

Post Menopausal Hispanic Women and Osteoporosis

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INTRODUCTION

The NIH Osteoporosis and Related Bone Diseases-National Resource Center (NRC) operated by the National Osteoporosis Foundation is developing science-based, culturally and linguistically relevant materials targeting post-menopausal Hispanic women about osteoporosis. The intention of this effort is to increase awareness, knowledge and understanding of the prevention, early detection, and treatment of osteoporosis. Materials will be disseminated through the NRC clearinghouse that distributes the information to the target audience via clients, national and state government agencies, non-government organizations (NGOs), medical practices, universities and others.

The NRC recognizes that ensuring cultural competence in the development of materials is a key strategy in achieving a goal of quality health care for all. NRC also recognizes that an important mechanism for ensuring cultural and linguistic competence is the ability to develop and operate within a framework that ensures appropriate input and feedback from the target audience and those who have a close relationship with them. In order to gain an expert understanding on how to best develop and disseminate materials targeted to post-menopausal, Hispanic women, NRC conducted a needs assessment. The needs assessment encompasses a review and analysis of the literature, an audit of selected health services organizations, and interviews with key informants that defines health awareness and education needs regarding osteoporosis for Hispanic women ages 50-65.

Focusing on Hispanic American women ages 50-65 and other Hispanics, this needs assessment report looks at current medical research regarding osteopenia and osteoporosis, demographics, knowledge, attitudes, and behaviors/practices as related to health, and currently available health awareness materials, efforts and strategies targeting this population.

SUMMARY OF FINDINGS

According to the National Osteoporosis Foundation (NOF), osteoporosis is a major public health threat for 44 million American men and women age 50 and older (NOF Web site, 2002). In the target population, Hispanic American women ages 50-65 comprise a population of over 1.6 million (U.S. Census, 2000).

Although there has been ample scientific study and educational information development about osteoporosis for the general U.S. population, a limited amount of this research and material development has been conducted specifically for minorities including the target population of post-menopausal Hispanic women (NIH Consensus Statement, 2000, p. 8). Most of the health data about the Hispanic American population comes from studies of the Mexican American population acquired through the National Health and Nutrition Examination Survey III (NHANES III).

Data show that low bone density - osteopenia and osteoporosis - is common in older Mexican American women (Looker A.C. et al, 1997, p. 1761-1768). Forty-nine percent of Mexican

American women ages 50+ years had osteopenia at the femur neck (hip), and 10 percent had osteoporosis. Comparable numbers for non-Hispanic White women were 52 percent with osteopenia and 20 percent with osteoporosis. The prevalence estimates correspond to 400,000 Mexican American women with osteopenia and 100,000 with osteoporosis (1997). Accordingly, the number of Hispanic American women with low bone mass and osteoporosis will increase over the next decade as a larger population (Exhibit 1) of Hispanic women in the 40 to 44 and 45 to 49 age groups approaches and passes through menopause (U.S. Census, "Female Population 2000," 2001). Estimates also show that the number of hip fractures will increase sharply over the next half-century in the United States and around the globe (NOF).

Exhibit 1. Current Population of Hispanic women according to age

AGE RANGE	POPULATION
40 to 44	1,125,604
45 to 49	888,473
50 to 54	696,699
55 to 59	503,868
60 to 64	402,998

(U.S. Census, 2000)

Various factors place Hispanic women at risk for osteoporosis. First, Hispanic women consume less calcium than the Recommended Dietary Allowance in all age groups (Bialostosky, 2002). Fifty percent of Mexican American women ages 50-69 years consume less than 600 mg of calcium per day from food (2002) with the current recommended intake of calcium for the age range being 1200 mg per day. Numbers for non-Hispanic White women are about the same with 50 percent of the population consuming less than recommended amounts of calcium (2002).

Secondly, older Mexican American women tend to use less dietary supplements than do older White women (Ervin R.B. et al., 1999). Forty-two percent of Mexican American women ages 50-69 years reported using a dietary supplement in the past month. For non-Hispanic White women ages 50-69, these statistics are similar with dietary supplementation being around 54 percent. Of note, all dietary supplements did not necessarily contain calcium (1999).

Also, Hormone Replacement Therapy (HRT), a protective factor for bone density, is not widely used by Mexican American women (1997). The NHANES survey estimates that 21 percent of Mexican American women ages 45 and over reported having ever used HRT compared to 36 percent of non-Hispanic White women of the same age. (Brett K.M. & Chong Y., 2001). Though in very recent times (Aug. 2002), the health benefits and risks of undergoing HRT are being closely weighed. Two systematic reviews, one published in *Annals of Internal Medicine* and the other in the *Journal of the American Medical Association*, found that for women taking HRT for five years or longer to prevent chronic conditions, there is an increased risk of developing breast cancer and stroke. (Agency for Healthcare Research and Quality, August 2002). Based upon further medical study and recommendations, such information will need to be communicated to the nearly 14 million U.S. women who were taking HRT in 2002 (2002).

Regarding physical activity, an important bone health strategy, the NHANES survey showed that Mexican American women reported little or no physical activity per week (Snelling, A.M., et al.,

2001, p.57-65). Further analyzed, forty-three percent of Mexican American women ages 50+ years reported *no leisure time activity*, 23 percent reported leisure time activity only *1-2 times per week*, and 25 percent reported leisure time activity *more than five times per week (2001)*. Comparable numbers for non-Hispanic White women are 25 percent with no activity per week, 21 percent with 1-2 times per week, and 34 percent with more than five times per week (2001).

Based upon an updated literature review since the publishing of the *NIH Consensus Statement*, it was found that a great deficiency exists in the number of materials produced for this target audience to raise awareness about osteoporosis prevention, diagnosis, and management. However, with other health issues, culturally and linguistically effective and relevant materials, as well, how-to materials with "best strategies and practices " to develop effective materials for this target population have been successfully developed by government and NGOs. Considering best strategies and practices materials, these guidelines can be utilized efficiently to develop materials for Hispanic women about osteoporosis (Clear and Simple, 1994).

RESEARCH METHODOLOGY

In creating the Needs Assessment, a literature review was conducted, and interviews with key informants and health providers were conducted.

LITERATURE REVIEW

A review of literature was conducted of current medical research about osteoporosis and Hispanic women. In addition, elements such as demographics, knowledge, attitudes, and behaviors/practices of post-menopausal Hispanic women as related to health, risk factors, and current health awareness efforts and strategies for the target and other culturally diverse populations were reviewed and included.

The review was conducted by searching published and unpublished articles, monographs, reports, and materials identified through Web searches of *organizations and agencies* involved in health-related education, *Medline/PubMed* searches of medical research related to osteoporosis and Hispanics, literature searches with the *American Journal of Public Health*, *Web searches* of top-rated Web sites among U.S. Hispanics including Yahoo!, MSN, AOL.com, Lycos, & Google (Nielsen NetRatings, June 2002) and media survey reports including Arbitron & Nielsen NetRatings.

Approach to Information Search

- **Organizations and agencies.** This searched reviewed information on government and NGOs and agencies involved in providing health-related education to post-menopausal women. *Exhibit 8* contains a contact list of government agencies, clearinghouses (i.e. Office of Minority Health Resource Center), pharmaceutical companies, insurance companies such as Kaiser Permanente, and nonprofit organizations and associations, along with a brief summary of available general health-information provided through the entity. Organizations and agencies listed were found through a variety of sources including the National Council of La Raza, the Office of Minority Health Web site, and multiple Web searches and some produced a variety of materials about osteoporosis. Predominantly, these materials are in the English language and made for general populations; however, some search results yielded materials produced specifically for Hispanics and older Hispanic women about osteoporosis. These are listed in *Exhibit 9*.

- **Medline/PubMed Resources.** This search uncovered citations and abstracts of articles from 4,300 biomedical journals. Under the general search terms "Osteoporosis Women," 17,375 such items were listed. The most relevant findings are listed in *Exhibit 4*, some of which were used as resources in the content of this needs assessment. In narrowing the search for the target audience, the keywords used were as follows:
 - Osteoporosis Hispanic (37 results)
 - Osteoporosis Latina (17 results)
 - Osteoporosis Hispanic Women (33 results)
 - Osteoporosis women post-menopausal Hispanic (17 results)
 - Osteoporosis women post-menopausal Latina (8 results)
 - Osteoporosis Latino women (12 results)
 - Osteoporosis ethnic (100 results)
 - Osteoporosis ethnic minority (4 results)

- **American Journal of Public Health.** This search found articles that are relevant to osteoporosis and lists bibliographies in *Exhibit 5* that were found in a search using the words:
 - Osteoporosis Hispanic
 - Osteoporosis Latino Women
 - Osteoporosis Minority
 - Osteoporosis Ethnicity

- **Web Search with top Web browsers and sites for Hispanics** includes the names and Internet addresses of Web resources *Exhibit 6* for Hispanic Women regarding osteoporosis and dietary and lifestyle practices for preventing osteoporosis. Search engines included Yahoo!, MSN, AOL.com, Lycos, and Google, in addition to searches through Latino.com, Starmedia.com, Zonai.com, and NCLR.com. Some of the Web searches lead directly to the organizations in *Exhibit 8*, and others involved secondary links to Web sites and references. These organizations are notable because each provides health information to the general

population, Hispanics, and post-menopausal Hispanic women, some in English, Spanish, or both languages. The Web search identified health issue-specific information that is available through agencies and organizations, directly on the Web or available through contacting the agency by phone or mail. Search terms at all levels of Web searches included:

- Osteoporosis Latina
- Osteopenia Hispanic
- Osteoporosis Hispanic
- Osteoporosis Hispanic Women
- Osteoporosis Latino Women
- Spanish language materials osteoporosis
- Osteoporosis materials in Spanish
- Hispanic Health
- Hispanic health campaigns
- Hispanic Market

Variations of the following terms:

- Demographics and Hispanics
- Barriers to obtaining health information and health care
- Knowledge, attitude, and behaviors/practices of Hispanics

AUDIT OF HEALTH CARE SERVICE ORGANIZATIONS

Six health service providers and pharmacies that serve a population of Hispanic woman in Montgomery County, MD and one in Prince George County were contacted by telephone and asked what types of materials they had available for Hispanic women. *Exhibit 7* has references and summary of findings for these informal audits.

KEY INFORMANT INTERVIEWS

Fifteen professionals representing various disciplines and organizations with expertise in Hispanic health, Spanish-language materials development and outreach and were interviewed. The organizations represented included federal and state agencies, universities and academic settings, hospitals and clinics, research institutions, community-based organizations, advocacy, mass media, and professional health associations. A series of questions (19 in total) were developed for the purpose of soliciting answers from key informants to assist in learning about effective strategies for developing and disseminating culturally relevant and linguistically appropriate materials about the prevention and management of osteoporosis, and for identifying health KAB/P of Hispanic women who are post-menopausal between the ages of 50-65.

In general, the questions asked during the interviews explored the following areas:

- Effective strategies for developing materials
- Knowledge about general health and osteoporosis
- Attitudes, practices, and challenges this population faces concerning health and prevention of osteoporosis

- Preferences for receiving health information and materials
- Suggestions for promoting the osteoporosis prevention message

IV. KEY FINDINGS

A. Literature Review

Target Audience Research

- Demographic Overview-

In the United States, an overview of the Hispanic population shows that there are now over 35 million Hispanics nationwide comprising 12.5 percent of the population (U.S. Census, Current Population Survey, "Total Population" 2000). Hispanic American women age 50-65 years total over 1.6 million of the overall population (2000). Under the Hispanic ethnic categorization for the U.S. Census, population segmentation is by geographic variation and includes Hispanic Americans of Mexican (58.5%), Puerto Rican (9.6%), Cuban (3.5%), Dominican (2.2%), Central American (4.8%), South American (3.8%), Spaniard (0.3%), and other Hispanic or Latino decent (17.3%) (2000). With all considered, Hispanic Americans are the fastest growing segment of the U.S. population. Between 1980 and 1990, the Hispanic population increased by 53 percent, in comparison with only 6.7 percent for non-Hispanics, and it is estimated that the Hispanic population will almost triple between 1995 and 2050 and represent 25 percent of the total U.S. population (2000). The increase is due to both the largest legal and illegal immigration in nearly a century and high birth rates among Hispanics. Hispanic women have an average of 3.2 children while non-Hispanic White women have an average of 1.5 children (2000). Over all the Hispanic population is a relatively young population whose median age is now estimated at 26.4 years (2000). By country of origin, Puerto Ricans have a median age of 26 and Cubans, a median age of 39, in comparison to the median age of the entire U.S. population being 38.4 years (2000).

Hispanics represent various Spanish-speaking countries throughout the world and have widely different income and educational levels (AARP Connections, February 2001). Hispanics are more likely than non-Hispanic Whites to live in poverty. In 1999, 22.8 percent of Hispanics were living in poverty, compared with 7.7 percent of non-Hispanic Whites (Census, 2000).

