At the end of each meeting, workgroups submitted written recommendations for objectives, strategies and activities.

To further engage partners statewide and provide a means for continued feedback on the development of the objectives, the DOH HHI utilized a file-sharing web portal. This tool allowed for the creation of workgroups for each of the four areas where documents, polls and forums could be posted, facilitating communication with workgroup members and encouraging participation and discussion between them.

## 1.3.5 Writing the Plan

A team from the DOH HHI and the University of Hawaii at Manoa wrote and edited the Supplement, which integrated ideas from the seven stakeholder meetings and web-based input. A draft of the objectives, strategies and recommended activities outlined in the Supplement were posted online for stakeholders' review. They were further discussed on four conference calls (one for each of the four areas) to capture additional changes and feedback. These changes were then incorporated into the PAN Supplement to produce the final draft.

# Section 2.0 Description of the Problem

## 2.1 Breastfeeding

### 2.1.1 Complete Nutrition

Breast milk is the most complete nutrition for a new baby as it offers a perfect combination of proteins, fats, carbohydrates, and vitamins essential for optimum growth, health, and development. It also provides active defense against many early-life diseases including ear and respiratory infections, sudden infant death syndrome, skin and stomach problems as well as lowering the risk for many diseases later in life including obesity, type 2 diabetes, and asthma. Breastfeeding is also associated with health benefits to mothers decreasing the risk for type 2 diabetes, breast cancer, and ovarian cancer.[2, 3, 4, 5]

Although infant formulas are closely regulated by the Food and Drug Administration, the exact composition and proportions of the nutrients found in breast milk cannot be duplicated in formula milk.[6, 7]

### 2.1.2 Recommendations

In order for a child to receive the highest benefits from breast milk the CDC and the American Academy of Pediatrics (AAP), recommend exclusively feeding infants with breast milk for six months following birth.[7, 8]

The national goals for Healthy People 2010 for breastfeeding include:

- Initiation of breastfeeding: 75% of women;
- Exclusive breastfeeding: 60% of women at three months; and
- Continue any breastfeeding: 50% of women at six months and 25% for one year.[9, 10]

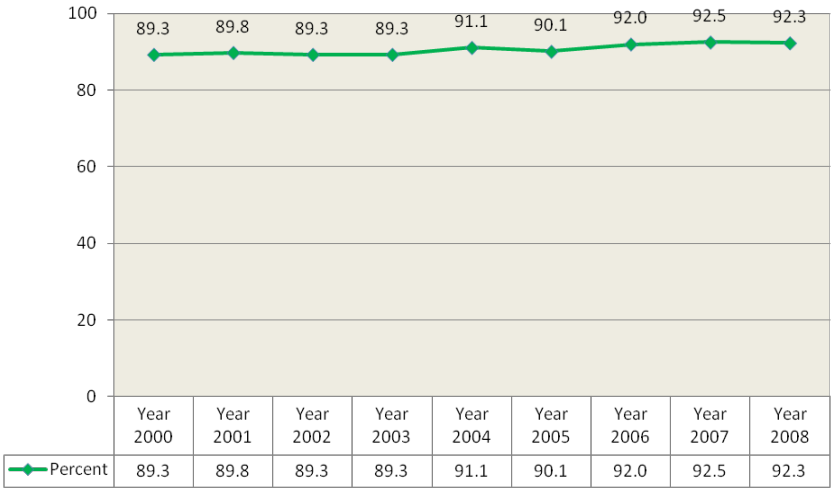
## 2.1.3 Breastfeeding Rates

### Initiation

In Hawaii the rate for initiating breastfeeding is above the national Healthy People 2010 goal of 75% and has been slowly increasing since 2000 from 89.3% to 92.3% in 2008.

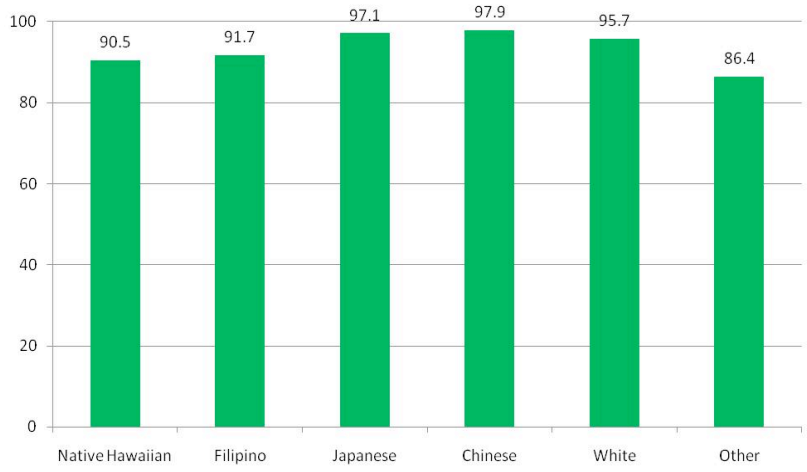
Initiation among the major ethnic groups were very high, with Chinese rating the highest at 97.9%, followed by Japanese at 97.1%, Whites 95.7%, Filipinos 91.7%, and Native Hawaiians at 90.5%.

**Figure 1. Mothers in Hawaii Who Initiate Breastfeeding After Delivery, PRAMS 2000-2008**




Source: Hawaii Health Data Warehouse, State of Hawaii Department of Health, Family Health Services, Maternal and Child Health Branch PRAMS Health Indicator Report: Breastfeeding Initiation for the Years 2000-2008, (Report Date 5/21/2010).

**Figure 2. Mothers in Hawaii Who Initiate Breastfeeding, By Ethnicity, PRAMS 2008**




Source: Hawaii Health Data Warehouse, State of Hawaii Department of Health, Family Health Services, Maternal and Child Health Branch PRAMS Health Indicator Report: Breastfeeding Initiation for the Years 2000-2008, (Report Date 5/21/2010).

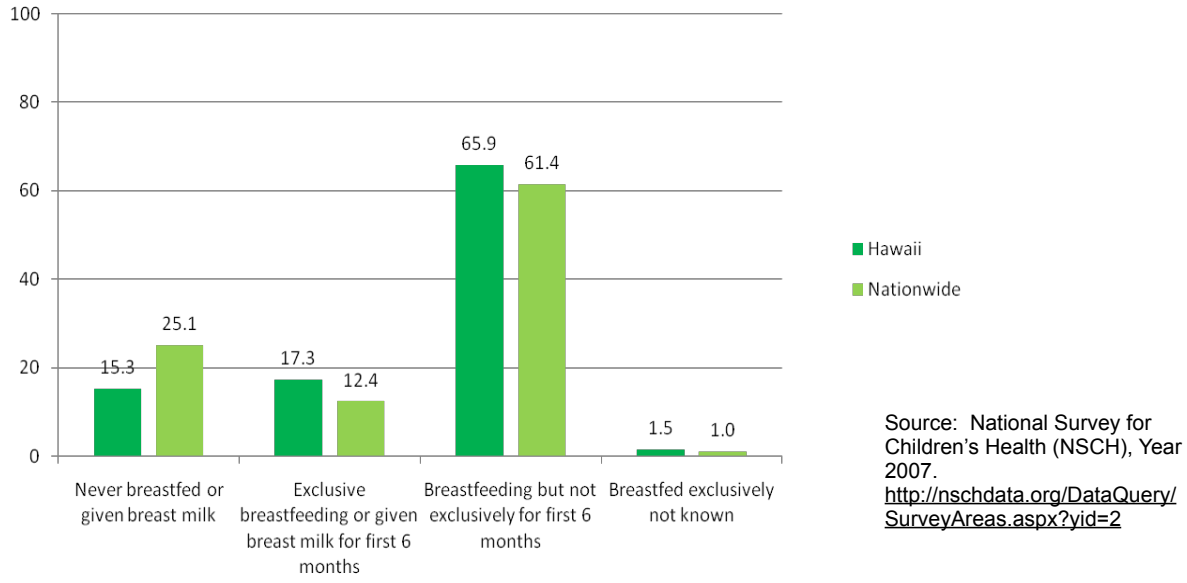
## Exclusivity and Continuation

Although the majority of mothers in Hawaii do initiate breastfeeding, far fewer meet the recommendations for exclusive breastfeeding. One analysis of PRAMS data revealed that while 69.3% of all mothers were still breastfeeding at eight weeks, many of them were supplementing with formula and water, since only 36.4% of all mothers were still breastfeeding exclusively at eight weeks.

Another study on the prevalence of breastfeeding among multi-ethnic women in Hawaii found that while 54% of women did some breastfeeding at six months, overall only 16% of women exclusively breastfed during this time period.[10] Additionally, breastfeeding exclusively for six months varied significantly by ethnicity 26% among Caucasians, 15.7% Other Asians, 14% Native Hawaiians, and 6% Filipinos.

The 2007 National Survey for Children's Health found that 17.3% of mothers in Hawaii exclusively breastfed their babies for the first six months, compared to 12.4% nationally. 84.7% of women reported breastfeeding or feeding their child breast milk for any length of time, compared to 74.9% nationally.

