

# Increased Use of Mammography Among Hispanic Women: Baseline Results from the NCI Cooperative Group on Cancer Prevention in Hispanic Communities

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**Background:** The *Healthy People 2000* report set the objective of increasing the percentage of women 40 or older who had ever received a mammogram and clinical breast examination to 80% by the year 2000. The report used a baseline of 36% for all American women and 20% for Hispanic women. The purpose of this study was to compare baseline estimates with data obtained in five Hispanic communities.

**Methods:** Common survey measures were administered in five studies participating in a National Cancer Institute Cooperative agreement. The surveys evaluated history of mammography in five Hispanic communities in the southwestern United States.

**Results:** Across the five communities, the rates of mammography use were significantly higher than the national baseline. Among women 40–49 years of age, 55% had completed mammography (95% confidence interval [CI] = 52%, 57%). Among women 50

years of age or older, 64% had received a mammogram (95% CI = 62%, 66%). Older women (above age 50) were significantly more likely to have completed the test than younger women (younger than age 50), and mammography was obtained less often among women who were uninsured and those who had lower levels of acculturation.

**Conclusions:** We conclude that the rate of mammography use among Hispanic women has increased significantly over the last few years and that we are on track to reach the goal of 80% mammography compliance for Hispanic women 40 years and older by the year 2000.

**Medical Subject Headings (MeSH):** Hispanic Americans, cancer, screening, mammography, women's health. [Am J Prev Med 1996;12:467–71]

An important cancer-prevention objective stated in *Healthy People 2000* was to increase to at least 80% the percentage of women who had ever received a mammogram and clinical breast

examination (CBE).<sup>1</sup> This was a lofty goal given the 1987 baseline data suggesting that only 36% of American women 40 years or older had ever received mammography. Baseline rates of mammography use varied by social and demographic group. Hispanic women were the least likely to have received a mammogram. According to the 1987 baseline data, only 20% of Hispanic women 40 or older had received such tests. In this report we offer data on rates of mammography use from five different studies sharing data under a National Cancer Institute (NCI) cooperative agreement. The purpose of the report is to suggest changes in the rates of mammography use between the baseline 1987 and 1993 assessments.

This work is based on collaborative efforts by investigators participating in a National Cancer Institute Cooperative Agreement on cancer prevention in the Hispanic community. From the University of California, San Diego (Kaplan and Navarro), Arizona State University (Castro), San Diego State University (Elder), University of California, Irvine (Mishra and Hubbell), Colorado State Health Department (Chrvla), University of Colorado (Flores), University of Texas Health Science Centers in Houston and San Antonio (Ramirez and Fernandez-Esquer), and National Cancer Institute (Ruiz). The order of authorship is arbitrary and does not necessarily reflect level of contribution.

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## METHODS

**Settings.** Five studies are participating in an NCI initiative on cancer prevention in the Hispanic community. The sites include

Table 1. Descriptive data from participants in the five studies

| Site name                         | Arizona<br>(church) | SD (Comp.)<br>(church) | SD (PLV)<br>(commun) | Colorado          | Orange<br>County | Texas             |
|-----------------------------------|---------------------|------------------------|----------------------|-------------------|------------------|-------------------|
| Number of women >40 years old     | 627                 | 883                    | 512                  | 3,230             | 803              | 1,800             |
| % Married women                   | 70.5                | 74.9                   | 74.3                 | 66.0              | 63.5             | 63.4              |
| % Women who speak Spanish         | 49.8                | 71.9                   | 90.8                 | 10.4              | 54.5             | 51                |
| % Women born in United States     | 48.5                | 21.0                   | 4.7                  | NA                | 33.6             | 52                |
| Median years in the United States | 13                  | 19                     | 8                    | NA                | 11               | NA                |
| Median family income              | \$12,012–\$15,000   | \$9,012–\$12,000       | \$12,000             | \$15,000–\$20,000 | NA               | \$10,000–\$14,999 |
| % Women with health insurance     | 59.3                | 65.1                   | 37.6                 | 74.4              | 66.9             | 51                |
| Median years of education         | 9–10                | 9–10                   | 7                    | 12                | 12               | 8                 |
| % Full-time homemakers            | 30.0                | 37.2                   | 73.4                 | 25.1              | 27.9             | 50                |