As for where Hispanic Americans live, according to the U.S. Census, they are more likely than non-Hispanics to reside in the West (44.7%) and less likely to live in the Northeast and the Midwest (7.9%) (2000). Hispanics of Mexican origin were more likely to live in the West (56.8%) and South (32.6%) (2000). Puerto Ricans were most likely to live in the Northeast (63.9%) and Cubans were highly concentrated in the South (80.1%) (2000). Central and South Americans were concentrated in three of the four regions: the Northeast (32.3%), the South (34.6%), and the West (28.2%) (2000). Hispanics are more likely than non-Hispanics to live inside central cities of metropolitan areas. The majority of Latinos/Hispanics live in 20 urban areas in 10 states: California, Texas, New York, Florida, Illinois, New Jersey, Arizona, New Mexico, Colorado, and Massachusetts (2000).

One in four foreign-born Hispanics is a naturalized citizen (2000). In 2000, 39.1 percent (12.8 million) of the Hispanic population in the United States was foreign born and Spanish was their primary language (2000). The mean length of residence in the United States for Hispanics is 15 years. (2000)

In the area of health and mortality, the leading cause of death for Hispanic women ages 55-64 in 1999 was malignant neoplasms accounting for 33.7 percent of all deaths, followed by heart disease and diabetes mellitus (DHHS, National Vital Statistics Report, "Deaths" 2001 p. 50).

Exhibit 2. The leading causes of death for Hispanic women ages 55-64 years (U.S. 1999)

RANK	CAUSE OF DEATH	NUMBER	PERCENT OF TOTAL DEATHS	RATE PER 1000
	All Causes	4,829	100	536
1	Malignant Neoplasms	1,626	33.7	180.5
2	Heart Disease	1,064	22	118.1
3	Diabetes Mellitus	447	9.3	49.6
4	Cerebrovascular diseases	263	5.4	29.2
5	Chronic Liver disease and cirrhosis	157	3.3	17.4
6	Accidents - Unintentional	132	2.7	14.7
7	Chronic Lower Respiratory Disease	104	2.2	11.5
8	Nephritis, Nephrotic syndrome and nephrosis	93	1.9	10.3
9	Influenza and Pneumonia	75	1.6	8.3
10	Septicemia	53	1.1	5.9
	All other causes	815	16.9	90.5

(National Vital Statistics Report, 2001)

-Language-

Sharing a common language is a very important hallmark of culture with Hispanics, as it provides a sense of unity that enhances with the rise of modern communication. Hispanics who experience language barriers are a growing population. The Census reports that 26.7 million Hispanics in the U.S. over the age of five speak Spanish at home (Census, "Language Spoken at Home," 1993). However, the vast majority of Hispanics who speak Spanish are also proficient in English. According to 1990 census data, 91.5 percent of the 17.3 million people ages 5 years and over who spoke Spanish at home also spoke English (1993). In addition, almost three-fourths (74.0%) of Spanish-speakers spoke English "very well" or "well" (1993).

One-fifth of Spanish-speaking Hispanic Americans living in communities with fast growing Hispanic populations report not seeking medical treatment due to language barriers (RWJF, "New Survey" 2001). Both patients and providers feel that language barriers present immense

obstacles to achieving positive health outcomes. According to patients, language barriers make it much harder to fully explain symptoms and ask questions and to follow through with filling prescriptions. Language barriers also make them less likely to trust that their physician understands their medical needs (2001).

At a Hispanic Resource Center in Northern Kentucky, many Hispanics delay seeking care because they "worry" that physicians will be unable to understand them or will turn them away because they lack health insurance (Schroeder, Cindy 2001). Also, many recent immigrants have not been taught to seek preventive care, and thus wait until they are sick to seek medical help (2001). In Northern Kentucky, health officials devised several programs to help improve communication between providers and Spanish-speaking patients. One of them included offering Spanish-language health information (2001).

A report by The Robert Wood Johnson Foundation stated that ninety-four percent of providers say communication is a top priority in delivering quality care, and they cite language barriers as a major challenge to delivering that care (RWJF, 2001). Seventy-three percent of providers say the aspect of care most compromised by language barriers is a patient's understanding of treatment advice and of their disease (2001). Seventy-two percent say that barriers can increase the risk of complications when the provider is unaware of other treatments being used and 71 percent say barriers make it harder for patients to explain their symptoms and concerns (2001). Other research with RWJF identified that when translation help is offered, it is often makeshift. Fifty-one percent of the providers surveyed say that when they need interpretive services, they often enlist help from staff who speak Spanish including clerical and maintenance staff (2001). Another 29 percent of providers say they rely on patients to bring in family members or friends who can translate for them (2001).

Patients say makeshift translation practices, like using family members or untrained staff, often leave them feeling embarrassed, that their privacy has been compromised and that the translators have omitted information (RWJF, 2001). They also say these concerns cause them not to talk about personal issues when interpreters are present. Two-thirds of the patients in the survey have concerns about using interpreters, and it is indicated that makeshift approaches are not working. Both patients and providers agree that language barriers significantly compromise health care quality (2001).

-Family Life-

The Current Population Survey of the Census (American Housing Survey, 2002) estimates that there are 7.6 million total Hispanic family households in the United States, with 1.4 million married-couple Hispanic family householders ages 45 to 64 and 1.1 million other Hispanic householders ages 45 to 64 (2002). Averaging 3.6 people per household, Hispanics live in family households that are larger than those of the national average of 2.59 (2002). In the year 2000, 30.6 percent of family households in which a Hispanic person was the primary householder consisted of households of five or more people (2002). In contrast, only 11.8 percent of non-Hispanic White family households were this large (2002). Hispanic family households with only two people represented 21.7 percent of Hispanic family households, as compared to 46 percent of non-Hispanic White family households (2002). Among Hispanic family households, *Mexican American* households were most likely to have five or more people (35.5 %) (2002). *Cuban American* family households were most likely to have only two people (41.3 percent) (2002).

Certain aspects of Hispanic family life may influence decision making about health. Elders are held in high esteem within the Hispanic family, and their views are of important consideration (NCLR, 1998, p.21). Although traditionally the Hispanic male has been acknowledged as the authority in the family, contemporary research indicates that gender roles in Hispanic families are changing (p.23). Women are still considered the center of the family and are still in charge of the family's health, but they also assume more authority for decision making within the family (p.23). In Hispanic families, the collective needs of the family take precedence over the needs of individual members, and important decisions are made as a cohesive group (p.22). A study prepared for AARP and published in the *2000 Hispanic Monitor* illustrates that Hispanic Americans place great value on advice from family members, friends and community members, rather than on an individual intuition or institutions (AARP Connections, Feb 2001). Help and advice are usually sought from within the family system first, and medical conditions and treatments are considered a family matter (NCLR p.22).

Within extended families, close to half (46%) of Hispanics age 45 to 55 have responsibility for at least one parent or parent-in-law and one or more children under 21 years old (AARP, "In the Middle" July 2001). Hispanics in the 45 to 55 year group are most likely to have parents who are living (2001). Three-quarters of Hispanics, compared to 70 percent of the general population, have parents who are living and for whom they give care (2001). Also, 34 percent of Hispanics between the ages of 45 and 55 take care of elders, compared to 22 percent of the general public (2001). Elders living in the home will include grandparents, aunts or uncles, cousins or other relatives. As caregivers, Hispanics have frequent contact with family members and handle specific activities for them. For example, more than half (51%) of Hispanics take their elders shopping or to do errands, compared to 44 percent of the general population (2001). Almost half (48%) talk to doctors or health care providers on behalf of their elder relatives, while 36 percent of the total population of Americans ages 45-55 does (2001).

As for the type of care given, Hispanics are more likely to be providing their elderly parents with the highest level of care (2001). Two in ten (21%) Hispanics help their elder family members with highly personal care, such as bathing and dressing, compared to just 12% of the general population (2001). And, while only 27 percent of the general public contributes financially to

their elders, 40 percent of Hispanics do (2001). Hispanics of the 45-55 age group tend to care for other people's children, as well as their own. Almost one in five (19%) Hispanics between the ages of 45 and 55 who have their own children also help care for other people's children, including grandchildren, nephews, nieces, and even children of neighbors and friends (2001). They are more likely to do this than others in the general 45-55 year-old population (11%) (2001).

Considering this high amount of care giving, a significant result shows that 25 percent of Hispanics age 45 to 55 says that caring for their elder family members has affected their ability to save money for their own retirement (2001). AARP also found that 19 percent of Hispanics, compared to 9 percent of the general population, would like to be part of the lives of their adult children and to live with them (2001).

In 1999, 22.8 percent of Hispanic Americans were living in poverty, compared with 7.7 percent of non-Hispanic Whites (Therrien, 2000, p.5-6). Of the people living below the poverty level in 1999, 7.7 percent were non-Hispanic White, 24.1 percent were Mexican, 25.8 percent were Puerto Rican, 17.3 percent were Cuban, 16.7 percent were Central and South American (Figure 10, p.6).

-Education-

The Hispanic population age 25 and older was less likely to have at least graduated from high school than non-Hispanic Whites (57% and 88.4% respectively) (Therrien, 2000 p.4). In addition, more than one-quarter of Hispanics had less than a ninth grade education (27.3%) compared with only 4.2 percent of non-Hispanic Whites (p. 4). The proportion with a bachelor's degree or more was much lower for Hispanics (10.6%) than for non-Hispanic Whites (28.1%) (p.4). Among Hispanics, Cubans and other Hispanics were most likely to have graduated from high school (73.0 % and 71.6%, respectively) compared with Mexicans (51.0 %) (p.4). Similarly, the proportion that had attained a bachelor's degree ranged from 23.0 percent for Cubans to 6.9 percent for Mexicans (p.4).

-Workforce and Income-

A high portion of Hispanics ages 16 and over is participating in the labor force. Despite the fact that a comparable percentage of Hispanics and Non-Hispanic Whites were employed in March 2000, the unemployment rate for Hispanics was double that of Non-Hispanic Whites - 6.8 percent in comparison to 3.4 percent (Therrien, p. 5). Among Hispanic groups, 8.1 percent of Puerto Ricans, 7.0 percent of Mexicans, 5.8 percent of Cubans, 5.1 percent of Central and South Americans, and 7.8 percent of other Hispanics were unemployed (p. 5).

Hispanics are generally employed in manual labor, service occupations, and administrative support occupations (CPS, "Current Occupation," March 2000). With Hispanic men in 2000, 28.3 percent were in occupations of *operators, fabricators, and laborers*, 22.2 percent in *precision production, craft, and repair*, 15.1 percent in *technical, sales, and administrative*

support, 14.8 percent in *service occupations*, 11.3 percent in *managerial and professional*, and 8.4 percent in *farming, forestry, and fishing*. The majority of Hispanic women were employed in *technical, sales, and administrative support* (38 %), *service occupations* (25.9%), *managerial and professional* (17.8%), *operators, fabricators, and laborers* (13.1 %), *precision production, craft, and repair* (3.3%) and *farming, forestry, and fishing* (1.9%) (2000). In comparison, non-Hispanic White men were concentrated in *managerial and professional specialty occupations* (32.0%), and White females concentrated in *technical, sales, and administrative support* (41.3%) (2000). Among Hispanic groups, Mexicans were least likely to work in managerial or professional occupations (11.9%) (Therrien, p.5).

Median household income reached an all-time high of \$40,816 in 1999, growing, in real terms by 2.7 percent above the previous all-time high in 1998 (CPS, "Money Income" 2000, p. vii). The 1999 median income was the highest ever recorded, in real terms, for non-Hispanic White (\$44,366), Black (\$27,910), and Hispanic (\$30,735) households (p. vii). Hispanic households with a main householder in the 55-64 age bracket had median household incomes of \$35,342 (p.17).

-Health Status-

HIV/AIDS and diabetes are two of the most serious and troublesome health threats affecting the Hispanic American population (CDC HIV/AIDS Surveillance Report, June 2001). According to the Center for Disease Control HIV/AIDS Surveillance Report as of June 2001, Hispanics had 145,220 cumulative AIDS cases in comparison to 337,035 non-Hispanic White and 301,784 non-Hispanic Black (p.14). Though Hispanics made up 12.5 percent of the U.S. population in the 2000 census, they made up 20 percent of the total reported cases of persons living with AIDS from 1999 to 2000 (p.3). Deaths in persons with AIDS reported through June 2001 in the United States included 65,885 Hispanic Americans (p.26).

Diabetes disproportionately affects the Hispanic population in the United States (MMWR Weekly, Jan 1999, p.8-12). In the 45-64 age group of Hispanic females in 1999, there were 13.54 cases of diabetes per 100 Hispanic females, as compared to 6.43 cases per 100 non-Hispanic White females. In the 65-74 age group of females, there were 19.41 cases of diabetes per 100 Hispanic females as compared to 12.06 per 100 non-Hispanic White females (CDC, NCHS, National Health Interview Survey Web Report, 1999).

In managing personal health care, Hispanic women age 50-65 years, like all other women in the age group, are recommended to have a variety of personal and clinical health examinations including those for detecting bone health. These personal and clinical health examinations include a Pap smear every three years depending upon personal risk status, monthly self-breast examinations, regular clinical breast examinations, flu and pneumococcal immunizations, sigmoidoscopy and fecal occult blood testing, blood pressure measurements, prevention of sexually transmitted diseases, and cholesterol screenings (MCARE Web page, 2002).