**Figure 3. Exclusive Breastfeeding or Given Breast Milk for the First Six Months: Hawaii vs. Nationwide. Children Ages 6 Months to 5 Years, NSCH, 2007**




Source: National Survey for Children's Health (NSCH), Year 2007. http://nschdata.org/DataQuery/SurveyAreas.aspx?yid=2

### 2.1.4 Women Who Are Likely to Stop Breastfeeding Early

PRAMS data from 2004 to 2006 shows that African Americans, Samoans, Native Hawaiians, and Filipinos had higher rates of discontinuing exclusive breastfeeding before eight weeks than other ethnic groups. In addition, women were also more likely to discontinue breastfeeding if they:

- were younger,
- had less education,
- had less income,
- were not married,
- were obese prior to pregnancy,
- had Medicaid/QUEST prenatal health coverage,
- were participating in Women Infants & Children (WIC) prenatally, and
- lived in Hawaii or Honolulu counties.

**Table 1. Percent Who Initiated Breastfeeding for Less than 8 Weeks, PRAMS 2004-2006**

| Race/ Ethnicity | % Initiated Breastfeeding For Less Than 8 weeks |
|---|---|
| African American | 29.3 |
| Samoan | 27.0 |
| Hawaiian | 26.6 |
| Filipino | 26.1 |
| Hispanic | 17.7 |
| Caucasian | 17.1 |
| Korean | 15.7 |
| Other Pacific Islanders | 14.7 |
| Chinese | 12.9 |
| Japanese | 11.2 |

Source: Hayes D, Donohoe-Mather C, Pager S, Eshima M, Fuddy L. "Breastfeeding Fact Sheet," Honolulu, HI: Hawaii Department of Health, Family Services Division, August 2008.

## 2.2 Reduced Screen Time

### 2.2.1 Effects of Excessive Screen Time

The combined sedentary time through venues including television shows, video games, movie videos, Internet web sites, cell phone texting, and other computer activities is referred to collectively as screen time.[11] Studies show a correlation between increased screen time and increasing risk of becoming overweight or obese.[12, 13]

Besides, increasing the risk for chronic health conditions, studies show that early television exposure among infants and toddlers could lead to attention problems, speech deficits, and language delays.[14, 15] Among adolescents, increased screen time is associated with low attachment to parents and peers.[16]

## 2.2.2 Recommendations

The national goal for  the Healthy People 2010 on screen time sets an objective to increase the proportion of adolescents who view television to two hours or less on school days.

In order to achieve this goal, the AAP recommends:

- Limiting children's television time to no more than one or two hours of quality programming per day;
- Removing television sets from children's bedrooms;
- Discouraging television viewing for children younger than two years, and encouraging more interactive activities such as talking, playing, singing and reading together; and
- Supporting efforts to establish comprehensive media education programs in schools.[17]

The Institute of Medicine (IOM) recommends:

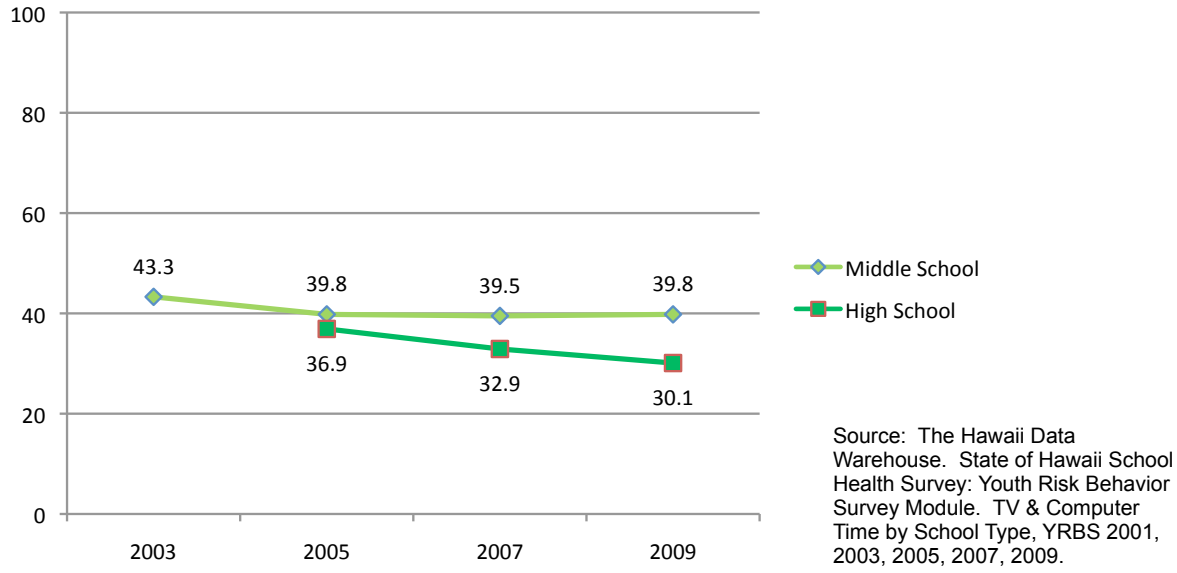
- Limiting children's screen time at home to less than two hours per day;
- Implementing school-based screen time reduction interventions; and
- Developing guidelines for advertising and marketing to children and youth.[18]

## 2.2.3 Screen Time Viewing Rates among Public School Students

### TV Viewing Rates

According to the 2009 YRBS, almost 40% of public middle school students and 30% of public high school students spend at least three hours per day watching television.  However, this has decreased slightly over the past few years.  The rate of middle school students watching television has declined from 43.3% in 2003, to 39.8% in 2009.  The rate among high school students has also dropped from 36.9% in 2005 to 30.1% in 2009.

**Figure 4. Public School Students Viewing 3+ Hours of TV on Average School Day, YRBS 2003, 2005, 2007, 2009**

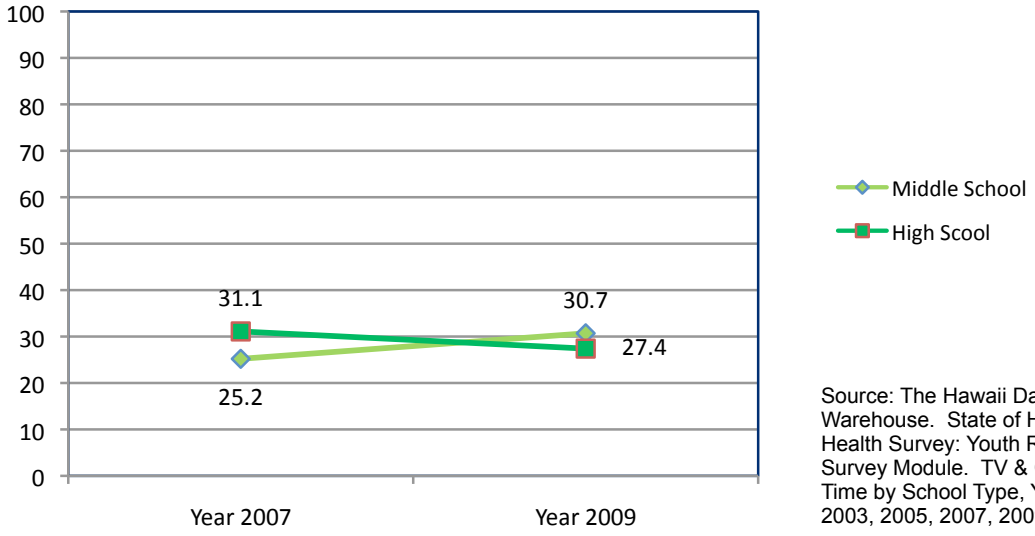



Source: The Hawaii Data Warehouse. State of Hawaii School Health Survey: Youth Risk Behavior Survey Module. TV & Computer Time by School Type, YRBS 2001, 2003, 2005, 2007, 2009.

## Computer and Video Screen Time Rates

In 2009, 30.7% of middle school and 27.4% of high school students were spending three or more hours playing videos, computer games or other computer-related activities on an average school day, excluding school work. Among middle school students, the rate has increased from 25.2% to 30.7% from 2003 to 2009, while among high school students it decreased from 31.1% to 27.4%.

**Figure 5. Public School Students Playing Video Games or Using the Computer 3+ Hours on Average School Day, YRBS 2003, 2005, 2007, 2009**

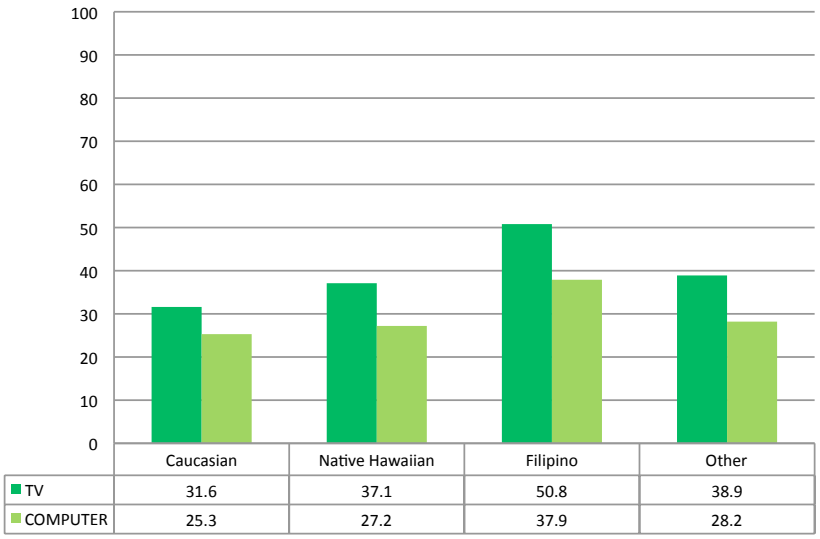



Source: The Hawaii Data Warehouse. State of Hawaii School Health Survey: Youth Risk Behavior Survey Module. TV & Computer Time by School Type, YRBS 2001, 2003, 2005, 2007, 2009.

