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A Church-Based, Spanish-Language Community Education Breast Health Program Increases Awareness and Utilization of Breast Diagnostic Services Among Hispanics

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Abstract

The Mayo Clinic Disparities Program and the University of North Florida Brooks College of Health partnered with representatives of the Hispanic community of Northeast Florida to develop an educational program aimed at raising awareness of the importance of diet in breast cancer prevention and availability of free breast cancer screening. An advertising campaign was followed by church-based seminars on self-examination, screening, and nutrition. Willingness to make dietary changes increased after the seminars, as did Duval County Hispanics' participation in the Center for Disease Control's National Breast and Cervical Cancer Early Detection Program. Data from this pilot study suggest that a Spanish-language, church-based education program, developed as a collaboration between academic institutions and representatives of the Hispanic community, increases awareness of the importance of diet in cancer prevention and of breast cancer screening programs, and may mitigate disparities in breast cancer outcomes among Hispanic women.

Introduction

This article reports on a study to measure the impact of an academic-community program designed, in part, to increase the awareness among the Hispanic community of available breast cancer screening services and of the importance of diet in breast cancer prevention. The academic-community partnership was established in 2007 between the University of North Florida Brooks College of Health and the Mayo Clinic Disparities Program, and leaders from the First Coast Hispanic Chamber of Commerce, the Mayor Hispanic Advisory Board, local Hispanic radio stations, the Hispanic newspaper Hola Noticias, local Hispanic churches, the Duval County Health Department, and the regional chapter of the American Cancer Society. One component of the partnership was a communication program through which local Hispanic radio stations and a Hispanic newspaper

(Hola Noticias) informed the Hispanic community of upcoming education programs at local churches with Spanish services. The second component included the education programs performed at the Hispanic churches. The third component was an analysis of the utilization of the free breast cancer screening program available at the Duval County Health Department, before and after the completion of the study. The main goals of the program were to inform the Hispanic community of the importance of nutrition in the prevention of breast cancer and to inform them of the available free breast cancer screening programs, and then to determine whether these efforts resulted in increased utilization of the free breast cancer screening services.

Background

Breast cancer is the most commonly diagnosed cancer among Hispanic women *(Siegel, Naishadham, & Jemal, 2012)*. Breast cancer is less likely to be diagnosed at the earliest stage in Hispanic women than in non-Hispanic White women. Hispanic women are also more likely to be diagnosed with larger breast tumors than non-Hispanic White women. Hispanic women are about 20% more likely to die of breast cancer than non-Hispanic White women diagnosed at a similar age and stage (*Li, Malone, & Daling, 2003; Patel, Colon-Otero, Bueno Hume, Copland, & Perez, 2010; Rodriguez-Cuevas, Macias, Franceschi, & Labastida, 2001)*. In part, this is secondary to lower utilization of screening mammography services as a result of language and socioeconomic barriers *(Li et al., 2003; Patel et al., 2010; Rodriguez-Cuevas et al., 2001)*.

Northeast Florida includes seven counties (Baker, Duval, Nassau, St. Johns, Clay, Putnam, and Flagler). The Hispanic population in Northeast Florida has more than doubled from 2000 to 2010, with an estimated 65,398 Hispanics living in the area in 2010. In Northeast Florida, a higher percentage of Hispanics than Caucasians are poor and uninsured *(Duval County Health Department, 2012)*. Since 2005, the Mayo Clinic Disparities Program has partnered with the Duval County Health Department, the University of North Florida, and the Volunteers in Medicine Clinics to improve access to breast cancer screening, diagnosis, and treatment for the low-income population of Northeast Florida, including Hispanics.

An Academic-Communities Partnership to Improve Access of Underserved Women to Breast Cancer Screening and Treatment

The Mayo Clinic Health Disparities Program partnered with the University of North Florida and its community partners (including the Duval County Department of Health and the Volunteers in Medicine Clinic) to develop a series of outreach programs (e.g., the Mayo Clinic Breast Diagnostic Program, the Volunteers in Medicine Clinic Outreach Program) aimed at improving the access of underserved populations, including the underserved Hispanic population, to breast cancer screening and treatment.