-Health Behaviors: Diet, Smoking, and Exercise Habits-

Disparities in health status indicators and risk factors for diet-related disease are evident in many segments of the population based on gender, age, race and ethnicity, and income. For example, overweight and obesity levels are observed in all population groups, but obesity is particularly common among Hispanic, African American, Native American, and Pacific Islander women ("Obesity Epidemic" 1999). Furthermore, despite concerns about the increase in overweight and certain excesses in U.S. diets, segments of these populations also suffer from under-nutrition (Healthy People 2010).

The NHANES study found that thirty-one percent of Hispanic American women ages 20 and over reported being at a healthy weight. However, by 10-15 percent, Hispanic American women had higher prevalence rates of being overweight than non-Hispanic women (NHANES). Approximately 39 percent of Mexican American women, 34 percent of Cuban-American women, and 37 percent of Puerto Rican women were overweight (NHANES). Also, approximately 16 percent of Mexican American women, 8 percent of Cuban American women, and 14 percent of Puerto Rican women were severely overweight (NHANES).

In a dietary food study of 254 low-income elderly (ages 60-96) free-living Mexican Americans and non-Hispanic Whites living in San Antonio, it was shown that ethnicity was a major variable influencing food intake (Bartholomew, Young, Martin, & Hazuda, 1990, 1963-6). Mexican Americans consumed eggs, poultry, legumes, organ meats, avocados/olives, flour tortillas, and sugar more frequently than non-Hispanic Whites (1990). Also, the Mexican American population used saturated fats in cooking more frequently than non-Hispanic Whites, and consumed skim milk, ice cream/ice milk, beef, all fruits or juices, all vegetables, breads, and oil/margarine less frequently than non-Hispanic Whites (1990).

As for proper nutritional intake of calcium, only 44 percent of Mexican Americans ages 2 years and older were at or above approximated mean requirement level in 1988, while 56 percent were below mean requirements (National Health Interview Survey). For 50-59 year old Mexican American women, around 50 percent consumed less than 600 mg of calcium per day from food; where as the recommended intake of calcium in that age range is 1200 mg per day (Bialostosky 2002).

Lactose intolerance has been identified as a potential roadblock to consuming the daily requirement of calcium in all populations in the United States (National Women's Health Information Center, April 2001). An estimated 30 to 50 million Americans (about 25% of the United States population) are affected by lactose intolerance, with 53 percent of Mexican Americans being lactose intolerant (2001). Though meeting daily requirements for calcium intake can occur by incorporating alternative non-dairy, calcium-rich foods into the diet, by taking calcium supplements, and by consuming lactose reduced milk products (National Dairy Council, 2001).

As for obtaining a healthy amounts of exercise to keep bones healthy, 54 percent of Hispanic adults aged 18 years and older engaged in no leisure-time physical activity in 1997 (Snelling 2001, 57-65). Eleven percent of Hispanic adults aged 18 years and older engaged in moderate

physical activity for at least 30 minutes, five or more days per week in 1997 and twenty-three percent report being involved in an activity three or more days per week (Snelling).

Smoking is a risk factor that can lead to weakening of the bones. In 2000, approximately 23.3 percent of all adults - roughly 46.5 million - were current smokers (NHIS). This was a decline from 25 percent in 1993 (NHIS). Overall, 19.1 percent of adults were *everyday* smokers, and 4.1 percent were *some* day smokers (NHIS). The prevalence of smoking was higher among men (25.7%) than women (21.0%) (NHIS). Among ethnic groups, Hispanics (18.6%) had the lowest prevalence of adult cigarette use with 13.3 percent of Hispanic women being smokers (NHIS). A survey administered to waiting room patients over 16 years old in a predominantly Hispanic rural community in California showed that only 39 percent of the sample knew that smoking contributes to osteoporosis, and over 90 percent knew that smoking causes lung cancer and emphysema (Butkovic, Hegde, Hughes, Lourie, & Schafer, *Journal of Rural Health*, 2001, p.151-155). Knowledge in this unique population was similar to that found in the general population (2001).

Consuming a lot of alcohol can hurt the cells that build bones. The Hispanic HANES study reported specific information according to age and amounts of alcohol consumed (82/84). With a population of 45-64 year old Mexican American women, 74.7 percent reportedly abstained from alcohol consumption, 19.4 percent drank alcohol lightly, and 5.1 percent moderately. With Cuban American women in the same age group, 88.2 percent abstained from alcohol consumption, and 9.5 percent drank lightly. For Puerto Rican women, 82.4 percent abstained, 10.8 percent drank alcohol lightly, 4.0 percent drank moderately, and 2.8 percent drank heavily (HANES 1982-84). In more current reports, among Hispanic women, less than 1 percent consumes at least 60 drinks within 30 days (Women of Color, 1998, p.52). Forty-nine percent of Hispanic women abstain from using alcohol. Among this group's subpopulations, Mexican American women are most likely to report that they are current alcohol users (35%) (1998).

-Medical Insurance and Utilization of Health Care Services-

Lack of comprehensive health insurance limits Hispanic American women's access to regular health services for disease prevention, screening, diagnosis, treatment, and management of chronic and acute conditions (Quinn, March 2000, p.9). Of all ethnic groups, Hispanic Americans are the most likely to lack health insurance. The Hispanic population makes up one-quarter of the 42.6 million uninsured population in the United States (2000). Hispanics (66.6 %) were less likely than White non-Hispanics (89.0%) and Blacks (78.8%) to be covered by health insurance (Mills, Robert J., CPS, Sept 2000). Since uninsured women visit their doctors less often than those with health care coverage, Hispanic American women without health insurance are much less likely to see a doctor than those women with job-based or Medicaid coverage (Quinn, 2000 p. 9).

Only 43 percent of Hispanic Americans have employment-based health insurance, compared to 71 percent of Caucasians (p.18). More often than any other group, Hispanic Americans have no regular source of health care (p.9). In addition, the low incomes of many Hispanic Americans as compared to other groups make it difficult to obtain individual health insurance outside of

employer- or government-sponsored plans (p.7). Even when they are eligible for Medicaid or state-sponsored child health insurance programs, many Hispanic American families fear that enrolling family members in such plans could be used against them when they apply for citizenship (p.6).

To further analyze the medical insurance/health service utilization correlation, the Commonwealth Fund conducted eight focus groups in major cities and rural areas across the United States involving low- and middle-income households (income of \$35,000 or less) about the importance of health insurance coverage (Kannel & Perry, December 2000). Most uninsured participants in the focus groups said they go to low-cost or free health clinics or see doctors who charge reduced fees or allow them to pay in installments (2000). A few participants reported going to a hospital emergency room to receive care for illnesses they cannot cure at home, while others said they return to their home country to obtain free or inexpensive treatment (2000). Most participants, however, said that they use over-the-counter medications and home-remedies as their first line of defense (2000). Few reported receiving any preventive health services, which they believe would be one of the advantages of having insurance (2000). Participants complained of receiving poor treatment because they are uninsured (2000). When they do visit a clinic or doctor's office, uninsured participants said they are made to wait longer, are rushed through their visits, and are treated in an impersonal manner because of their low income and lack of health coverage (2000).

The Fred Hutchinson Cancer Research Center in Seattle studied low Hispanic utilization of health care screenings for cancer in the Lower Yakima Valley where the predominate population of Hispanics were Mexican American, low-paid agricultural workers with incomes less than \$10,000 per year (Berg, Oct 4 2001). Among the population, 76 percent of the regional Hispanic population over age 50 had never been screened for colorectal cancer in comparison to 43.6 percent of non-Hispanic (2001). When Hispanics in this population were asked what barriers they faced in receiving medical care, more than half brought up long waiting times at clinics and a majority said that not having a regular doctor was a problem (2001). Doctors or others helping the Hispanic community rarely mentioned these problems (2001). With this population of Hispanics, health care insurance was also a problem as 45.6 percent of Hispanics had no private insurance or government coverage that were due to the population's impoverished conditions, and there was a misunderstanding of when to seek preventive screenings (2001). Slightly more than 40 percent of this population of Hispanics said they only needed to be screened for cancer if they had symptoms or if cancer ran in their families (2001).

-Hispanic Market Overview-

In the United States, the Hispanic population has grown to over 35 million people comprising 12.5 percent of the 281.4 million population (U.S. Census, 2002). By the year 2020, one out of every 5 residents will be Hispanic (2002). The ten top markets of the Hispanic population include: 1) Los Angeles, 2) New York, NY, 3) Miami, FL, 4) Chicago, IL, 5) Houston, TX, 6) San Francisco, CA, 7) Dallas, TX, 8) San Antonio, TX, 9) Phoenix, AZ, & 10) McAllen, TX (2002). In 2000, Santiago and Valdes Solutions estimated that Hispanic American purchasing would reach \$630 billion by 2002 (Association of Hispanic Advertising Agencies (AHAA) Web Resource, 2000). The Census Bureau reports that over the past three years, the income of the typical Hispanic household has risen (15.9%) or \$3,880, which is the largest three-year increase of Hispanic income on record (2000). Brand loyalty is another appealing trait of Hispanic consumers. Surveys consistently show that brand name is very important to Hispanic consumers when they purchase almost every type of item (2000).

-Radio-

As of 1999, there are 600 total Spanish radio stations in the United States, 59 percent AM and 41 percent FM (The Hispanic Market Weekly, Feb 2000). Sixty-seven percent of stations are in Arbitron-rated markets (2000). Spanish is heard on 6.4 percent of the stations in all Arbitron markets, but gets 7 percent of all the 12 and over audience (2000).

The number of Hispanic people listening to radio weekly is fairly consistent across genders for people 18-64, with Hispanic men 18+ tuning in just slightly more than Hispanic women 18+ (Hispanic Radio Today, 2001). Older Hispanic people 65+ of both sexes are the least likely to tune in to the radio each week (2001). Radio listening among the Hispanic audience starts picking up at 6a.m. weekday mornings and remains strong through 6 p.m., after which it starts to taper off (2001). Peaking listening times on Saturday and Sunday center on the noon hour-from 9AM to 3PM (2001). During the prime listening hours of the weekday, more than half of all Hispanic listeners tune in someplace away from their homes (2001). Most of the weekend listening occurs at home (2001). Hispanic women in the 50-64 year group, as well Hispanic women in general, are more likely to listen to the radio at home than Hispanic men (2001). Older Hispanics in the 55-64 age group show a solid interest in Adult Standards (pre-Rock era music including Easy Listening, Nostalgia and Variety) and News/Talk/Information programming (2001). However, Classical music has emerged as a new favorite (2001). Spanish News/Talk programming is popular among older people ages 55+ that compose 39 percent of the format's Hispanic audience (2001).

-Television-

During the 2000-2001 broadcast season, there were 8.9 million Hispanic TV Households (White, E., Nielsen Media Research, August 23, 2001). Hispanic television viewers are typically younger than the total U.S. television population with a median age of 28.8 (2001). Hispanic viewers average 56.9 hours per week, while non-Hispanic viewers average 53.7 hours/week, and

46 percent of Hispanic viewing took place on the two major Spanish-language networks including Univision and Telemundo (2001). For Hispanic audiences, reality programs were most popular, followed by game shows, primetime animation and feature films (2001). For White non-Hispanics, newsmagazines, dramas, and reality programs (2001) followed game shows in popularity (2001).

On a daily basis, Hispanic American households watch 4.6 hours of television a day as compared to 3.9 hours among non-Hispanic Whites and 3.5 hours among Asians, according to Horowitz Associates (Association of Hispanic Advertising Agencies, 2002). According to Hispanic Opinion Tracker 2001, each week 74 percent of Hispanics watch Spanish-language television and 82 percent watch English-language television.

-Internet-

In a study conducted for the Association of Hispanic Advertising Agencies by Roslow Research, 85 percent of Hispanics have computers at home and 75 percent have Internet access from those computers (AHAA, 2002). Computer ownership was the highest among Hispanic households in Miami (42%) and New York (38%) (2002). According to the AHAA poll, 31 percent of Hispanic Internet users have shopped online (2002). Reuters reports that Hispanics in the United States are seen spending \$42.6 million over the Internet this year, a growth of 100 percent over 1999 (2002). According to Nielsen-NetRatings, about 7.6 million Hispanics Americans accessed the Internet in June 2002 for an average of 10 hours and 39 minutes (Nielsen-NetRatings, 2002). This broke down into an average of 18 sessions and 723 average pages viewed in June 2002. In the overall population, 51 percent of 50-64 year old women have Internet access (2002).

While accessible and high-quality health information on the Internet is important for English-speakers, it could be even more useful for Spanish-speakers who face greater barriers to traditional sources of medical care and information (Mayberry, Mili, & Ofili, Medical Care Research, 2000). Though, accessing helpful health information on the Internet is not always easy. To describe and evaluate health information on the Internet in English and Spanish, researchers at the Rand Graduate School of Policy Studies, Santa Monica used search engines and visited health-related Web sites on four medical conditions: breast cancer, childhood asthma, depression, and obesity (Berland and others, JAMA 2001). They asked four primary questions: What are consumers likely to find when they search online about these conditions? How comprehensive is the information? How accurate is it? At what grade reading level is the material presented? The results showed that accessing health information using search engines and simple search terms is not efficient. Coverage of key information on English- and Spanish-language Web sites is poor and inconsistent, although the accuracy of the information provided is generally good. High reading levels are required to comprehend Web-based health information (2001).