## Differences by Ethnicity

Among middle school students, Filipino students were most likely to spend three or more hours a day watching television and/or using the computer or playing video games, at 50.8% and 37.9% respectively. Filipino high school students also watched more TV than other ethnic groups, as 40.5% reported watching TV for three or more hours per day. While Filipino students also had high rates of using the computer or playing video games (34.6%), Japanese (35%) and Other Asian students (36.1%) had slightly higher rates.

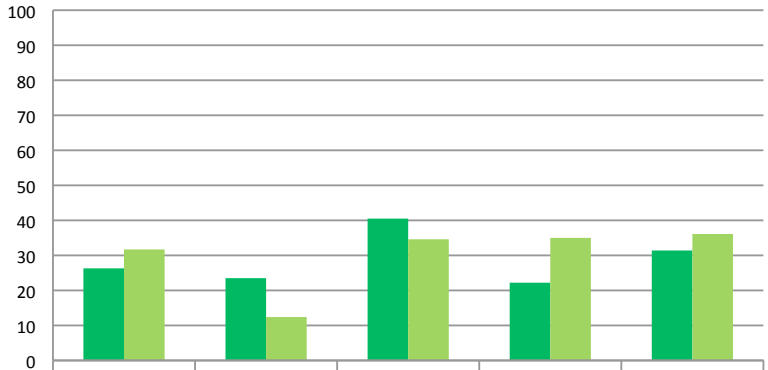
**Figure 6. Public Middle School Students Who Spend 3+ Hours Watching TV and/or Using the Computer or Playing Video Games, YRBS 2009**




| | Caucasian | Native Hawaiian | Filipino | Other |
|---|---|---|---|---|
| TV | 31.6 | 37.1 | 50.8 | 38.9 |
| COMPUTER | 25.3 | 27.2 | 37.9 | 28.2 |

Source: The Hawaii Data Warehouse. State of Hawaii School Health Survey: Youth Risk Behavior Survey Module. TV & Computer Time by School Type, YRBS 2001, 2003, 2005, 2007, 2009.

**Figure 7. Public High School Students Who Spend 3+ Hours Watching TV and/or Using the Computer or Playing Video Games, YRBS 2009**




| | Caucasian | Native Hawaiian | Filipino | Japanese | Other Asian |
|---|---|---|---|---|---|
| TV | 26.3 | 23.5 | 40.5 | 22.2 | 31.4 |
| COMPUTER | 31.7 | 12.4 | 34.6 | 35 | 36.1 |

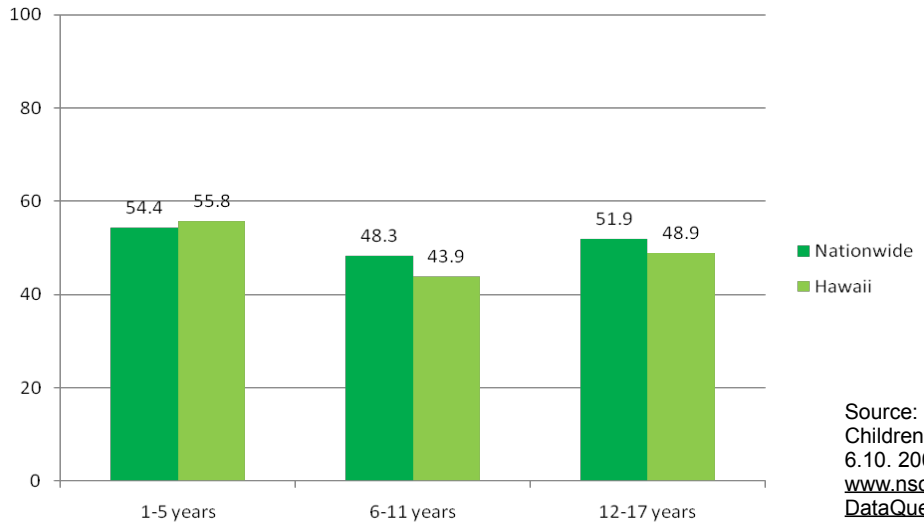
Source: The Hawaii Data Warehouse. State of Hawaii School Health Survey: Youth Risk Behavior Survey Module. TV & Computer Time by School Type, YRBS 2001, 2003, 2005, 2007, 2009.

## 2.2.4 Screen Time Viewing Rates by Age Group

The NSCH provides a broad range of information about children's health and well-being.[19] Prevalence is based on the combination of children spending more than one hour but less than four hours a day and children spending over four hours a day on screen time.

Prevalence rates for children in Hawaii between the ages of one to five years were slightly higher than national averages at 55.8% and 54.4% respectively. 43.9% of Hawaii's children between the ages of six to 11 are spending one or more hours per day watching television or playing video games compared to the national average of 48.3%. Among children ages 12 to 17, the prevalence was 48.9%, less than the national rate of 51.9%.

**Figure 8. Children Watching 1+ Hours of TV or Video a Day, By Age Group, Nationwide vs. Hawaii, NSCH 2007**

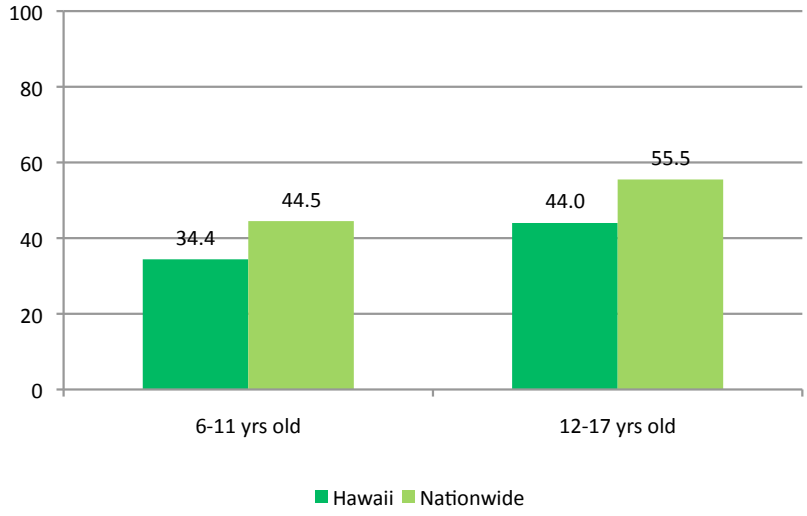



Source: National Survey of Children's Health. Indicator 6.10a & 6.10. 2007 NSCH.http://www.nschdata.org/DataQuery/DataQueryResults.aspx.

## 2.2.5 Presence of TV in the Bedroom

While Hawaii children are slightly less likely to have a TV in their bedrooms than children nationwide, over one-third of children ages six to 11 (34.4%) have a television set in their bedrooms. Among 12-17 year olds, 44.0% have televisions in their bedrooms.

**Figure 9. Children Ages 6-11 and 12-17 Who Have a TV in the Bedroom, Nationwide vs. Hawaii, NSCH 2007**



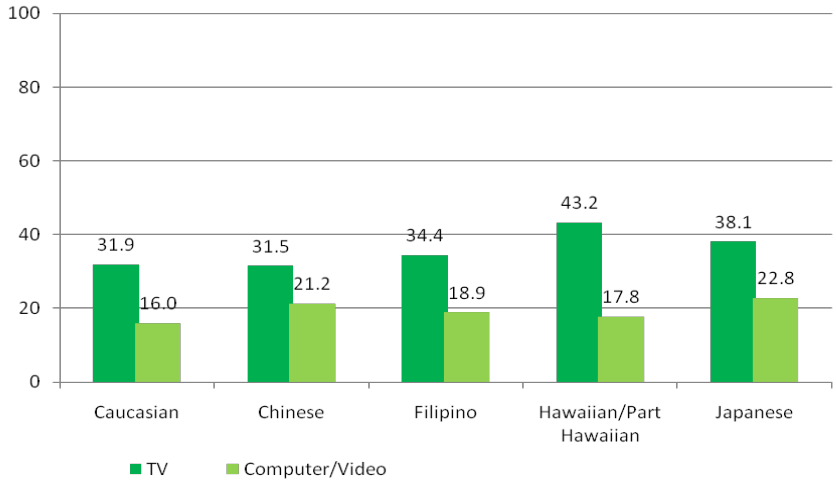

Source: National Survey of Children's Health. Indicator 6.10a & 6.10. 2007 NSCH.http://www.nschdata.org/DataQuery/DataQueryResults.aspx.

