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CIRCLE OF CARE: BEYOND HIV COUNSELING AND TESTING

Overview

Many HIV counseling and testing programs do not link both seropositive and seronegative individuals with comprehensive services after HIV testing. East Boston Neighborhood Health Center implements HIV counseling and testing in four programs: (1) a confidential program for existing clients; (2) an anonymous test site serving inner-city residents; (3) a mobile unit serving courts, methadone clinics, and substance abuse programs; and (4) a screening clinic for immigrants. This paper presents counseling and testing data from these programs for two periods. In addition, data on referrals for both seropositive and seronegative individuals from the anonymous test site and mobile unit are reported. Personalized referrals ensure that newly seropositive individuals are immediately engaged in comprehensive HIV care. Referrals for individuals with high-risk behaviors help maintain their HIV negative status as well as promote early HIV detection and intervention. In addition, referrals that extend to families and social networks complete the circle of care.

Background

The risk of HIV infection is particularly high among such groups as injecting drug users and their sex partners, sex workers and their partners, men who have sex with men but are not gay identified, and minority women. Although counseling and testing services are available in most communities to reach these high-risk groups, most programs do not link both seropositive and seronegative individuals with comprehensive health care services after HIV testing. For some (e.g., insured persons who have a primary care provider or persons with adequate financial, material, and social supports), these linkages may be unnecessary. However, disenfranchised populations may lack resources and be unable to advocate for themselves to obtain health care and social services. In addition, marginalized persons may be inhibited from accessing care because of past negative experiences with bureaucratic systems. The advantages of linking seropositive individuals to health care services include provision of treatment and prevention of new infection. The less obvious but equally important reasons for engaging seronegative individuals into care include ongoing opportunities for HIV education as well as establishing a safety net for early detection and intervention in the event that...
infection does occur. The purpose of this paper is twofold: (1) to report HIV counseling and testing data from four community-based programs at one inner-city health center and (2) to describe types of referrals from two of these programs to health and social services needed by seropositive and seronegative persons who are generally not engaged in care.

HIV counseling and testing programs exist in many communities throughout the United States. The structure of these programs varies. Some programs focus only on counseling and testing, while others provide participants with an educational program on HIV prevention. Most of these programs have been housed in single locations or have focused on single populations. In some instances, counseling and testing programs have been taken to community settings to access hard-to-reach populations. The effectiveness of education, counseling, and testing programs in reducing risk behaviors for HIV infection has been documented. Two goals for these programs are clear. The ultimate goal is the prevention of HIV infection. Secondarily, when an HIV diagnosis is made, persons living with HIV/AIDS (PLWHIVs) are linked to HIV health care services. Understanding the needs of PLWHIVs and linking them with services are essential to promoting increased survival and a high level of wellness. The varying needs of PLWHIVs receiving care in different settings (e.g., home care, hospital, outpatient clinics, long-term care) have been compared. Solomon and colleagues reported on the use of health services in a cohort of intravenous drug users with known HIV-1 serostatus. Case management models have been used to link PLWHIVs with health care and social services. Special programs have been established to link certain AIDS populations with services. For example, the Well-Being Institute in Detroit, Michigan, seeks out multiple-diagnosed women living with HIV/AIDS, “hyperlinking” them into care. The focus of these programs has been HIV-seropositive persons.

Seronegative individuals who may have emergent health care and/or social needs do not routinely receive referrals from HIV counselors. Krauss and colleagues emphasized the importance of meeting the needs of any individual who requires services. The client’s primary needs (i.e., housing, food, drug treatment, etc.) should be addressed first. An extensive referral network for services can ensure that the client’s needs are met.

Two teams of investigators did report on providing services to persons participating in methadone treatment programs. Selwyn et al. described onsite health care services provided to seronegative and seropositive individuals who were in a methadone treatment program. The investigators concluded that high rates of acceptance and compliance with chronic medical regimens for PLWHIVs and seronegative individuals are possible among intravenous drug users in a methadone maintenance program. In a 1993 report, Selwyn and colleagues noted that onsite primary medical care services were readily and frequently used by PLWHIVs and seronegative persons in a methadone
Persons who were HIV-seropositive (n = 212) made more frequent visits than those who were seronegative (n = 264) (mean annual visits 8.6 versus 4.1, p < 0.001). In this situation, primary care services were provided onsite to persons receiving treatment for intravenous substance abuse. The availability to and use of these services by patients once they completed the methadone maintenance program were unclear. Dennis, Karuntozos, and Rachal also reported success in linking methadone clients to community resources through case management. Seropositive and seronegative individuals were linked to services to meet social and psychological needs (e.g., vocational assessments, job preparation, support services, etc.). Referrals for medical services were mentioned but not highlighted. The investigators concluded that support services to address logistical problems such as employment, transportation, child care, and medical care should be available to methadone clients in treatment programs.

Larry is a 45-year-old African American with severe cardiomyopathy from years of alcohol and IV drug abuse who became known to the staff of a mobile HIV counseling and testing unit (MU) in a therapeutic residential community. Larry tested and was informed that he was HIV positive. Larry thought he could “live with HIV for years” and was more immediately concerned about his heart disease. His initial concerns included accessing home oxygen and a hospital bed as well as nutritional supplements and taxi vouchers for transportation to his cardiology appointments. Referrals to meet these needs were arranged by MU staff. However, Larry refused referral to HIV specialty services since they were available in the agency where his cardiologist practiced. He said, “My heart doctor can help me with that problem. She does everything else.” During the next encounter with Larry 3 weeks later, the MU nurse learned that he was prescribed many cardiac medications as well as suboptimal antiretroviral therapy with which he was nonadherent. A referral was made for HIV specialized home care to assist him with medication adherence and for advocacy with the cardiologist for appropriate HIV management. Almost 4 months later, Larry again contacted the MU nurse to inform her that his cardiologist had moved and that he would now consider referral to HIV services. Thus, a circle of care began with counseling and testing in the mobile unit.

In both of the situations described above, referral services were provided by health care providers involved in methadone maintenance, limiting the availability of services to those in drug treatment programs. In these programs, the client self-referred and identified his or her needs. The use of individual client assessment to initiate client referrals was not addressed. Finally, only the client was referred for services. Frequently, the well-being of the client is intimately linked to the welfare of family members, but family referrals were not addressed. HIV education, counseling, and testing programs that serve disenfranchised populations and link seropositive and seronegative individuals and families with comprehensive health care and social services can make a difference in the well-being of participants.
The East Boston Neighborhood Health Center

The East Boston Neighborhood Health Center (EBNHC), the fourth largest health center in the Northeast, serves a working-class community of diverse ethnic origins. EBNHC is separated from Boston and its major medical centers by a harbor and tunnel, which act as both physical and psychological barriers for inhabitants of this neighborhood. These barriers were one of the reasons for establishing community-based HIV services in 1989. Currently, HIV Services delivers counseling and testing through four programs: (1) a confidential walk-in program for existing health center clients, (2) an anonymous test site (ATS) serving inner-city residents in the health center catchment area, (3) a mobile unit (MU) serving seven sites with clients with high-risk behaviors for HIV/AIDS, and (4) a health screening clinic for new immigrants. As shown in Table 1, these programs have been very successful in providing counseling and testing services to inhabitants of east Boston and surrounding communities. Counseling and testing data for two time periods are presented: time period 1 was from October 1, 1996, through September 30, 1997, and time period 2 was from October 1, 1997, to September 30, 1998.