community samples in San Antonio and Houston, Texas (University of Texas Health Science Center San Antonio), Orange County, California (University of California, Irvine), and Colorado (University of Colorado and Colorado Health Department). Other sites are studying selected low-income community women in San Diego (University of California, San Diego and San Diego State University) and church attendees in Phoenix and San Diego (Arizona State University and San Diego State University). Since there were two sites in San Diego, we refer to them as the San Diego community sample or Por la Vida (PLV) and the San Diego church or Companarios (Comp) samples.

**Time frame.** The five studies began in 1990. Data for this report were obtained in 1991 and early 1993. Each of the five studies has a different purpose and each recruits participants differently. One of the five studies has two different sites (Phoenix and San Diego churches). Characteristics of the participants in the five studies are summarized in Table 1. The Texas and Colorado sites were community random samples. The Arizona and San Diego Church studies involved participants sampled randomly from the rosters of participating churches. The Orange County sample was based on a random-digit dialing telephone inquiry, whereas the San Diego community study used low-income women to recruit acquaintances. Median family income tended to be low at all sites. However, the percentage of women with health insurance ranged from a low of 37.6% in the San Diego community sample to a high of 74.4% in the Colorado sample. Three of the samples (Arizona, Colorado, and Orange County) had median educational levels that reflected education progress in high school grades while median levels of education in two samples (San Diego PLV and Texas) reflected an education progress that fell below the high school grades. In these three samples, only about a quarter of the women were full-time homemakers. Educational levels were lower in one of the San Diego communities (PLV) and the San Antonio sample, while the percentage of women who were full-time homemakers was higher in these two groups. The percentage of women who spoke Spanish as their primary language ranged from 10.4% in the Colorado sample to 90.8% in one of the San Diego community samples (PLV).

**Questions.** Each of the five studies used different questionnaires. However, some items were shared across studies. These shared items included the questions, "Have you ever had a mammogram?" and "When was your last mammogram done?"

**Acculturation.** All sites included two common items to assess language-based level of acculturation. The items were structured

in accord with the ARSMA scale, which is the most frequently used scale to measure acculturation in Latino/Hispanic populations.<sup>2</sup> The first asked what language the person used in speech, while the second asked what language the respondent used to read or think. For each of these items there was a five-point continuum: 1 indicated only Spanish, 3 was a midpoint indicating equal use of English and Spanish, and 5 indicated English only. The acculturation index was created by averaging these two items. Low acculturation was defined as scores equal to or less than 2.49, intermediate acculturation was defined as scores of 2.5 to 3.49, and high acculturation was defined as scores of 3.5 or higher. This index was available for all sites except Colorado.

**Analysis.** This article reports simple descriptive statistics. Rates of mammography were broken down by age, time since last mammography, insurance status, and reason for mammogram. All analyses considered study site and acculturation status separately.

## RESULTS

Table 2 summarizes the percentage of participants reporting ever having a mammogram, broken down by age and study site. Data are reported only for women 40 years of age or older. Unexpectedly, 64% (95% confidence interval [CI] = 62%, 66%) of women 50 years and older had received a mammogram. The rate exceeded the 20% 1987 baseline for Hispanic women 40 years or older for all study sites and acculturation levels. For women 50 years and older, the San Diego Community sample had the lowest rate of mammogram completion for older women (34.6%), although the sample size for women over age 50 was small. The rate in the San Antonio sample was about 46%, while all other sites were above 70%. In fact, four of the six sites had mammogram completion rates above 60% for women in the 40–49 years age category. Aggregated across sites, the prevalence of lifetime mammography was higher for the women older than 50 (64%, 95% CI = 62%, 66%) as compared with the women ages 40 to 49 (55%, 95% CI = 53%, 58%). This difference was statistically significant ( $P < .01$ ). In women ages 40 to 49, the highest percentages of mammography were observed for women in the highest acculturated category in three sites (Arizona, Orange County, and Texas). By contrast, for the two San Diego projects, the highest mammography rates were observed among the *least* acculturated women. This same pattern was observed across all sites for the women older than 50.