## 2.2.6 Adults and Screen Time

Based on a 2009 cross-sectional study of adults 18 years and over in Hawaii, 34.6% of respondents said they watch three or more hours a day of television, and 19.5% reported three or more hours playing video/computer games or using the computer other than for work.

Native Hawaiians reported spending more time watching television (43.2%) than other ethnic groups, followed by Japanese, Filipinos and Caucasians. Chinese respondents reported that they spent more time playing video games or computer than other ethnic groups, with 22.8% of them reporting playing for three or more hours per day. Filipinos were second-highest, at 21.2%.

**Figure 10. Adults Who Spend 3+ Hours per Day Watching TV, Playing Video Games, or Using the Computer Other than for Work, HHI Mediator Survey, 2009**




Source: HHI Mediator Survey, 2009. Note: Weighted percentages.

# 2.3 Sugar-Sweetened Beverages

## 2.3.1 The Problem of Overconsumption

A sugar-sweetened beverage is any drink that contains high amounts of sugar or high fructose corn syrup; examples include soda, juice, sports drinks, energy drinks, sweetened milk, teas and coffee with caloric sweeteners.[20] Americans drink approximately 46 gallons of sugar-sweetened beverages per person each year. By age 14, 32% of adolescent girls and 52% of adolescent boys in the U.S. are consuming three or more 8-ounce servings of sweetened drinks daily.[21, 22]

Overconsumption of calories leads to excess fat storage and is of particular concern regarding the epidemic of childhood obesity. Many children have been consuming more energy (calories) than they expend physically in a day or need for normal growth and metabolism. Excess consumption of sugar-sweetened beverages has been associated with metabolic syndrome and type 2 diabetes.[23, 24, 25]

At least one study reported a parallel increase of the use of high fructose corn syrup and rise in obesity prevalence from 1970 and 1990.[26] Some studies show that the increase in consumption of sugar-sweetened beverages may be a significant contributor to the epidemic of overweight and obesity.[27, 28]

## 2.3.2 Recommendations

The Division of Physical Activity, Nutrition and Obesity (DNPAO) at the CDC recommends decreasing the consumption of sugar-sweetened beverages as one of six evidence-based strategies for preventing and reducing overweight and obesity.[29]

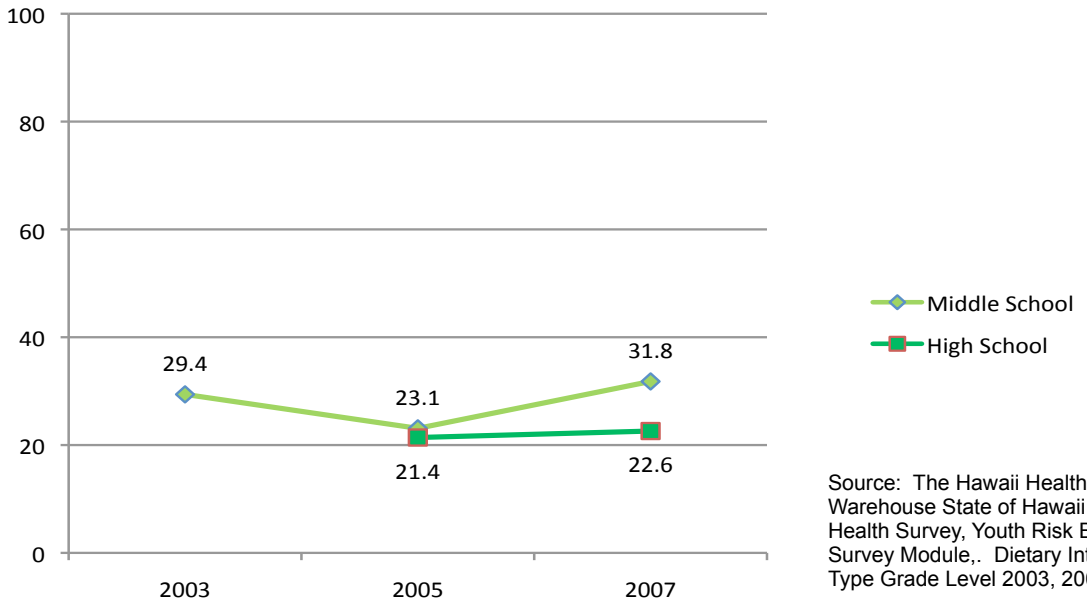
The American Heart Association and the U.S. Department of Agriculture (USDA) recommend limiting consumption of any sweetened beverages, including fruit juices, to no more than four to six ounces per day for children ages one to six years, and no more than eight to 12 ounces per day for children ages seven to 18 years.[30, 31]

## 2.3.3 Consumption of Sugar-Sweetened Beverages

### Public Middle and High School Students

There is data available for non-diet soda consumption by public middle and high school students. Most of Hawaii's public school students drink soda occasionally. In 2007, 87.1% of middle school students and 79.2% of high school students reported drinking at least one can, glass or bottle of soda in the past week. A substantial number of students also reported drinking at least one soda per day (31.8% in middle school and 22.6% in high school).

**Figure 11. Public Middle and High School Students Who Drink 1+ Sodas Per Day, YRBS 2003, 2005, 2007, 2009**

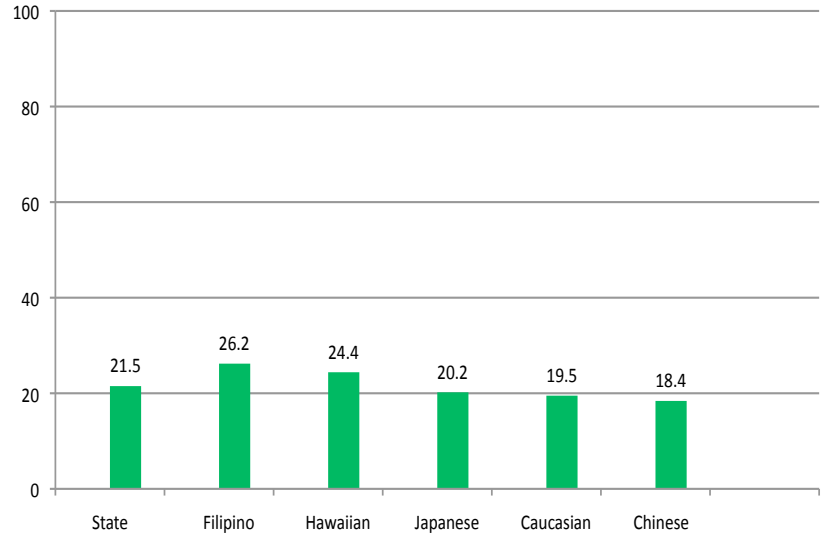



Source: The Hawaii Health Data Warehouse State of Hawaii School Health Survey, Youth Risk Behavior Survey Module,. Dietary Intake Type Grade Level 2003, 2005, 2007.

## Adults

In Hawaii, 21.5% of adults consume one or more sodas almost every day. By ethnicity, Filipinos are most likely to drink soda daily (26.2%), followed by Native Hawaiians, (24.4%).

**Figure 12. Adults in Hawaii Who Drink 1+ Sodas Every Day, HHI Mediator Survey, 2009**




Source: Healthy Hawaii Mediator Survey, 2009. NOTE: Weighted percentages.

# 2.4 Energy Dense Foods

## 2.4.1 Changes in Food Culture

Over the past several decades, food options and eating habits in the U.S. have changed dramatically. Individuals have become accustomed to greater food selection in grocery stores, a growing choice of pre-packaged foods, greater availability of high calorie foods through fast food restaurants, and larger portion sizes.[32]

Although many people seem to understand the association between unhealthy foods and disease, dietary intake is influenced by many factors including cultural practices, taste, cost, and convenience. Socioeconomic status, level of education, and gender also factor into dietary choices.[33, 34]

## 2.4.2 Energy Density

More and more Americans are consuming foods that are not prepared at home due to time and economic restraints.[34, 35] Foods eaten away from home and processed foods are often high in fat and lower in water and fiber content. These foods are called energy dense or calorie-dense foods because of the high amount of calories that come per portion size.[36]

Over the years there have been multiple studies looking at the association between away-from-home foods and obesity. A few local cross-sectional studies have also been done looking at the association between consumption of away-from-home foods with factors such as increased body mass index (BMI), ethnicity, income, education, among adults and adolescents.[33, 37, 38, 39] Research suggests that the sharp rise in consumption of energy-dense foods put individuals at risk for overweight and obesity, which increases the risk for major chronic diseases including cancer, heart disease, diabetes.[40, 41]

## 2.4.3 Recommendations

The Institute of Medicine (IOM) Committee on Childhood Obesity Prevention Actions for Local Governments developed the goal and its associated action steps in, Actions for Healthy Living, to "reduce access to and consumption of calorie-dense, nutrient-poor foods." The AAP Committee on Nutrition recommends that families be educated and empowered to teach their children lifelong habits such as physical activity and nutritious eating, and that dietary practices encourage eating in moderation rather than focusing on restrictive diet patterns.[22, 42]