Exhibit 3. Top 10 U.S. Hispanic Web Sites According to Revenue Expenditures

Rank	Site	Impressions	Est. Revenues
1	Latino.com	45,375,400	\$816,800
2	Starmedia.com/ shopping	67,925,100	\$679,300
3	Zonai.com	26,054,100	\$651,400
4	Quepasa.com	34,048,000	\$510,700
5	Lamusica.com	42,539,600	\$510,500
6	Macromedia.com	5,316,700	\$425,300
7	Starmedia.com/ buscador	22,199,300	\$399,600
8	Terra.com	11,343,800	\$397,000
9	Zonafinanciera.com	14,633,300	\$365,800
10	Todos.com	16,291,500	\$325,800
TOTAL		285,726,800	\$5,082,800

*Data for the month of January 2001

†Revenues based on rate-card price

Source: AdZone

Top 10 Brands on U.S. Hispanic Web Sites

Rank	Brand	Impressions	Est. Expenditures
1	WesternUnion.com	20,991,300	\$616,300
2	Fiera.com	18,124,600	\$453,100
3	Aol.comFree	36,762,600	\$441,200
4	Latino.com	10,614,300	\$421,200
5	Gap.com	39,349,700	\$393,500
6	TeenPregnancy.org	22,053,900	\$382,100
7	Quepasa.com	16,663,100	\$341,000
8	123.com español	16,992,000	\$326,200
9	Alminuto.com	15,203,400	\$304,100
10	Bankrate.com	15,202,100	\$304,000
TOTAL		211,957,000	\$3,982,700

*Data for the month of January 2001

†Expenditures based on rate-card price

Source: AdZone

-Periodicals-

The circulation of Spanish-language periodicals has risen from 2.7 million to 14.1 million in the past 15 years, says Western Publication Research (AHAA website, 2002). Twenty-nine percent of Hispanics read Spanish-language newspapers, and 67 percent read English-language newspapers. Fifty-three percent of Hispanics read Spanish-language magazines and 63 percent read English-language (2002).

Hispanic Women and Osteoporosis

The most relevant medical research regarding Hispanic women and osteoporosis is best summarized in the NIH Consensus Statement (NIH Consensus Statement, 2000 p.27-29). References to the most essential medical research findings pertaining to Hispanics are listed in *Exhibits 4 and 5*. They include the December 2001 publishing of *The National Osteoporosis Risk Assessment* that documented a large number of undetected women including Hispanic women in the United States with osteoporosis and low bone mass density (BMD). The prevalence of osteoporosis and incidence of fracture vary by gender and race/ethnicity with non-Hispanic White post-menopausal women experiencing almost three-quarters of hip fractures and the highest age-adjusted fracture incidence (NIH Consensus, 2000).

The National Osteoporosis Risk Assessment findings were a critical wake-up call to the nearly 40 million American women in the U.S. over age 50 to make healthy bone behaviors a part of their daily routine. The NOF has consistently advises women to consume enough calcium and vitamin D in their daily diets, engage in weight-bearing exercise, avoid smoking and, when appropriate, take daily or weekly medications and get regular bone density tests (Raymond, JAMA 2002).

Of all osteoporosis-related studies involving Hispanic women, most have been of American women of Mexican decent (2002). Results, according to the NIH Consensus Statement, show that Mexican American women have bone densities intermediate between those of non-Hispanic White and African-American women (2002). A separate study by Lauderdale, D.C. and others made further differentiation between Hispanic sub-populations with geographic variation and suggested that Puerto Rican women had bone mass density between Blacks and non-Hispanic Whites but had greater bone densities than Elderly Mexican Americans ("Hips Fracture Incidence," Aug 1998).

Much of the difference in fracture rates among ethnic groups appears to be explained by differences in peak bone mass and rate of bone loss (NIH Consensus, 2002). Differences in bone geometry, frequency of falls, and prevalence of other risk factors appear to play a role as well (2002). Both men and women experience an age-related decline in BMD starting in midlife (2002). Women experience more rapid bone loss in the early years following menopause, which places them at earlier risk for fractures (2002).

The main trigger to physician counseling of women about osteoporosis and its prevention is an osteopenia/osteoporosis diagnosis, and as concluded, women with multiple risk factors for osteoporosis are not being identified for preventive counseling interventions or BMD testing

(Gallagher & Geling, 2002). As of August 2000, according to the NOF, half of all states have passed legislation requiring the state to conduct osteoporosis public education, and many have provided appropriations for the effort (Women's Health Council "Osteoporosis State Program Practices" 2000). Eight states have passed laws requiring private insurers to cover bone density measurement in those at risk for osteoporosis (2000). No single Federal funding source supports state osteoporosis activities (2000). Several states have received osteoporosis grants from various units of the Centers for Disease Control (e.g., the National Center for Chronic Disease Prevention and Health Promotion and the National Center for Injury Prevention and Control), but these were for limited periods of time (2000). Without additional funding, program activities sometimes dwindled. As a result, state appropriations and state agency dollars have become a prime source of osteoporosis prevention and education funding. Funding levels in 1998 ranged from \$5,000 in Maryland and Washington to \$500,000 in Massachusetts and Illinois (2000). However, earmarked appropriations often fluctuate annually, and renewal is not guaranteed; some appropriations cover program activities only, with no funds to support the personnel who staff the programs (2000). Even more problematic, a number of states with legislative mandates in osteoporosis receive no state appropriation to fund required activities (2000).

Health Education Materials for Hispanic Women about Osteoporosis

Results of research pertaining to educational materials showed that Federal and State government agencies, medical corporations (pharmaceutical, medical), and national and community-based non-profit organizations are involved in developing and producing materials about osteoporosis. Though most information that is produced and disseminated is in the English language for a general audience and is available by contacting the group directly, through the Internet, or via outreach efforts held by the group/agency. Materials developed and produced directly for post-menopausal Hispanic women are scarce and not readily available at the community level around the United States. Organizations such as AARP have begun efforts to target Hispanics and have created Spanish-language publications including *Segunda Juventud* which targets over 200,000 Hispanic AARP members ages 50 and over (AARP, "Reaching Out," 2001). Considering the content of materials about osteoporosis that target Hispanics and Hispanic women, most have content that includes a definition of osteoporosis, risk factors, preventive measures, detection, and in general, management and therapies.

On the National-level, the National Osteoporosis Foundation and the NRC have developed Spanish language fact sheets "Los Huesos de las mujeres de edad madura," "Tiene Sus Huesos Sanos?" and "Huesos Sanos para los Hombres y Mujeres de edad avanzada" that are available by contacting the NRC or by directly downloading the information from the Internet. Worldwide, the International Osteoporosis Foundation (IOF) produced a Spanish language version of "Invest in Your Bones" for World Osteoporosis Day October 20, 2000. This information is available directly by calling the IOF or by downloading the information from the IOF Web site. Other material about osteoporosis is available in English on various government and non-government Web sites. Non-government Web sites (i.e. Kaiser Permanente - www.kaiserpermanente.org, AARP - www.aarp.org and Hispanic Radio Network - www.hispanicradio.com) often provide links to the National Institute of Health, Osteoporosis and Related Bone Diseases National Resource Center (www.osteoporosisandrelatedbone.org), the National Institute of Arthritis and Musculoskeletal and Skin Diseases (www.niams.nih.gov), and the National Osteoporosis Foundation (www.nof.org). Web sites for more information about osteoporosis. These Web sites provide fact sheets and

downloadable brochures covering a definition of osteoporosis, information on prevention (exercise, calcium intake), diagnostic tests, therapies, and accident prevention.

On the state level, of the most relevant findings regarding information about osteoporosis targeting post-menopausal Hispanic women (Exhibit 9) are Spanish-language culturally competent brochures produced by public health agencies in Texas, California, and Massachusetts as part of statewide programs and campaigns. The brochures that were developed include Texas' "Step by Step," Massachusetts' "Osteoporosis: Nunca es muy temprano ni muy tarde para combatirla" for ongoing campaigns, and California's "Huesos Fuertes, Familia Saludable " in part of a September 2001 campaign. This information is made available within each state by contacting the state public health offices or through dissemination channels provided during the program or campaign. Massachusetts provided a hotline and media coverage during the campaign, and Texas created a video to be distributed at Blockbuster ("Osteoporosis State Program Practices," 2000).

On the local level, a telephone survey of seven public health service organizations in Montgomery and Prince George County, MD inquired of available educational materials about osteoporosis for patients/consumers. Results showed that English language brochures or fact sheets about osteoporosis are available on site at the Shady Grove Radiology Center, the Osteoporosis Analysis Clinic, CVS drug store, the Giant food store pharmacy, Wal-Mart, the Osteoporosis Assessment Center, and the Osteoporosis Diagnostic and Monitor Center. Available Spanish-language materials, however, were very limited. At select stores upon request, CVS drug store was the only facility that reported having Spanish-language materials. In this case, the information was a brochure targeting children about building strong bones and avoiding osteoporosis as an adult. The Osteoporosis Assessment Center and the Osteoporosis Analysis Clinic stated that they had a single bilingual medical professional available to discuss medical information with Spanish speaking patients or consumers; though this person was not always available to serve the demand.

Effective Strategies for Materials Development & Outreach

To effectively develop and disseminate materials for post-menopausal Hispanic women, the communication development team must consider the many cultures, attitudes, and risk behaviors that exist among 20+ Spanish-speaking countries represented in the United States, each with their own history, customs, and rituals (NCADI, Web Resource, "Lessons Learned," 1990). Health education information and services should be finely tailored to each culture in order to be effective, and must also avoid oversimplifications and stereotypic content (1990). In *Clear and Simple* (1994), the National Cancer Institute outlines a five-step approach for developing materials for diverse populations, including:

- Define the target audience
- Conduct target audience research
- Develop a concept for the product
- Develop content and visuals
- Pretest and revise draft materials

Also, as explained in *Lessons Learned*, key elements should be taken into consideration when creating materials for a diverse target group, including:

- Age and gender
- Geographic location
- Educational attainment
- Socioeconomic level
- Health status
- Religious practices
- Knowledge, attitudes, beliefs, and behaviors related to health prevention and utilization
- Cultural norms and values
- Channels of communication
- Reasons for immigration and immigration status
- Degree of acculturation
- Intergenerational issues

("Lessons Learned" 1990)

Based upon a compilation of knowledge gained from past national campaigns, programs and materials development, *Lessons Learned* further advises that the process for developing materials for Hispanics should:

- Promote respect for elders and promote interest in disappearing traditions.
- Facilitate sharing and discussion of experiences.
- Build on the strengths of the Hispanic/Latino community and its cultural values.
- Promote the importance of extended kinship (grandparents, uncles, aunts, and cousins) in family relations. Also promote non-family forms of close integration between individuals, such as "compadrazgo" (a person who supports you as a friend; could be similar to a child's godparents) and friendship.
- Promote communal values and neighborly attitudes such as "barrio" (specific area in the community and/or neighborhood), fiestas and traditions; and in general support all forms of extended social networking that are central to Hispanic/Latino culture.
- Encourage general civic values, but also support all practices and events that promote ethnic cultural pride and higher self-esteem among Hispanics/Latinos.
- Praise and use as role models particular **contemporary** and historical heroes and figures that are of specific significance for each Hispanic/Latino subgroup.
- Highlight Hispanic/Latino contributions in the development of the American nation and in the emergence of world civilization ("Lessons Learned" 1990).

Similar standards and approaches to material development have been adopted by organizations such as the Texas Cancer Data Center (www.texascancercouncil.org) (Web update 2002) in "*Practical Guidelines for the Development of Print Cancer Education Materials for At-Risk Hispanics*," the Susan G. Komen Breast Cancer Foundation (www.komen.org) with "*Hispanics/Latinas: Developing Effective Cancer Education Print Materials*," and the Harvard School of Public Health, Department of Health and Social Behavior Health Literacy (www.hsph.harvard.edu/healthliteracy) in a health literacy curriculum guide.

In practice, these guidelines have helped create various government and NGO materials. In recent years, Federal government agencies that have successfully developed low-literacy and Spanish language materials addressing health issues *unrelated* to osteoporosis include: the National Heart, Lung, and Blood Institute (http://www.nhlbi.nih.gov/health/pubs/pub_gen.htm) (English/Spanish) with "¡Cuide su Peso!/Watch Your Weight!" and "¡Conozca Su Nivel de Colesterol!/Learn Your Cholesterol Number," the National Center for HIV, STD, and TB Prevention with "VIH y SIDA en las Mujeres de Estados Unidos: Las Minorías y Mujeres Jóvenes Siguen Corriendo Riesgos," (www.cdc.gov/spanish/enfermedades.htm), the NIH National Diabetes Education Program (<http://ndep.nih.gov/>) with "Tome su diabetes en serio, para que no se vuelva cosa seria," "Recomendaciones para sentirse mejor y estar mas saludable," and "Sepa cuánta azúcar tiene en la sangre: Hágase la prueba para controlar el azúcar sanguíneo."

