

INSIGHTS IN PUBLIC HEALTH

Development, Implementation, and Evaluation of the Prevent Diabetes, Hawai'i Campaign

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Abstract

The Prevent Diabetes, Hawai'i campaign aimed to increase awareness of prediabetes by encouraging adults to take a Diabetes Risk Test and share the results with their doctors or healthcare providers. The campaign was developed based on social marketing principles, and focus groups were used to inform the marketing mix. Television, radio, digital, and print advertisements featured local actor and comedian Frank De Lima, and a website with an online Diabetes Risk Test and resources for patients and providers were promoted in all advertisements. From March 2017 to November 2019, more than 55,000 Hawai'i residents visited the campaign website. Campaign outcomes were assessed through state-added questions to the 2017 Behavioral Risk Factor Surveillance System. Overall, 35.0% of adults said that they remembered seeing or hearing an advertisement featuring Frank De Lima and/or the Prevent Diabetes, Hawai'i message. Five percent of respondents reported taking an online or paper version of the Diabetes Risk Test in the past 12 months, and an additional 19.7% said that they planned to take it. Among those who reported taking the Diabetes Risk Test, 60.2% said they had already spoken to their doctor or other healthcare provider about the test results or risk for type 2 diabetes. The State Department of Health will continue efforts to increase awareness of type 2 diabetes and prediabetes, reach priority populations most at risk, and expand availability of evidence-based lifestyle change programs.

Keywords

prediabetes, type 2 diabetes, health communications, social marketing, screening

Abbreviations

CDC = Centers for Disease Control and Prevention
DOH = Hawai'i State Department of Health
DPP = Diabetes Prevention Program
FQHC = Federally Qualified Health Center

Highlights

- An estimated 442,000 adults in Hawai'i have prediabetes, but two-thirds are not aware of having this condition.
- The *Prevent Diabetes, Hawai'i* campaign was launched to increase awareness of prediabetes and encourage adults to take the Diabetes Risk Test (available at www.PreventDiabetesHawaii.com).
- From March 2017 to November 2019, more than 55,000 Hawai'i residents visited the campaign website.
- One-third of Hawai'i adults recalled seeing or hearing a *Prevent Diabetes, Hawai'i* advertisement.
- Approximately 5% of Hawai'i adults surveyed (representing an estimated 61,900 adults) reported taking a Diabetes Risk Test online or on paper.
- The Hawai'i State Department of Health will continue efforts to increase awareness of prediabetes and expand availability of evidence-based lifestyle change programs.

Background and Campaign Rationale

The burden of type 2 diabetes is increasing in Hawai'i and nationally. Over one decade (2000-2010), the prevalence of self-reported diabetes among Hawai'i adults increased 60%, from 5.2% to 8.3%.¹ An additional estimated 442,000 (41.5%) adults in Hawai'i have prediabetes, yet two-thirds of them are unaware of their condition.¹ Prediabetes is a condition in which an individual's blood glucose levels are elevated, indicating an increased risk for developing diabetes.²

Hawai'i adults with lower educational status or lower household income are disproportionately affected by diabetes and prediabetes.³ Filipino and Native Hawaiian adults are more than twice as likely to have diabetes than white adults. Diabetes prevalence increases with age, with 44.4% of Hawai'i residents who are diagnosed being over age 65.³ Prediabetes prevalence is

9.4% among those 35-44 years, and 18.6% among those 55-64 years. Additionally, within the past 3 years, people with lower educational attainment, those with lower household income, and younger adults have lower rates of having a test for high blood sugar.

Prediabetes awareness, early identification, and interventions can prevent or delay the progression to type 2 diabetes.⁴ In 2016, to address the growing national epidemic, the Centers for Disease Control and Prevention (CDC) developed a risk test and promoted it through the Do I Have Prediabetes? national campaign⁵⁻⁸ with the goal of preventing new cases of type 2 diabetes. The risk test contains questions about age, gender, family history of diabetes, history of hypertension, physical activity, height, and weight.⁹ Individuals who score 5 points or higher on the risk test are encouraged to share the results with their healthcare providers and discuss next steps, such as referral to CDC-recognized lifestyle change programs.¹⁰ The National Diabetes Prevention Program (DPP) focuses on losing 5% to 7% of one's body weight through 150 minutes of physical activity each week and healthy eating and offers an entire year of support to prevent or delay the onset of diabetes.¹¹

Since the establishment of DPP, the Hawai'i State Department of Health (DOH) has been working with partners across the state and has leveraged state and federal funding to establish and maintain DPPs in Hawai'i. As of November 2019, there were 17 CDC-recognized DPPs throughout Hawai'i.¹² However, prior to the establishment of DPPs in the state, DOH recognized the need to increase awareness of prediabetes and type 2 diabetes prevention, particularly among populations with higher prevalence and lower screening rates.

