



FLORIDA STATE UNIVERSITY

Healthy Communities Program Report

The Florida VitaGrant: Findings from Implementation and Evaluation of a Multivitamin Distribution Program



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The Florida Vitagrants: Findings from Implementation and Evaluation of a Multivitamin Distribution Program

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Executive Summary

Purpose: The Florida VitaGrant program was a pre/interconception education and multivitamin distribution program that sought to reach women at-risk for Neural Tube Defects (NTDs). Through the project, over a half a million 60-day supply of multivitamins were distributed statewide from January 2005 through February 2008. The multivitamins were provided in conjunction with pre/interconception education for women of childbearing age. Similar multivitamin distribution programs have achieved between 70 and 80 percent daily multivitamin consumption (MVC) at follow-up. The program was funded through a two million dollar grant awarded by the Florida Attorney General's Office to the March of Dimes Florida Chapter. The March of Dimes partnered with the Florida Department of Health in execution of the grant. A program description is provided.

This paper investigates two questions central to the VitaGrant Program: 1) Which types of providers present the best opportunity for reaching populations most at-risk for NTDs, especially young women and women of Mexican origin; 2) What is the impact of free multivitamin distribution and pre/interconception education on MVC at follow-up?

Methods: Three types of data were collected. First, the project gathered aggregate demographic information on women who received free multivitamins and pre/interconception education through five types of providers statewide. Analyses compared age, race, and ethnicity of women served by these different providers to the overall distribution of Florida births in 2005. Second, two case studies, a case management provider and a migrant association that primarily serves Hispanic women of Mexican-descent, were selected for an in-depth evaluation of the Florida VitaGrant Program on participants daily MVC. Baseline measures of daily MVC were compared to levels reported at follow-up. Finally, best practices were collected from select distribution sites.

Findings: Compared to other providers, county health departments (CHD) served the greatest number of women as well as the greatest number and proportion of women younger than 24 years of age. Non-CHD public providers provided the largest proportion of their multivitamins to Hispanic women, particularly Mexican-Hispanics, whereas CHDs served a greater absolute number of these demographic groups. The two case studies provided evidence that free multivitamin distribution and pre/interconception education increased consumption of folic acid. Data collected from women who received program materials from the case management provider indicated that MVC increased from 26 percent to 73 percent ($p \leq 0.01$). Similarly, data

collected on women served at the migrant association indicated that their daily MVC increased from 6 percent to 88 percent ($p \leq 0.01$) at follow-up. The process of implementing the program and the study limitations are discussed.

Conclusion: The findings suggest that free multivitamin distribution and pre/interconception education can dramatically increase MVC among participants, especially among at-risk populations such as Mexican-Hispanics. While county health departments are obviously good choices to implement such programs, some populations may be better served by specialty service providers. Chewable multivitamins and memory aids may increase daily compliance.

Final Report

About one infant in every 2000 live births in Florida was born with a neural tube defect (NTD) such as spina bifida and anencephaly between 1998 and 2004 (Correa and Hauser 2007). The United States Public Health Service recommends that all women who may become pregnant take 0.4 mg (400 µg) of folic acid on a daily basis (Centers for Disease Control and Prevention 1992) in order to prevent up to 70 percent of NTDs (Buttriss 2004, Posner et al 2006, Czeizel and Dudás 1992, MRC Vitamin Study Research Group 1991).

The Florida VitaGrant Program, implemented by the March of Dimes Florida Chapter and the Florida Department of Health, provided free preconception educational materials and multivitamins to women of childbearing age. The purpose of the VitaGrant Program was to prevent the occurrence of neural tube defects (NTDs), which have been associated with low levels of maternal folate. Research finds that the occurrence of NTDs can be decreased with multivitamin supplementation (Smithells, Sheppard and Schorah 1976, Slattery and Janerich 1991, Botto et al 1999, March of Dimes 2001, Oakley 1007, Platzman 1998). The program was funded through a two million dollar grant awarded to the March of Dimes by the Florida Attorney General's Office and operated between January 2005 and February 2008.

The VitaGrant program focused on increasing preconception health knowledge, folic acid awareness and consumption among at-risk and medically underserved women of childbearing age. The program sought to do this through preconception education, multivitamin distribution provider training and a statewide media campaign. A unique component of the VitaGrant Program was that culturally appropriate educational materials were distributed to Hispanics to better inform Spanish speaking program participants. Throughout Florida, over 265 non-profit organizations and agencies joined in the effort to distribute folic acid enriched multivitamins as well as preconception education materials. These organizations included county health departments, community health centers, and case management agencies. The partnership of these organizations resulted in the distribution of over half a million bottles of vitamins to program participants.

Risk of Neural Tube Defects

Public health research shows that the diets of preconceptional women in the U.S. have deteriorated in the past thirty years (Putnam and Gerior 1999). Despite fortification of some foods, the current levels of dietary folate are not considered adequate for preventing NTDs in reproductive aged women (Watkins 1998, Werler et al 1999). Since folate (a form of vitamin B) is available in a synthetic form as folic acid in multivitamins, it is in the best interest of women who are in their childbearing years to consume multivitamins, even if they are not planning to get pregnant.

Even though folic acid supplements have been found to reduce the risk of certain birth defects (if taken prior to and in the first few weeks of pregnancy), a substantial proportion of women of childbearing age do not consume folic acid enriched supplements (MMWR 2008; Goldberg et al 2006). Since a large proportion of pregnancies in Florida and the United States are unplanned (Williams et al 2006), women who are not taking folic acid are placing their unplanned pregnancies at an increased risk for a NTD (Atrash et al 2006). In Florida, women who are poor, Hispanic, Non-Hispanic Black and younger than 25 years old are less likely to be consuming folic acid compared to other groups (Florida BRFSS 2007).

Moreover, the risk of NTDs can be exacerbated by behavioral, socioeconomic, and demographic risk factors. Behavioral risk factors include: smoking (Blatter et al 1994), obesity (Shaw et al 1996), maternal emotional stress (Suarez et al 2000) and poor nutrition (Green 2002, Caudill et al 2001). Scholl and Johnson (2000 p S3) note, “Women of populations in which adverse pregnancy outcomes are prevalent often consume diets that contain low densities of vitamins and minerals, including folate”. Various indicators of low socioeconomic status have been associated with NTDs including, social class (Nevin et al 1981), parental occupation (Blatter et al 1994), parental education (Eichholzer et al 2006), and neighborhood social conditions (Wasserman et al 1998). It is possible that socioeconomic status may affect folate levels by influencing maternal dietary intake. For instance, women who are socially and economically disadvantaged are likely to experience difficulty accessing nutritious foods and so, may be subject to nutritionally poor diets.

Broader demographic characteristics also seem to be associated with higher occurrence of NTDs such that young mothers, specifically those aged 14-19 years (Reefhuis and Honein 2004) and Hispanic women (Czeizel et al 1992) have greater risk of NTDs than older women and non-Hispanic women respectively. Among Hispanic women, women of Mexican-origin have the greatest risk of NTD affected pregnancies (Suarez et al 2000, Blatter et al 1994). Mexican women may be at higher risk due to distinct gene admixture and a traditional yet atypical dietary pattern that includes ground, unfortified corn products (Suarez et al 2003; and Green 2002). Others have found an association between nativity and risk of NTD affected pregnancies, where foreign-born Hispanics exhibit higher risk than U.S-born Hispanics (Correia and Hauser 2007).