B. Key Informants' Interviews

This section presents the general findings and results of the analysis of the interviews with key informants. Recommendations based upon the literature review and general findings and results follows in section V. Overall, key informants provided useful and informative feedback based on their specific knowledge of their organization's activities and of their interactions with customers and clients of the targeted population. With this stated, response feedback, as presented in this document, is a blend of both anecdotal and clinically produced information from the National Health and Nutrition Examination Survey (NHANES). Most participants agreed that osteoporosis is a major health issue for Hispanic women and that knowledge at the individual and community-level about the disease and how to prevent it is limited. Also, participants agreed that there is a deficiency in the number of English and Spanish-language materials available to the target population and a general deficiency in the dissemination of materials and information through outreach activities to Hispanic women ages 50-65.

General Findings and Comments

Key Elements for Materials Development

Format, Style and Tone

- Keep the message and the content short. Use common newspaper or media language. The message has to be easily understood. Use simple language. Make the point quickly. If resource information is going to be provided put it on the front.
- The brochure must be colorful and attractive.
- Use graphics and plenty of photographs of people that look like them. Use lots of scenes of places they relate to such as church and shopping areas. Use a lot of illustrations, graphics and photos to show how to keep your bones healthy. Do not make your brochures too long. Twelve pages are too long if it is all about print. Use lots of images to create a dynamic layout.
- Use large fonts, easy to read, plenty of white space and reinforce with graphics.

- Make the publication look beautiful and of value. Use good quality paper and professional looking graphics and photos.
- Use lots space in the brochure. Don't over crowd and do not use too many words. For women 50-65 you need to have a bigger font that they can read especially among Hispanic women because many of them have diabetes and their eyesight is already affected, even if they are not diagnosed with the disease. You may want to use a 16-point font size.
- Use a courteous and respectful tone but one that speaks to people directly.
- Incorporate vignettes with stories that are common to the women.
- Do not use real stories or testimonials but more universal stories.
- Make sure the stories are realistic and in context with the target audience's lifestyle possibilities. Be practical and realistic.
- Brochures and posters work but they must be strategically placed at the workplace, clinics, at malls and at high traffic places.
- Posters should have tear off cards with a built-in incentive for a free consultation or a free vitamins or supplements.
- Monolingual (Spanish) materials work best. However if the people receive health services in a bilingual setting, materials should be produced in both languages.
- TV commercials, videos, presentations and other interactive materials are popular and of interest to the target population.
- Television and newspapers stories are very powerful.
- Articles in entertainment magazines work well.
- Add a test or Q&A section in the brochure that they can bring to their provider.
- Make it interactive with Q&A, case studies, or simple stories about how to protect and have healthy bones.
- Emphasize the consequences of not preventing osteoporosis. Be serious about it without scaring them but be honest.
- Show that if they follow these instructions they can prevent osteoporosis. Show a balance between complications and prevention.
- Don't make them feel guilty or instill fear. Don't blame them.
- Exude signs of respect appropriate of their age in the language and tone. Do not use Tú instead use Usted.
- Do not use expressions or sentences such as "You must exercise or eat right" instead use "We suggest."
- Use relevant examples in the content actions and events that are relevant to Hispanic women in this age category. Show examples that are relevant to them and have significance in their daily lives. Add details to the materials that have meaning to the age group.
- Video and audio products are helpful for smaller discussion groups and one on one interaction. Brochures work best but you still have to reinforce the message. A combination of brochures and videos to increase awareness, educate and reinforce consciousness are most effective.
- Articles should be short and to the point. Produce materials that make Hispanic women feel like the magazine is special and has lots of value.
- Do not use too many abbreviations and whenever possible translate the terms into Spanish.

- Portray family members through photographs.

Content

- Provide practical recommendations around diet and exercise. Instill a sense that they can really do this, show them step by step that it can be done.
- Focus on the complications of the disease.
- Explain what is bone density loss and how they can prevent it.
- Explain how they can manage their disease and avoid more pain and complications.
- Include information about the bone density test.
- Help them talk to their doctors about the test, what to do to avoid the disease and what to consume.
- Nutrition should be a major section. The key elements must focus on diet, exercise, and calcium intake and should include foods with large amounts of calcium including milk, yogurt and cheese. Also provide alternatives to consider their diabetic diets and reinforce the fact that there are low fat calcium rich foods they can consume.
- They should get information and advice about nutrition and exercise and how to avoid certain diseases.
- Stress good eating habits and encourage them to join their children in exercise to build their bone mass.
- Include a section were they can write about the foods they eat and type of exercise they receive.
- Bring up information for women about fractures.
- Mention that the information is credible and from a reputable source such as NIH.
- Information about symptoms and risk factors are very important.

Available & Useful Materials

- There is very limited information about general health and about osteoporosis for Hispanic women. Many interviewees said they had not seen any materials on osteoporosis as a matter fact.
- No information is available on this topic in English or Spanish targeted to Hispanic women or men in this age group or even for younger people.
- Produce flyers for professionals who work with the people. These materials help raise awareness. Information that professionals and medical staff can give out to their customers and patients is key.
- Magazine style products are very effective. Pfizer produced a general health magazine entitled "Transiciones" for the 50+ population.
- Other helpful materials include videos, brochures, pamphlets, posters, and companion guides or materials for the media help support the message.
- Magazine and newsletter style printed publications work very well because they are fun, very colorful, have lots of tips about daily life, and are in simple language. Also, the articles are short, but contain well-translated scientific information for a lay audience. A useful publication is a pharmaceutical

newsletter called “Evista.” This publication is fun and colorful and provides lots of scientific information but in simple terms.

- Center for Musculoskeletal Health, the Academy of Orthopedic Surgeons, and the Arthritis Foundation have a lot of good information except there is very little in Spanish or targeted for minorities

Message Development Strategies

- Tell them the consequences of osteoporosis and what can happen to them if they don’t do something about it. Give a sense that this disease becomes worse through time.
- Be clear and straight about the consequences but give them hope by telling them that it can be prevented and it is not inevitable.
- The message should focus on how they can take care of their bones.
- They need to know the consequences of osteoporosis including that they can live in constant pain and will be physically limited and crippled. But fortunately they can do things to stay mobile and active.
- Debunk the myth that aches and pains are due to the inevitable aging processes and that it is all related to arthritis.
- Stress the fact that osteoporosis is not arthritis.
- Mention that osteoporosis has no symptoms and without the bone density test they may not know if they have it.
- Do not use a large amount of percentage statistics but make sure to explain the meaning behind having the disease.
- Stress that this is a quality of life issue within the context of longevity, and this means fewer pills, more movement, and less pain in the long term.
- Focus on nutrition and how to shop for food.
- Guide them on how to talk to their doctor and other providers.
- Have messages about fitness and what type of exercises they can do and be sure to be realistic about it.
- Mention ways they can **prevent** the disease (maintaining a diet high in calcium, exercising, taking supplements, consulting a physician about HRT), diagnose it (taking a bone density test if at risk), or if diagnosed, prevent broken bones (by taking more physical precautions, wearing proper shoes, etc.).
- Clarify the confusion around Hormone Replacement Therapy.
- Males should also get the message so they can support their wives and relatives.
- Remind the women that they are the backbone of their family and that this is an important health issue for them. Articulate the message in a way that reinforces the value and importance of the women in their family.

Key Stakeholders and Influences

- Peers their own age such as girlfriends and other relatives are extremely important influences in addition to their spouses or significant other. Other women who have been through this, with their stories.

- Family members are great influencers particularly their peers and daughters. Make the whole community aware about what the disease and its debilitating effects.
- Promotores de salud are fundamental in raising awareness and getting the message out to the women. Many of the promotores are age-peers and are trusted by the women.
- Make this issue relevant to the overall quality of life of Hispanic women and give the community a reality check.
- Doctors, nurses and other healthcare providers are very influential.
- The Spanish language media, especially television personalities are key in the success of this effort.
- Attract the community's attention through a TV and Radio media campaign and reinforce it with print materials.
- Pharmaceuticals and sales representatives are important.
- HMOs are influencers because they can underwrite and promote different type of programs.
- Community-based organizations are very important in this effort including NCLR chapters, NOA, APHA
- Professional meetings on Hispanic health
- Diabetes Control Programs (DCPs)
- Cooperative extension services at universities
- Pharmacists
- National associations such as AARP
- Chronic disease block grant programs
- Division of Nutrition and Physical Activity (DMPA) and the Division of Adults and Community Health (DAC)
- CDC seniors' initiatives
- Employers and labor unions

Knowledge, Attitudes and Behaviors/Practices

- In the targeted population, there exists a low-level of awareness and understanding of diseases such as osteoporosis. They lack specific knowledge and don't know where and how to start making changes and following their prevention and management practices. Their overall health knowledge is vague. They know little about osteoporosis, even if they have heard about it, they may not know the specifics.
- HRT is not widely used by Mexican American women.
- Hispanic women have a high level of blind trust in their doctors. They follow doctor's advice but may have many challenges if uninsured.
- Depending on their financial resources, time and support system, they may or may not follow the recommendations of their doctors, take medications, and make changes in their lifestyles.
- Most older Mexican American women are consuming less than half the recommended intake of calcium.

- Older Mexican American women tend to use supplements less than older white women, and it is unlikely that there is a large number who are consuming significant amounts of calcium from supplements.
- Diabetic women go to the doctor more often, and they tend to know more about health practices. The others only go to the doctor every 1-3 years and are more limited in their knowledge. Some of them have problems with their grandchildren and have lots of knowledge about the child's diseases and medications. For example they know a lot about asthma. They tend to follow the instructions of the doctor but they take also their own experience into consideration and change their doses and frequency of their prescriptions, they will self-manage from time to time.
- More than half (66%) of older Mexican American women report little or no leisure time physical activity per week. The message of the importance of exercise is not getting across. As well, the forms of physical activity that are acceptable for meeting exercise guidelines are not clear. For example, if going to the gym is not possible because of time or costs, many Hispanics forego other means of appropriate exercise because they lack knowledge of what is acceptable. Also, Hispanics who are doing hard physical work think they are exercising and that they do not have to stretch and do other types of exercises. Exercise messages targeting Hispanics are not promoted on TV. Hispanics are very passive at home and don't engage in physical activities and tend to spend a lot of their time watching TV. The media is a great source of education and entertainment.
- They want to be healthy and get better and are willing to do what the doctor tells them as long as it is within their resources. They are flexible and willing to try new things.
- Female peers to the family have a tremendous influence. If it is good for the family it is good for them. Many of the women take an assortment of pills but may not know what they are for and how not to mix them. Sometimes health care providers find that some Hispanic women mix prescription drugs with herbal remedies and other home remedies.
- They don't think the doctor is good unless the doctor tells them that there's something wrong with them. For fear of facing the truth many don't go to the doctor because they are afraid of what the doctor is going to say.
- Hispanic women after age 55 seem to spend a great deal of time talking about their aches and pains among their peer and relatives.
- Many women seem to attribute any pain or physical condition to arthritis.
- Some women have good knowledge of health, especially many Hispanic women who have diabetes.
- Many of them if ill have a deep sense of helplessness combined with faith.
- They seem to experience a mental block that prevents them from managing their diseases. They are overwhelmed with the multiple demands of daily living.
- They get to the point of no return and have a "why bother" attitude.
- They know that they can do something about it but they are overwhelmed.
- Many of them do not exercise, don't eat right, and don't manage their disease, even those with diabetes.
- Many do not take good care of themselves.

- More educated women have the appropriate knowledge, frequently see their doctor, and know what to do to maintain health, but they still don't take care of themselves because they have too many other responsibilities.
- Less educated women don't have a clue and don't know what to ask for when at their doctor.
- Most of them don't get the bone density test, as they don't even know about it.
- They make the healthcare decisions in the household but don't seem to take care of their own health. They focus more on others. As it relates to their overall health, they are more concerned with others.
- They don't manage their conditions right away, either because of a lack of health insurance or time. They don't do enough about prevention or intervention. They think that their pain will go away.
- They have a superwomen attitude. They are counselors, moms, planners, budgeters, and they might even care for extended family members but don't take care of themselves.
- If they are working they are busy maintaining their homes.
- With women who are not working, they spend time caring for their grandkids, watching TV, shopping for clothing and food, and going to the doctor frequently.
- Some may use home remedies and alternative medicine. Uninsured women may tend to rely more on over-the-counter herbals and medications, where as, women with health insurance rely more on prescribed medications.
- Many of the women in this age category see themselves as religious, most being Protestants and Catholics. In most cases churches are the primary centers for socializing. There is a high number of Pentecostals, Baptists and other non-denominational churches in Houston and they seem to be very active.
- There is a differentiation among women in regards to their socio-economic status. Women with access to more financial resources eat better, take vitamins, engage in healthier practices, than those with less resources who won't know what to take and rely more on prayer and hopes that their illness will not get worse. The women with fewer resources will also seek alternative treatments such as herbal and home remedies because they can't afford a doctor and the medications.