The Mayo Clinic Breast Diagnostic Program is a collaboration between the Mayo Clinic and the Duval County Health Department to serve women with abnormal screening mammograms who are screened via the Centers for Disease Control's breast screening program, the National Breast and Cervical Cancer Early Detection Program *(Palmieri et al., 2009).* Women with abnormal screening results are evaluated at the Mayo Clinic and given free diagnostic mammograms, ultrasounds, and other studies such as breast biopsies when necessary. This program has served over 900 women (between June 2000 and November 2012), and has been shown to facilitate the resolution of abnormal mammograms and allow for the screening of a larger number of low socioeconomic status women *(Palmieri et al., 2009)*. Women who do not qualify for the National Breast and Cervical Cancer Early Detection Program, including women ages 40 to 49, can obtain screening mammography and subsequent diagnostic and therapeutic breast care free of charge from the Mayo Clinic and its community partner, Volunteers in Medicine Clinic, a clinic for the working uninsured who earn less than 250% of the Florida state poverty level. Faculty members from the University of North Florida School of Nursing provide leadership and services to the Volunteers in Medicine Clinic, which also serves as a site for the training of its nursing students. These programs, examples of successful collaborative efforts between academic institutions and community organizations, have helped mitigate disparities in breast cancer outcomes in the region *(Palmieri et al., 2009).*

The Academic-Communities Partnership Is Formed

In order to increase awareness of these free breast cancer screening programs among the Hispanic population and educate them on the importance of diet for breast cancer prevention, in 2007 a partnership was developed between the Mayo Clinic Disparities Program, the University of North Florida Brooks College of Health, and multiple community partners, including the First Coast Hispanic Chamber of Commerce and the Mayor Hispanic Advisory Board, the Duval County Health Department, the local chapter of the American Cancer Society, several radio stations that broadcast in Spanish in the region, the Spanish newspaper Hola Noticias, and local Hispanic churches (Table 1).

The main goals of this effort were to educate the Northeast Florida Hispanic community about the importance of early diagnosis of breast cancer, the importance of a diet rich in fruits and vegetables for breast cancer prevention, and the available free breast cancer screening programs that the Mayo Clinic Disparities Program had developed in collaboration with its community partners. Because there was no precedent in the Northeast Florida area for educating the Hispanic population on these important topics, there was a need to assessthis community's level of awareness about the available free breast cancer screening programs. The regional chapter of the American Cancer Society recognized this need and awarded a regional grant for this effort.

Table 1. Community/Academic Partners that Contributed to the Education Program.

Contributor	Role
Community Advisory Board: First Coast Hispanic Chamber of Commerce and Mayor Hispanic Advisory Board	Contacted media and churches with Spanish services
Hispanic radio stations and newspsper	Marketed the programs among the Hispanic population
Churches with Spanish services	Provided convenient meeting locations and networks to promote the Hispanic community's participation
University of North Florida Department of Nutrition	Provided nutrition specialists who participated in the seminars
American Cancer Society	Provided partial funding and education materials
Duval County, Florida Health Department	Created content of educatinoal events and analyzed data. Provided access for screening, diagnosis, and treatment services

The Mayo Clinic Disparities Program is funded by a Mayo Clinic Comprehensive Cancer Center grant (National Cancer Institute grant number P50-CA01508). Its main objective is to eliminate cancer care disparities in Northeast Florida. University of North Florida Brooks College of Health faculty members (coauthors Rodríguez and Correa-Matos) fluent in Spanish developed the education programs in Spanish since it was suspected that the majority of the Hispanic population in Northeast Florida was not fluent in English.

The Northeast Florida Community

The Hispanic population of Northeast Florida has increased significantly from 2000 to 2010 (from 31,958 to 65,398; Duval County Health Department, 2012). The First Coast Hispanic Chamber of Commerce and the Mayor Hispanic Advisory Board are organizations aimed at improving the quality of life of the Hispanics of Northeast Florida. Several radio stations that broadcast in Spanish in the region as well as a Spanish newspaper (Hola Noticias) and local Hispanic churches were community partners in these education efforts. All of these organizations and the regional chapter of the American Cancer Society concurred on the need for the program. The Duval County Health Department administers the Center for Disease Control's free breast cancer screening program for Northeast Florida. The Volunteers in Medicine Clinic in downtown Jacksonville serves over 2,000 low-income working uninsured patients from Northeast Florida.