## 2.4.4 Consumption of Food Away From Home

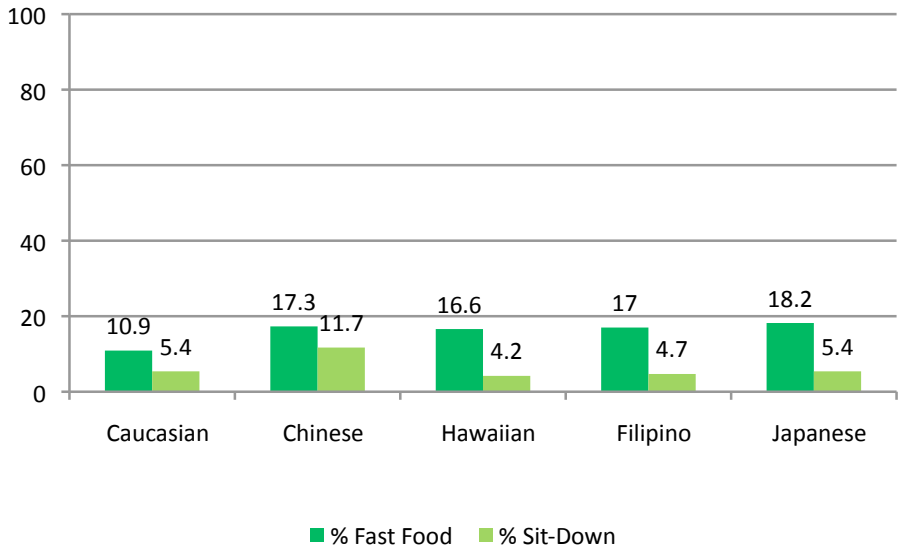
There is currently no national surveillance data on energy dense foods; however, a few local studies are available that offer some insight on Hawaii residents and consumption of foods away from home.

### Adults

Data from the 2009 HHI Mediator Survey revealed that 14.7% of people were eating three or more times a week at fast food restaurants. Japanese adults were the most likely to eat three or more times per week (18.2%), followed by Chinese, Filipinos, and Hawaiians, at 17.3%, 17.0%, and 16.6%, respectively.

Chinese adults reported eating at sit-down restaurants at a much higher rate than other ethnic groups, as 11.7% of them reported eating at sit-down restaurants three or more times a week.

**Figure 13. Away-from-Home Food Consumption: Fast Food and Sit-Down Restaurants, HHI Mediator Survey, 2009**




Source: HHI Mediator Survey, Cross Sectional, 2009. Note: Weighted percentages (not tested for significance).

### Children and Adolescents

No state data is currently available on energy dense food consumption by children or adolescents.

# Section 3. Vision, Goals, Objectives and Guiding Principles

The objectives and strategies in this supplement were developed utilizing the vision and goals that served as the foundation for the original PAN Plan.

***Vision*** *We envision a future for Hawaii in which all residents are physically active, eat healthy foods, and live in healthy communities.*

***Goals*** *Through healthful eating and regular physical activity, the people of Hawaii will:*

1. Reduce their burden of disease,
2. Increase years of healthy life, and
3. Experience a reduction in health disparities.

***Objectives*** *These objectives will contribute to the achievement of our vision and goals:*

1. Increase the rate of mothers who exclusively breastfeed their babies for six months after birth
2. Reduce sedentary screen time among adults and youth
3. Decrease consumption of sugar-sweetened beverages among adults and youth
4. Decrease consumption of energy-dense foods among adults and youth

### *Guiding Principles*

- Collaboration with partners is essential in both the writing of this Plan and the implementation of its goals.
- The Hawaii PAN Plan will include diverse viewpoints from stakeholders across Hawaii.

- Decision making will be driven by the best and most recent available data.
- Data will be used to identify disparities in physical activity, nutrition and chronic disease among Hawaii residents and plans will be made to reduce those disparities.
- When possible, this Plan will use strategies that are considered evidence-based best practices.
- Progress towards the Plan's priorities will be regularly evaluated and the findings will be published and accessible to the public.
- Based on the evaluations, the Plan will evolve and grow to continue to meet the needs of the stakeholders involved in its creation.

# Section 4.0 Objectives and Benchmarks

***Objective 1*** *Increase the rate of mothers who exclusively breastfeed their babies for six months after birth*

Benchmark 1: Percent of children ages zero to five years who were ever breastfed or fed breast milk
Benchmark 2: Percent of children ages zero to five years still breastfeeding at four weeks
Benchmark 3: Percent of children ages zero to five years still breastfeeding at eight weeks
Benchmark 4: Percent of children ages six months to five years who were exclusively breastfed or given breast milk for their first six months

***Objective 2*** *Reduce sedentary screen time among adults and youth*

Benchmark 1: Percent of children ages one through five who watch more than one hour of TV or video per day
Benchmark 2: Percent of children ages six through 11 who watch more than one hour of TV or video per day
Benchmark 3: Percent of middle school students who watch three or more hours of TV on an average school day
Benchmark 4: Percent of middle school students who play three or more hours of video or computer games on an average school day
Benchmark 5: Percent of high school students who watch three or more hours of TV on an average school day
Benchmark 6: Percent of high school students who play three or more hours of video or computer games on an average school day
Benchmark 7: Percent of children ages six to 11 with a TV in their bedroom
Benchmark 8: Percent of children ages 12 to 17 with a TV in their bedroom
Benchmark 9: Percent of adults who watch more than three hours of TV on a typical day
Benchmark 10: Percent of adults who play more than three hours of video or computer games outside of work on an average day

***Objective 3*** *Decrease consumption of sugar-sweetened beverages among adults and youth*

Benchmark 1: Percent of high school students who drink a can, bottle, or glass of soda or pop at least once per day

Benchmark 2: Percent of adults who drink regular soft drinks, soda, or pop (not including diet sodas) almost everyday or more

***Objective 4*** *Decrease consumption of energy dense foods among adults and youth*

Benchmark 1: Percent of adults who eat at fast food restaurants, drive-ins or lunch wagons three or more times per week

# Section 5.0 Strategies and Recommended Activities

## 5.1 Breastfeeding

***Objective*** *Increase the rate of mothers who exclusively breastfeed their babies for six months after birth*

**Strategy 1:** Policy & Systems Change

**Recommended Activities:**

- Introduce and advocate for a State policy that would require hospitals to obtain Baby Friendly Designation
- Advocate for health insurance benefits to cover breastfeeding services and supplies
- Promote the use of standards established by the American Academy of Pediatrics (AAP) and the American Congress of Obstetricians and Gynecologists for lactation management and support by obstetricians, gynecologists and pediatricians
- Develop a statewide advocacy and education program informing businesses of current worksite breastfeeding legislation
- Establish a breastfeeding coordinator position to coordinate statewide breastfeeding efforts
- Improve data collection to more accurately track exclusive breastfeeding up to six months
- Develop statewide recommendations for regulating the marketing and distribution of formula

**Strategy 2:** Public Education

**Recommended Activities:**

- Conduct a media campaign on the benefits of breastfeeding and the risks of formula feeding
- Incorporate normalization of breastfeeding into culturally appropriate public service announcements
- Utilize family support media messages

- Disseminate information for employers on the benefits of promoting breastfeeding in the workplace (e.g., decreased absenteeism, increased productivity, reduced health care costs) and the laws on breastfeeding in the workplace
- Distribute information to employees on breastfeeding resources and options in the workplace

**Strategy 3:** Support & Promote Community Interventions

**Recommended Activities:**

- Expand local breastfeeding promotion efforts at health fairs, community and faith based events, schools, clinics, government buildings and workplaces
- Promote collaboration and resource-sharing among local organizations that promote breastfeeding

**Strategy 4:** Support for Pregnant Women & Mothers

**Recommended Activities:**

- Disseminate breastfeeding guidance and resources to pregnant and postpartum women at obstetrician, gynecologist and pediatrician offices, clinics and hospitals
- Make breastfeeding resources available in pediatrician offices for ongoing breastfeeding support
- Distribute a contact list with breastfeeding support resources to all women who give birth in Hawaii hospitals
- Expand breastfeeding support group initiatives in hospitals, clinics, and other community settings

**Strategy 5:** Education of Healthcare Staff

**Recommended Activities:**

- Expand programs that train health professional to become International Board Certified Lactation Consultants and Certified Lactation Consultants
- Conduct trainings and hold forums for hospital administrators to share best practices in breastfeeding management in the hospital
- Publicize sources of breastfeeding education for physicians and nurses in basic breastfeeding management and knowledge of referral resources, particularly those offering continuing medical education units
- Create culturally appropriate peer counselor programs
- Expand breastfeeding education to include all medical and nursing students in Hawaii and in-depth education for those studying to become obstetricians, gynecologists and pediatricians, placing special emphasis on addressing health disparities

# 5.2 Screen Time

***Objective*** *Reduce sedentary screen time among adults and youth*

**Strategy 1:** Policy & Systems Change

**Recommended Activities:**

- Conduct statewide advocacy with businesses and employers to expand worksite wellness programs that promote routine breaks from sedentary behavior and screen time
- Introduce and pass policy that eliminates liability of government agencies when promoting physical activity opportunities in the workplace
- Promote incentives from health insurance companies to increase daily physical activity