Materials Dissemination & Outreach

- Senior centers are excellent networks of dissemination. As well, councils and agencies including the National Council of Aging and the National Council of La Raza chapters are excellent channels of outreach.
- Presentations at churches are very effective means of distribution.
- Booklets should be distributed through doctor's offices.
- A successful strategy must include a combination of channels including TV, radio, newspapers, magazines, Internet, universities, clinics, health fairs, conferences, presentations. In addition, it is essential to include community-based organizations, clinics, churches, Hispanic media and the *promotores de salud* programs.
- Departments of Health and other state and local agencies
- Community events

V. RECOMMENDATIONS AND CONCLUSION

In the Hispanic community, osteoporosis is not perceived as a significant health issue, even though Hispanic women have high rates of low bone mass and are at increased risk for developing the disease. Essentially, this is due to a lack of communication with the community about the risks, complications, prevention, and treatment practices of osteoporosis. Toward raising awareness, few materials have been developed for the target population and other Hispanic Americans at all levels of literacy, health knowledge, and socioeconomics. As well, based upon key informant interviews, little information is available for healthcare providers treating Hispanic women and for community-leaders and stakeholders who are community advocates.

Dissemination of existing information has also been inadequate. Though a major health issue osteoporosis is not being addressed or discussed in the Hispanic media (TV, Radio, and Print), at community organization meetings, with key stakeholders and leaders, and in the homes of Hispanic women. Particularly, because of National campaign efforts, the health issues of diabetes, heart disease, and AIDS/HIV dominate discussions and personal health management agendas throughout the Hispanic population.

Based on the key findings of the needs assessment, it is recommended that materials targeted to post-menopausal Hispanic women ages 50-65 be developed in English as well as Spanish at various reading levels including low to higher literacy. It is recommended that materials be diverse and include video, fact sheets, posters, media products such as print, radio and television PSAs. The materials content should cover risk factors, prevention, diagnosis, treatment and co-management with other diseases such as diabetes and cardiovascular disease.

It is also recommended that materials be developed for other Hispanic American populations including younger Hispanic women, healthcare professionals, community-based organizations and the Spanish language media. Materials should be interactive and outreach strategies should involve *promotores de salud*, community-based organizations, healthcare providers, Hispanic organizations and leadership, and the Hispanic media. Such a multifaceted dissemination plan will ensure the highest success in raising levels of awareness and increasing behavioral change to improve bone health.

LIST OF OTHER EXHIBITS

Exhibit 4. Medline/PubMed Articles including Hispanic Women and Osteoporosis and related issues

TITLE	AUTHOR(S)	JOURNAL	DATE
[Use of knee height to correct the body height of elderly Hispanics] [Article in Spanish]	Bermudez OI, Tucker KL.	Arch Latinoam Nutr	2000 Mar
Assessing hip fracture risk in a population-based health survey: the NHANES III osteoporosis component.	Looker AC, Harris TB, Wahner HW.	Aging (Milano)	1992 Mar
Blood lead levels in relation to menopause, smoking, and pregnancy history.	Symanski E, Hertz-Picciotto I.	Am J Epidemiol	1995 Jun 1
Body Composition of a Young, Multiethnic Female Population	Ellis, K. J., S. A. Abrams, and W. W. Wong	Am J Clin Nutr	March 1997
Bone Mineral Acquisition in Healthy Asian, Hispanic, Black, and Caucasian Youth: a Longitudinal Study	Bachrach, L. K. and others	J Clin Endocrinol Metab	December 1999
Bone mineral density screening: assessment of influence on prevention and treatment of osteoporosis.	Anastasopoulou C, Rude RK.	Endocr Pract	2002 May-Jun
Bone-mass peak in multiparity and reduced risk of bone-fractures in menopause.	Cure-Cure C, Cure-Ramirez P, Teran E, Lopez-Jaramillo P.	Int J Gynaecol Obstet	2002 Mar
Calcium Absorption and Kinetics Are Similar in 7- and 8-Year-Old Mexican American and Caucasian Girls Despite Hormonal Differences	Abrams, S. A. and others	J Nutr	March 1999
Correlates of bone mineral density in the post-menopausal estrogen/progestin interventions trial.	Marcus R, Greendale G, Blunt BA, Bush TL, Sherman S, Sherwin R, Wahner H, Wells B.	J Bone Miner Res	1994 Sep
Cultural determinants of skeletal health: the need to consider both race and ethnicity in bone research.	Villa ML.	J Bone Miner Res	1994 Sep

Epidemiology and impact of rheumatic disorders in the United States Hispanic population.	Escalante A, del Rincon I.	Curr Opin Rheumatol	2001 May
Estrogen replacement therapy use in minority post-menopausal women.	Ganesan K, Teklehaimanot S, Norris K.	Ethn Dis	2000 Spring-Summer
Ethnic differences in hip fracture: a reduced incidence in Mexican Americans	Bauer RL	Am J Epidemiol	1988 Jan
Factors Contributing to skeletal health of post-menopausal Mexican American women. TD. The association between osteoarthritis and osteoporotic fracture: the Chingford Study.	Villa ML, Marcus R, Delay RR, Kelsey JL.	J Bone Miner Res	1995
Food Group Contributions to Nutrient Intake in Non-Hispanic Whites, Blacks, and Mexican Americans in Texas	Borrud, L. G. and others	J Am Diet Assoc	August 1989):
Geographic Differences in Bone Mineral Density of Mexican Women	Deleze, M. and others	Osteoporos Int	2000
Hand ultrasound for osteoporosis screening in post-menopausal women.	Benitez CL, Schneider DL, Barrett-Connor E, Sartoris DJ.	Osteoporosis Int	2000
High serum retinyl esters are not associated with reduced bone mineral density in the Third National Health And Nutrition Examination Survey	Ballew C, Galuska D, Gillespie C	: J Bone Miner Res	2001 Dec
Hip Fractures in the Elderly: a World-Wide Projection	Cooper, C., G. Campion, and L. J. Melton 3d	Osteoporosis Int	November 1992
Hormone replacement therapy for bone protection in multiparous women: when to initiate it.	Cure-Cure C, Cure-Ramirez P.	Am J Obstet Gynecol	2001 Mar
Idiopathic chondrolysis of the hip.	Bleck EE	J Bone Joint Surg Am	1983 Dec
Lactose maldigestion, calcium intake and osteoporosis in African-,	Jackson KA, Savaiano DA.	J Am Coll Nutr	2001 Apr

Asian-, and Hispanic Americans.			
Low risk of vertebral fracture in Mexican American women	Bauer RL, Deyo RA	Arch Intern Med	1987 Aug
Menopause and African-American women: clinical and research issues.	Miles TP, Malik KC	Exp Gerontol	1994 May-Aug
Monthly estimates of leisure-time physical inactivity-- United States, 1994.	Not stated	MMWR Morb Mortal Wkly	1997 May 9
Osteoporosis: current modes of prevention and treatment	Lane JM, Nydick M	J Am Acad Orthop Surg	1999 Jan
Overcoming the barrier of lactose intolerance to reduce health disparities.	Jarvis JK, Miller GD.	J Natl Med Assoc	2002 Feb
Paleonutritional analysis of the pre-Hispanic population from Fuerteventura (Canary Islands).	Gonzalez-Reimer E, Velasco-Vazquez J, Arnay-de-la-Rosa M, Santolaria-Fernandez F, Galindo-Martin L.	Sci Total Environ	2001 Jan 17
Post-menopausal hormone replacement therapy use by older Mexican American women.	Newell DA, Markides KS, Ray LA, Freeman JL.	J Am Geriatr Soc	2001 Aug
Prevalence of osteopenia and osteoporosis in a normal female Puerto Rican population.	Haddock L.	P R Health Sci J	1997 Sep
Prevalence, Incidence, and Risk Factors Associated With Hip Fractures in Community-Dwelling Older Mexican Americans: Results of the Hispanic EPESE Study. Establish Population for the Epidemiologic Study for the Elderly.	Espino, D. V., Palmer RF, Miles TP, Mouton CP, Wood RC, Bayne NS, Markides KP	J Am Geriatr Soc	October 2000
Racial bias in federal nutrition policy, Part I: The public health implications of variations in lactase persistence.	Bertron P, Barnard ND, Mills M.	J Natl Med Assoc	1999 Mar
Racial differences in bone mineral density and bone	Toivonen J, Tahtela R, Laitinen K, Risteli J,	Am J Kidney Dis	1999

loss among end -stage renal disease patients.	Stehman-Breen CO, Sherrard D, Walker A, Sadler R, Alem A, Lindberg J.		
Risk factors for hip fracture among southern older women.	Turner LW, Wang MQ, Fu Q.	South Med J	1998 Jun
Risk factors for osteoporotic hip fractures in Mexicans.	Clark P, de la Pena F, Gomez Garcia F, Orozco JA, Tugwell P. Dai LY.	Arch Med Res	1998 Autumn
Study of Bone Mineral Density in Lumbar Spine and Femoral Neck in a Spanish Population. Multicentre Research Project on Osteoporosis	Diaz Curiel, M. and others	Osteoporos Int	1997
The presence of a polymorphism at the translation initiation site of the vitamin D receptor gene is associated with low bone mineral density in post-menopausal Mexican American women.	Gross C, Eccleshall TR, Malloy PJ, Villa ML, Marcus R, Feldman D.	J Bone Miner Res	1996 Dec
The prevalence of osteoporosis: gender and racial comparison.	Melton LJ	Calcif Tissue Int	2001 Oct
The strength of association between systemic post-menopausal osteoporosis and periodontal disease.	Mohammad AR, Brunsvold M, Bauer R.	Int J Prosthodont	1996 Sep-Oct
The study of tamoxifen and raloxifene: preliminary enrollment data from a randomized breast cancer risk reduction trial.	Vogel VG, Costantino JP, Wickerham DL, Cronin WM, Wolmark N	Clin Breast Cancer	2002 Jun
Vitamin D insufficiency and hyperparathyroidism in a low income, multiracial, elderly population.	Harris SS, Soteriades E, Coolidge JA, Mudgal S, Dawson-Hughes B. Jean Mayer	J Clin Endocrinol Metab	2000 Nov
Vitamin D receptor gene Fok1 polymorphism predicts calcium absorption and bone mineral density in children.	Ames SK, Ellis KJ, Gunn SK, Copeland KC, Abrams SA.	J Bone Miner Res	1999 May

Exhibit 5. Articles About Osteoporosis and Hispanics in the American Journal of Public Health

TITLE	AUTHOR(S)	DATE/VOLUME
Decreased incidence of hip fracture in Hispanics, Asians, and Blacks: California Hospital Discharge Data	SL Silverman and RE Madison	1988 78
Early menopause, number of reproductive years, and bone mineral density in post-menopausal women	D Kritz-Silverstein and E Barrett-Connor	1993 83
Fractures and lifestyle: effect of cigarette smoking, alcohol intake, and relative weight on the risk of hip and forearm fractures in middle-aged women	D Hemenway, GA Colditz, WC Willett, MJ Stampfer, and FE Speizer	1988 78
Hip fracture incidence among elderly Hispanics	DS Lauderdale, SJ Jacobsen, SE Furner, PS Levy, JA Brody, and J Goldberg	1998 88
Recognition of Osteoporosis by Primary Care Physicians	Stephen H. Gehlbach, Maureen Fournier, and Carol Bigelow	2002 92

Exhibit 6. Government and Non-Government Web Resources with Information about Osteoporosis