This evaluation investigates two aspects of the VitaGrant Program: 1) The extent to which different types of providers reached and served populations most at-risk for NTDs; and 2) What impact the provision of these services had on the participants who received them.

Program Description:

In June 2004, the March of Dimes partnered with the Florida Department of Health’s Infant and Maternal Reproductive Health Unit within the Division of Family Health Services to promote the

consumption of folic acid in women of reproductive age throughout Florida. The March of Dimes and the Florida Department of Health established a Memorandum of Agreement for working together to implement the grant. By the end of September of 2004, a Project Manager was hired by the March of Dimes and was housed in the Department of Health State offices. During the first year of implementation, the VitaGrant Program focused primarily on developing the project's infrastructure (see the Figure 1 for the logic model of the VitaGrant) and regional program staff were employed. The work of contacting local and state providers to establish collaborative relationships started at this time. The multivitamins and materials were distributed through partnerships established with a variety of health and social service providers throughout Florida in an effort to facilitate greater awareness and consumption of folic acid in women of childbearing age. These relationships were pivotal in the success of the project, as the local providers were responsible for disbursing the program materials to the public.

As state and local partnerships were being established, an evaluation workgroup, comprised of state and local representation, created data collection instruments for distribution and evaluation sites. Project staff selected, and in some cases developed, resources for the project including interconceptional health education materials, posters, display materials, customized vitamin label, project information sheets and media campaign materials. The March of Dimes worked with the Department of Health on developing a preconception health training for project staff to provide to interested sites. VitaGrant began distributing multivitamins through community providers and community events in late January of 2005. The primary objective of the first year was to provide training, establish distribution infrastructure and initiate the program media campaign.

The primary objectives of the second year of implementation were to maintain partnerships, establish a mechanism for the distribution of folic acid stickers on oral contraceptives, and execute the final phase of the media campaign. Although data was collected throughout the program implementation, the priority of the third and final year of VitaGrant consisted of conducting a critical analysis, using the data collected throughout implementation, of the project's implementation and effectiveness in altering multivitamin knowledge and consumption among the population identified at highest risk for NTDs. Staff participation in several state and national conferences further disseminated best practices for program implementation, based on the experience of the VitaGrant project.

The March of Dimes and Florida Department of Health recognized that the VitaGrant Program was an opportunity to not only provided folic acid education and multivitamins to women at risk for various birth defects, but to also provide general education on other preconception health issues to women of reproductive ages. In addition to folic acid education, the VitaGrant Program staff promoted the core message of good pre/conception health for women through the development and dissemination of a preconception health brochure. The brochure, as well as the

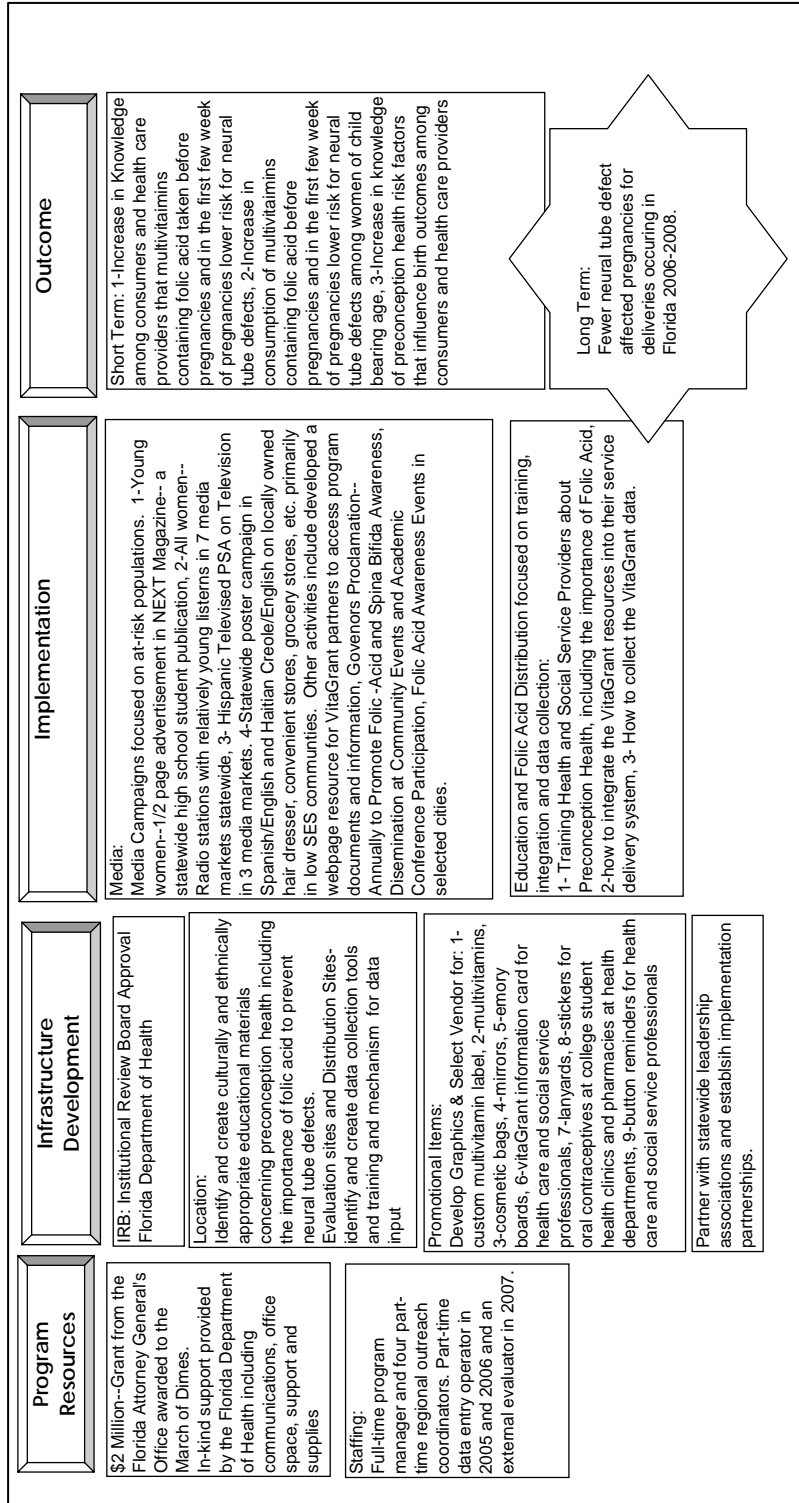
training provided to staff at partnering sites, included information on access to healthcare, chronic health conditions, mental health concerns, environmental health issues, nutrition and exercise, baby spacing, infections and immunizations.

To increase awareness of preconception health among provider staff, regional VitaGrant Outreach Coordinators provided distribution site staff with the opportunity to receive supplemental training. VitaGrant Outreach staff provided training on: (1) promoting pre/interconceptional health and folic acid, (2) recognizing and overcoming barriers to promoting folic acid consumption among Hispanics (3) utilizing the University of Florida Folic Acid Tool Kits to educate health professionals and patients on the importance of folic acid.

As a result of the VitaGrant Program, 2,237 individuals were educated in the 72 on-site training seminars. The individuals receiving training included nursing staff, nutritionists, social workers, administrative staff, paraprofessional staff and clinic physicians. The regional VitaGrant Outreach staff worked with Area Health Education Centers (AHECs) to provide continuing education credits for the training.