As shown in Table 1, a total of 970 persons were counseled in time period 1, and 967 elected to be tested in all four programs. Nineteen (1.96 percent) tested HIV positive, comparable to the state of Massachusetts’s overall average of 2 percent. In time period 2, a total of 714 persons elected to be tested, and 12 tested positive (1.68 percent). Decreased counseling and testing figures in time period 2 may reflect, in part, (1) changes in health center staffing, which diminished referrals to the Confidential Program for health center clients, and (2) reduction in service delivery at the Immigration Clinic, with referral of immigrants to a private, for-profit clinic for expedited results. The program with the highest numbers counseled and tested during both time periods was the ATS. During time period 1, the program with the highest seroprevalence was the MU; however, this figure decreased during time period 2 due to repeat admissions to programs sites (i.e., outpatient substance abuse and methadone maintenance). Finally, the majority of referrals came from the MU.

Since the ATS and the MU serve individuals who are generally not engaged in primary care services, this paper will focus on the referrals made through them. The ATS is an anonymous, free, walk-in clinic held for two 3-hour evening sessions a week. The seven sites served by the MU include two district courts, two methadone maintenance clinics, and one residential and two outpatient substance abuse treatment programs. In the court system, sex workers and their clients, first-time perpetrators of domestic violence, and drug-related offenders are mandated to attend HIV education, counseling, and testing sessions.

The objectives of the ATS and the MU are to provide (1) risk reduction and behavior change strategies through individual sessions or group format, (2) anonymous and confidential HIV counseling and testing using guidelines from the Massachusetts Department of Public Health HIV/AIDS Bureau,36
and (3) links to a wide range of health and social services, including comprehensive HIV services, primary care, specialty medical care (e.g., dermatology, gynecology, ophthalmology, pulmonary clinic), mental health services, dental services, substance abuse treatment, health insurance enrollment, and transportation.

The ATS and the MU are staffed by a director, coordinator, three counselors, and volunteers and serve as clinical training locations for medical and nursing students. In the ATS program, individuals self-refer for one-on-one HIV risk assessment, counseling, and testing. An average counseling session lasts approximately 30 minutes. Staff present the HIV education, counseling, and testing program on a regularly scheduled basis at each of the MU seven sites. The MU program uses a group model that includes a 1½ hour educational session. Following the educational presentation, individuals opting to test receive a 30-minute one-on-one counseling and testing session. Two weeks following the presentation, staff members return to the site to inform participants of their HIV status. A description of program development, the general model, and site-specific modifications have been published previously.3 ATS and MU staff conduct individualized intake assessments for both seropositive and seronegative clients requesting assistance. Referrals are made to

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TABLE 1

NUMBERS OF INDIVIDUALS COUNSELED, TESTED, AND IDENTIFIED AS HIV POSITIVE IN EAST BOSTON NEIGHBORHOOD HEALTH CENTER’S FOUR PROGRAMS DURING TWO TIME PERIODS

<table>
<thead>
<tr>
<th>TIME PERIOD 1: OCTOBER 1, 1996, THROUGH SEPTEMBER 30, 1997</th>
<th>COUNSELED</th>
<th>TESTED</th>
<th>POSITIVE</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidential program</td>
<td>198</td>
<td>195</td>
<td>3</td>
<td>1.54</td>
</tr>
<tr>
<td>Anonymous program</td>
<td>504</td>
<td>504</td>
<td>7</td>
<td>1.39</td>
</tr>
<tr>
<td>Mobile unit</td>
<td>106</td>
<td>106</td>
<td>6</td>
<td>5.66</td>
</tr>
<tr>
<td>Immigration clinic</td>
<td>162</td>
<td>162</td>
<td>3</td>
<td>1.85</td>
</tr>
<tr>
<td>Total</td>
<td>970</td>
<td>967</td>
<td>19</td>
<td>1.96</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TIME PERIOD 2: OCTOBER 1, 1997, THROUGH SEPTEMBER 30, 1998</th>
<th>COUNSELED</th>
<th>TESTED</th>
<th>POSITIVE</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidential program</td>
<td>79</td>
<td>78</td>
<td>4</td>
<td>5.13</td>
</tr>
<tr>
<td>Anonymous program</td>
<td>493</td>
<td>477</td>
<td>3</td>
<td>0.63</td>
</tr>
<tr>
<td>Mobile unit</td>
<td>132</td>
<td>131</td>
<td>3</td>
<td>2.29</td>
</tr>
<tr>
<td>Immigration clinic</td>
<td>28</td>
<td>28</td>
<td>2</td>
<td>7.14</td>
</tr>
<tr>
<td>Total</td>
<td>732</td>
<td>714</td>
<td>12</td>
<td>1.68</td>
</tr>
</tbody>
</table>
appropriate primary care and social services both at the parent health center and throughout the metropolitan area. Staff also link family members and/or members of participants’ social networks with services as needed. Thus, a circle of care is created that extends beyond HIV counseling and testing.

Health and social service referrals for seropositive individuals are presented in Table 2. During time period 1, all 19 seropositive individuals were referred to HIV services, with all but one (94.7 percent) keeping their initial primary care appointment. In addition, 33 referrals were made for specialty medical care, 15 for mental health services, 7 for dental services, 6 for health insurance, and 3 for substance abuse treatment, for a total of 83 referrals; the health center tracking system indicated follow-through for 80 (96.34 percent) of the initial appointments.

During time period 2, all 12 seropositive individuals were referred to HIV services, with all but one (91.7 percent) keeping their initial primary care appointment. Fifteen referrals were made for specialty medical care, 6 for mental health services, 7 for dental services, 7 for health insurance, and 1 for substance abuse treatment, for a total of 48 referrals with a 97.9 percent follow-through rate. No referrals were made to urgent care for seropositive individuals; rather, the clients were initially seen by HIV services. Referrals were also made for other services for seropositive individuals, including but not limited to nutritional services, home care, HIV-specific education, needle exchange programs, and transportation services; however, there was no system available for tracking referrals to agencies and services outside of the health center.

Referrals for seronegative individuals are also presented in Table 2. Referrals were made for a total of 48 individuals between October 1, 1996, and September 30, 1997. Of these referrals, 18 were for primary care, 49 for specialty medical care, 25 for mental health services, 4 for dental services, 6 for health insurance, and 1 for substance abuse, for a total of 103 referrals. No additional referrals for substance abuse treatment were made because many participants were from MU sites where clients were already receiving substance abuse care. All health care referrals were made at the time of intake for seronegative patients. Most of these patients had acute or pressing medical concerns at their first encounter with MU staff.

During time period 2, referrals were made for 71 seronegative individuals. Fifty-six referrals were for primary care, 37 for specialty medical care, 24 for mental health services, 8 for dental services, 12 for health insurance, 13 for urgent care, and 1 for substance abuse treatment, for a total of 151 referrals. It might be postulated that different trends in time periods 1 and 2 could be explained, in part, by the fact that the program became more firmly entrenched in the community and was seeing increasing numbers of homeless and uninsured persons. Since seronegative individuals were not admitted to HIV services at the parent health center, it was not ethically or logistically possible to track follow-through for either initial appointments or repeat visits.
However, anecdotal reports suggest that follow-through rates were quite high.

The advantages of immediate referral to health and social services are threefold: (1) patients are present and participate in the plan for referral; (2) the referral is made instantaneously, which meets the needs of clients with psychopathologies (e.g., addictive disorders, cognitive impairments) who require immediate attention to their problems; and (3) tasks related to bureaucratic systems (e.g., registration, appointment making), which are often overwhelming to patients, are managed by health care providers prior to the patients’ entry into the system.