The Academic Partners

The University of North Florida is a state-funded university in Jacksonville, Florida. Its Brooks College of Health includes the Department of Nutrition and Dietetics and the School of Nursing, which are considered flagship programs in recognition of the scholarly accomplishments of their faculty. The Mayo Clinic is an academic medical center in Jacksonville, Florida, with over 400 full-time physicians and scientists, and over 150 physicians in training. The Mayo Clinic has three main campuses (in Jacksonville, Florida; Rochester, Minnesota; and Phoenix, Arizona). The Mayo Clinic Health Disparities Program is a program sponsored by the Mayo Clinic Comprehensive Cancer Center.

The Hispanic Outreach Program

The need to increase the Northeast Florida Hispanic population's awareness of the importance of breast cancer screening, and of the free screening programs available in the region, was recognized by members of two of the Mayo Clinic's community partners, the Duval County Health Department and the American Cancer Society. This led to a successful application for funding for an outreach program from American Cancer Society regional grants. After the First Coast Hispanic Chamber of Commerce became involved in the project, members of this community group formed a Hispanic Community Advisory Board, the Hispanic Outreach Program. The Hispanic Outreach Program board included representatives from Jacksonville-area major Hispanic businesses and Hispanic media, and facilitated securing of program venues, such as local Hispanic churches. The board also helped organize the radio campaign and the promotion of the program in the local newspaper Hola Noticias. The program's three main goals included increasing the Hispanic community's awareness of

1. the importance of breast cancer prevention and screening methods;
2. the importance of a healthy diet and its relationship to cancer risk; and
3. available breast cancer screening and treatment resources, including the National Breast and Cervical Cancer Early Detection Program offered by the Duval County Health Department and the Volunteers in Medicine Clinic.

Two phases made up the program.

Phase 1: Advertising campaign. A media and outreach approach utilizing Hispanic print and radio was completed. Included in the radio outreach program that took place from June to August 2008 was a healthy-eating radio initiative developed by the University of North Florida Department of Nutrition that targeted the Hispanic community and emphasized increasing the consumption of fruits and vegetables.

Phase 2: Seminars at Hispanic churches. Six church-based seminars took place from mid-July to mid-October 2008. The church education sessions, which lasted 50 to 60 minutes, included topics such as the importance of early detection and mammograms; guidelines for screening mammography; Susan G. Komen

for a Cure (a breast cancer organization in the United States) web-based Spanish video instructions on breast self-examination; available community resources for free screening and further care; and the role that a balanced diet, one rich in fruits and vegetables, plays in decreasing cancer risks. The sessions were informal and used a "town hall" format (participants were invited to ask questions and actively participate during the sessions). Nutrition faculty members from the University of North Florida utilized American Cancer Society materials to encourage participants to maintain a healthy weight to prevent or treat obesity by avoiding a high-fat diet and consuming adequate amounts of fruits and vegetables. The sessions were directed by a Mayo Clinic oncologist fluent in Spanish. Sessions were presented in a culturally sensitive and language-competent way: in Spanish for Spanish-only groups.

Summary of Objectives and Goals

The long-term goal of these seminars was to ameliorate the increased mortality of Hispanic women with breast cancer and reduce risk factors for breast cancer incidence such as obesity. In addition, a study was conducted to see if the three awareness goals of the program were achieved. The effort also included analysis of the utilization of the Duval County Health Department breast cancer screening program before and after the education events.

Methods

Three hypotheses formed the basis for this study:

1. the majority of the Hispanics in Northeast Florida were not aware of the free breast cancer screening programs available in the community;
2. most of the Hispanics participating in the educational events would be willing to make dietary changes at the end of the presentations; and
3. the utilization of the free breast cancer screening programs by Hispanics would increase after the education programs were completed.

The Mayo Clinic's Institutional Review Board submission of this study determined it to be exempt (45 CFR 46.101, item 2) from continued review.