During the course of the project, the March of Dimes and the Florida Department of Health worked with graphic artists and communications staff to assist in the creation of a media campaign which had several components: print ads, a radio campaign, television coverage (through news segments and through spots aired on Telefutera and Univision) and print news stories. The print ad campaign included posters (over 650 poster placements statewide) and an ad in Florida Trend's Next magazine (which reached about 750,000 high school students and 1,200 school administrators and resulted in approximately 250 students requesting additional information). The radio campaign, which lasted for three weeks, was offered in English and Spanish and was projected to have reached over 400,000 women in Tampa, Miami, Sarasota, Orlando, Gainesville and Tallahassee. The VitaGrant Program was the subject of further interest when shown during news casts in the Tampa Bay and Tallahassee areas. Public service announcements aired three times a day for one month in the Orlando area (on UPN), which helped increase the presence of the VitaGrant Program in that community as did the three week television spots on Univision and Telefutera (each of which was projected to reach out to Hispanics). Additionally, articles in the Florida Folic Acid Coalition newsletter, and other medical and public health newsletters were distributed to the offices of medical providers, community health centers and health departments.

Figure 1: VitaGrant Logic Model



Other sources of promotion for the VitaGrant Program included press events held by the State of Florida Chief Women’s Health Officer and the Florida Attorney General. Additionally, there were press events at select distribution sites in each of the regional offices of the March of Dimes. This served as the setting for the “Folic Acid Awareness Week Proclamation” which was signed by the Florida Governor.

During the implementation of the VitaGrant Program, the March of Dimes shipped bottles of multivitamins to participating sites on a quarterly basis. A total of 565,056 bottles of a 60-day supply were dispersed. Distribution sites (non-evaluation sites) provided aggregated age, race, and ethnicity information on over 194,914 women receiving the multivitamins. In total, over 32,767 bottles of vitamins were distributed through 529 community events throughout Florida. About 500 bottles of multivitamins were provided to the University of South Florida, Birth Defects Center for distribution to Hispanic women in the region.

Methods

The analyses presented below are the product of three data sources. First, demographic data were collected by VitaGrant Program distribution coordinators at the more than 265 sites throughout the state of Florida. The distribution site data are based on aggregated reports of age, race, and ethnicity of clients participating in the VitaGrant program. Though multivitamins were distributed at community events, the majority of multivitamins given to women during VitaGrant were distributed by county health departments (CHDs), non-CHD public clinics, case management agencies, University/College clinics and other organizations (see Table 1) during the provision of regular health care. The Mantel-Hanzel test for statistical significance compared demographic composition of the different site types to the 2005 birth cohort demographics.

Second, evaluation sites collected more extensive information including baseline and follow-up information on folic acid knowledge and consumption, as well as pregnancy history and demographic data on each participant. A paired T test was conducted on multivitamin knowledge and consumption variables comparing baseline and follow-up. Comparisons within demographic groups were not tested for statistical significance due to low statistical power, though patterns between demographic groups are noted. Finally, anecdotal information from selected distribution sites was gathered to document best implementation practices.

Table 1: Types of distribution site providers

CHD	County health departments, WIC centers, and family planning clinics.
Non CHD Public Provider	Neighborhood health clinics, rural/migrant health clinics, women’s health centers, Federally-qualified Community Health Centers.
Case Management Agencies	Federal Healthy Start, and Florida Healthy Families and Florida Healthy Start, and Early Head Start
University/College Providers	University student health clinics, including one historically Black university.
Other	Hospitals, foundations, faith-based organizations, and private care providers.

Distribution Site Findings

The value of the distribution site data is to aid other preconception education or intervention programs in identifying site types that best serve at-risk populations. VitaGrant successfully served the highest risk populations for NTDs. Tables 2, 3, and 4 show the percentages and number of bottles of multivitamins disbursed as of December 2006. The age, race, and ethnicity of the distribution sites are compared to the total population of Florida births that occurred in 2005. Multivitamins were distributed in Florida between 2005 and February 2008, however, these analyses are restricted to only those distributed as of December 2006.

Young women are considered at greater risk for NTDs than older women because they are less likely to be consuming multivitamins. Table 2 shows that VitaGrant served a greater proportion of young women (less than 25) than the proportion of Florida births in 2005 (49.49 and 36.98 percent respectively). CHDs in particular served a higher proportion of women younger than 25 years of age (55.28 percent) than the proportion of 2005 statewide births. Women younger than 30 years account for over 63 percent of the births in Florida in 2005 and over 68 percent of VitaGrant multivitamins that were distributed (see Table 2). County health departments (CHDs), case management agencies, and colleges/university providers distributed most of their supplies of multivitamins to women younger than 30 years of age (75.51, 65.37 and 90.22 percent, respectively). Conversely, non-CHD public providers distributed a majority of their multivitamins (56.79 percent) to women older than 30 years.

Table 2: Multivitamin Distribution by Site and Age Group

	County Health Dept.	Non-County Health Dept. Public Provider	Case Management Agencies	University or College Provider	Other Provider	Total VitaGrant	2005 Florida Births
<25 n	55.28%** 53939	28.81%** 8203	47.18%** 4239	77.97%** 1865	45.07%** 2439	49.49%** 70685	36.98% 83550
25-29 n	20.23%** 19741	14.40%** 4102	18.19%** 1634	12.25%** 293	15.38%** 832	18.62%** 26602	26.48% 59838
30+ n	24.49%** 23892	56.79%** 16172	34.63%** 3111	9.78%** 234	39.55%** 2140	31.89%** 45549	36.54% 82548
Total n	100.00% 97572	100.00% 28477	100.00% 8984	100.00% 2392	100.00% 5411	1.00% 142836	100.00% 225936
**p<0.01, *p<0.05 for comparison within category to Florida 2005 births							

Table 3: Multivitamin Distribution by Site and Race

	County Health Dept.	Non-County Health Dept. Public Provider	Case Management Agencies	University or College Provider	Other Provider	Total VitaGrant	2005 Florida Births
% White n	72.86%** 64417	68.81%** 27647	65.64%** 963	32.42%** 546	34.22%** 1536**	69.81%** 95109	73.46% 166181
% Black n	18.99%** 16786	15.07%** 6056	23.38%* 343	62.00%** 1044	39.91%** 1791	19.10%** 26020	21.20% 47957
% Other n	8.16%** 7213	16.12%** 6475	10.97%** 161	5.58% 94	25.87%** 1161	11.09%** 15104	5.15% 11651
Total n	100.00% 88416	100.00% 40178	100.00% 1467	100.00% 1684	100.00% 4488	1.00% 136233	100.00% 226219
**p<0.01, *p<0.05 for comparison within category to Florida 2005 births							

Although Black women are not considered at high risk for NTDs (CDC 2008), they have an increased high risk for poor infant health outcomes. Black women have higher rates of preterm and low birth weight births and infant mortality. As such, the VitaGrant sought to reach Black women with preconception education as well as multivitamins in an effort to prevent other poor birth outcomes. The VitaGrant served a slightly lower proportion of Black women than the state average of live births in 2005 (19.10 and 21.20 percent, respectively). The VitaGrant also served a lower proportion of White women than the state average of births that same year (69.81 and 73.46 percent, respectively). Of the various site types, case management agencies provided

services to a higher proportion of Black women compared to CHDs and Non-CHD providers. Over 60 percent of the women served at university and college providers were Black, which may reflect the inclusion of a historically Black university in this group.