Lessons learned

Public health literature suggests that disenfranchised individuals who are HIV positive often delay engagement in primary care, in that way limiting opportunities for early intervention. Moreover, the recently updated HIV

<table>
<thead>
<tr>
<th>TIME PERIOD 1: OCTOBER 1, 1996, THROUGH SEPTEMBER 30, 1997</th>
<th>SEROPOSITIVE (n = 19)</th>
<th>SERONEGATIVE (n = 48)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary care</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>Specialty medical care</td>
<td>33</td>
<td>49</td>
</tr>
<tr>
<td>Mental health services</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>Dental services</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Health insurance</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Substance abuse treatment</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>83</td>
<td>103</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TIME PERIOD 2: OCTOBER 1, 1997, THROUGH SEPTEMBER 30, 1998</th>
<th>SEROPOSITIVE (n = 12)</th>
<th>SERONEGATIVE (n = 71)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary care</td>
<td>12</td>
<td>56</td>
</tr>
<tr>
<td>Specialty medical care</td>
<td>15</td>
<td>37</td>
</tr>
<tr>
<td>Mental health services</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>Dental services</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Health insurance</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Substance abuse treatment</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Urgent care</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>151</td>
</tr>
</tbody>
</table>

Note: Number of referrals exceeds sample sizes since most individuals received multiple referrals.
counseling, testing, and referral guidelines published by the Centers for Disease Control\textsuperscript{41} emphasize the need for access to appropriate medical, prevention, and psychosocial services for both seropositive and seronegative individuals. These guidelines note the following:

A substantial number of opportunities for HIV prevention are being missed. In publicly funded sites, at least 70 percent of persons tested have received their HIV test results and some counseling, but the numbers of persons receiving HIV prevention counseling and receiving referrals are likely much lower... data regarding types and completion of referral are not routinely collected in many settings.

Presentation of individuals for HIV counseling and testing is a unique opportunity for the health care provider to “seize the moment” and connect both seropositive and seronegative individuals to comprehensive care. In a provocative article, Krauss and colleagues noted,

We recognize we have imposed our “HIV first” agenda on the community. For many community residents, other needs are more pressing and immediate. To maintain credibility in the community, our field coordinator... meets the needs of any resident walking in the door through an extensive referral network. She makes approximately 15 referrals per week... for drug treatment, housing, food, and other needs.\textsuperscript{31}

Staff experiences with disenfranchised and marginalized ATS and MU clients support the notion of Krauss and colleagues that, indeed, the clients’ agenda must be met before they can be successfully engaged in health care. For example, before a client agreed to a referral to residential substance abuse treatment, it was necessary to procure snowsuits and winter boots for her five dependent children.

Other challenges that emerged from HIV counseling and testing encounters included (1) negotiation of bureaucratic systems, including concrete service case management, and (2) continuity of encounters (e.g., holding scheduled counseling and testing sessions in a site with the same counselors in attendance; stability of the program director and coordinator).

Experiences at EBNHC support the CDC’s\textsuperscript{41} view that HIV counseling and testing for disenfranchised populations must transcend the mere provision of information to include (1) individualized assessment, (2) case management, (3) understanding the needs of special populations (e.g., IVDUs, homeless), and (4) addressing client’s self-identified needs first. Personalized referrals ensure that newly diagnosed seropositive individuals are immediately engaged in comprehensive HIV care. Of equal importance, referrals to health care and mental health services for individuals with high-risk behaviors may help them maintain their HIV-negative status and promote early detection and intervention in the future. Finally, it is important to note that referrals
have frequently extended beyond individuals to include families and social networks. For example, after a 30-year-old seronegative male was linked to substance abuse and mental health treatment, he requested help for his uninsured depressed mother dependent on Xanax; with her consent, referrals were made for health care entitlements, primary care, and mental health services. In another case, a 35-year-old monolingual Puerto Rican woman with symptomatic HIV infection related to injection drug use presented the business card of one of the MU staff as her referral to the health center. She had received the card from a participant in one of the MU HIV education, counseling, and testing sessions. In these ways and others like them, the circle of care continues and widens.

Acknowledgments

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VOICES OF IMMIGRANT SOUTH ASIAN WOMEN: EXPRESSIONS OF HEALTH CONCERNS

Health care concerns, health issues, and illness are defined within a social, cultural, political, and economic context. When health care practitioners and patients share a common culture, it is not always necessary to negotiate an understanding of the health problem. The distinctive ways that health problems are discussed and treated are often taken for granted when cultures are shared. Immigrants to North America may bring a set of beliefs and expectations to health care interactions that differ from those held by Western health care providers trained in biomedicine. Differences in explanatory models between professionals and their patients have the potential to create mismatches that can lead to problems, including misunderstandings and unmet expectations and needs. Explicating explanatory models in health care interactions can provide an effective device for identifying the sources of clinical miscommunications and misrecognitions. The concept of explanatory models is based on a distinction between illness (the patient’s perceptions of symptoms and disability) and disease (the biomedical practitioner’s perspective). While authors such as Kleinman have extensively explored the nature of these explanatory models, Kleinman has cautioned that they are easily misapplied when a patient’s perceptions and beliefs are treated as distinct entities to be identified and recorded.

There is evidence that immigrant groups, including South Asian women, have experienced difficulties accessing health care services and, in particular, communicating with health care providers. Ardener suggests that marginal groups become “muted” in interactions with the dominant order.

There have been some efforts to describe health concerns and customs of South Asian women who immigrate to Western cultures. Practitioners have often used a process of patient “typification” in an effort to enhance their ability to respond to the needs of particular minority groups such as South Asian women. Typification involves creating an overly generalized profile about the characteristics of certain groups, including the kind of problems they have. The diversity among group members is obscured by the use of these stereotypical profiles and has been recognized as racist. South Asian women, for example, have reported that they encounter racism when they receive differential treatment on the basis of their ethnicity. Such treatment is often based on false assumptions and is often insensitive to individual women.
In an effort to improve health services for South Asian women, research has been conducted regarding their perceived health needs and concerns. Many of the health concerns reported by South Asian women are similar to those of other women (e.g., breast screening, psychological well-being, choice in childbirth).\textsuperscript{10,11} Despite these similarities, South Asian women in the Canadian context have expressed a desire to be treated differently, for example, to have special health services or clinics. Bowes and Domokos\textsuperscript{10} argue that this desire is not necessarily related to cultural beliefs or values but rather is related to women’s desire to avoid mainstream clinics where they are patronized or judged or where they experience discrimination. In contrast, other researchers have found some evidence that South Asian women’s health problems may differ from those of mainstream women in important ways. Reporting on a study of Canadian Sikh women, George\textsuperscript{12} notes that in her conversations with study participants, there was a notable lack of discussion regarding what are viewed as traditional symptoms of menopause. She explains that menopause is not “isolated, identified, and labeled within the Punjabi language as an entity in and of itself” (p. 302).\textsuperscript{12} Rather than seeing menopause as a negative life event necessitating medical advice, Punjabi women view it as a natural completion of their duty to bear children. Other South Asian women view menopause with some relief because activities such as cooking or involvement in religious ceremonies no longer need to be avoided during menstruation.\textsuperscript{12}

While many of the health concerns of South Asian women may be similar to those of mainstream women, the way these concerns are expressed, organized, and experienced sometimes differs.\textsuperscript{10,13} For example, while concerns such as those related to mental distress are common to many women, there is emerging empirical evidence that the way South Asian women describe and experience their symptoms may be specific to this culture. A South Asian’s views on mental distress may not directly correspond to the medical understanding of mental illness.\textsuperscript{10,14} In addition, the ambiguity in symptom reporting among South Asians has been said to lead to the “psychologicalization” of vague somatic complaints.\textsuperscript{15} Communication with health professionals may be compromised because of the way the problem is framed, the language used to describe the concern, or the assumptions brought to the exchange.\textsuperscript{16,17} While the availability of interpreters is important, the direct translation of health issues will not necessarily help health care providers fully understand and appreciate the concerns South Asian women share with them.