Table 2. Percentage reporting ever having mammogram by age and acculturation level

| Age         | Acculturation level | Arizona (church) | SD (comp.) (church) | SD (PLV) (commun) | Colorado    | Orange County | Texas       |
|-------------|---------------------|------------------|---------------------|-------------------|-------------|---------------|-------------|
| 40-49 years | Low                 | 35 (63.4%)       | 65 (50.8%)          | 39 ( 39.0%)       |             | 34 (59.6%)    | 44 (28.2%)  |
|             | Medium              | 12 (66.7%)       | 57 (76.0%)          | 3 (100%)          |             | 5 (50.0%)     | 32 (38.4%)  |
|             | High                | 44 (73.3%)       | 18 (78.3%)          | 2 ( 50.0%)        |             | 42 (80.8%)    | 30 (42.9%)  |
|             | All levels          | 91 (68.4%)       | 140 (61.9%)         | 44 ( 40.7%)       | 371 (60.5%) | 81 (68.1%)    | 102 (33.9%) |
| ≥50 years   | Low                 | 35 (70.0%)       | 107 (64.8%)         | 24 ( 52.1%)       |             | 25 (71.4%)    | 159 (43.8%) |
|             | Medium              | 36 (80.0%)       | 45 (76.3%)          | 1 ( 50.0%)        |             | 16 (80%)      | 104 (50.7%) |
|             | High                | 77 (81.9%)       | 42 (87.5%)          | 1 (100%)          |             | 29 (87.9%)    | 43 (48.9%)  |
|             | All levels          | 148 (78.3%)      | 194 (70.5%)         | 27 ( 34.6%)       | 615 (73.8%) | 70 (79.5%)    | 306 (46.5%) |

Table 3. Time since last mammogram among women over 50 years old

| Time since last mammogram | Acculturation level | Arizona (church) | SD (comp.) (church) | SD (PLV) (commun) | Colorado    | Orange County | Texas       |
|---------------------------|---------------------|------------------|---------------------|-------------------|-------------|---------------|-------------|
| <12 months                | Low                 | 19 (38.0%)       | 70 (39.5%)          | 17 ( 35.4%)       |             | 14 (43.8%)    | 94 (26.0%)  |
|                           | Medium              | 30 (66.7%)       | 30 (49.2%)          | 0 ( 0%)           |             | 11 (55.0%)    | 63 (30.7%)  |
|                           | High                | 66 (70.2%)       | 32 (62.7%)          | 1 (100%)          |             | 20 (62.5%)    | 26 (29.9%)  |
|                           | All levels          | 115 (60.8%)      | 132 (45.7%)         | 18 ( 35.3%)       | 412 (49.6%) | 45 (53.6%)    | 183 (28.0%) |
| 13-24 months              | Low                 | 11 (22.0%)       | 19 (10.7%)          | 4 ( 8.3%)         |             | 5 (15.6%)     | 25 ( 6.9%)  |
|                           | Medium              | 4 ( 8.9%)        | 9 (14.8%)           | 1 ( 50.0%)        |             | 2 (10.0%)     | 25 (11.2%)  |
|                           | High                | 6 ( 6.4%)        | 7 (13.7%)           | 0 ( 0%)           |             | 6 (18.8%)     | 8 ( 9.2%)   |
|                           | All levels          | 21 (11.1%)       | 35 (12.1%)          | 5 ( 9.8%)         | 93 (11.2%)  | 13 (15.5%)    | 58 ( 8.9%)  |