Hispanic women in Florida sometimes report their race as “Other”, as supported by the ethnicity data collected (Tables 3 and 4). The VitaGrant Program served over twice the proportion of women of “Other” race than was reported in the 2005 birth cohort (11.09 and 5.15 percent, respectively). VitaGrant used and created media and educational materials that were culturally appropriate for Hispanic women in Florida, and it particularly sought to serve Mexican women — the highest risk population for NTDs according to data available at the start of the program.

Table 4: Multivitamin Distribution by Site and Ethnicity

	County Health Dept.	Non-County Health Dept. Public Provider	Case Management Agencies	University or College Provider	Other Provider	Total VitaGrant	2005 Florida Births
Non-Hispanic/Non-Haitian n	69.62%** 65608	30.36%** 7355	57.57%** 4481	59.41%** 1042	44.66%** 2371	60.66%** 80857	68.51% 154411
Hispanic n	28.61%** 26957	65.32%** 15822	35.33%** 2750	37.91%** 665	46.45%** 2466	36.50%** 48660	28.29% 63757
<i>Mexican Subset of Hispanic</i> n	15.51%** 14613	23.37%** 5660	15.69%** 1221	2.57%** 45	12.88%** 684	16.67%** 22223	7.48% 16859
Haitian n	1.77% 1666	4.32%** 1047	7.10%** 553	2.68%** 47	8.89%** 472	2.84%** 3785	3.21% 7229
Total n	100.00% 94231	100.00% 24224	100.00% 7784	100.00% 1754	100.00% 5309	100.00% 133302	100.00% 225397
**p<0.01, *p<0.05 for comparison within category to Florida 2005 births							

In looking at the ethnicity table (Table 4), the VitaGrant Program served a larger proportion of Hispanics, particularly women of Mexican-origin, than the average 2005 Florida birth. About 68.5 percent of the women giving birth in Florida in 2005 were ethnically non-Hispanic, non-Haitian, and about 60.7 percent of the women receiving multivitamins also were non-Hispanic, non-Haitian. Women of Mexican origin made up 7.48 percent of the total number of births that year and VitaGrant served over twice that proportion of women of Mexican origin. Although CHD providers gave a majority of their multivitamins to non-Hispanic, non-Haitian women

(69.62 percent), over 15 percent of the multivitamins they distributed went to Mexican women. Case management agencies provided a similar proportion of their multivitamins to Mexican women. Also, non-CHD public providers gave a majority of the multivitamins to Hispanic women (65.32 percent total), in large part to Hispanic women of Mexican-descent (23.37 percent). Overall, the VitaGrant successfully served young and Hispanic, especially Mexican Hispanic women.

Evaluation Site Findings

Two of the evaluation sites were chosen for further analysis due to the quality of their data and the format of the programs provide an interesting comparison between very different sites (see Table 5). Healthy Start/Healthy Families Pinellas (HSHF) is a case management agency that focuses on preventing low birth weight, infant mortality and child maltreatment. HSHF serves a large proportion of young non-Hispanic Black women. Women served by HSHF are seen at varying intervals, depending on the intensity of their need for services

Table 5: Healthy Start/Healthy Families and Redland Christian Migrant Association Clients Self-Reported Demographic Characteristics and Spina Bifida Incidence

Healthy Start/Healthy Families (HSHF)			Redland Christian Migrant Association (RCMA)		
Age	n	%		N	%
Under 25	76	47.20%	Under 25	80	27.49%
25-29	39	24.22%	25-29	107	36.77%
30-34	22	13.66%	30-34	34	11.68%
35-39	16	9.94%	35-39	30	10.31%
40-44	2	1.24%	40-44	20	6.87%
45-49	2	1.24%	45-49	10	3.44%
Missing	4	2.48%	Missing	10	3.44%
Total	161	100.00%	Total	291	100.00%
Race	n	%	Race	N	%
Unknown	0	0.00%	Unknown	271	93.13%
Non-Hispanic White	42	29.37%	Non-Hispanic White	10	3.44%
Non-Hispanic Black	97	67.83%	Non-Hispanic Black	8	2.75%
Non-Hispanic Other	4	2.80%	Non-Hispanic Other	2	0.69%
Total	143	100.00%	Total	291	100.00%
Ethnicity	n	%	Ethnicity	N	%
Hispanic	14	8.70%	Hispanic (99% Mexican)	265	91.70%
Non-Hispanic	147	91.30%	Non-Hispanic	24	8.30%
Total	161	100.00%	Total	289	100.00%

The Redland Christian Migrant Association (RCMA) is a non-profit, non-sectarian organization that provides child development and Head Start services to farm worker families. Its staff is

composed of trained health care professionals and migrant women from the community. Mexican-origin women ages 25-29 years comprised the majority of women receiving services at RCMA. Women at RCMA attend monthly meetings and come by daily to drop off and pick up their children in Head Start. A large number of non-pregnant women served at both of these sites had already had at least one prior pregnancy. Despite the large number of women who had already given birth, most women were unaware of the preventative effects of folic acid at onset of the program.

HSHF Folic Acid Knowledge and Multivitamin Consumption

Table 6 shows that participants who received VitaGrant Program services at HSHF dramatically increased their knowledge that folic acid prevents birth defects from baseline to follow-up. Table 6 also shows that at baseline all HSHF participants were similarly uninformed about folic acid. Overall, about 81 percent did not know that folic acid could prevent birth defects. While knowledge that folic acid prevents NTDs increased from baseline to follow-up for all groups of women, the increase was the most substantial for the youngest women. The level of knowledge for non-Hispanic Whites was higher after VitaGrant, however non-Hispanic Blacks had a larger percentage of improvement in knowledge. At HSHF, Hispanic women had the lowest level of knowledge at the beginning and end of the program. This underscores the difficulty reaching this high risk population.

At initiation into the program, only 26 percent of these women were consuming multivitamins 5-7 days a week, which increased to almost 73 percent at follow-up. This represents almost a four-fold increase in MVC among the women who received services at HSHF. At baseline, the oldest women in the study were most likely to respond that they were taking multivitamins containing folic acid at least five days a week (47.6 percent). At follow-up, the youngest women and women 25 to 29 years of age were more likely to report consuming multivitamins with folic acid at least five days a week (75.3 and 76.2 percent, respectively) than their older peers (66.67 percent). Non-Hispanic White women were at least twice as likely (47.6 percent) to be consuming folic acid 5-7 days a week as non-Hispanic Black (20.6 percent) and Hispanic women (14.3 percent) at baseline. The consumption advantage for non-Hispanic White women is maintained for HSHF participants, but to a lesser degree at follow-up. At follow up, 76.2 percent of non-Hispanic White women report daily folic acid consumption, compared to 73.2 percent of non-Hispanic Black women and 71.4 percent of Hispanic women. The greatest percentage increase in multivitamin consumption occurred among young, non-Hispanic Black and Hispanic women. Hispanic women showed the most improvement in MVC at follow-up.