Meaningful and appropriate interactions among South Asian women and health professionals are essential to the delivery of effective health care. To these ends, this qualitative study is aimed at describing the ways in which South Asian women conceptualize and communicate their health concerns. This study was not to create another list of health concerns that “typify” South Asian women or to develop an overgeneralized description of South Asian communication patterns. Rather, the objective was to capture the diversity of women’s experiences and, in so doing, draw attention to how their health concerns are formed and expressed.
The study reported here is part of a larger 2-year investigation directed toward describing the health-seeking behavior of South Asian women living in western Canada. The first phase of this investigation began in 1997 and focused on how women defined their health concerns, the context in which these concerns were embedded, and how these concerns were communicated to others. The research method was critical ethnography and involved qualitative interpretation of the data. This approach is ultimately directed toward emancipatory goals. As such, the ultimate aim of this study was to enhance the authority of participants’ voices, thereby empowering them. Three data collection strategies were employed: face-to-face interviews with women in the community, focus group discussions, and community events.

A purposive sampling strategy was used to capture the many perspectives of women in the South Asian community. The term South Asian was used to represent a diverse and heterogeneous community whose members, by virtue of their common geographic origin, share some cultural practices and beliefs. This term is also used by subgroups such as Hindus and Sikhs as a way to unify the larger community. The majority of South Asians immigrating to Canada come from India, Pakistan, Bangladesh, Fiji, and East Africa. Women who originated from these regions representing a variety of religious backgrounds, ages, educational backgrounds, years in Canada, and languages were invited to participate in the study. The sample of women who participated in the individual and focus group interviews included members of four religious groups: Sikh (49), Hindu (12) Muslim (14), and Christian (3), as well as two not specified. Participants ranged in age from 20 to 80 years and included women of all marital statuses. The women, primarily urban dwellers, had been residents of Canada anywhere from 10 months to 32 years.

A total of 80 South Asian women formed the sample for this study. Data were collected via individual interviews with 50 women. Key informants from these initial interviews were selected because of their knowledge and insight, and an additional 30 women participated in one of five focus group interviews. South Asian research assistants trained in interview techniques conducted these individual and group interviews in the language of the participants’ choice (i.e., Punjabi, Hindi, Urdu, Gujurati, Kutchi, or English). Interviews and focus groups were translated into English and transcribed. The transcriptions were checked for accuracy by having a bilingual research assistant listen to the taped interviews and compare them to the English transcripts. Initial interviews were read and discussed in research team meetings to identify central themes. Once identified, these themes were used to code the data. A computer software program (NUD.IST) was used to facilitate retrieval of coded data and to extend the analytic techniques via text searches and other search mechanisms.

Questions and themes emerging from the analysis guided data collection in one-on-one interviews and focus group discussions. In the initial phases of the study, South Asian members of the research team made the observation that certain kinds of health concerns pertaining to social and emotional issues were
not apparent in the data collected at that point. This prompted a reconsideration of the strategies used to collect and analyze data. Specific questions were incorporated into the data collection about what was referred to as “family concerns” and combed through the data for subtle references as to what was termed “unspoken concerns” that, according to the South Asian team members, were relevant for women in the community. As data collection and analysis proceeded, women’s unspoken health concerns emerged in stories about other women, in focus group discussions, and in community contexts where the discussion of women’s issues was sanctioned.

The context of women’s health concerns

Health and health concerns for South Asian women are inextricably tied to responsibilities to family and community. Growing up in a context of multigenerational homes in their country of origin, these women are strongly oriented to the family. Accordingly, South Asian women who participated in this study described their roles as revolving around caring for children, elderly in-laws, and husbands, as well as their homes. In addition, many women of all ages worked outside the home in full-time or part-time employment to supplement their household income. Doing things for others took priority over a woman’s care for herself. Health was defined in the context of these roles. For example, one woman said, “If you are well, you can do everything.” Health was valued because it enabled women to do their “daily chores” or “family duties” and not be a burden to others. Healthy women were viewed as having more energy, being “fit,” and being able to “do their work faster” than those who were not healthy. Families shared these views of women’s roles and were sometimes reluctant to change them, even when women became overburdened or ill. Living in a North American community in which the role of families is increasingly independent, South Asian women were particularly challenged in trying to fulfill their expected roles. One woman who was living in a nuclear family explained that South Asian expectations related to caring for extended family members were difficult to maintain: “When we are living on our own as an equal family, we are still expected to be running to the other house [in-law’s home] to help out.” Participants described taking on multiple roles without complaint, believing that by serving others, good would come to them and their families. Because of their many roles, participants found there was little or no time for themselves, and they often fell prey to ill health. One woman described how she woke at 3:00 a.m. to clean her home and make lunches before going into the fields to work. Some women acknowledged the toll of their hard work. They spoke of fatigue, stress, feeling compelled to work even when they were not feeling well, and being exposed to poor working conditions (e.g., pesticides encountered in farm work). Even when concerned family members tried to intervene, many women continued to work. The women reported that being productive and getting chores done were important to their family and
therefore brought health and happiness. Not being able to complete one’s duties could potentially cause family disharmony as well as feelings of uselessness, laziness, and tension, reinforcing feelings of ill health. Women maintained their health so that they could perform their expected functions. They strove to find “balance” in their day-to-day lives by getting sufficient rest, being happy, exercising, eating “good foods,” and praying. These ways of living a healthy life were passed down from one generation to another: “For health I have learned everything from my mother such as to eat well, drink well, to live in a good house such that you get air, sun as well as a breeze.”

Many participants believed their health began to deteriorate with their immigration to Canada. Isolated from extended family and friends and feeling like an “outsider” because of differences in language and culture, women experienced stress and attributed health problems to their immigration to a new country. Some described immigration as a “trauma” that cut them off from their life in their home country, including past traditions and a comfortable or familiar way of life. Others focused on the differences in climate, food, and lifestyle. Some women were reluctant to talk about the problems they encountered with their immigration, not wanting to appear unappreciative. They focused on the experience as a “new beginning” or privilege.

Speaking about health concerns

Participants were often reluctant to share health concerns outside of their families. They believed that the information about their “weakness” would not be held in confidence. One woman explained,

I will not talk about the thing which is worrying me . . . because with our ladies, we have one fault. If you find out someone’s weak point then we keep reminding others of that weak point. That, “Oh such and such happened with the poor woman, how did that happen, this poor woman is worried.” No, I never tell anyone my worries when I’m worried.

When asked about health concerns, women focused on the symptoms they believed were indicative of ill health. Without any symptoms, women believed they were healthy.

Three central concerns dominated participants’ talk about health issues: physical pain, worry, and uneasiness. Pain was the most frequent health concern discussed by participants; it was perceived as a signal that something was wrong that needed to be promptly checked or treated, especially if it interfered with a woman’s ability to carry out her responsibilities. One mother explained, “I like to get from the pain very quickly, otherwise taking care of the baby and home duties are very hard for me.” When pain was less severe, participants kept their symptoms to themselves. In some situations, participants would use the symptom of pain to draw attention to other concerns, such as
loneliness, stress, and fatigue, as indicated by one woman’s comments: “So sometimes, maybe, the headache is not that much but you want somebody to listen to you. You want attention from another person [to be reassured] that someone is caring about you.”