Table 4. Self-report mammogram by health insurance status and acculturation level (cells include both n and %)

| Health insurance | Acculturation level | Arizona (church) | SD (comp.) (church) | SD (PLV) (commun) | Colorado      | Orange County | Texas       |
|------------------|---------------------|------------------|---------------------|-------------------|---------------|---------------|-------------|
| Insured          | Low                 | 42 (44.7%)       | 253 (54.5%)         | 50 (61.0%)        |               | 79 (73.8%)    | 139 (55.2%) |
|                  | Medium              | 43 (68.3%)       | 170 (70.8%)         | 9 (90.0%)         |               | 30 (76.9%)    | 112 (66.7%) |
|                  | High                | 133 (83.6%)      | 140 (90.9%)         | 7 (87.5%)         |               | 105 (93.8%)   | 78 (72.9%)  |
|                  | All levels          | 218 (69.0%)      | 563 (65.2%)         | 66 (66.0%)        | 2,397 (74.4%) | 214 (82.9%)   | 329 (62.4%) |
| Uninsured        | Low                 | 52 (55.3%)       | 211 (45.5%)         | 32 (39.0%)        |               | 28 (26.2%)    | 113 (44.8%) |
|                  | Medium              | 20 (31.7%)       | 70 (29.2%)          | 1 (10.0%)         |               | 9 (23.1%)     | 56 (33.3%)  |
|                  | High                | 26 (16.4%)       | 14 ( 9.1%)          | 1 (12.5%)         |               | 7 ( 6.2%)     | 29 (27.1%)  |
|                  | All levels          | 98 (31.0%)       | 295 (34.4%)         | 34 (34.0%)        | 823 (25.6%)   | 44 (17.1%)    | 198 (37.6%) |

Table 3 considers the percentages of women over age 50 who obtained mammograms within the last 12 months. Combined across sites, 43% (95% CI = 41%, 45%) of women 50 years and above had obtained a mammogram within the last 12 months ( $n = 2,097$ ). Although the rates were lower in the San Antonio sample (28.0%) and the San Diego community sample (35.3%), all other sites were above 40%.

Table 4 considers only women who had ever had a mammogram classified by insurance status. Considering all sites, 72% (95% CI = 70%, 73%) of insured women had completed mammography in comparison to 28% (95% CI = 27%, 30%) of the uninsured women. This difference was highly significant ( $P < .0001$ ). The difference by insurance status occurs in all age groups and at all study sites. Having insurance is a potent factor associated with getting a mammogram.

## DISCUSSION

There are several alternative explanations for why mammography rates were higher than expected. One suggestion is that Hispanic women in these studies overreport their actual use rate. We are now investigating whether self-reports of mammography use are veridical. For example, some of the sites are comparing self-reports against actual medical records. It is important to emphasize, however, that the self-report methodology for ascertaining mammography in these five studies is the same as it was in the 1987 baseline. In other words, it is unlikely that inaccurate report accounts for the increase in the rate of mammography.

A second explanation for the increased rate of mammography is a secular trend. In order to evaluate this proposition, we searched the literature for other community-based studies of

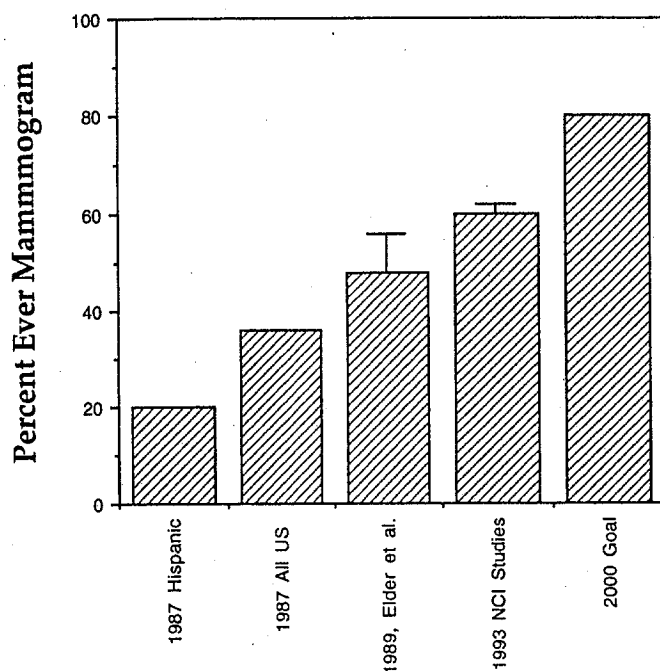


Figure 1. Comparison of 1987 baseline for Hispanic women, all women, a community study collecting data in 1989, aggregated data from the 5 NCI studies, and the year 2000 goals. Confidence intervals are shown for the community study and the NCI studies. They are not available for the Healthy People 2000 baseline data or goals.