Table 6: Healthy Start Healthy Families Pinellas VitaGrant Participants Knowledge of Folic Acid and Consumption of Multivitamins at Baseline and Follow-up

Healthy Start Healthy Families (HSHF)							
Baseline	Total	Less than 25	25-29	Older than 30	White	Black	Hispanic
Knowledge that folic acid prevents birth defects	% n	% n	% n	% n	% n	% n	% n
Does not know if mv/folic acid prevents birth defects	81.4%** 131	81.6% 62	79.5% 31	81.0% 34	71.4% 30	85.6% 83	85.7% 12
Knows that mv/folic acid prevents birth defects	18.6%** 30	18.4% 14	20.5% 8	19.0% 8	28.6% 12	14.4% 14	14.3% 2
Total	100.0% 161	100.0% 76	100.0% 39	100.0% 42	100.0% 42	100.0% 97	100.0% 14
Current daily consumption	%	%	%	%	%	%	%
Does not consume multivitamins/folic acid 5-7 days/wk.	73.9%** 119	84.2% 64	74.4% 29	52.4% 22	52.4% 22	79.4% 77	85.7% 12
Currently consumes multivitamins/ folic acid 5-7 days/wk.	26.1%** 42	15.8% 12	25.6% 10	47.6% 20	47.6% 20	20.6% 20	14.3% 2
Total	100.0% 161	100.0% 76	100.0% 39	100.0% 42	100.0% 42	100.0% 97	100.0% 14
Follow-up	Total	Less than 25	25-29	Older than 30	White	Black	Hispanic
Knowledge that folic acid prevents birth defects	% n	% n	% n	% n	% n	% n	% n
Does not know if mv/folic acid prevents birth defects	26.1%** 42	20.5% 15	31.0% 13	33.3% 14	19.0% 8	26.8% 26	42.9% 6
Knows that mv/folic acid prevents birth defects	73.9%** 119	79.5% 58	69.0% 29	66.7% 28	81.0% 34	73.2% 71	57.1% 8
Total	100.0% 161	100.0% 73	100.0% 42	100.0% 42	100.0% 42	100.0% 97	100.0% 14
Current daily consumption	%	%	%	%	%	%	%
Does not consume multivitamins/folic acid 5-7 days/wk.	27.3%** 44	24.7% 18	23.8% 10	33.3% 14	23.8% 10	26.8% 26	28.6% 4
Currently consumes multivitamins/ folic acid 5-7 days/wk.	72.7%** 117	75.3% 55	76.2% 32	66.7% 28	76.2% 32	73.2% 71	71.4% 10
Total	100.0% 161	100.0% 73	100.0% 42	100.0% 42	100.0% 42	100.0% 97	100.0% 14
**p<0.01, *p<0.05 for the same indicator comparing baseline to follow-up. Age (n=157), missing=4; Race/Ethnicity (n=153), n=8							

Table 7: Redland Christian Migrant Association VitaGrant Participants Knowledge of Folic Acid and Consumption of Multivitamins at Baseline and Follow-up.

Redland Christian Migrant Association (RCMA)					Race/Ethnicity (n=285), missing=6		
Baseline	Total	Less than 25	25-29	Older than 30	White	Black	Hispanic
Knowledge that folic acid prevents birth defects	% n	% n	% n	% n	% n	% n	% n
Does not know if mv/folic acid prevents birth defects	96.6%** 281	95.0% 76	96.3% 103	100.0% 94	100.0% 10	100.0% 8	97.0% 259
Knows that mv/folic acid prevents birth defects	3.4%** 10	5.0% 4	3.7% 4	0.0% 0	0.0% 0	0.0% 0	3.0% 8
Total	100.0% 291	100.0% 80	100.0% 107	100.0% 94	100.0% 10	100.0% 8	100.0% 267
Current daily consumption							
Does not consume multivitamins/folic acid 5-7 days/wk.	93.8%** 273	95.0% 76	94.4% 101	95.7% 90	60.0% 6	100.0% 8	94.8% 253
Currently consumes multivitamins/ folic acid 5-7 days/wk.	6.2%** 18	5.0% 4	5.6% 6	4.3% 4	40.0% 4	0.0% 0	5.2% 14
Total	100.0% 291	100.0% 80	100.0% 107	100.0% 94	100.0% 10	100.0% 8	100.0% 267
Follow-up							
Knowledge that folic acid prevents birth defects	Total	Less than 25	25-29	Older than 30	White	Black	Hispanic
Knowledge that folic acid prevents birth defects	% n	% n	% n	% n	% n	% n	% n
Does not know if mv/folic acid prevents birth defects	8.2%** 24	10.3% 8	11.2% 12	4.2% 4	20.0% 2	0.0% 0	8.2% 22
Knows that mv/folic acid prevents birth defects	91.8%** 267	89.7% 70	88.8% 95	95.8% 92	80.0% 8	100.0% 8	91.8% 245
Total	100.0% 291	100.0% 78	100.0% 107	100.0% 96	100.0% 10	100.0% 8	100.0% 267
Current daily consumption							
Does not consume multivitamins/folic acid 5-7 days/wk.	12.4%** 36	15.4% 12	16.8% 18	4.2% 4	0.0% 0	0.0% 0	13.5% 36
Currently consumes multivitamins/ folic acid 5-7 days/wk.	87.6%** 255	84.6% 66	83.2% 89	95.8% 92	100.0% 10	100.0% 8	86.5% 231
Total	100.0% 291	100.0% 78	100.0% 107	100.0% 96	100.0% 10	100.0% 8	100.0% 267

**p<0.01, *p<0.05 for the same indicator comparing baseline to follow-up. About 99 % of Hispanics women are of Mexican origin. Age (n=281), missing=10; Race/Ethnicity (n=285), missing=6

RCMA Folic Acid Knowledge and Multivitamin Consumption

Table 7 shows that of the women who participated in the VitaGrant program through the RCMA, only 3.4 percent reported at baseline that they were aware of the preventative effects of folic acid for birth defects. This increased to 91.8 percent at follow-up. Five percent or less of women in all age groups who participated knew that folic acid prevents NTDs. Knowledge increased substantially at follow-up, such that almost 85 percent of women younger than 25 years, 83 percent of women ages 25 to 29 years and about 96 percent of women age 30 and over reported that they were aware that folic acid can prevent birth defects. Among Hispanic women, 99 percent of whom were of Mexican-origin, only 3 percent reported knowledge at baseline. This increased to almost 92 percent at follow-up. At baseline, only 6.2 percent of RCMA clients consumed multivitamins (Table 7). Following education and program participation, this increased to 87.6 percent. Additionally, women aged 30 and older were more likely to be taking folic acid than their younger counterparts at follow-up. RCMA was very successful in changing the knowledge and behavior of Mexican Hispanic women,.

Challenges

Despite the success of improving women's knowledge and levels of consumption, there were challenges for *daily* multivitamin consumption compliance at both sites. Over a quarter of women at HSHF reported not taking multivitamin 5 or more days a week. Both White and Black non-Hispanic women at HSHF reported that the most significant barrier to daily multivitamin consumption was their inability to remember to take the multivitamin every day (Table 8). The youngest age group at HSHF was more likely to report this as a barrier than their older peers. Of the Hispanic women receiving services at HSHF, half reported that the size of the pill was a barrier to taking it every day.

Only 12.4 percent of women at RCMA reported not taking multivitamin 5 or more days a week. Like the Hispanic women served at HSHF, women receiving services through RCMA (who were largely Mexican Hispanic women) were most likely to identify the size of the pill as a barrier to daily multivitamin consumption. Of the women served by RCMA who reported non-compliance, younger women were more likely to report remembering to take the vitamin every day as a barrier, while their older peers were more likely to cite the large size of the pill as an obstacle.