Participants associated health with happiness and spoke about health concerns that arose when a woman’s happiness was interrupted. Examples of these interruptions included “worrying too much” and feelings of uneasiness or sadness. Women expressed some reluctance in sharing these feelings. For women to show unhappiness was “to make God unhappy” with them, thus increasing their reticence to acknowledge and share these symptoms. Participants appeared to have learned from their physicians and the media that these symptoms could be labeled as stress and that this was an acceptable way to frame these feelings of uneasiness and worry.

When they described their feelings associated with stress, participants often used physical terms and linked these feelings with everyday routines and experiences. Feelings such as those associated with stress were viewed as precursors of serious illness. The following quotation is one example of how physical terms were used to describe stress:

Stress burns you from the inside, then you can’t eat proper foods. You don’t like anything in the world and you find that you have been dragged around. It [stress] will eat you away slowly, slowly. You don’t care for yourself and when your body doesn’t get the proper nutrition that it needs, sickness, illness will grab you. Because you are weak and when you are weak anything can take root and sometimes it can be serious.

**Seeking validation**

Some participants reported looking to their families to validate their concerns and advise them on an appropriate course of action, including whether to see a physician. Others directly sought the advice of medical personnel, homeopaths, or other healers. One woman explained, “I’ll tell the family first that there is this problem, then if they all say that the doctor should see it, that it is very serious, then I will go to the doctor.” At other times, a family member’s advice influenced how the woman framed her problem. For example, if a woman experiencing symptoms was advised by her family to drink boiled ginger tea, she was likely to describe her problem as something that could be managed or controlled with available resources. On the other hand, when physicians were consulted, women described their health concerns as medical problems such as weakness, heart problems, or pain. When provided with a medical diagnosis, women tended to accept these labels and used them to describe their problems. At times, however, these labels were viewed with skepticism because they did not fit the women’s own perceptions of their problems. “Sometimes you go to them [physicians] and no matter what you
are trying to tell them, they will say, ‘Oh you have a stress.’ You know, like everything they will put on stress.”

At other times, women believed that their health concerns were not clearly understood by health care professionals. In one instance, a woman who went to an emergency room with acute lower abdominal pain was annoyed when those investigating her pain seemed to focus only on “sexual-related problems,” without considering other alternatives. In her opinion, this was an entirely inappropriate line of questioning and investigation because she was sure that the problem rested elsewhere.

**Unspoken concerns**

Participants were reluctant to discuss a number of health concerns, including those related to work safety, sexuality, mental illness, cancer, and “family problems,” such as violence. This silence was motivated by a need to maintain the respect of family members, protect the image of their families in the community, and protect their jobs. Because maintaining family honor is a key value for most women, keeping families together and happy was essential. Women worried that acknowledging or showing problems such as depression would bring “pain” to their children. In abusive relationships, women felt ashamed, embarrassed, or guilty about acknowledging the problem and taking any action that might threaten the family unit:

> You see it’s difficult for women because most of our women are sort of closed. They don’t want to discuss certain things like the husband is drinking and she doesn’t want to say anything to anybody. The husband beats her and she doesn’t say anything to anybody because it’s embarrassment for her as well as for the whole family so things like that are being hidden all the time by South Asians, by women, Indian women.

The financial and social circumstances of some women also necessitated silence. In the face of poor working conditions, including exposures to chemicals and long hours, many participants remained silent. One woman explained, “We have to say that it is good because we don’t get the money to pay our bills and fill our stomachs. So we have to do it [the work]. The problem is the money.” Some women who did not work outside of the home felt isolated and alone and saw no opportunity to share their concerns with others.

The use of silence around sensitive health issues was extensive and seemed to be part of the South Asian culture. One woman explained the silence as “just our way.” The values held by many women, including religious beliefs about appropriate behaviors in the eyes of God, beliefs about tempting fate, and beliefs related to women’s roles, served to enforce this silence. Consequently, it was difficult to verbalize problems that had been rarely discussed by others in their community.
Discussion

Conditions that women in this study encountered do not differ markedly from those experienced by women in mainstream society. What is different is the way that women experienced these problems and how the context of their lives shaped the way they understood and communicated their concerns to others. Although the health concerns of South Asian women have been inventoried, these lists are often not fleshed out with examples of how these health concerns are linked to women’s lives. Here immigrant South Asian women’s own reflections provide a guide to the complexity underlying their health concerns and possible explanations for their experiences of marginalization during health care encounters. It is important to note that difficulties in communicating about health concerns effectively limit women’s access to the health care they require. Access is more than simply being able to attend a clinic. Even within the context of the Canadian health care system, which offers unrestricted coverage to all citizens, there is no guarantee that all individuals receive appropriate care.

Others have recognized the importance that the context of women’s lives plays in defining their health concerns and obtaining medical care. Fenton and Sadiq-Sangster noted that when South Asian women talk about their circumstances, they do so in a way that is imprecise: “they do not talk about themselves” (p. 82). They explain that a focus on “myself” requires an individualistic philosophy that is inconsistent with the perspectives of South Asians. This lack of precision is also evident in our findings. When asked about their health and health care concerns, women often found it difficult to respond. With prompts, women began to speak about their health in relation to their roles, their families, and their communities. It has been suggested that this pattern of response may reflect a reluctance to medicalize life or to be self-centered or self-indulgent. This finding raises questions about the way Western health care practitioners have traditionally approached history taking and assessments. The use of an individualistic, interrogative approach in which women are asked to objectify their symptoms and experiences needs to be reconsidered. As Kleinman suggests, the use of open-ended questions, negotiation, and listening are strategies that privilege the meanings that illness experiences have for patients and foster respect for difference.

Perhaps it is because South Asian women do not view health problems in individualistic terms that many tend to seek validation from their families prior to seeking professional assistance. The role of the family in sanctioning South Asian women’s health concerns has been described elsewhere. Family perceptions therefore provide an important filter between women’s initial assessments and their interactions with health care providers. This adds another complexity to the way women frame their health concerns and seek health care. Health service policies that focus solely on supporting and enhancing the health of individual women, without acknowledging the
influence of families and communities, are less likely to be successful among South Asian immigrant women.

The way in which South Asian immigrant women describe their symptoms reflects a perspective that does not clearly differentiate between physical and emotional problems. Women often speak about their physical symptoms in psychological terms and their psychological problems in physical terms. A tendency on the part of South Asians to summarize symptoms has been noted by others, but this explanation may oversimplify the way women describe their concerns. The need to differentiate physical and psychological symptoms reflects a Western perspective and does not fit well with other more integrated worldviews. Unraveling physical and psychological perspectives is further complicated when women attempt to communicate their health concerns in ways they perceive will meet the expectations of Western health care providers. For example, women who perceive Western medicine to focus exclusively on physical problems may be more likely to describe their problems in physical terms.

The findings of this study also point to the role that the beliefs and values of the larger South Asian immigrant community (e.g., keeping the family together and maintaining the respect of the mainstream community) play in influencing the private interactions between women and their health care providers. As has been reported elsewhere, these values may inhibit the discussion of certain topics and create an unwillingness to seek help about issues such as breast cancer and wife abuse, even when promises of confidentiality are offered. Abraham explains that issues such as wife abuse are silenced in the South Asian community because of the need to protect the image of the family as a “private haven.” Furthermore, supporting these values serves to protect the moral integrity of the community, thereby helping to maintain cultural identity. The desire to protect the community is well founded as there is compelling evidence of a systematic bias against ethnically diverse groups in mainstream media and the Canadian press. Not surprisingly, in addition to increasing awareness of the problem of violence in their community, Canadian South Asian women’s groups have directed some of their energy toward convincing the mainstream community that not all South Asian men are wife abusers. The challenge in helping women recognize and communicate their health problems is to find appropriate ways to do this without betraying their collectivist values.