Sample

A total of 296 participants, most of them women, were reached during six educational programs. Three of the six church events had 60 or more participants (60, 65, and 115 respectively), and three events had 16 to 20 participants (16, 20, and 20 respectively). Participants were surveyed during the education events using an audience response system. A total of 97 participants (33%) took part in the surveys. The number of participants answering questions varied since some questions were directed to different subsets and not all participants answered all of the questions (Appendixes 1 and 2). A total of 49 participants answered the question about their age. The majority of surveyed participants were ages 40–49 (47%, 23/49). The second most common age group was 50–64 years old (22.4%, 11/49), followed by age less than 30 (14.3%, 7/49) and ages 30–39 (14.3%, 7/49). The least common group was 65 or older (2%, 1/49).

Data Collection

An electronic audience response system that provided immediate feedback to the participants was used to collect pre and postseminar questionnaire data. The system facilitated interaction among participants and immediately assessed the effectiveness of the educational events. The questionnaires tested the effectiveness of the sessions by measuring (1) knowledge gained from the session; (2) whether the session encouraged a behavior change; and (3) the willingness of participants to make a behavior change (Appendixes 1 and 2). The study also utilized the audience response system to assess the barriers to accessing available resources, changing eating habits, and utilizing self- and clinical early detection methods. The questionnaire items did not include self-descriptions of gender or ethnicity, and did not allow for individual identification of the participants to obtain individual pre- and postseminar comparisons (Appendixes 1 and 2). The majority of participants were females since the program was directed to females about breast cancer in females. Very few of the participants were male, most of them accompanying their wives or significant others. Not all participants answered all of the questions.

Data Analysis

The pre- and postprogram questionnaire responses were tabulated and the percentage of participants willing to follow a diet rich in fruits and vegetables before and after the presentations was

calculated. The percentage of participants aware of the free breast cancer screening programs was calculated from the responses in the preprogram questionnaire. The number of participants willing to undergo yearly mammograms before and after the sessions was calculated based on the results of the pre- and postprogram questionnaire. For the questions related to screening mammography, only women participants over the age of 40 were asked to answer (Appendixes 1 and 2).

The Findings

A total of 97 (33%) session attendees participated in the audience response system surveys. Not all participants were surveyed due to time constraints because most of the sessions were performed either immediately prior to or after church services, or because they chose not to use the audience response system and not all of them answered all of the questions. Among the session participants surveyed, 54% (30/56) understood only Spanish, 60% (47/78) were uninsured, and 50% (41/82) had never received information about breast cancer. These results suggest that the majority of participants were underserved and that there was a need for education programs for Hispanic women about breast cancer incidence, self- and clinical evaluation, and free screening available in the Jacksonville, Florida, area.

Awareness

Only 8% (7/82) of the questionnaire respondents were aware of the free, locally available mammography screening programs. While 76% (65/85) of the respondents knew how to do a self-breast exam preseminar, 97% (77/79) said they were encouraged to do self-exams postseminar. While 43% (24/56) of the respondents had had a mammogram less than one year prior to the seminar, with another 43% (24/56) having had a mammogram one or more years prior, 98% (59/60) said they were encouraged to begin or continue having mammograms annually. When asked at the end of an education session, the percentage of respondents willing to make changes in their diets increased from 25% (16/63) to 63% (41/65).

Screening Program Participation

The percentage of Hispanic patients residing in Duval County that participated in Northeast Florida's national breast screening program increased from 17% (31/180) in 2007 to 24% (51/221) during this educational program series in July–October 2008.

When the data were analyzed for the seven counties that compose Northeast Florida (including Duval County), there was an increase from 14% (50/370) to 19% (63/331). At least six of the Hispanic patients from Duval County who were enrolled in the national breast screening program in 2008 (3%, 6/221) stated that they heard of the program from their participation in the educational seminars. Therefore at least 30%, or 6 out of the 20 additional new Hispanic participants in the national breast screening program in 2008, participated as a result of this educational initiative.

Discussion

The Hispanic Outreach Program was developed to address a lack of Spanish-language educational outreach available to the Hispanic and Latina/o community of Northeast Florida. We found that slightly more than half of the individuals reached spoke and understood Spanish only, which illustrates the importance of employing language competency to reach this population. The majority of the surveyed participants were uninsured, which is consistent with the conclusion that this population is largely underserved and that access to care could be a contributor to health outcome disparities. The availability of free mammographic services to the Hispanic community requires a language-competent marketing campaign to attract Hispanics to these services. The suspicion that most Hispanics in Duval County were not aware of the free breast cancer screening services was confirmed, demonstrating the need for these Spanish-language education programs.