Table 8: Reported Challenges to Daily Multivitamin Compliance

Challenges to compliance							
Healthy Start Healthy Families (HSHF)	Total	Less than		Older than	White	Black	Hispanic
		25	25-29	30			
Can't remember	57.1%	71.8%	41.7%	46.2%	50.0%	65.5%	25.0%
n	52	28	10	12	12	36	2
Pill too big	16.5%	17.9%	33.3%	0.0%	16.7%	12.7%	50.0%
n	15	7	8	0	4	7	4
Makes me sick	2.2%	0.0%	0.0%	7.7%	0.0%	3.6%	0.0%
n	2	0	0	2	0	2	0
Doesn't seem important	8.8%	0.0%	8.3%	23.1%	8.3%	10.9%	0.0%
n	8	0	2	6	2	6	0
Other and Unknown Reasons	15.4%	10.3%	16.7%	23.1%	25.0%	7.3%	25.0%
n	14	4	4	6	6	4	2
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
n	91	39	24	26	24	55	8
Redland Christian Migrant Association (RCMA)	Total	Less than		Older than	White	Black	Hispanic
		25	25-29	30			
Can't remember	10.4%	17.6%	4.4%	12.5%	0.0%	0.0%	11.9%
n	12	6	2	4	0	0	12
Pill too big	65.2%	58.8%	73.3%	62.5%	100.0%	100.0%	60.4%
n	75	20	33	20	4	8	61
Makes me sick	1.7%	5.9%	0.0%	0.0%	0.0%	0.0%	2.0%
n	2	2	0	0	0	0	2
Doesn't seem important	1.7%	0.0%	4.4%	0.0%	0.0%	0.0%	2.0%
n	2	0	2	0	0	0	2
Other and Unknown Reasons	20.9%	17.6%	17.8%	25.0%	0.0%	0.0%	23.8%
n	24	6	8	8	0	0	24
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
n	115	34	45	32	4	8	101

Age (n=89), missing=2; Race/Ethnicity (n=87), missing 4

Best Practices:

The VitaGrant Project was a three year effort to reach at-risk women in the state with multivitamins and preconception education. Some sites were very successful at delivery both the message and the vitamins. Select providers shared their suggestions for “best practices” with the VitaGrant Program to best inform other preconception programs. These best practices include

(1) the use of visual prompts such as posters, lanyards, and buttons to “Ask for your free vitamins” at the health or social service agency, (2) the provision of training on importance of preconception health to agency staff, (3) the placement of the multivitamins in the visual line of site to maintain easy access at the facility, (4) the provision of preconception and NTD risk education with the multivitamins to clients, (5) the identification of a lead contact/champion at each distribution site and (6) the development of relationships with distribution sites to maintain interest and awareness in the program.

Discussion

The limitations to this study are those that are inherent to many program evaluations. Without a control group for comparison to the HSHF and RCMA sites, the time-series data can only say what the total impact of the media campaign, education, and the free multivitamins provision had on participant’s knowledge and behavior at follow-up. However, only VitaGrant participants reported marked increases in their consumption of multivitamins containing folic acid during the project. Women surveyed by the Behavioral Risk Factor Surveillance System (BRFSS 2008) in 2004 (before the VitaGrant project) reported a multivitamin consumption rate of 56.8 percent. Whereas women surveyed in 2006 by the BRFSS (during the VitaGrant project) reported a multivitamin consumption rate of 57.3 percent. Because the rate of folic acid consumption was relatively unchanged in the BFRSS data, it suggests that the increase in multivitamin consumption among VitaGrant participants was due to the program and not some wider societal influence since BRFSS did not demonstrate a corresponding increase. The VitaGrant findings represent a positive change in behavior and knowledge of participants due to VitaGrant’s education and free multivitamin distribution.

Selection and reporting bias may also have an effect on the findings. Women may report behaviors that the program promotes and the findings may overestimate knowledge and consumption of folic acid. Since data were available only for HSHF and RCMA women that remained in the program at follow-up, it is unknown if women who stayed in the program were more compliant than the women who dropped out. Nevertheless, VitaGrant distributed a massive amount of multivitamins and education to many women in Florida who are at greatest risk for NTD births and who would not have received this kind of assistance otherwise.

Despite these shortcomings, the high rates of overall improvement in regard to folic acid knowledge and consumption are comparable to other findings in similar projects in Utah and Western North Carolina (Nance 2007; Major 2007). This suggests that programs that distribute both free multivitamins and preconception education (including information about folic acid) seem to change the knowledge and multivitamin consumption behaviors of the women who participate. Women who were not contemplating birth seem to have accepted the message that

taking multivitamins improves their overall health. Our work suggests that strategic opportunities can be found within the routine delivery of health care and social services to alert and motivate women to decrease their risk of NTD affected births by taking the vitamins provided..

There are several strengths to the VitaGrant program. One is that the service delivery occurred in the context of overall health. Multivitamins and preconception educational materials were distributed in health care and social service settings and in many instances as part of a “whole health” framework. The VitaGrant Project served a larger proportion of women at risk for NTD than are represented in the 2005 Florida birth cohort. Young women, and women of Mexican origin in particular, were served well by the project, in large part this is likely due to the efforts made by program administrators to distribute educational materials that were culturally appropriate to Hispanic women. However, it is clear that RCMA was better able to educate and change the behavior of Hispanic Women than HSHF. This is probably due to the homogeneity of RCMA participants and staff as well as the daily interaction that occurred as the Head Start child care provider to women in the VitaGrant program. HSHF provides services and education in a more diffused model that includes home visiting with individual participants.

Preconception intervention programs may wish to seek out these specialty providers like RCMA because health care delivery sources have varying abilities to reach populations at highest risk for NTDs. An advantage of distributing multivitamins through CHDs is the volume of clients served while non-CHD public providers such as migrant farming clinics and rural health clinics seem to be better able to focus their resources on high-risk Hispanic women. Those interested in adopting such a program would be well-advised to offer a chewable vitamin alternative. Also, women would benefit from timing devices which would help women remember to take their multivitamins daily.

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Appendix 1: Survey of Distribution Site Coordinators Concerning Barriers and Implementation Issues

The VitaGrant Program evaluation also conducted a survey of distribution site coordinators. Program coordinators were surveyed electronically concerning issues and barriers to implementation. Table A1 shows the strengths and weaknesses of different site types. The value of this comparison is for other preconception programs for identifying sites for other types of program implementation. Table A2 explicitly discusses barriers to VitaGrant implementation. Table A2 shows the proportion of the responses concerning barriers by site type. Table A3 investigates barriers to implementation for all the site types combined. Table A4 summarizes comments about the barriers to implementation made by program coordinators at the distribution sites. Finally Table A5 summarizes comments concerning suggestion for program improvement and denoting the strengths of the VitaGrant Program.

Table A1: Strengths and Weaknesses of Different Site Types for Preconception and Interconception Education and Multivitamin Distribution Program

	County Health Department (CHD)	Non-CHD Public Clinics	Case Management Agencies	Universities and Colleges
Types of clinics within the category	Family Planning, Prenatal Care, Post natal care, WIC	Federally qualified community health clinics, rural and migrant health clinics, community clinics operated by universities	Federal Healthy Start, Florida's Healthy Start and Healthy Families Programs	Major Florida Universities and a traditionally Black college
Preconception vs. Interconception clients	Mostly interconception clients in WIC and Post natal care. An equal mix of interconception and preconception clients in family planning.	Mixed preconception and interconception clients. These clinics serve a larger variety of medical issues for women than CHDs and have greater access to preconception clients.	Mostly interconception clients in Federal Healthy Start, and the Florida Healthy Start and Healthy Families Programs	University and college clinics serve the largest proportion of preconception clients.
Number of Clients	Largest volume. Almost 70% of multivitamins and education were distributed at CHDs.	Second largest volume. Almost 20% of multivitamins and education distributed in these clinics.	Third largest volume.	Least amount of distribution. These sites were not originally targeted for distribution and participated less time.
Age Groups	CHDs serve all age groups well but especially reach 20-24 year olds	These clinics reached all age women well but with a slightly larger proportion of women age 45 and older	These agencies serve a similar age distribution as CHDs but with less volume.	Largest proportion of 18-19 and 20-24 year olds.