**Strategy 2:** Public Education

**Recommended Activities:**

- Disseminate resources to parents with information on enforcing rules and limitations around TV time (e.g., less that two hours per day, no TV in bedrooms, no eating while watching TV, not using screen time as a reward or punishment)
- Develop peer messaging campaign targeted to youth on replacing screen time with more "fun" activities
- Conduct a statewide media education campaign on the "dangers of screen time" (e.g., neurological physical effects, importance of moderation, why two hours or less is recommended, impact on grades)
- Expand and promote "Turn Off the TV" Week
- Conduct outreach among businesses and employers to promote worksite wellness, recess at work and the use of software or visual prompts for sedentary behavior breaks in the workplace

**Strategy 3:** Support & Promote Community Interventions

**Recommended Activities:**

- Design and, or retrofit communities to support active living
- Expand community adult recreational programs
- Conduct community park assessments for accessibility, cleanliness, safety, equipment and facilities
- Develop community resource guides that list activities and contact information for places offering screen time alternatives for kids and adults (e.g., parks, sports teams, dance classes, etc.)
- Expand community programs that offer recreational activities for youth
- Promote promising practices to break up sedentary screen time behavior at work

**Strategy 4:** Increase Physical Activity Breaks in Schools & After School Programs

**Recommended Activities:**

- Incorporate short stretching breaks and activity breaks into the school day
- Expand after-school and summer programs that promote physical activity
- Develop guidelines for the use of computers and televisions in schools and pre-schools
- Conduct focus groups with elementary, middle and high school students to identify barriers to reducing screen time and utilize information to develop messaging and specific programs that address these issues

# 5.3 Sugar Sweetened Beverages

***Objective*** *Decrease consumption of sugar-sweetened beverages among adults and youth*

**Strategy 1:** Policy & Systems Change

**Recommended Activities:**

- Introduce and pass a policy to tax sugar-sweetened beverages by the ounce with revenue used for chronic disease prevention
- Introduce and pass a policy restricting the sale of sugar-sweetened beverages within a designated area around schools and child care facilities
- Establish a working group to work towards simplifying caloric information on cans or bottles and displaying caloric information on fountain drinks
- Promote water consumption in workplaces as part of worksite wellness initiatives
- Develop and enact workplace polices that increase the ratio of water to sugar-sweetened beverages in vending machines in the work environment
- Introduce and enact nutrition guidelines legislation for the ratio of water to sugar-sweetened beverages in vending machines in government buildings

**Strategy 2:** Public Education

**Recommended Activities:**

- Develop point-of-decision prompts that encourage water consumption for distribution in stores and workplaces
- Conduct a media campaign focusing on “truth in advertising” of sodas, energy drinks and other sweetened beverages
- Conduct a media campaign on the benefits of drinking water, making it especially appealing to kids

**Strategy 3:** Support & Promote Community Interventions

**Recommended Activities:**

- Develop community maps for access to water stations to inform possible policy and systems change activity to address barriers to access
- Promote water and restrict sugar-sweetened beverages in local festivals and events
- Advocate for sports leagues to promote water instead of sugar-sweetened beverages

**Strategy 4:** Increase Water Consumption in Schools & After School Programs

**Recommended Activities:**

- Promote access to clean, safe drinking water on school campuses

- Promote the use of water bottles for students in schools and after school programs
- Support the consumption of water at all school and after school sports and other recreational events

## 5.4 Energy Dense Foods

***Objective*** *Decrease consumption of energy dense foods among adults and youth*

**Strategy 1:** Policy & Systems Change

**Recommended Activities:**

- Introduce and pass a policy requiring caloric information on menus, menu boards and drive-through displays in chain restaurants with more than ten locations
- Establish a State Food Council to develop policies and strategies to improve access to fresh fruits and vegetables via farmers‘ markets and convenience stores
- Develop partnerships and support strategies to expand EBT use at farmers‘ markets
- Create incentives for schools that are compliant with DOE wellness guidelines
- Establish a working group to link up schools in areas with low access to fruits and vegetables with farmers
- Introduce and pass a policy to eliminate sales tax on fresh fruits and vegetables

**Strategy 2:** Public Education

**Recommended Activities:**

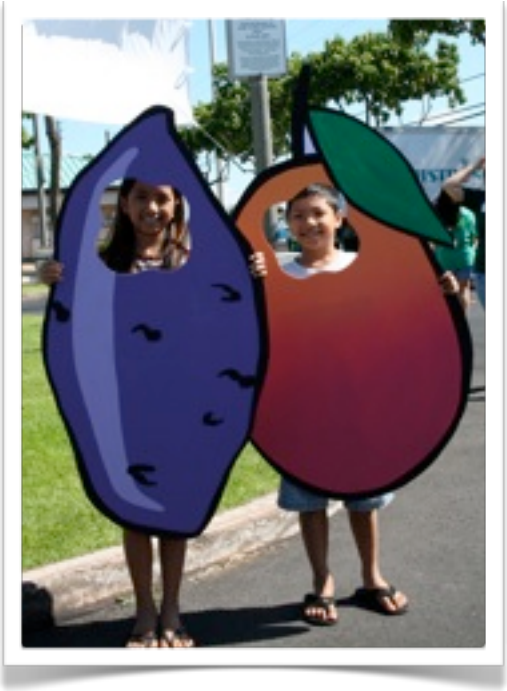
- Conduct a public education campaign to change social norms around portion size, slow versus fast food, parents as role models for healthy eating and eating meals together as a family
- Create media opportunities for political candidates to compare views and strategies on increasing physical activity and healthy eating

- Collaborate with grocery store chains to provide in-store nutrition and cooking education, food demonstrations and grocery tours
- Disseminate resources that increase public knowledge of nutrition and low versus high energy dense foods, where to find local farmers‘ markets, resources for home gardens, and recipes

**Strategy 3:** Support & Promote Community Interventions

**Recommended Activities:**

- Expand community based programs that conduct nutrition education and cooking classes
- Develop community maps for access to fresh fruits and vegetables to prioritize areas of need
- Promote coordination, resource-sharing and mobilization among local organizations to increase access to farmers‘ markets and fresh fruits and vegetables
- Promote healthy eating in local festivals and events
- Expand local food sharing programs
- Conduct outreach to convenience stores to sell fresh fruits and vegetables
- Develop farm-to-worksite programs



**Strategy 4:** Increase Nutrition Education in Schools & After School Programs

**Recommended Activities:**

- Develop standards-based lesson plans for school garden activities
- Develop a guide for teachers and administrators on developing a safe school garden
- Disseminate healthy recipes for students to prepare with school garden produce
- Incorporate nutrition education for school administrators and teachers into current professional development efforts
- Educate foundations and businesses to support school gardens and resources
- Create training opportunities for kitchen staff on cooking with fresh fruits and vegetables, improving the taste of healthy food and making it appealing to kids
- Provide resources for teachers on incorporating cooking classes and recipes into lesson plans (e.g., skills for reading, math, etc.)

# Section 6.0 Evaluation

Evaluation should always be an integral component of the planning process to ensure that public health programs are accomplishing their goals and objectives. Benchmarks are provided in the Supplement to track progress over time in reaching the stated objectives.

The following tables contain benchmarks, indicators, baselines and outcomes for each of the four objectives. These tables are for evaluation purposes only, as the measures listed are suggestions and not absolute. It is important to remember that the benchmarks chosen are a reflection of the health data that is currently available in Hawaii. For example, there are ten possible indicators to measure screen time (Objective 2), however there is only one indicator available to track the consumption of energy dense foods (Objective 4). The frequency of data collection was also considered in the selection of benchmarks and indicators; the indicators chosen come from surveys that are collected on a routine basis, so that multiple data points over time can be collected.

The content of the Supplement and ensuing implementation is a partnership effort. Therefore, the evaluation results on meeting the PAN plan objectives will reflect on the commitment, coordination and collaboration between many partners and individuals.

# 6.1 Benchmark Matrices

***Objective 1*** *Increase the rate of mothers who exclusively breastfeed their babies for six months after birth*

| Benchmark | Indicator | Baseline | | | Outcome (by 2020) |
|---|---|---|---|---|---|
| | | Data source | Measure | Year | |
| **Benchmark 1** Percent of children ages 0 to 5 years who were ever breastfed or fed breast milk | Was [child name] ever breastfed or fed breast milk? | NSCH | 85.0% | 2007 | 90.0% |
| **Benchmark 2** Percent of children ages 0 to 5 years still breastfeeding at 4 weeks | Still breastfeeding at 4 weeks | PRAMS | 80.4% | 2007 | 85.0% |
| **Benchmark 3** Percent of children ages 0 to 5 years still breastfeeding at 8 weeks | Still breastfeeding at 8 weeks | PRAMS | 71.0% | 2007 | 75.0% |
| **Benchmark 4** Percent of children ages 6 months to 5 years who were exclusively breastfed or given breast milk for their first 6 months | How many children between the ages of 6 months and 5 years old were exclusively breastfed or given breast milk for their first 6 months? | NSCH | 17.3% | 2007 | 22.0% |