mammography use. Elder, Castro et al. did report mammography use among Latina women in a random sample-telephone survey conducted in San Diego.<sup>3</sup> The study reported use rates for women who were either well acculturated or less acculturated. Although this report was published in 1991, the data were collected in 1989. Figure 1 compares rates of mammography estimated from the 1987 baseline, the 1989 study, and the 1993 studies. As the figure suggests, the 1989 data point is intermediate between the baseline and current findings. Thus, a secular trend may be a reasonable explanation for the change. In addition, the data are consistent with the nationwide upswing in the use of mammography that began in the 1980s.<sup>4</sup>

Our findings are consistent with trends in mammography use for non-Hispanic populations. Based on the Behavioral Risk Factors Survey, the Centers for Disease Control and Prevention (CDC) reported increased rates of cancer screening tests between 1987 and 1989.<sup>5</sup> These results varied significantly across states. Mammography rates in California increased by 10% and rates in Texas increased about 18% between 1987 and 1989. Data for Colorado were not reported. Evidence from the National Health Interview Survey has also shown secular trends in mammography use. Between 1987 and 1990, the rate at which women completed mammography doubled. Ethnic/racial status was a more important factor in 1987 than it was in 1990.<sup>6</sup> In the National Health Interview Survey data, Hispanic women had the lowest rate of mammography screening of any racial or ethnic group. However, the rate of increase between 1987 and 1990 was greatest for Hispanic women. The other studies broke down mam-

mography use by race (African American versus Caucasian) but did not consider Hispanic women as a separate category.<sup>4,5</sup>

In a recent paper, White, Urban, and Taylor<sup>7</sup> reviewed explanations for variation in the use of mammography. The review confirms factors identified in this study. Low socioeconomic factors, low income, and poor access to health care were identified as the major factors associated with low rates of mammography completion. In the present study, lack of insurance was a major factor associated with low rates of mammography. Clearly the lack of insurance due to unemployment, or employment in jobs that offer no insurance coverage, is a major barrier that limits access to preventive health services.<sup>8</sup>

An alternative explanation for our results is that participants in the NCI studies are not representative of the U.S. Hispanic population. Although this explanation is plausible, we find it unlikely because of the diversity of studies participating under this cooperative agreement and because several sites used random samples rather than volunteers. Further, the same trend we observed has recently been confirmed in the U.S. National Health Interview Survey.<sup>5</sup> Analyses indicate that level of acculturation is generally an important factor also associated with the likelihood that Latinas will obtain a mammogram. The general trend is that the higher-accultured women are more likely to have obtained a mammogram, although this trend can vary by geographic location. A given Hispanic community can have unique community resources, programs, and dynamics that can affect access to mammography screening and services. Proactive programs that target Latinas who are at highest risk for cancer (low-accultured, low-educated Latinas) might ultimately introduce higher rates of lifetime mammography among the least-accultured women, thus reversing the general trend presently observed across several Hispanic communities.<sup>9</sup>

## Conclusions

The data from the five cooperating NCI studies suggest that the rate of mammography use among women from Hispanic communities in the southwestern United States has increased significantly over the last few years. These data indicate that the year 2000 goal of 80% "ever" mammography compliance for women 40 years and older is realistic.<sup>1</sup> On the other hand, we caution against the interpretation that continued health promotion efforts in Hispanic communities are no longer needed. Hispanic women continue to have screening rates significantly below those of Caucasian non-Hispanic women. Low-income Hispanic women with limited access to care particularly need cancer screening services.

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