Campaign Development

In 2017, DOH developed a media campaign, *Prevent Diabetes, Hawai'i*, with the goal of preventing new cases of type 2 diabetes. The campaign was modeled after CDC's national campaign and included a risk test with identical questions and scoring. The *Prevent Diabetes, Hawai'i* campaign was developed utilizing social marketing principles,¹³ focusing on the perceived value (benefits and barriers) to the target audience to influence behavior.

DOH solicited feedback about the campaign from partner organizations working to establish DPP programs in Hawai'i. They emphasized the importance of focusing on prediabetes awareness in the initial campaign and agreed that a follow-up campaign could encourage people to join DPP programs once they were more readily established throughout the state. Consistent with state surveillance data, the target audience for the campaign was low-income Native Hawaiian and Filipino adults ages 35-64 years. This age range was chosen because prediabetes prevalence increases significantly between the 35-44 and 45-54 age brackets.

To determine messaging that would best resonate with the priority population, DOH conducted formative research with Native Hawaiian and Filipino O'ahu residents aged 35-64 years whose household incomes were under 200% of the federal poverty level. Four focus groups were held with 26 participants (2 with women and 2 with men) to: (1) determine awareness of diabetes and prediabetes; (2) explore perceived risk for type 2 diabetes and perceived preventability of type 2 diabetes; (3) identify motivators and barriers for taking the Diabetes Risk Test and for talking to one's doctor about the risk for diabetes; and (4) gain feedback on the national campaign and risk test.

Focus group data were organized by the marketing mix (Product, Price, Place and Promotion) and guided the state campaign. The marketing mix is a framework used by commercial marketers to sell a tangible product.¹⁴ In social marketing, the marketing mix is adapted to promote a social idea, attitude or behavior.¹⁵⁻¹⁷ A brief definition for each "P" of the marketing mix is provided in the following section, along with results from the focus groups.

Formative Research Results

Products: There are three types of Products in social marketing: The Core Product is the desired benefit to the target audience and is based on their wants, needs, and preferences.^{13,15} While the Core Product is the perceived benefit, the Actual Product describes actual features or consequences of performing the desired behavior, and the Augmented Product is a tangible good or service that is offered to encourage the desired behavior.¹³

Core Product: "*Type 2 diabetes can be prevented.*" Focus group participants shared that the concept that type 2 diabetes is preventable is a motivating factor for them. Almost all had someone in their family or a close friend with diabetes. The ideas that getting diabetes "is inevitable" or that "it runs in my family" were common themes. Most thought the term prediabetes was confusing. Nearly all said they were motivated by the tagline "Do you have prediabetes?" but recommended using "at risk for diabetes" instead.

Actual Products: (1) *Knowledge of prediabetes;* (2) *Potential diagnosis of prediabetes by a healthcare professional;* and (3) *Possible prevention of developing type 2 diabetes.* Nearly all focus group participants stated that diabetes is a concern for them, and many said they fear being diagnosed.

Augmented Product: *The Diabetes Risk Test.* The risk test was well-accepted by participants. Almost all said they would have taken the test if they knew about it, and some remarked that it was easy to complete.

Price: *Fear, Time, Money, and Self-Control.* The audience gives up something of value—the Price—to receive the desired benefit, or Core Product. Price can either be monetary or non-monetary.^{13,15} Participants said there were no barriers to taking a risk test but expressed a fear of being diagnosed with

diabetes. There were also perceived barriers to taking actions such as talking to their doctor, exercising, and eating healthier. They stated that their busy lives, family obligations, little time for exercise, and lack of money were barriers for taking action to reduce their diabetes risk. Many participants talked about the difficulty of resisting customary diets and ethnic foods.

Place: At Home and in Doctor's Offices. Place can mean either the location where the consumer performs the behavior, or where they acquire campaign-related goods or services.¹³ Participants asked for both online and paper versions of the risk test, to either take at home or fill out in a doctor's office or clinic, such as in a federally qualified health center (FQHC). About half of participants said they visited an FQHC in the past 12 months.

Promotion: Approachable humor. Promotion refers to the communications strategies used to promote the behavior including key messages, messengers, and communications channels.¹³ Advertisements for the national campaign utilized a funny but sarcastic tone, and focus group participants found this unappealing. They expressed a desire for advertisements that incorporated humor but asked that it utilize a more approachable tone. Participants said they primarily consume media online, followed by on television and on the radio.

Campaign Implementation

Prevent Diabetes, Hawai'i launched in March 2017. As recommended by focus group participants, the campaign's main message was to take the Diabetes Risk Test and share the results with a doctor or other healthcare provider, with the tagline "Are you at risk for type 2 diabetes?" Advertisements highlighted that type 2 diabetes can be prevented, and that taking the online risk test was simple and quick. The campaign initially ran from March to June 2017, with booster campaign periods running through February 2018.