<i>Continued</i>	County Health Department (CHD)	Non-CHD Public Clinics	Case Management Agencies	Universities and Colleges
Racial Groups	Similar proportion of racial groups served compared to racial groups listed on birth records statewide.	These clinics serve more Asian race clients and less Black race clients than CHDs.	These agencies serve a slightly greater proportion of Black clients compared to CHDs.	Traditionally Black colleges are able to reach a very high proportion of Black women.
Ethnic Groups	Similar proportion of Hispanic groups served compared to ethnic groups listed on recent birth records. Very few Haitian clients served.	These clinics serve almost as many Hispanic and Haitian clients as CHDs.	A larger proportion of all Hispanic and Haitian ethnicities served compared to CHDs, but much lower volume.	A larger proportion of Cubans and Haitians served compared to CHDs, but much lower volume.
Mexican Hispanics	About 57 percent of CHDs had 25 percent or more Mexican Hispanic clients	About 18 percent of these clinics served a population of 25% or more of Mexican Hispanic clients	Only 2 percent of these agencies had a Mexican Hispanic client population over 25 percent	Too few responses
Level of integration of the VitaGrant Program	Most able to integrate multivitamin distribution and education into service delivery	Less able to integrate the program into service delivery compared to CHDs.	Less able to integrate the program into service delivery compared to CHDs.	Too few responses
Barriers to success	CHDs reported language differences with clients as the largest barrier to implementing the program.	These clinics were more likely to report that lack of training in the program as a barrier as well as staff commitment to the program.	These agencies were least likely to report time barriers with clients and did not report other barriers.	Too few responses
Average number of staff available to distribute multivitamins	Two thirds of CHDs reported having 6 or more staff distributing multivitamins	About half of these clinics had 6 or more staff available for multivitamin distribution.	About 23% of these agencies reported having 6 or more staff available to distribute multivitamins,	Two thirds of university clinics reported having 6 or more staff distributing multivitamins
Staff Turnover	Little staff turnover but when it did occur it negatively affected the VitaGrant program	Little staff turnover but when it did occur it negatively affected the VitaGrant program	The little staff turnover that occurred did not disrupt the VitaGrant Program	No staff turnover reported
Data Collection	CHDs and non-CHD public clinic had more staff involved in data collection than case management agencies and university clinics.		Fewer people were involved in data collection, reflecting smaller clinics and staff sizes at case management agencies and university clinics	

Table A2: Barriers to provision of VitaGrant Resources

		CHD		Non CHD Public		Case Management		University/College		Other Providers	
		Y	N	Y	N	Y	N	Y	N	Y	N
Was staff time a barrier in providing VitaGrant resources to clients?	n	34	30	10	8	4	9	4	2	3	5
	%	53.12	46.88	55.56	44.44	30.76	69.24	66.67	33.33	37.50	62.50
Was staff training a barrier in providing VitaGrant resources to clients?	n	23	41	8	10	2	11	2	4	1	7
	%	35.93	64.07	44.44	55.56	15.39	84.61	33.33	66.67	12.50	87.50
Was incorporating VitaGrant resources into regular service delivery a barrier?	n	25	39	8	9	5	8	4	2	2	6
	%	39.06	60.94	47.05	52.95	38.46	61.54	66.67	33.33	25.00	75.00
Was commitment by administration a barrier to providing VitaGrant Resources to clients?	n	11	53	3	15	2	11	0	5	2	6
	%	17.18	82.82	16.67	83.33	15.39	84.61	0.00	100.00	25.00	75.00
Was commitment by staff a barrier to providing VitaGrant resources to clients?	n	20	44	8	10	3	10	2	4	4	4
	%	31.25	68.75	44.44	55.56	23.07	76.93	33.33	66.67	50.00	50.00

		CHD		Non CHD Public		Case Management		University/College		Other Providers	
		Y	N	Y	N	Y	N	Y	N	Y	N
Were language differences between staff and clients a barrier to providing VitaGrant resources to clients?	n	28	36	5	13	2	10	1	3	1	7
	%	43.75	56.25	27.77	72.23	16.67	83.33	25.00	75.00	12.50	87.50
Did your site experience turnover in the last three years?	n	58	6	15	3	12	1	2	4	6	2
	%	90.62	9.38	83.33	16.67	92.30	7.70	33.33	67.67	75.00	25.00
Did that turnover effect your site's ability to distribute vitamins and educational materials?	n	6	52	4	11	4	8	0	2	0	6
	%	10.34	89.65	26.66	73.34	25.00	75.00	0.00	100.00	0.00	100.00
Did that turnover effect your site's ability to track the data on vitamin distribution?	n	9	49	5	10	2	10	0	2	0	6
	%	15.51	84.49	33.33	67.67	16.67	83.33	0.00	100.00	0.00	100.00
Did your site distribute vitamins at events (such as health fairs)?	n	30	34	13	5	13	0	4	2	3	5
	%	46.87	53.13	72.23	27.77	100.00	0.00	66.67	33.33	37.50	62.50
Did your site distribute vitamins at a pharmacy located on the premisis?	n	5	59	0	18	0	13	2	4	1	7
	%	7.81	92.19	0.00	100.00	0.00	100.00	33.33	66.67	12.50	87.50
Did your site distribute vitamins at the front office?	n	8	56	6	12	6	7	2	4	1	7
	%	12.50	87.50	33.33	66.67	46.15	53.85	33.33	66.67	12.50	87.50

		CHD		Non CHD Public		Case Management		University/College		Other Providers	
		Y	N	Y	N	Y	N	Y	N	Y	N
Did your site distribute vitamins in exam rooms?	n	48	16	6	12	1	12	5	1	7	1
	%	75.00	25.00	33.33	67.67	7.70	92.30	83.33	16.67	87.50	12.50
Did your site distribute vitamins during home visits?	n	16	48	8	10	7	6	0	6	1	7
	%	25.00	75.00	44.44	55.56	46.15	53.85	0.00	100.00	12.50	87.50
Did your site distribute vitamins in schools?	n	3	61	0	18	2	11	1	5	0	8
	%	4.68	95.32	0.00	100.00	15.38	84.62	16.67	83.33	0.00	100.00
Are you female?	n	63	1	17	1	12	1	6	0	8	0
	%	98.43	1.57	94.44	5.56	92.30	7.70	100.00	0.00	100.00	0.00
Did you distribute at one location?	n	15	49	5	13	2	11	2	4	6	2
	%	23.43	76.57	27.77	72.23	15.38	84.62	33.33	67.67	75.00	25.00
Did you distribute at multiple locations?	n	49	15	13	5	11	2	4	2	2	6
	%	76.57	23.43	72.23	27.77	84.62	15.38	67.67	33.33	25.00	75.00