***Objective 2*** *Reduce sedentary screen time among adults and youth*

| Benchmark | Indicator | Baseline | | | Outcome (by 2020) |
|---|---|---|---|---|---|
| | | Data source | Measure | Year | |
| **Benchmark 1** Percent of children ages 1 through 5 who watch more than 1 hour of TV or video per day | Percent of children that watch 1+ hours of TV or video a day | NSCH | 55.9% | 2007 | 50.0% |
| **Benchmark 2** Percent of children ages 6 through 11 who watch more than 1 hour of TV or video per day | Percent of children that watch 1+ hours of TV or video a day | NSCH | 43.9% | 2007 | 40.0% |
| **Benchmark 3** Percent of middle school students who watch 3 or more hours of TV on an average school day | On an average school day, how many hours do you watch TV? | YRBS | 39.8% | 2009 | 35.0% |
| **Benchmark 4** Percent of middle school students who play 3 or more hours of video or computer games on an average school day | On an average school day, how many hours do you play video or computer games or use a computer for something that is not school work? | YRBS | 30.7% | 2009 | 25.0% |
| **Benchmark 5** Percent of high school students who watch 3 or more hours of TV on an average school day | On an average school day, how many hours do you watch TV? | YRBS | 30.1% | 2009 | 25.0% |

| Benchmark | Indicator | Baseline | | | Outcome (by 2020) |
|---|---|---|---|---|---|
| | | Data source | Measure | Year | |
| **Benchmark 7** Percent of children ages 6 to 11 with a TV in their bedroom | Percent of children with a TV in their bedroom | NSCH | 39.3% | 2007 | 30.0% |
| **Benchmark 8** Percent of children ages 12 to 17 with a TV in their bedroom | Percent of children with a TV in their bedroom | NSCH | 44.0% | 2007 | 35.0% |
| **Benchmark 9** Percent of adults who watch more than 3 hours of TV on an average day | About how many hours of television do you watch on a typical day? | HHIMS | 34.6% | 2009 | 30.0% |
| **Benchmark 10** Percent of adults who play more than 3 hours of video or computer games outside of work on an average day | Outside of work time, about how many hours do you use the computer or play video games on a typical day? | HHIMS | 19.5% | 2009 | 15.0% |

***Objective 3*** *Decrease consumption of sugar-sweetened beverages among adults and youth*

| Benchmark | Indicator | Baseline | | | Outcome (by 2020) |
|---|---|---|---|---|---|
| | | Data source | Measure | Year | |
| **Benchmark 1** Percent of high school students who drink a can, bottle, or glass of soda or pop at least once per day | How many times did you drink a can, bottle, or glass of soda or pop, such as Coke, Pepsi, or Sprite? | YRBS | 20.8% | 2009 | 15.0% |
| **Benchmark 2** Percent of adults who drink regular soft drinks, soda, or pop (not including diet sodas) almost everyday or more | How often do you drink regular soft drinks, soda, or pop (do not include diet sodas)? | HHIMS | 21.5% | 2009 | 15.0% |

***Objective 4*** *Decrease consumption of energy-dense foods among adults and youth*

| Benchmark | Indicator | Baseline | | | Outcome (by 2020) |
|---|---|---|---|---|---|
| | | Data source | Measure | Year | |
| **Benchmark** Percent of adults who eat at fast food restaurants, drive-ins or lunch wagons 3 or more times per week | How often do you eat at fast food restaurants, drive-ins, or lunch wagons? | HHIMS | 14.7% | 2009 | 10.0% |

# Section 7.0 Glossary

**Behavioral Risk Factor Surveillance System (BRFSS)** is a surveillance system that uses a population-based telephone survey to assess behavioral health risk factors of American adults. The BRFSS provides national and state data for following trends in many areas including obesity, physical activity, and fruit and vegetable consumption. http://www.cdc.gov/brfss/

**Body Mass Index (BMI)** is a common measure expressing the relationship (or ratio) of weight-to-height. BMI is a mathematical formula in which a person's body weight in kilograms is divided by the square of his or her height in meters (i.e., weight/height $^2$). Individuals with a BMI of 25 to 29.9 are considered overweight, while individuals with a BMI of 30 or more are considered obese. http://www.cdc.gov/nccdphp/dnpa/obesity/defining.htm

**Breastfeeding** is when the child has received breast milk directly from the breast or expressed. http://www.llli.org/ba/Feb00.html

**Built environment** refers to the manmade surroundings that provide the setting for human activity, from the largest-scale civic surroundings to the smallest personal space. http://www.cdc.gov/healthyplaces/

**Chronic disease** is an illness that is ongoing or recurring, does not resolve spontaneously, and is rarely cured completely. http://www.cdc.gov/nccdphp/

**Community-based program** is a planned, coordinated, ongoing effort operated by a community that characteristically includes multiple interventions intended to improve the health status of members of the community. http://www.healthypeople.gov/Document/HTML/volume1/07ED.htm

**Culturally appropriate** refers to an unbiased attitude and organizational policy that values cultural diversity in the population served. Reflects an understanding of diverse attitudes, beliefs, behaviors, practices, and communication patterns that could be attributed to race, ethnicity, religion, socioeconomic status, historical and social context, physical or mental ability, age, gender, sexual orientation or generational and acculturation status. Includes an awareness that cultural differences may affect health and the effectiveness of healthcare delivery. http://www.healthypeople.gov/Document/HTML/volume1/07ED.htm

**Energy density** is the amount of energy or calories in a particular weight of food and is generally presented as the number of calories in a gram (kcal/g). Foods with a lower energy density provide fewer calories per gram than foods with a higher energy density. For the same amount of calories, a person can consume a larger portion of a food lower in energy density than a food higher in energy density. http://www.cdc.gov/nccdphp/dnpa/nutrition/pdf/r2p_energy_density.pdf

**Exclusive breastfeeding** is when the infant has received only breast milk from the mother or a wet nurse, or expressed breast milk, and no other liquids or solids with the exception of drops or syrups consisting of vitamins, mineral supplements, or medicines. http://www.llli.org/ba/Feb00.html

**Healthy foods** are describe in the USDA Nutritional Guidelines for Americans; they contain no more than 30 percent of calories from fat, no more than 10 percent of calories from saturated fat, and no more than 35 percent added sugar by weight (except fresh, dried or canned vegetables and fruits). http://www.health.gov/DietaryGuidelines/

**HHI Mediators Survey (HHIMS)** a random digit-dial survey of adults in Hawaii collected to monitor the effectiveness of the Healthy Hawaii Initiative's programs. HHI is part of the Hawaii State Department of Health.

**High energy dense foods** are often high in refined grains, added sugars, and added fats. http://care.diabetesjournals.org/content/30/4/974.full.pdf+html

**Indicator** provides information about a population's status with respect to health or a factor associated with health (e.g., risk factor, intervention) in a specified population through direct or indirect measures. http://www.cdc.gov/nceh/indicators/description.htm

**Low-energy dense foods** tend to have either high water content, lots of fiber, or little fat. Examples include fruits, vegetables, whole grains, lean meats, and low-fat dairy products.
http://www.cdc.gov/nccdphp/dnpa/nutrition/pdf/r2p_energy_density.pdf

**National Survey on Children's Health (NSCH)** is a national telephone survey that provides a broad range of information about children's health and well-being. It is collected in a manner that allows for comparisons between states and at the national level. http://nschdata.org/content/FrequentlyAskedQuestions.aspx#2

**Obesity** is an excessively high amount of body fat in relation to lean body mass in an individual. In Body Mass Index measurements, obesity is defined as a BMI equal to or greater than 30 in adults. Among youth, obesity is defined as having a BMI at or above

95% for the child's age and sex. http://www.cdc.gov/nccdphp/dnpa/obesity/defining.htm &http://apps.nccd.cdc.gov/dnpabmi/

**Overweight** is an increased body weight in relation to height, when compared to some standard of acceptable or desirable weight. In Body Mass Index standards, overweight is defined between 25 and 25.9 or greater in adults. Among youth, being overweight is defined as having a BMI at or above 85% but below 95% for the child's age and sex. http://www.cdc.gov/nccdphp/dnpa/obesity/defining.htm & http://apps.nccd.cdc.gov/dnpabmi/

**Physical activity** is any bodily movement produced by skeletal muscles that results in an expenditure of energy. http://www.cdc.gov/nccdphp/dnpa/physical/terms/index.htm

**Screen Time** refers to time spent watching television or videos, playing video games, and working at the computer. http://www.nature.com/ijo/journal/v29/n2s/full/0803064a.html

**Sedentary Behavior** refers to activities that do not increase energy expenditure substantially above the resting level and includes activities such as sleeping, sitting, lying down, and watching television, and other forms of screen-based entertainment. http://www.medscape.com/viewarticle/581617_3

**Social marketing** is the application of advertising and marketing principles and techniques (i.e., applying the planning variables of product, promotion, place, and price) to health or social issues with the intent of bringing about behavior change. The social marketing approach is used to increase the acceptability of a new idea or practice within a target population. http://www.cdc.gov/nccdphp/DNPAO/socialmarketing/

**Social-Ecological Model** is the model that suggests that behavior change requires not only educational activities, but also advocacy, organizational change efforts, policy development, economic support and environmental change and that these "spheres of influence" can have an impact on individual health behavior. Rather than focusing on personal behavior change interventions with groups or individuals, public health problems must be approached at multiple levels, stressing interaction and integration of factors within and across levels. http://www.cdc.gov/ncipc/dvp/social-ecological-model_dvp.htm

**Stakeholder** is a person or organization actively involved in a project that could positively or negatively impact the achievement of the project objectives, and/or whose interests may be positively or negatively affected by the execution or completion of the project. http://www2.cdc.gov/cdcup/document_library/glossary/default.asp#S

**Sugar-Sweetened Beverages** are those that contain caloric sweeteners and include soft drinks, soda, pop, soda pop, sports drinks, sweetened tea and coffee drinks, energy drinks, and sweetened milks or milk alternatives. http://www.eatsmartmovemorenc.com/TheEvidence/Texts/StratstoReduce_Sugar_Sweetened_Bevs.pdf

**Worksite Wellness Programs** are programs offered by employers that allow employees the opportunity to learn and practice healthy behaviors and lifestyles.
http://www.thecommunityguide.org/worksite/

**Youth Risk Behavior Surveillance System (YRBS)** is a program developed to monitor priority health-risk behaviors that contribute to the leading causes of mortality, morbidity, and social problems among high school students in the United States. The survey is administered in Hawaii to middle and high school students every other year.
http://www.cdc.gov/healthyyouth/yrbs/

# Section 8.0 References

[1] McElroy, K. R., Bibeau, D., Steckler, A., Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education Quarterly*, 15, 351-377.