NAME	LINK	DESCRIPTION
Administration on Aging	www.aoa.dhhs.gov/Espanol/default.htm	Written in Spanish, provides information about aging for older adults and includes health information; also, Web info in English "Osteoporosis: The Bone Thief."
American Academy of Orthopaedic Surgeons	http://orthoinfo.aaos.org	Provides English and limited Spanish language information (Fact Sheets) on bone diseases, disorders and includes Web information on osteoporosis. Update August 2002.
American Association for Retired Persons	www.aarp.org	Provides English and Spanish Web and material information for members
American College of Rheumatology	www.rheumatology.org/patients/factsheet/osteopor.html	Provides general information about osteoporosis and causes including corticosteroid-induced osteoporosis
American Dietetic Association "Fitbones"	http://www.eatright.org/	Provides information (fact sheets, brochures) in English on osteoporosis through the connection of proper diet and exercise and "Boning up on Calcium"
Arizona Osteoporosis Coalition	http://www.azoc.org/	Provides Web resource links (NOF), information (fact sheets), and a list of programs about Osteoporosis in English covering Prevention, Treatment
Bone Builders	http://www.bonebuilders.org/	Community-based osteoporosis prevention education program for women and older men in Arizona. Web site contains general information on osteoporosis, exercise charts, and links. English only.
CDC en Espanol	http://www.cdc.gov/spanish/default.htm	CDC Web site in Spanish that offers health information on a variety of issues. Lacks information on Osteoporosis in Spanish.
Chemical, Industrial & Pharmaceutical Laboratories (CIPLA)	http://www.cipladoc.com/publications/op/issue1/Osteoporosis.htm	Provides Web information in English on Women's health, AIDS, Cardio Health, Lipid Watch, & Osteoporosis
Creighton University Osteoporosis Research Center	http://osteoporosis.creighton.edu/	Web information in English about Osteoporosis, who is at risk, how you can tell, prevention, calcium nutrition. Site contains Web links to NOF
Dairy Hotline	http://www.whymilk.com/	Web and material brochures for children-adult about the benefits of milk consumption and creating strong bones. Part of the very colorful "Got milk"

		campaign. English
Diabetes and Hormone Center of the Pacific (Honolulu)	http://www.endocrinologist.com/Espanol/osteoh.htm	Spanish language Web information about Osteoporosis published by the Diabetes and Hormone Center of the Pacific
Doctor's Guide	http://www.docguide.com	Latest medical news and information for patients or friends/parents of patients diagnosed with osteoporosis and other health issues in English on the web.
DrDonnica.com-The First Name in Women's Health	http://www.drdonnica.com/articles/00000151-002.htm	Provides Q & A, myths and misconceptions of osteoporosis and other health issues, targeting women in English
Endocrineweb.com	http://www.endocrineweb.com/osteoporosis/	Web information about osteoporosis, finding a doctor and support groups. English
Food and Drug Administration	http://www.fda.gov/cdrh/consumer/resources.html	Government Agency providing a wealth of information about a variety of health topics and issues with an emphasis on foods and drugs. Produces English only fact sheet <i>Boning up on Osteoporosis</i>
Foundation for Osteoporosis Research and Education (FORE)	http://www.fore.org/	Provides downloadable Web information (brochures, articles, events calendar) about osteoporosis prevention, diagnosis, and treatment and includes Web links. English only.
healthfinder®	www.healthfinder.gov	A free guide to reliable consumer health and human service's information developed by the U.S. Department of Health and Human Services. Provides information on fact sheets for Hispanic women about osteoporosis and links to NIH ORBD-NRC
Her Source	http://www.hersource.com/osteoc1/latino.cfm	Sponsored by GE Medical Systems, provides Web information Q & A about osteoporosis with links to NIH
Lilly Centre for Women's Health	http://www.lillywomenshealth.com/osteoporosis/riskfactors.html	Provides general health information and specific information for women on osteoporosis
Local Osteoporosis Education Links	www.loel.net/store/links.asp?dept_path=0%7C1006	Provides link to local sources for diagnosis, treatment, and education concerning osteoporosis. LOEL members offer resources, events, news and the latest information about osteoporosis.

Massachusetts Osteoporosis Awareness Program	http://www.state.ma.us/dph/bfch/chp/nutphys/osteo.htm	Provides general health information and a program on osteoporosis prevention with a hotline. English.
MayoClinic.com	http://www.mayoclinic.com/invoke.cfm?id=DS00128	Provides information on signs and symptoms, causes, risk factors, screening and diagnosis, complications, treatment, prevention, and self-care; also other health information and links to NOF, NIH/ORB/NRC. Revised: July 19, 2002
Medicinenet.com	http://www.aboutosteoporosis.com/	English. General health Web site for women with information about osteoporosis. English.
Melpomene Institute	http://www.melpomene.org	Complete health information for women and girls; A newsletter published three times a year highlights events, ongoing research and programs, and members. Has special section on osteoporosis with info and links. English only.
National Dairy Council	http://www.nationaldairyCouncil.org/lvl04/nutrib/patiented/6000_patiented_03.asp	Provides Web and material information on the benefits of milk consumption, calcium, Lactose Intolerance. English only.
National Heart, Lung, and Blood Institute, The Women's Health Initiative	http://www.nhlbi.nih.gov/whi/hrtupd/index.htm	Provides Spanish and English information on a variety of health issues for women
National Institute of Aging	http://www.nia.nih.gov/health/agepages/osteoh.htm	Provides information on the Web pertaining to aging and includes a brochure entitled <i>Osteoporosis: The Bone Thief</i>
National Institute of Arthritis and Musculoskeletal and Skin Diseases	http://www.niams.nih.gov/hi/topics/osteoporosis/opbkgr.htm	Provides general information on osteoporosis and limited Spanish language materials with links to osteo.org
National Library of Medicine	http://www.nlm.nih.gov/medlineplus/osteoporosis.html	Provides numerous regarding osteoporosis including sections on Latest News, From NIH, General/Overviews, Clinical Trials, Coping, Diagnosis/Symptoms, Disease Management, Nutrition, Prevention/Screening, Rehabilitation, Research, Specific Conditions, Treatment, Newsletters, Lists of Print Publications,

		Organizations, Statistics, Children, Men, Seniors, Teenagers, and Women
NCLR	http://www.nclr.org	Organization established to reduce poverty and discrimination, and improve life opportunities for Hispanic Americans. Provides Web and print materials on health and links to Hispanic Organizations
The National Women's Health Information Center	http://www.4woman.gov/faq/Easyread/osteopor-etr.htm	Information about osteoporosis causes, diagnosis, treatment, keeping bones healthy in English
OBGYN.net	http://www.obgyn.net/osteosteoste.asp	Provides a search engine for information and news on osteoporosis
Office of Minority Health	http://www.omhrc.gov	Provides reliable, accurate, and timely information and technical assistance on issues affecting the health of minority populations including osteoporosis information
OsteoEd	http://www.osteoad.org	Provides osteoporosis facts and educational materials for women and Asian women; building and keeping strong bones; Test your I.Q.; Case-Base Learning; Spanish/English Materials Your Calcium, Calcium Supplements and Vitamin D, and Exercise to Maintain Strong Bones
Osteoporosis and Related Bone Diseases-National Resource Center	http://www.osteoad.org/default.asp	Contains fact sheets, research, newsletters, bone links, annotated bibliographies, publications, press releases, and programs; Electronic publication "Los Huesos de las mujeres de edad madura" Print "Fitness and Bone Health: Skeletal Risk of Overtraining"
Osteoporosis Resource Centers	http://www.osteorec.com	Organization of physician offices in the Mid-Atlantic region for the diagnosis and management of osteoporosis. Offers education and promotion of awareness of the disease
Texas Department of Health's Annual Osteoporosis Awareness Campaign	http://www.tdh.state.tx.us/osteoad/	Created a multicultural series of brochures on ways to maintain bone health and prevent osteoporosis. "Step by Step" by Hispanic "Paso a Paso" Spanish version The Secret of Maria's New Life; The Secret of Maria's New Life (Spanish)
The North American Menopause Society (NAMS)	http://www.menopause.org/consumers/index.html	Although the Menopause Guidebook is useful for all women, some women need special materials. The North American Menopause Society is pleased to offer the

		booklets, "Menopause," "Educational Materials for Women with Special Needs," "NAMS Suggested Reading List," "MenoPak Program." Spanish Language Menopause/with osteoporosis related information
The Office of Women's Health (Español)	http://www.4woman.gov/spanish/index.htm	Coordinates women's health efforts in HHS to eliminate disparities in health status and supports culturally sensitive educational programs and links to Spanish literature health sites.
Web Store for National Osteoporosis Foundation	http://store.yahoo.com/nof/index.html	Provides information on osteoporosis materials published by the National Osteoporosis Foundation
WebMD	http://webmd.com	Provides online health information including information on bones and osteoporosis.

Exhibit 7. References and Findings for Audits of Health Service Providers regarding Materials Dissemination

HEALTH SERVICE PROVIDER	SUMMARY OF FINDINGS
<p>CVS pharmacy Shady Grove Road Gaithersburg, MD 301.948.8010</p>	<p>Provides English language pamphlet about osteoporosis. They have Spanish-language pamphlet produced for children's bone health that contains some information about osteoporosis.</p>
<p>Giant (Grocery store) Pharmacy Diamond Square Bureau Drive Gaithersburg, MD 301.840.0815</p>	<p>Only had English language pamphlet about osteoporosis. No Spanish-language materials about osteoporosis were available.</p>
<p>Osteoporosis Analysis Clinic 19261 Montgomery Village Avenue Gaithersburg, MD 301.530.1166</p>	<p>English-language fact sheet. No hand outs in Spanish-language about osteoporosis. Though, a bilingual staff person provides osteoporosis information for some Spanish-speaking patients. Based on a high number of Hispanic-women with low bone density, this clinic expressed a need for appropriate materials to be developed.</p>
<p>Osteoporosis Assessment Center 2730 University Boulevard Wheaton, MD 301.949.1134</p>	<p>Provides English-language pamphlet about osteoporosis. A single bilingual staff member provides information about osteoporosis to some patients about osteoporosis in Spanish.</p>
<p>Osteoporosis Diagnostic and Monitor Center 14201 Loral Park Drive Laurel, MD 301.725.6786</p>	<p>Only English language brochure about Osteoporosis with prevention, diagnosis, and management</p>
<p>Shady Grove Radiology 9711 Medical Center Drive Rockville, MD 301.212.4220</p>	<p>Provides English-language only pamphlet "Bone Density Testing-Measuring your bone health"</p>
<p>Wal-Mart (Superstore) pharmacy (800) 805.8853 Actinel (pharmaceutical company) 877.228.6635</p>	<p>Only had English language brochure "Take Steps Toward Better Bone Health" produced by Pharmaceutical manufacturer Actinel. Did not have Spanish-language materials available on osteoporosis.</p>

Exhibit 8. Organizations Involved in Hispanic Women's Health

ORGANIZATION	DESCRIPTION
<p>AARP American Association for Retired Persons 601 E St., NW Washington, DC 20049 Phone: 1-800-424-3410 Member@aarp.org</p>	<p>Publishes English language information on Fitness, eating well (prevention), managing stress, aging well, and care giving; includes facts about osteoporosis in English; publishes monthly magazine <i>Segunda Juventud</i> (English/Spanish) for members, targeting Hispanics 50 and over that includes information on osteoporosis</p>
<p>Arthritis Foundation PO Box 7669 Atlanta, GA 30357-0669 1-800-283-7800 http://www.arthritis.org/default.asp</p>	<p>Publishes <i>Arthritis Today</i> magazine Internet Information: The Challenge, Progress and Activities, Understanding and Improving Quality of Life, Research Opportunities</p>
<p>Asociación Nacional Pro-Personas Mayores 3325 Wilshire Boulevard, Suite 800 Los Angeles, CA 90010 (213) 487-1922</p>	<p>Publishes “A Nuestra Salud,” a series of fact sheets on a wide range of health topics, including dietary supplements and nutrition.</p>
<p>Blue Cross Blue Shield, CareFirst 10455 and 10453 Mill Run Circle Owings Mills, MD 21117 (410) 581-3000 http://www.carefirst.com/</p>	<p>Provides health education information on Osteoporosis including facts about osteoporosis, stroking bone health, the facts about osteoporosis, & calcium</p>
<p>Centers for Disease Control and Prevention Various offices around U.S. 1-800-311-3435 http://www.cdc.gov/nccdphp/arthritis/index.htm</p>	<p>The lead federal agency for protecting the health and safety of people - at home and abroad, providing credible information to enhance health decisions, and promoting health through strong partnerships</p>
<p>Fundación Hispana de Osteoporosis y Enfermedades Metabólicas Óseas. Gil de Santivañes, 6 - 2º Dcha • 28001 MADRID • Tno./Fax:91 578 35 10 E-mail: fhoemo@mail.todoesp.es http://www.todoesp.es/fhoemo/</p>	<p>International organization that is interested in promoting, educating, and distributing information about Osteoporosis. Presently has information on the Web about Osteoporosis in Spanish.</p>
<p>Health Promotion Council, Southeastern Pennsylvania, Inc. Latino Health Projects 206 South Broad Street Philadelphia, PA 19102 (215) 731-6192</p>	<p>Provides low-literacy pamphlets in Spanish on depression, stress, diabetes, high blood pressure, smoking, health management, and nutrition. Single copies are free.</p>
<p>Hispanic Health Council 96-98 Cedar Street Hartford, CT 06106 (860) 527-0856</p>	<p>Provides health information in Spanish, including information on nutrition.</p>

<p>International Osteoporosis Foundation 71, cours Albert-Thomas 69447 Lyon Cedex 03 France +33 472 91 41 77 www.osteofound.org</p>	<p>Supports Research, training, and education about the issues of Osteoporosis; Also, develops, adapts, and distributes a wide range of information about Osteoporosis in various languages including Spanish</p>
<p>Kaiser Permanente Call 1-800-556-9444</p>	<p>Provides an assortment of health information in materials publication, classes, and videos on food and nutrition, just for kids, and exercise</p>
<p>National Association for Hispanic Elderly 3325 Wilshire Boulevard, Suite 800 Los Angeles, CA 90010 (213) 487-1922</p>	<p>Focuses on the social and health needs of older Hispanic people by conducting research and creating and disseminating written and audio/visual materials in English and Spanish</p>
<p>National Center for Farm worker Health 1770 FM 967 Buda, TX 78610 (512) 312-2700 (800) 531-5120</p>	<p>An education center that creates low literacy, bilingual materials for patient education in migrant health centers and outreach programs.</p>
<p>National Council of La Raza 1111 19th St. NW, Suite 1000 Washington, DC 20036 (202) 785-1670 www.nclr.org</p>	<p>Undertakes applied research, policy analysis, and advocacy needs on behalf of the needs of the Hispanic Community and produces and disseminates materials</p>
<p>National Hispanic Council on Aging 2713 Ontario Road, NW Washington, DC 20009 (202) 745-2521 www.nhcoa.org</p>	<p>Distributes a quarterly newsletter titled Noticias of Hispanic Aging Issues and News. Also has available The Hispanic Elderly: A Cultural Signature and a video titled Nosotros Los Viejos: Your Challenges and Your Rewards.</p>
<p>Organization Panamericana de la Salud 525 23rd Street, NW Washington, DC 20037 (202) 293-8130 www.paho.org</p>	<p>Distributes Spanish-language materials on health issues concerning Hispanics/Latinos in the United States and Latin America.</p>