We also feel that partnership with community organizations was essential for the program's success. The leadership of the First Coast Hispanic Chamber of Commerce and Mayor Hispanic Advisory Board played a pivotal role in securing the Spanish churches' participation. The local Hispanic media was essential for the dissemination of the information about the events among the Hispanic community. Hispanic churches served as networking and community support venues. They provided the program with meeting venues convenient to the Hispanic community. Through these academic-community collaborations, a critical mass for each education event was achieved.

The greatest increase in Hispanic participation from Northeast Florida in the National Breast and Cervical Cancer Early Detection Program was from Duval County, an absolute increase of 20 participants, six (30%) of whom stated that they became aware through the Hispanic Outreach Program. There was, however, a

slight decrease in the number of Hispanic participants from other Northeast Florida counties—from 19/370 (5%) to 12/331 (4%)—suggesting that the increase in the participation of Duval County Hispanic patients in the National Breast and Cervical Cancer Early Detection Program was not solely due to an increase in the Hispanic population. The marketing efforts, which included the use of Hispanic newspaper and radio media, reached all seven counties. Five of the six churches where the education seminars took place were located in Duval County, so most of the effort was concentrated in this county, the largest in Northeast Florida. These findings also suggest that the combination of the radio messaging with the church educational events was successful in leading to an increase in the utilization of the screening programs, and that the radio and print messaging alone was not sufficient to achieve this goal.

Limitations of the Study and Areas for Future Research

Unfortunately, the audience response system, even though it provided immediate feedback and increased interaction with the participants, was not widely utilized, limiting the number of surveyed participants. That not all participants were surveyed may have biased the results. However, we believe that the surveyed population was representative of the participants as a whole.

The postsession survey took place immediately after the education session. Different results might have been obtained if the survey had been administered weeks after the session. For example, a survey conducted weeks later may better reflect real changes in knowledge and behavior among the participants. Surveys at a later time were not part of this study. The preliminary data reported in this pilot study therefore reflects the intent of the participants to change their behavior and does not provide information on whether the participants really changed their behavior as a result of the educational intervention. Also, repeating the Hispanic Outreach Program education sessions will be necessary to maintain the gains in knowledge over a long period of time.

Individual-specific information for the survey participants was not obtained during the education sessions. Therefore, individual comparisons of effectiveness of the education efforts was not possible; the data allow for only groupwide comparisons. Participants' assessment of their ethnicity was also not obtained during the seminars, but given that the educational programs were in Spanish in

conjunction with church services for Hispanic congregations, we concluded that the majority of patients were women of Hispanic background. This was confirmed by coauthor Colón-Otero, who directed the educational events.

Performing a similar study utilizing written surveys instead of the audience response system is of interest. A comparison of a similar effort in collaboration with the Northeast Florida African American Churches is of interest as well. The incorporation of education on cervical cancer screening, on recent data regarding the importance of human papillomavirus (HPV) in the causation of not only cervical cancer but also oropharyngeal cancer, and education on the current indications for HPV vaccination are planned for the next education program in the Hispanic community. A robust evaluation of utilization of breast cancer and cervical cancer screening services, as well as HPV vaccination before and after education programs, will help us gauge the effectiveness of these efforts, and may also help us obtain funding to secure the long-term viability of this academic institutions–communities partnership.

Conclusion

Reports of successful academic-community partnerships to promote cancer prevention and screening stress the importance of developing trust between the partners and participatory involvement in the formulation, design, and implementation of the interventions *(Ingram et al., 2012; Meade & Calvo, 2001)*. The incorporation of multiple community partners in this project was critical for its success. The long-standing service relationship between the University of North Florida Brooks College of Medicine, the Mayo Clinic, and the community partners was essential for engaging the Hispanic community in this program. The involvement of community leaders from the First Coast Hispanic Chamber of Commerce and the Mayor Hispanic Advisory Board in the development and implementation of the program was instrumental in securing an adequate number of participants.