The importance of social circumstances and cultural traditions in shaping the communication of health concerns must be recognized. The biomedical model used to inform Western health professionals is embedded in a particular cultural framework. Health care professionals have begun to acknowledge the influence of social and cultural factors that affect the definition and communication of health concerns. Although there is a body of literature that attests to the need for culturally informed approaches to health care, the standards of operation that pervade Western medicine continue to marginalize those who are most vulnerable. It may be that effective strategies are
incommensurate with current systems of Westernized health care. If the voices of ethnically diverse groups are to be heard and respected, continued efforts are required to change the way health care services are offered. The India Mahila Association, a South Asian women’s organization, summarizes the problem in the following way:

Our experience tells us that often when someone tells us we are facing a cultural barrier they are trying to tell us that there is something in our culture that we must try to overcome. It sounds to us as though the agencies feel that we are the ones that need to make the adjustment and that they will provide some assistance to help us through the process. (p. 82)

Health care providers and policy makers, interested in improving health care services for South Asian immigrant communities, need to take direction from South Asian immigrant women and their families. This is best accomplished through strong partnerships and with an openness to substantive changes in the way health care services are provided.

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Voices of Immigrant South Asian Women


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ACCESS TO AND USE OF AMBULATORY HEALTH CARE BY A VULNERABLE MEXICAN AMERICAN POPULATION ON THE U.S.-MEXICO BORDER

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Abstract: The objective of this study was to determine if health care access is equitable and effective for Mexican Americans at the U.S.-Mexico border. The design was a cross-sectional telephone and door-to-door survey using the Behavioral Risk Factor Surveillance System, and the subjects were 1,409 El Paso County residents, ages 18 to 64 years. After controlling for other predisposing, enabling, and need characteristics, the presence of health insurance was significantly associated with health care use in the past year, both for a checkup (odds ratio [OR] = 2.48; 95 percent confidence interval [CI] = 1.83, 3.38) and a visit for any reason (OR = 2.20; 95 percent CI = 1.60, 3.04). Findings were similar for a regular source of care. Those who reported a checkup in the past year were significantly more likely to receive clinical preventive services. The lack of health insurance and a regular source of care for Mexican Americans on the U.S.-Mexico border creates significant inequalities in access to care.

Key words: Health care access, Hispanic, ambulatory health care, U.S.-Mexico border, survey.

Access to health care continues to be a significant problem for the Hispanic population throughout the United States, especially those who identify themselves as Mexican American. Studies suggest that low income, lack of health insurance, no regular source of care, and low levels of acculturation all contribute to poor health care access for this population.1-4 Several recent studies highlight problems with access to health care for Hispanics in the United States. The Medical Expenditure Panel Survey (MEPS) is a nationally representative survey that collects data on health status, health care use and...
Findings from the 1996 MEPS indicate that Hispanics of all ages were more likely to be uninsured (33.5 percent) than non-Hispanic whites (13.1 percent) and were the less likely to have a usual source of care (57.9 percent) compared with non-Hispanic whites (76.3 percent). Families headed by Hispanics were more likely to report barriers to obtaining the health care they needed (15.1 percent) than families headed by non-Hispanic whites (11.4 percent). Further evidence of access problems can be seen in health care outcome data. Although the incidence of breast cancer is lower among Hispanic women than non-Hispanic white women, Hispanic women with breast cancer are significantly more likely to be diagnosed at a later stage of breast cancer than non-Hispanic white women. Even among those patients with insurance, delayed referral to a nephrologist is more likely in Hispanic patients with chronic renal failure than in non-Hispanic white populations.

Most studies of access among Hispanics, even among the Mexican American population, have taken place at a significant distance from the U.S.-Mexico border. Health care issues on the border between the United States and Mexico are unique. The issues are complex and are compounded by the rapid population growth of the past decade, especially the Mexican American population. It is estimated that the total population along the U.S.-Mexico border from Texas to California now exceeds 10 million people. The border region, especially in Texas, includes some of the poorest metropolitan counties in the United States. High fertility rates, problems with communicable diseases, environmental health problems, high rates of migration, and disparities between the U.S. and Mexican health care systems all contribute to the wide range of issues that create a unique health care environment along the U.S.-Mexico border. As David Warner has pointed out, “It is unlikely that any other bi-national border has such variety in health status, entitlements and utilization.”

One of the most critical issues created by the disparities between the U.S. and Mexican health care system is lack of access to adequate health care, especially among the Mexican American population that makes up the overwhelming majority of the U.S. border population. Access to health care is a rather complex health policy issue. Four dimensions of access have been defined:

- **Potential access** is the presence of enabling factors such as income, health insurance, and transportation adequate to permit the use of health care services when the need arises.
- **Realized access** is the actual use of services in response to need.
- **Equitable access** to care occurs when demographic characteristics (such as age or gender) or need characteristics (such as health status) explain most of the variance in utilization.
- **Inequitable access** occurs when social structure and enabling characteristics such as income, health insurance, or transportation determine health care use.
Effective access occurs when an encounter with the health care system results in appropriate care such as the delivery of clinical preventive care services.

Few studies have examined the benefits of access to health care in the Mexican American population, and none have examined access issues on the U.S.-Mexico border. The explosive growth of this population and the complexities of the health care issues on the border provide the impetus to examine health care access for this population more closely.

The purpose of this study is threefold:

1. to determine if access to health care is equitable by examining the relationship between enabling factors, such as income and health insurance, and actual use of health care or realized access among Mexican Americans in a large community on the U.S.-Mexico border;
2. to evaluate the effectiveness of access by examining the association between health care use and the receipt of four clinical preventive services;
3. to examine the relationship between receipt of those preventive care services and predisposing, enabling, and need characteristics of the Mexican American sample to further evaluate the effectiveness of health care access in this border community.

Method

El Paso, Texas, with a population exceeding 683,657 by 1997 census estimates, is the largest U.S. city directly on the U.S.-Mexico border. Approximately 72 percent of this population classify themselves as Mexican American. It is the only community directly on the U.S. side of the border with a comprehensive public hospital that serves as a hospital of last resort for the poor. El Paso’s sister city, Juarez, Mexico, is home to more than 1.5 million people and is contiguous with El Paso on the U.S.-Mexico border for more than 20 miles.

The Behavioral Risk Factor Surveillance System (BRFSS) is an ongoing program developed by the Centers for Disease Control and Prevention with the support of local state departments of health to estimate the prevalence of risk factors for the major causes of death in the United States. The BRFSS is now active in all 50 states and is the primary source of state-based information on risk behaviors in adult populations. The questions relate to such crucial areas of behavior as tobacco and alcohol use, dietary patterns, physical inactivity, risky sexual behaviors, lack of preventive services, and access to and use of health care. Various demographic factors, including age, gender, ethnicity, education, and others, are also included on the questionnaire (see Table 1).

From September to November 1996, a survey of El Paso County residents age 18 years and older was conducted using the BRFSS. Interviews were conducted in Spanish or English, depending on the respondent’s preference. Calls were made both during the daytime and during the evening to reach as many
potential respondents as possible. This random-digit telephone survey was augmented by a door-to-door survey. The areas for the door-to-door survey were chosen because they were thought likely to contain a high percentage of households without telephones.