<p>Pan American Health Organization Regional Office of the World Health Organization 525 Twenty-third Street, N.W. Washington, D.C. 20037 United States of America Tel: (202)974-3000 Fax: (202)974-3663 http://www.paho.org/</p>	<p>International organization that shares a wealth of information resources about demographics, health and diseases in both English and Spanish. A search for information about osteoporosis produced Including What is Physical Activity?</p>
<p>The National Alliance for Hispanic Health The National Alliance for Hispanic Health 1501 Sixteenth Street, NW Washington, DC 20036 tel. 202-387-5000 e-mail: alliance@hispanichealth.org www.Hispanichealth.org</p>	<p>Provides health facts for both consumers and health providers and contains Helplines for individual assistance. Su Familia, National Hispanic Prenatal Helpline, and National Hispanic Indoor Air Quality Helpline, and publications, and Web links. Develops, adapts, and distributes a wide range of materials for Hispanics on public health issues</p>
<p>The National Women's Health Information Center 8550 Arlington Blvd., Suite 300 Fairfax, VA 22031 1-800-994-9662 1-888-220-5446 (hearing impaired)</p>	<p>Provides access to thousands of publications and organizations with information on hundreds of health topics including osteoporosis with links to the National Osteoporosis Foundation</p>

Exhibit 9. Government and Non-Government Educational Materials for Hispanic Women related to Healthy Bones and Osteoporosis by Title

TITLE	ORGANIZATION	DESCRIPTION
¿Está usted en riesgo de padecer osteoporosis?	International Osteoporosis Foundation www.osteofound.org	Publication with questionnaire about osteoporosis in Spanish
<u>¿Tiene Sus Huesos Sanos?</u>	Osteoporosis and Related Bone Diseases-National Resource Center http://www.osteoporosis.org/default.asp	Publication: lo que la mujer latina debe saber sobre la osteoporosis, que es la osteoporosis
Constitución y mantenimiento de huesos fuertes: suplementos de calcio	University of Washington Medical Center http://depts.washington.edu/uwcoepdfs/calcium_spanish.pdf	Downloadable brochure in Spanish covering: Your calcium Goal, Calcium Supplements and Vitamin D; Exercise to Maintain Strong Bones
Huesos Sanos Sara los Hombres y Mujeres de Edad Avanzada	Osteoporosis and Related Bone Diseases-National Resource Center http://www.osteoporosis.org/default.asp	Content: La prevención no tiene edad, Los Factores de riesgo, Que es la osteoporosis, El calcio: algo necesario a todas las edades, El ejercicio físico, hábitos sanos producen huesos sanos, pruebas para determinar la densidad ósea, el tratamiento para la osteoporosis
Join the Movement for Strong Bones	Texas Department of Health http://www.tdh.state.tx.us/osteoporosis/	Designed to educate Texans about the risks of developing osteoporosis and steps they can take to reduce their chances of getting it.
Lactose Intolerance: Know the Facts	Massachusetts Health Promotion Clearinghouse, The Medical Foundation http://www.maclightinghouse.com/	For general audience, this is an easy-to-read fact sheet that describes lactose intolerance, how to get necessary vitamin D and calcium to keep strong bones.
Latino Women and Osteoporosis	Osteoporosis and Related Bone Diseases-National Resource Center http://www.osteoporosis.org/default.asp	Provides a variety of Web and material health information about osteoporosis with limited Spanish language materials

Osteoporosis	University of Utah, Health Sciences Center http://uuhsc.utah.edu/healthinfo/adult/Women/osteogen.htm	Brochure defines osteoporosis, populations affected, factors of high risk, diagnosis, and treatment.
Osteoporosis en Mujeres: Manteniendo sus huesos saludables y fuertes	American Academy of Family Physicians 2000 https://secure.aafp.org/cgi-bin/catalog.pl	This publication contains information about what is osteoporosis, what are the signs of osteoporosis, the risks of osteoporosis, do you need a bone density test, hormone replacement therapy, benefits of HRT, side effects of HRT, taking HRT, calcitonin, alendronate, raloxifene, taking calcium
Osteoporosis: It's Never Too Early or Late to Do Something About It	Massachusetts Health Promotion Clearinghouse, The Medical Foundation http://www.state.ma.us/dph/bfch/chp/nutphys/oste.htm	Available in Spanish, this is a colorful brochure targeting women 35-55 years of age that provides information on osteoporosis, risk factors, dietary sources of calcium and Vitamin D, physical activity, medical therapy, and safety tips for fall prevention.
Osteoporosis: The Bone Thief	National Institute on Aging http://www.nia.nih.gov/health/agepages/oste.htm	Electronic and material brochure on Osteoporosis. English.
Step by Step, Supporting Hispanic Women's health at every stage of life	Texas Department of Health http://www.tdh.state.tx.us/oste/	English/Spanish. Health brochure for women of all ages covering Osteoporosis, menopause, and proper diet and exercise
The Secrets of Maria's New Life	Texas Department of Health http://www.tdh.state.tx.us/oste/brochures/MariaEng.pdf	English. General health brochure for Hispanic women in the menopause-age, covering importance of exercise, proper intake of calcium to avoid Osteoporosis

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ADDITIONAL WEB REFERENCES

ALTERNATIVE & COMPLEMENTARY THERAPIES

National Center for Complementary and Alternative Medicine - nccam.nih.gov

ARTHRITIS

American College of Rheumatology - www.rheumatology.org

Arthritis Foundation of Australia - www.arthritisfoundation.com.au/html/index.php

Arthritis Research Institute of America - www.preventarthritis.org/fr_abt.htm

Arthritis Society in Canada - www.arthritis.ca

EXERCISE/PHYSICAL ACTIVITY

American College of Rheumatology - www.rheumatology.org/patients/factsheet/exercise.html

Arthritis Foundation - www.arthritis.org

Centers for Disease Control and Prevention - www.cdc.gov/hcccdphp/sgr/fact.htm

Centers for Disease Control and Prevention, Division of Nutrition and Physical Activity - www.nccdphp/dnpa

Exercise Essential Treatment for Arthritis - arthritis.about.com/library/weekly/aa100797.htm

John Hopkins - www.hopkins-arthritis.org/mngmnt/exercise.html

Mayo Clinic - www.mayohealth.org/home?id=AR00009

Missouri Arthritis Rehabilitation Research and Training Center - www.muhealth.org/~arthritis

National Center on Physical Activity and Disability - www.ncpad.org/home.htm

National Institutes of Arthritis & Musculoskeletal and Skin Diseases -

www.nih.gov/niams/healthinfo/arthexfs.htm

Osteoarthritis and Exercise - www.vhct.org/case2100

President's Council on Physical Fitness - www.fitness.gov/index.html

Rheumatoid Arthritis and Aerobic Exercise - www.vhct.org/case1399

Surgeon General's Report - www.cdc.gov/nccdphp/sgr/sgr.htm

YMCA - www.ymca.net

YWCA - www.ywca.org

FIBROMYALGIA

American College of Rheumatology - www.rheumatology.org/patients/factsheet/fibromya.html

Fibromyalgia Association of Greater Washington, Inc. - www.fmagw.org

Missouri Arthritis Rehabilitation Research & Training Center - www.muhealth.org/~arthritis

National Fibromyalgia Research Association - www.teleport.com/~nfra

JUVENILE ARTHRITIS

American College of Rheumatology - www.rheumatology.org/patients/factsheet/jra.html

American Juvenile Arthritis Organization - www.ajao.org

Dr. Tom Lehman, Pediatric Rheumatologist - www.goldscout.com

Girl Power - www.girlpower.gov

Missouri Arthritis Rehabilitation Research and Training Center - www.muhealth.org/~arthritis

National Institutes of Arthritis & Musculoskeletal and Skin Diseases - www.nih.gov/niams

University of Wisconsin - www.familyvillage.wisc.edu

LITERATURE SEARCH

Combined Health Information Database (CHID) - www.chid.nih.gov/detail/detail.html

U.S. National Library of Medicine - www.nlm.nih.gov

LUPUS

Alliance for Lupus Research - www.lupusresearch.org/research/lupusresearch/main.asp

American Autoimmune Related Disease Association - www.aarda.org

American College of Rheumatology - www.rheumatology.org/patients/factsheet/sle.html

American College Rheumatology - www.rheumatology.org/index.asp

Lupus Foundation of America - www.lupus.org

Missouri Arthritis Rehabilitation Research and Training Center -

www.muhealth.org/~arthritis/lupus/links.html

National Institutes of Arthritis & Musculoskeletal and Skin Diseases - www.nih.gov/niams

MEDICARE

Medicare - www.medicare.gov

MEDICATIONS

Arthritis Foundation - www.arthritis.org/conditions/DrugGuide/default.asp

Virtual Health Care Team: Drug information databases -

www.vhct.org/GenResources/general_resources_drugs.html

Medicine Program - www.themedicineprogram.com

NUTRITION

It is recommended that all people consult their physician, registered dietitian, certified diabetes educator, or other health care professional for nutritional counseling.

American Dietetics Association - www.eatright.org

Centers for Disease Control and Prevention, Division of Nutrition and Physical Activity -

www.cdc.gov/nccdphp/dnpa

Food and Nutrition Information Center (FNIC) - www.nal.usda.gov/fnic

National Dairy Council - www.nationaldairycouncil.org

Nutrition Action Healthletter - www.cspinet.org/nah

Tufts Nutrition Navigator - www.navigator.tufts.edu

Powerful Bones, Powerful Girls - www.cdc.gov/nccdphp/dnpa/bonehealth/bonehealth.htm

U.S. Food and Drug Administration - vm.cfsan.fda.gov/~dms/wh-osteo.html

PEER-REVIEWED JOURNALS

Annals of the Rheumatic diseases - ard.bmjournals.com

Arthritis & Rheumatism - www.rheumatology.org/ar/ar.html

Arthritis Care & Research - www.rheumatology.org/arhp/ac&r/ac&r.html

Arthritis Research - www.arthritis-research.com

Journal of the American Medical Association - www.jama.ama-assn.org

Journal of Clinical Rheumatology - www.jclinrheum.com

Lancet - www.thelancet.com

Nature - www.nature.com

New England Journal of Medicine - www.nejm.org

Rheumatology - www.rheumatology.oupjournals.org
 Rheumatology & Musculoskeletal Medicine for Primary Care -
www.rheumatology.org/publications/rmmpc.html
 Science - www.sciencemag.org

PROFESSIONAL SOCIETIES

American Academy of Family Physicians - www.aafp.org
 American Academy of Orthopedic Surgeons - www.aaos.org
 American Board of Internal Medicine - www.abim.org/home.htm
 American College of Rheumatology - www.rheumatology.org
 American Dietetics Association - www.eatright.org
 American Geriatrics Society - www.americangeriatrics.org
 American Medical Association - www.ama-assn.org
 American Occupational Therapy Association - www.aota.org
 American Physical Therapy Association - www.apta.org
 American Society for Bone and Mineral Research - www.asbmr.org
 Association of Rheumatology Health Professionals - www.rheumatology.org/arhp/index.html
 European League Against Rheumatism - www.eular.org
 International League of Associations for Rheumatology - www.ilar.org
 National Institute of Arthritis and Musculoskeletal & Skin Diseases - www.nih.gov/niams
 The Gerontological Society of America - www.geron.org
 The National Council on the Aging - www.ncoa.org

RESEARCH

Agency for Healthcare Research and Quality - www.ahrq.gov
 American Society for Bone and Mineral Research - www.asbmr.org
 Arthritis National Research Foundation - www.curearthritis.org
 Creighton University Osteoporosis Research Center - osteoporosis.creighton.edu
 Foundation for Osteoporosis Research and Quality - www.fore.org/
 John Hopkins - www.hopkins-arthritis.org
 Missouri Arthritis Rehabilitation Research and Training Center - www.muhealth.org/~arthritis
 St. Louis University - www.slu.edu
 Stanford University - www.stanford.edu/group/perc
 University of Missouri - Columbia - muhealth.org/~medicine
 Washington University - medicine.wustl.edu

SCLERODERMA

American College of Rheumatology - www.rheumatology.org/patients/factsheet/scler.html
 Scleroderma Foundation - www.scleroderma.org
 Scleroderma Research Foundation - www.srfcure.org

SJOGRENS

National Sjogrens Syndrome Association - www.sjogrens.org
 Sjogren's Syndrome Foundation, Inc. - www.sjogrens.com

SPONDYLITIS

American College of Rheumatology - www.rheumatology.org/patients/factsheet/as.html

Spondylitis Association of America - www.spondylitis.org

WOMEN'S HEALTH

National Women's Health Information Center - www.4woman.gov

National Women's Health Network - www.womenshealthnetwork.org

Older Women's League - www.owl-national.org

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