The experiences reported in this article support the importance of language-competent, academic-institutions-assisted community education outreach that secures adequate participation of the Hispanic population in breast cancer screening programs. The availability of programs that provide access to diagnostic testing and treatment for patients with abnormal screening mammography is essential to translate the greater availability of breast cancer screening into effective diagnosis and treatment of breast cancer. It is also necessary to develop nutrition education programs

targeted to Hispanic women in order to reduce the risk of breast cancer. The Mayo Clinic Breast Diagnostic Program and the collaboration between the Mayo Clinic, the University of North Florida, and the Volunteers in Medicine Clinic provide that needed access to screening, diagnosis, and treatment *(Palmieri et al., 2009).*

From this study, we believe that disparities in cancer care outcomes can be ameliorated by sustained collaborative efforts between community organizations and academic institutions. Critical components to the success of these efforts, as demonstrated by this program, include the provision of needed health services for the underserved population by the academic institutions in collaboration with community organizations and the adequate marketing of those services. Factors contributing to the success of the education effort reported in this study included the involvement of community-organization members in the initial planning and organization of the events, and the utilization of multiple media, including seminars and radio, for adequate dissemination of the information.

Several lessons were learned in this study that could benefit other academic-community partnerships. The limitations of an audience response system for data gathering far outweigh its benefit. The importance of engaging the leadership of the Hispanic community by partnering with the Hispanic Chamber of Commerce was critical. The selection of venues, like Hispanic-serving churches, where regular well-attended meetings were already in place, was essential as well.

In summary, this pilot study provides preliminary data suggesting that a community-organized, church-based education program in Spanish can increase the awareness and utilization of community programs available for breast cancer screening for Hispanic women of low socioeconomic status, and increase their willingness to make healthy dietary changes, at least in the short term. A larger study with more robust outcome analysis and utilizing written surveys with longer follow-up analysis will be needed to confirm and expand on these preliminary observations. A culturally competent approach to breast cancer education that involves a partnership between community organizations and academic institutions is likely to ameliorate disparities in health care outcomes in underserved segments of the population.

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Appendix

Audience Response System: Preseminar Questionnaire

1. What age should women begin having mammograms?
2. How many servings of fruits and vegetables should you eat a day?
3. What are the age requirements for a woman to qualify for the Tomorrow's Rainbow Program?
4. How many minutes should you exercise per day?
5. What is your age?
6. Which language do you mostly speak on a daily basis?
7. Do you currently have health insurance?
8. Have you ever received information about breast cancer?
9. Do you know how or have you ever been taught how to do a self-breast exam?
10. [Women 40 or older only] When was your last mammogram?

11. [Women 40 or older only] If you have never had a mammogram or you haven't had a mammogram in more than 2 years, why?
12. I believe that currently I am:a) underweight; b) at a healthy weight; c) overweight; d) obese
13. In terms of diet change, I would say that (willingness to change diet):a) I am not ready to change my current diet; b) I am thinking about changing my current diet, but have not made any changes yet; c) I am starting to make changes to my diet; d) I have already made changes to my diet and have been sticking to the changes fairly regularly
14. My total intake of high fat and fried foods (including fried meat, poultry or fish, French fries or plantains, potato or other chips, fat or oil in cooking, bread or margarine on bread, dressings, cheese, and high fat desserts or candies) is:a) About one (or more) servings per day; b) Less than five (total) servings per week; c) About one (total) serving per week; d) Less than one (total) serving per month
15. Have you ever received any information about the Duval County Health Department free mammograms program?
16. Have you ever received any information about the Volunteers in Medicine Clinic?
17. Do you know where to get free or low-cost screening mammograms?
18. How did you hear about today's educational session?

Audience Response System: Postseminar Questionnaire

1. What age should women begin having mammograms?
2. How many servings of fruits and vegetables should you eat a day?
3. What are the age requirements for a woman to qualify for the Duval County Health Department free mammogram program?
4. How many minutes should you exercise per day?

5. What is your age?
6. Did this presentation increase your knowledge about breast cancer?
7. Did the information in today's presentation encourage you to begin or continue doing monthly self-breast exams?
8. Did the information in today's presentation encourage you to begin or continue doing yearly mammograms?
9. Did the information in today's presentation encourage you to contact either Volunteers in Medicine Clinic or Duval County Health Department to find out if you qualify?
10. Are you going to share the information in today's presentation with your family and friends?
11. After hearing today's nutrition presentation, how do you feel in term of diet changes?

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