For an approachable humor, DOH engaged local comedian Frank De Lima to serve as the spokesperson for the campaign, and he was featured in all advertisements (Figure 1). DOH also launched a website, www.PreventDiabetesHawaii.com, that housed the online Diabetes Risk Test as well as materials available for download for patients and health care providers, such as risk tests and factsheets available in 14 languages (including Hawaiian, Ilocano, and Tagalog), and information on how to incorporate screening, testing, and referral into provider practices. From March 2017 to November 2019, more than 55,000 Hawai'i residents visited the campaign website.

Campaign promotion included television advertisements; radio messages in multiple languages (including Ilocano and Tagalog); posters in shopping malls; and digital advertisements online as well as in more than 500 digital kiosks in retail locations and clinical settings. DOH also distributed more than 1,000 posters, 2,500 educational brochures, and 4,000 paper risk tests and

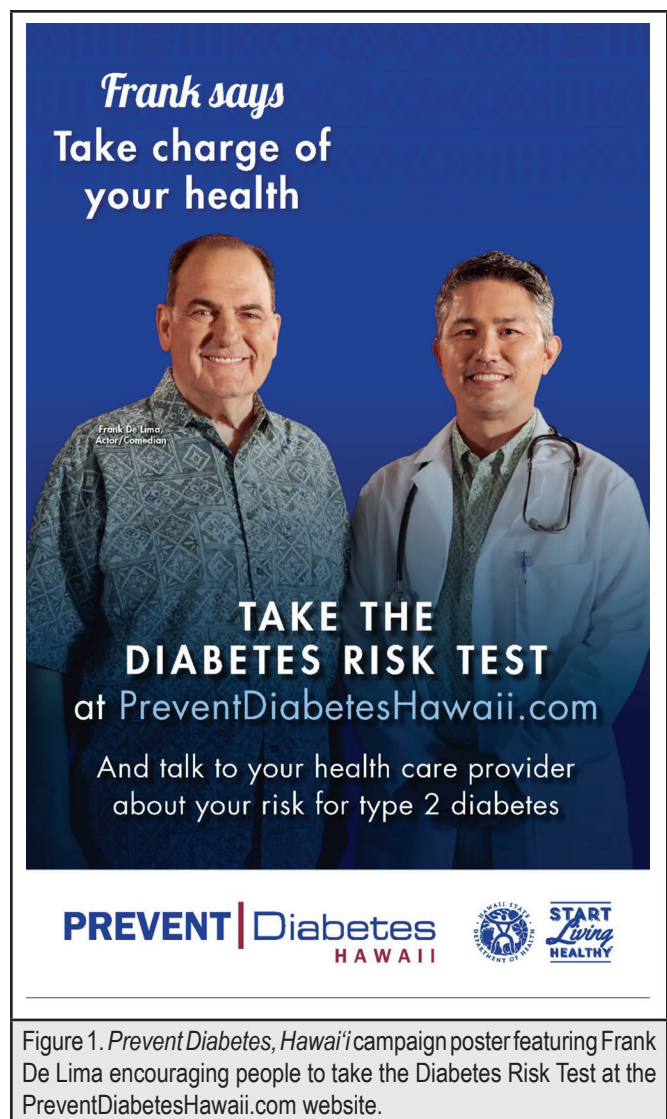


Figure 1. *Prevent Diabetes, Hawai'i* campaign poster featuring Frank De Lima encouraging people to take the Diabetes Risk Test at the PreventDiabetesHawaii.com website.

campaign-branded pens to partners statewide. Partners include 13 FQHCs, potential and existing DPP providers, diabetes self-management education providers, public health educators, and bilingual health aides.

Evaluation

To assess awareness of the *Prevent Diabetes, Hawai'i* campaign and its influence on taking the Diabetes Risk Test, 6 questions were added to the Hawai'i Behavioral Risk Factor Surveillance System (BRFSS) survey. Campaign awareness was assessed by asking adults if they remembered hearing or seeing advertisements about preventing diabetes featuring Frank De Lima and/or the *Prevent Diabetes, Hawai'i* tagline (unaided and aided recall). Data were collected from July-December 2017 (n=2,739). Data were analyzed using survey weights to account for the complex survey design and to produce estimates that were more representative of the state population.