To evaluate the four dimensions of access previously mentioned, this study used the constructs of the widely used Andersen behavioral model of health care utilization.11,15 This model is built on the assumption that the use of health care services by an individual is a function of three underlying constructs: predisposition to use services, characteristics that enable or impede use, and the need for care. Predisposing characteristics include demographic characteristics such as age and gender, as well as social variables such as education, occupation, and ethnicity. Income, health insurance, language, and a regular source of care are considered to be characteristics that enable health care access. Need characteristics include how people or health care providers assess health and functional status, as well as how they experience symptoms of illness, pain, and whether they judge their problems to be of sufficient importance and magnitude to seek care.

As previously mentioned, potential access is measured as the presence of enabling characteristics that allow for access to care when the need arises. For the purposes of this study, income, health insurance, having a particular place to go for health care, and language (specifically, speaking only Spanish) were considered to be enabling factors, consistent with the Andersen model of access (see Table 2).

Realized access, or actual use of health care, was classified as “discretionary” or “nondiscretionary.” Access for discretionary care was evaluated based

TABLE 1
DESCRIPTION OF SAMPLE

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Note: NA = not available.
The effectiveness of access to health care was evaluated by using responses to the questions in the survey regarding preventive service utilization. Simply

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>CHECKUP IN PAST YEAR?</th>
<th>SEEN FOR ANY REASON?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>95 PERCENT CI</td>
</tr>
<tr>
<td>Predisposing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age &gt; 45</td>
<td>1.18</td>
<td>0.83, 1.68</td>
</tr>
<tr>
<td>Female</td>
<td>2.05*</td>
<td>1.49, 2.82</td>
</tr>
<tr>
<td>High school graduate</td>
<td>1.02</td>
<td>0.71, 1.48</td>
</tr>
<tr>
<td>Enabling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income &lt; $10,000</td>
<td>0.95</td>
<td>0.67, 1.34</td>
</tr>
<tr>
<td>Health insurance</td>
<td>2.48*</td>
<td>1.83, 3.38</td>
</tr>
<tr>
<td>Regular source of care</td>
<td>1.76*</td>
<td>1.19, 2.59</td>
</tr>
<tr>
<td>Speaks only Spanish</td>
<td>0.59*</td>
<td>0.40, 0.86</td>
</tr>
<tr>
<td>Need</td>
<td></td>
<td></td>
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<tr>
<td>Poor health status</td>
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<td>0.84, 3.91</td>
</tr>
<tr>
<td>Hypertension</td>
<td>1.59*</td>
<td>1.05, 2.40</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1.43</td>
<td>0.83, 2.47</td>
</tr>
<tr>
<td>Heart disease</td>
<td>1.17</td>
<td>0.62, 2.22</td>
</tr>
</tbody>
</table>

Note: OR = odds ratio; CI = confidence interval.
*p < 0.05.
put, if patients have the ability to access care, are they receiving appropriate preventive care? Preventive care variables were constructed using the definitions and objectives found in Healthy People 2000, which were the objectives in place at the time the study was conducted. The preventive services selected for use were blood pressure check in the past 2 years, cholesterol check in the past 5 years, Pap smear in the past year for women, and mammogram in the past 2 years for women between the ages of 50 and 64. To further explore the effectiveness of access, a logistic regression analysis was also conducted on each of the four clinical preventive services using the predisposing, enabling, and need characteristics as independent predictors of receiving a clinical preventive service.

Results

The response rate to the survey, both by telephone and door-to-door, was 66 percent, a rate that reflects widely acknowledged difficulties with surveying minority and low-income populations. The final sample consisted of 1,409 respondents; 1,010 completed the telephone survey and 399 completed the door-to-door survey. Approximately 80 percent identified themselves as being of Hispanic ethnicity (n = 1,135). More than 95 percent of the Hispanic population in El Paso consider themselves to be of Mexican American ancestry. Since access is of greater concern among those who are not eligible for Medicare, we limited our sample to Hispanics who were between the ages of 18 and 64 (n = 908). The demographics of the sample, including comparisons to recent census estimates for El Paso County, are shown in Table 1.

The most important predictors of realized access to health care were health insurance coverage (OR = 2.48, 95 percent CI = 1.83, 3.38 for checkup; OR = 2.20, 95 percent CI = 1.60, 3.04 for any reason) and a regular source of care (OR = 1.76, 95 percent CI = 1.19, 2.59 for checkup; OR = 2.06, 95 percent CI = 1.39, 3.04 for any reason). Health care use, both for a checkup and a visit for any reason in the past year, was significantly associated with female gender, health insurance, and a regular source of care (see Table 2). Respondents who spoke only Spanish were significantly less likely to report a checkup in the past year but were not less likely to report a visit for any reason. Those with a diagnosis of hypertension, but not diabetes or heart problems, were slightly more likely to have a checkup or visit for any reason. Poor health status was not associated with either type of health care use.

Those who had a checkup in the past year were then evaluated for effectiveness of care using four clinical preventive services (see Table 3) All four clinical preventive services were significantly associated with a report of a checkup in the past year.

To evaluate the relationship between potential access and preventive services, we conducted four separate logistic regression analyses, one for each preventive service (see Table 4). Health insurance and a regular source of care were positively associated with having had a blood pressure check in the past
year and having had a cholesterol check in the past 5 years. The presence of health insurance was the only characteristic associated with having had a mammogram in the past 2 years. Those who only spoke Spanish were less likely to have had a Pap smear in the past year, and language spoken was the only characteristic significantly associated with Pap smear. Respondents older than age 45 were more likely to have had a cholesterol check in the past 5 years, and females were more likely to have had a blood pressure check in the past year.

### Discussion

The results indicate that Mexican American residents on the U.S.-Mexico border suffer from significant inequalities in access to health care. After controlling for other predisposing, enabling, and need characteristics, those with health insurance were 2.5 times more likely to have seen a health care provider for a checkup in the past year and were 2.2 times more likely to see a health care provider for any reason. The findings for those with a regular source of care were similar. Since almost half of the population lacks health insurance, the impact of this imbalance is severe. In their 1981 study of access to health care for Hispanics of the southwest United States, Andersen and colleagues concluded that “limited access to medical care for Hispanics in this region is associated with low levels of income, education, and health insurance coverage.” This study expands on this previous work by including more specific measures of need than prior studies—namely, health status and the presence of three prevalent chronic diseases in this population. Twenty years later, there has been little change in access to health care for Mexican Americans on the U.S.-Mexico border. Of particular concern is the finding that almost 50 percent of this population have no health insurance, a key predictor of health care access and use.
After controlling for predisposing and enabling characteristics, neither poor health status nor an established diagnosis of diabetes or heart problems was associated with either type of health care use in the past year. This finding may partially explain why Hispanics have significantly higher rates of mortality from diabetes when compared with non-Hispanics with diabetes (standardized rate ratio = 1.86 for men, 2.38 = women). If health insurance and lack of a regular source of care prevent Hispanic diabetics from obtaining the health care they need to control their disease, they may suffer from higher rates of morbidity and mortality secondary to diabetic complications.