[2] Gartner LM, Morton J, Lawrence RA, et al. (2005). Breastfeeding and the use of human milk. *Pediatrics.* Feb 2005;115(2):496-506.

[3] Centers for Disease Control and Prevention. Breastfeeding trends and updated national health objectives exclusive for breastfeeding – United States, birth years 2000-2004. MMRWR 2007;56(30);760-763. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5630a.2html.

[4] Hayes D, Donohoe-Mather C, Page S, Eshima M, Fuddy L. "Breastfeeding Fact Sheet." Honolulu, HI: Hawaii Department of Health, Family Health Services Division; August 2008.

[5] Dietz WH. Breastfeeding may help prevent childhood overweight. JAMA 2001:285 (19), 2506-2507.

[6] American Pregnancy Association: Promoting Pregnancy Wellness. What's in Breast Milk? Available at: http://www.americanpregnancy.org/firstyearoflife/whatsinbreastmilk.html.

[7] American Academy of Pediatrics. Policy Statement, Breastfeeding and the Use of Human Milk. Pediatrics 2005; 115(2):496-506.

[8] Centers for Disease Control and Prevention; Health Resources and Service Administration. Healthy People 2010, Maternal, Infant, and Child Health. Available at: http://www.healthypeople.gov/document/html.

[9] Pager, SR, Davis, J, Harrigan, R. Prevalence of Breastfeeding Among A Multiethnic Population in Hawaii. Ethnicity & Disease 2008; 18:S2-215-218.

[10] US Department of Health and Human Services. Healthy People 2010: Conference Edition—Volume I and II, Washington DC: US Department of Health and Human Services, Public Health Services, Offices on Women's Health; 200.

[11] Ravichandran, P and de Bravo, BF. Young Children and Screen Time (Television, DVD's, Computer). National Research Center for Women & Families. Available at: http://www.center4research.org/2010/05/young-children-and-screen-time-television-dvds-computer/.

[12] The Henry J. Kaiser Family Foundation (2004). The role of media in childhood obesity. Menlo Park, CA. Available at:

[13] Centers for Disease Control and Prevention. Community Guide Services. Available at: http://www.thecommunityguide.org/pa/index.html.

[14] Park A. Baby Einsteins: Not So Smart After All. Time Health & Science August 2007.

[15] Zimmerman FJ, Christakis DA, Metzoff AN. Television and DVD/Video Viewing in Children Younger Than 2 Years. Arch Pediatr Adolesc Med 2007; 161: 473-479.

[16] Richards R, McGee R, Williams SM, et al. Adolescent Screen Time and Attachment to Parents and Peers. Archives of Pediatrics and Adolescent Medicine 2010; 164(3):258 262.

[17] American Academy of Pediatrics Committee on Education. Children, Adolescents, and Television. Pediatrics 2001; 107 (2): 423-236.

[18] Institute of Medicine of the National Academies. Report Brief September 2009: Local Government Actions to Prevent Childhood Obesity, 2009; 1-8. Available at: www.iom.edu/obesitylocalgov.

[19] National Survey of Children's Health (NSCH) 2007 Fast Facts about the Survey. Available at: www.childhealthdata.org.

[20] Alaska Department of Health and Social Services Obesity Prevention and Control Program. Obesity Facts: Sugar-Sweetened Beverages in Alaska. Available at: http://www.hss.state.ak.us/dph/chronic/obgesity.

[21] Bleich, SN, Wang, YC, Wang, Y, Gortmaker, SL: Increasing consumption of sugar- sweetened beverages among US adults: 1988-1994 to 1999-2004. Am J. Clin Nutr 2009; 89:372-381.

[22] Institute of Medicine (IOM) of the National Academies. Parents Can Play A Role in Preventing Childhood Obesity. IOM Fact Sheet, September 2004.

[23] Bray, GA. Soft Drinks and Obesity: The Evidence. Cardiometabolic Risk Journal, 2009; 2 (2):10-14.

[24] Dhingra, R, Sulliva, L, Jacques PF, et al. Soft drink consumption and risk of developing cardiometabolic risk factors and the metabolic syndrome in middle-aged adults in the community. Circulation 2007; 116:480-8.

[25] US Department of Agriculture. Supplemental information related to Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2010. Available at: http://www.dietaryguidelines.gov.

[26] Aeberli, I, Zimmermann, MB, Molinari, L, et al. Fructose intake is a predictor of LDL particle size in overweight schoolchildren, Am J. Nutr 2007; 86: 1174-8.

[27] Bray, GA, Nielsen, SJ and Popkin, BM. Consumption of high-fructose corn syrup in beverages may play a role in the epidemic of obesity. Am J Clin Nutr 2004; 79: 537-54.

[28] Vartanian, LR, Schwartz, MB, Brownell, KD. Effects of soft drink consumption on nutrition and health: a systematic review and meta-analysis. Am J Public Health 2007; 97:667-75.

[29] Centers for Disease Control and Prevention. State Nutrition, Physical Activity and Obesity (NPAO) Program, Technical Assistance Manual, 2008.

[30] Gidding, SS, Dennison, BA, Birch, LL, et al. Dietary recommendations for children and adolescents: a guide for practitioners: consensus statement from the American Heart Association. Circulation 2005;112(13):2061-2075.

[31] U.S. Department of Agriculture, Agriculture Research Service, Dietary Guidelines Committee, Dietary Guidelines for Americans. Sixth ed. US Department of Agriculture; US Department of Health and Human Services; 2005.i-75.

[32] Centers for Disease Control and Prevention. Overweight and Obesity. Contributing Factors. 2005. Available at: www.cdc.gov/nccdphp/dpna/ obesity/contributing_factors.

[33] Ahedo, AM, Lee ,TW, Pan, LJ, et al. Factors Affecting the Consumption of Away-from-Home Foods in Hawaii Residents. Californian Journal of Health Promotion 2007; 5(2):1-12.

[34] Yamamoto, JA, Yamamoto, JB, Yamamoto, BE, Yamamoto LG. Adolescent Calorie/Fat Menu Ordering at Fast Food Restaurants Compared to Other Restaurants. Hawaii Medical Journal 2006; 65:231-235.

[35] Stewart, H and Yen ST. Changing household characteristics and the away-from-home food market: a censored equation system approach. Food Policy 2004; 29: 643-658.

[36] Centers for Disease Control and Prevention. Low-Energy-Dense Foods and Weight Management: Cutting Calories While Controlling Hunger. Research to Practice Series, No. 5. Available at: http://www.cdc.gov/nccdphp/dnpa/nutrition/pdf/r2p_energy_density.pdf.

[37] Lin, B and Frazao, E. Away-from-home foods increasingly important to quality of American diet. US Department of Agriculture, Economics Research Service, Agricultural Information Bulletin No. 749.

[38] Maddock, J. The Relationship Between Obesity and the Prevalence of Fast Food Restaurants: State-Level Analysis. American Journal of Public Health Promotion 2004; 19(2): 137-143.

[39] Mau, MK, Wong, KN, Efird J, et al. Environmental Factors of Obesity in Communities with Native Hawaiians. Hawaii Medical Journal 2008; 67 (9):233-236.

[40] Fontaine, KR, Redden, DT, Wang, C. Years of life lost due to obesity. JAMA 2003; 289(2):187-193.

[41] Maddock, JE, Marshall CS, Nigg CR, Barnett, JD. Development and First Year Results of a Psychosocial Surveillance Systems for Chronic Disease Related Health Behaviors. Californian Journal of Heath Promotion 2003; 1: 1-11, Special Issue.

[42] American Academy of Pediatrics Committee on Nutrition. Prevention of Pediatric Obesity and Obesity 2003; 112:424-430. Available at: http://www.pediatrics.org/cgi/content/full/112/2/424


Linda Lingle, Governor of Hawaii
Chiyome L. Fukino, M.D., Director of Health

For more information contact:
Hawaii State Department of Health Healthy Hawaii Initiative
1250 Punchbowl Street, Room 422
Honolulu, HI 96813
808-586-4488
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