		CHD		Non CHD Public		Case Management		University/College		Other Providers	
		Y	N	Y	N	Y	N	Y	N	Y	N
Is it likely that your clients will take multivitamins if they are not planning to conceive (and the multivitamins were free)?	n	48	7	12	3	9	1	5	0	0	7
	%	87.27	12.73	80.00	20.00	90.00	10.00	100.00	0.00	0.00	100.00
Is it likely that your clients will continue to take multivitamins if they were no longer free of charge?	n	15	35	4	12	3	7	5	0	0	7
	%	30.00	70.00	25.00	75.00	30.00	70.00	100.00	0.00	0.00	100.00
Was completing and submitting the tracking log easy and efficient?	n	54	5	16	0	12	1	5	1	8	0
	%	91.53	8.47	100.00	0.00	92.30	7.70	83.33	16.67	100.00	0.00
Was the process of requesting vitamins easy and user-friendly?	n	57	1	17	0	13	0	6	0	8	0
	%	98.27	1.73	100.00	0.00	100.00	0.00	100.00	0.00	100.00	0.00
Was the reading level of the educational materials that you received appropriate for your clientele?	n	57	1	16	1	13	0	6	0	8	0
	%	98.27	1.73	94.11	5.89	100.00	0.00	100.00	0.00	100.00	0.00

Table A3: Barriers to provision of VitaGrant Resources by Level of Integration

Barriers to provision of VitaGrant Resources	Level of Integration				
		Least Integrated		Most Integrated	
		Y	N	Y	N
Was staff time a barrier in providing VitaGrant resources to clients?	n	19	13	36	41
	%	59.38	40.63	46.75	53.25
Was staff training a barrier in providing VitaGrant resources to clients?	n	22	55	14	18
	%	28.57	71.43	43.75	56.25
Was incorporating VitaGrant resources into regular service delivery a barrier?	n	21	11	53	23
	%	65.63	34.38	68.83	29.87
Was commitment by administration a barrier to providing VitaGrant Resources to clients?	n	7	25	11	65
	%	21.88	78.13	14.29	84.42
Was commitment by staff a barrier to providing VitaGrant resources to clients?	n	16	16	21	56
	%	50	50	27.27	72.37
Were language differences between staff and clients a barrier to providing VitaGrant resources to clients?	n	12	20	25	49
	%	37.5	62.5	32.47	63.64
Did your site experience turnover in the last three years?	n	12	20	25	49
	%	37.5	62.5	32.47	63.64
Did that turnover effect your site's ability to distribute vitamins and educational materials?	n	8	21	6	58
	%	25	65.63	7.79	75.32
Did that turnover effect your site's ability to track the data on vitamin distribution?	n	6	23	10	54
	%	18.75	71.88	12.99	70.13
Did your site distribute vitamins at events (such as health fairs)?	n	20	12	43	34
	%	62.5	37.5	55.84	44.16
Did your site distribute vitamins at a pharmacy located on the premises?	n	4	28	4	73
	%	12.5	87.5	5.19	94.81
Did your site distribute vitamins at the front office?	n	5	27	18	59
	%	15.63	84.38	23.38	76.62
Did your site distribute vitamins in exam rooms?	n	20	12	47	30
	%	62.5	37.5	61.04	38.96
Did your site distribute vitamins during home visits?	n	9	23	23	54
	%	28.13	71.88	29.87	70.13

Barriers to provision of VitaGrant Resources	Level of Integration				
		Least Integrated		Most Integrated	
		Y	N	Y	N
Did your site distribute vitamins in schools?	n	2	30	4	73
	%	6.25	93.75	5.19	94.81
Are you female?	n	31	1	75	2
	%	96.88	3.13	97.4	2.6
Did you distribute at one location?	n	7	25	23	79
	%	21.88	78.13	29.87	70.13
Did you distribute at multiple locations?	n	25	7	79	23
	%	78.13	21.88	70.13	29.87
Is it likely that your clients will take multivitamins if they are not planning to conceive (and the multivitamins were free)?	n	18	4	64	7
	%	81.81	18.18	90.01	9.99
Is it likely that your clients will continue to take multivitamins if they were no longer free of charge?	n	7	16	20	45
	%	30.43	69.56	30.76	69.23
Was completing and submitting the tracking log easy and efficient?	n	25	2	70	5
	%	95.59	7.40	93.33	6.67
Was the process of requesting vitamins easy and user-friendly?	n	27	0	74	1
	%	100.00	0.00	99.02	0.98
Was the reading level of the educational materials that you received appropriate for your clientele?	n	27	0	73	2
	%	100.00	0.00	97.33	2.67
Do you rate your satisfaction with the VitaGrant Program as "extremely satisfied"?	n	12	15	47	27
	%	44.44	55.56	63.51	36.48
Do you rate your satisfaction with the VitaGrant Program as "satisfied"?	n	11	16	25	49
	%	40.74	59.26	33.78	66.21
Do you rate your satisfaction with the VitaGrant Program as "less than satisfied"?		4	23	2	72
		14.81	85.19	2.70	97.30

Table A4: Summary of comments on the barriers and weaknesses in Program Provision

<p align="center">Comments on the organizational barriers in program implementation and reporting:</p>
<p>Not having enough time was seen as a barrier to both distributing vitamins, but also tracking the distribution.</p> <p>High amount of staff turnover (difficult for distribution and tracking).</p> <p>Multivitamin supplementation as a goal sometimes sacrificed due to time constraint during health visits.</p> <p>Demographic data reporting form could be more simple and clearer.</p> <p>Vitamin storage limited in many facilities, which made it difficult to store large quantities on site.</p> <p>Needed materials in other languages: Chinese, Arabic, Korean, Portuguese, Russian, as well as picture novellas for people who are illiterate in their own language.</p> <p>Too much paper work to complete in regards to the program.</p> <p>Sometimes difficult to work into regular visits (like Well-Woman care or when being seen for a cold or flu).</p>
<p align="center">Comments on the barriers in reaching Hispanic women</p>
<p>Language is a barrier without translators.</p> <p>Needed instructions in other languages (not just information).</p>
<p align="center">Comments on the barriers in reaching young women</p>
<p>Denial that preconception health was important and that they needed vitamins regardless of whether they are planning pregnancy.</p> <p>In schools, young women cannot take multivitamins home on the bus without parental permission (due to her status as a minor).</p> <p>Confusion between multivitamins and prenatal vitamins.</p> <p>Young patients have difficulty in remembering to take the multivitamins every day.</p>
<p align="center">Comments on the weaknesses of the VitaGrant Program Delivery</p>
<p>The paperwork, which involved not only requesting multivitamins, but also tracking data and reporting to regional coordinators.</p> <p>Not enough oversight by the March of Dimes on the day to day activities of each of the various site types. Would have liked much more contact with MOD on a regular day-to-day basis.</p>

Table A5: Summary of Suggestions and Strengths for the VitaGrant Program

Suggestions for requesting vitamins
<p>Prefer to have shipments of multivitamins be automatic (not contingent on a request being made).</p> <p>Make requests available through online orders or email requests.</p> <p>Prefer order requests that are more frequent than once a quarter.</p>
Suggestions for improving multivitamin compliance
<p>Offer vitamins that are either chewable or smaller in size.</p> <p>Folic acid awareness should be taught in schools along with sex education and health.</p> <p>Continue to offer for free or for a low cost.</p> <p>Continue to offer in the context of "whole woman health" where they can access multivitamins at doctor checkups, etc.</p> <p>Increase media exposure through public service announcements, particularly television.</p>
Strengths of the VitaGrant Program Delivery
<p>Provided multivitamins and education to women who wouldn't have received it otherwise.</p> <p>Helps young women take responsibility for their own health.</p> <p>Good service and excellent preconception care training.</p> <p>The program added value to the health care delivery that was already occurring.</p>