In total, 62.6% (789,200 adults) said they had seen or heard an ad about preventing diabetes, and 35.0% reported remembering hearing or seeing a *Prevent Diabetes, Hawai'i* advertisement. This includes 5.0% of adults who reported seeing or hearing ads featuring Frank De Lima or the *Prevent Diabetes, Hawai'i* tagline without prompting (unaided recall). The remaining

adults were able to recall a campaign ad when prompted with the tagline and Frank De Lima (aided recall). Respondents aged 60-69, of Japanese ethnicity, or with a diabetes diagnosis had higher levels of campaign recall, but there were no differences in recall by gender, education level, county of residence, or having a prediabetes diagnosis (Table 1).

Table 1. Percentage of Adults Who Recalled Seeing or Hearing a Prevent Diabetes Hawai'i Campaign Advertisement			
	Recalled Seeing or Hearing a Prevent Diabetes Hawai'i Ad		P-Value ^b
	% ^a	95% CI	
Total	35.0	32.1 – 38.0	
Age (years)			
18 – 29	17.5	12.9 – 23.3	<.001
30 – 39	31.2	24.6 – 38.7	
40 – 49	32.8	26.0 – 40.5	
50 – 59	43.4	36.2 – 50.8	
60 – 69	54.2	47.9 – 60.4	
70+	42.1	35.0 – 38.4	
Gender			
Male	32.8	28.9 – 37.0	.167
Female	37.0	32.8 – 41.4	
Education			
Less than high school	25.7	14.3 – 41.9	.129
High school graduate	33.6	28.2 – 39.5	
Some college	34.1	29.2 – 39.3	
College graduate	41.0	36.8 – 45.3	
Ethnicity			
White	37.5	32.6 – 42.7	<.001
Filipino	24.2	17.9 – 32.0	
Japanese	45.5	38.6 – 52.6	
Native Hawaiian/Other Pacific Islander	40.3	33.8 – 47.2	
Other Asian	28.2	20.4 – 37.5	
Other	26.0	17.7 – 36.5	
County			
Honolulu	36.0	32.3 – 39.9	.760
Hawai'i	32.9	27.7 – 38.7	
Kaua'i	33.4	25.1 – 43.0	
Maui	33.6	26.8 – 41.2	
Diabetes Status			
Diagnosed with diabetes	54.5	44.9 – 63.6	<.001
No diabetes diagnosis	32.6	29.5 – 35.8	
Prediabetes Status			
Diagnosed with prediabetes	38.2	30.9 – 45.9	.105
No prediabetes diagnosis	31.5	28.3 – 34.9	

^a Data are weighted to the state population

^b P-value from χ^2 test

Overall, 5.0% of adults reported taking a Diabetes Risk Test, representing an estimated 61,900 adults. Of those who took it, 3.5% reported taking it online and 1.5% reported taking the paper version. An additional 19.7% of respondents said that they did not take the test but plan to do so. Among adults who reported taking a test, 26.8% indicated that they were at risk for diabetes. Nearly half (43.4%) of those who reported taking the Diabetes Risk Test said they had talked to their doctor or healthcare provider about their test results and/or their risk for Type 2 diabetes. Of those who had not taken a test, 19.7% said they planned to. Finally, campaign recall was higher among those who took a risk test (45.8%) compared to those who did not take a risk test (34.7%), but this was not statistically significant ($P = .128$).

Discussion and Next Steps

With more DPPs established throughout Hawai'i, DOH is building on the momentum achieved by the *Prevent Diabetes, Hawai'i* campaign and is focusing efforts on generating referrals to and participation in DPP. Currently, DOH has a CDC Cooperative Agreement (1815) that identifies Filipinos as a priority population for additional outreach and engagement efforts around preventing diabetes. Under this funding opportunity, DOH has already disseminated a provider toolkit and conducted educational presentations to health care providers that summarize the need for increased prediabetes screening among this population group. DOH continues to work with health systems serving the priority population to identify patients with prediabetes more effectively and facilitate referrals to DPPs through health information technology activities, such as implementing algorithms, workflows, and clinical decision support tools. In accordance with feedback from partner organizations, DOH is also assessing potential resources for a second media campaign to drive participants to DPPs.

Focus groups would be beneficial for planning a second campaign to understand why the campaign was recalled to a lesser extent by some priority populations, including Filipino adults. Future awareness efforts should engage with Filipino community-based organizations and communication outlets, such as Ilocano and Tagalog radio stations, that serve this population. Although several FQHCs adopted the campaign materials in their clinics, DOH would like to better integrate future campaign efforts with a wider variety of partners who work with the priority population, such as churches and public health nurses. Future advertising efforts should also include digital advertisements in Filipino languages to better reach the population.

As DPP program capacity expands and access is widened through increased insurance coverage, DOH will continue to expand its network of community partners to increase diabetes and prediabetes awareness and screening to align communication efforts better and leverage these organizations' ability to reach the priority populations. DOH will keep the risk test on the

website up to date, maintain resources in different languages, and support DPP providers in creating their own culturally-tailored materials.

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