Those who speak only Spanish are significantly less likely to have a routine checkup but not a visit for any reason. Not surprisingly, they are also less likely to have had a Pap smear in the past year. Several studies have suggested that language may be a barrier to health care. Language spoken may be a proxy measure for level of acculturation, which may be associated with differences in health-seeking behaviors, particularly for more discretionary health care such as a Pap smear. However, the results suggest that when acutely ill, they are no less likely to seek medical care than people who speak Spanish and English or English only. A routine checkup may be considered a more discretionary type of health care use and thus may be impeded more by language barriers.
Although access to health care may not be equitable, once realized it is
effective. Those reporting a checkup in the past year were all significantly
more likely to receive all four clinical preventive services. The importance of
enabling factors in predicting access to health care is highlighted by the results
showing their importance in obtaining clinical preventive services. Health
insurance and a regular source of care were significantly associated with the
receipt of three out of the four clinical preventive services.

How does this population compare with Hispanics elsewhere in the United
States? In a study of cancer screening practices by Hispanic women using the
1990 and 1992 National Health Interview, subgroup analysis revealed that
Mexican American women were the least likely to be screened with any proce-
dure, including Pap smear and mammogram. Having health insurance was
a predictor of receiving a mammogram. In a study of the 1988 National Survey
of Hispanic Elderly People, investigators found that enabling factors, espe-
cially insurance coverage, had the greatest impact on physician use in the past
year. Investigators who examined data from the Hispanic Health and Nutri-
tion Examination Survey found that access to care is associated with higher
rates of preventive services utilization among Mexican Americans. The find-
ings would also support these conclusions.

The strong associations between health insurance, a regular source of care,
and the receipt of appropriate preventive services are especially disturbing
when examined in relation to the Healthy People 2000 objectives. For exam-
ple, in this study, only 79.6 percent of Hispanics without insurance had their
blood pressure measured in the past 2 years, compared with a Healthy People
2000 objective of more than 90 percent. Forty-four percent of Hispanics with-
out insurance studied here had their blood cholesterol checked in the past 5
years, compared with a Healthy People 2000 objective of 75 percent. In this
sample, more than 93 percent of those with insurance reported that they had
their blood pressure checked in the past 2 years, and almost 72 percent of those
with insurance had their cholesterol measured in the past 5 years. Similar
effects were seen with those who reported that they had a regular source of
care.

Several limitations of this study must be acknowledged. First, it is limited
by its focus on a single community on the U.S.-Mexico border. Significant vari-
ation across communities in the ability to obtain medical care for the unin-
sured has been noted. Second, although a door-to-door sample was obtained
in the ability to obtain medical care for the uninsured has been noted. Second, although a door-to-door sample was obtained
to limit the selection bias inherent in a telephone survey, it is still possible that
those of lower socioeconomic status may still be underrepresented in this
sample. Lower socioeconomic groups are less likely to have active telephone
service and may also be less likely to be home during the daytime or evening if
they are working at more than one job. If so, we may have underrepresented
the number who are uninsured and who have not received appropriate pre-
ventive services. Third, the high percentage of females in this sample is not
representative of the population in this area. This may reflect the fact that
interviews were evenly divided among morning, afternoons, and evenings,
with a predominance of female respondents at home during the daytime. Finally, it is possible that some social desirability bias is present—that is, respondents may have given the answers they thought would please the interviewer. If so, we may have overestimated the number who had received health care or preventive services.

In the Mexican American population on the U.S.-Mexico border, enabling factors such as health insurance and a regular source of care are important predictors of realized access to health care services and the use of appropriate preventive services. They are more important than the need for these services, as measured by health status or the presence of a chronic disease. This finding has important health policy implications in light of the growing number of uninsured during the strongest and longest sustained expansion of the U.S. economy in recent history. The proportion of uninsured currently is more than 16 percent, and it continues to grow. The findings reported here regarding health care access on the U.S.-Mexico border suggest that making significant progress toward the Healthy People 2000 and 2010 objectives will become more difficult as access to health care services becomes more inequitable with growing numbers of uninsured.

Acknowledgment

Support for this study was provided by the Paso del Norte Health Foundation. The authors also wish to acknowledge the contribution of Jim Vanderslice and Dan Green in data preparation. This study was presented, in part, at the 57th Annual Meeting of the United States Mexico Border Health Association, June 2, 1999, San Antonio, Texas.

REFERENCES


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BEHAVIORS, ATTITUDES, AND KNOWLEDGE OF LOW-INCOME CONSUMERS REGARDING NUTRITION LABELS

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VALERIE CHAMBERLAIN, PhD
ALAN B. HOWARD, MS
University of Vermont

Abstract: This exploratory study interviewed 130 participants in federal food assistance programs and 51 low-income nonparticipants to assess their behaviors and attitudes toward and awareness of the nutrition label. Regarding label use, 35.4 percent of participants and 45.1 percent of nonparticipants seldom/never read labels while grocery shopping, 31.5 percent of participants and 19.6 percent of nonparticipants sometimes read them, and 33.1 percent of participants and 35.3 percent of nonparticipants always/frequently read labels in the grocery store. In addition, 38.5 percent of participants and 41.2 percent of nonparticipants seldom/never read labels at home, 33.1 percent of participants and 27.5 percent of nonparticipants sometimes read them, and 28.5 percent of participants and 31.4 percent of nonparticipants always/frequently read labels at home. There were no significant differences between mean scores of participants and nonparticipants on how to use the nutrition label. Findings challenge nutritionists working with low-income individuals to develop more learning opportunities that teach how to use nutrition labels.

Key words: Low-income consumers, nutrition labels, knowledge, attitudes, behaviors, nutrition education.

The Nutrition Labeling and Education Act (NLEA) became law in November 1990. This legislation mandates changes in the format and content of nutrition labels appearing on most food packages. The new labels are intended to be easier to use than previous labels; the information focuses on dietary constituents’ concern for public health.

Current nutrition labels report the serving size of a product, which is now standardized across all brands. They also indicate the number of servings per
container, the number of calories per serving, and the number of calories from
fat per serving. In addition, nutrition labels report the number of grams and
the percent daily values (based on current dietary guidelines) for total fat, sat-
urated fat, cholesterol, total carbohydrates, dietary fiber, and milligrams and
percent daily value for sodium. The labels also indicate the percentage of the
recommended daily intakes (RDIs) for vitamins A and C, iron, and calcium.
All of this information is reported on a panel called “Nutrition Facts.”

Nutrition labels are intended to help U.S. consumers make healthful food
choices in accordance with current dietary recommendations that could pre-
vent or delay the onset of such diet-related chronic conditions as obesity, heart
disease, hypertension, stroke, diabetes, and some forms of cancer; these condi-
tions rank among the leading causes of death in this country. However, since
the current nutrition labels first appeared in May 1994, several authors have
reported that consumers are making limited use of label information. Several
investigators have reported that consumers use the label most frequently to
determine the amount per serving of calories and fat and compare the amount
of a nutrient in two brands of the same food and least frequently to plan daily
meals.

Conflicting findings have been reported about the knowledge of U.S. con-
sumers regarding the type of information presented on the nutrition label and
the intended uses of these labels. Studies that do not take account of demo-
graphic characteristics suggest that consumers show an increased under-
standing of how to use the current nutrition labels compared with previous
labels. For example, the National Food Processor’s Association assessed con-
sumers’ nutrition knowledge since the enactment of the NLEA and reported
that consumers in general have acquired and comprehended more nutrition
information and that current nutrition labels seem to be understood by con-
sumers with varying levels of motivation and nutrition knowledge. However,
when demographic variables such as income, literacy, and race are consid-
ered, the data are less encouraging. Morton and Guthrie reported that low-
literacy, low-income consumers with children in the household were less
aware of diet-disease relationships and were less likely to use the nutrition
label than consumers from wealthier households. Other investigators have reported that low-literacy, nonwhite consumers find the nutrition label
difficult to understand and use.

To date, no study has measured the knowledge of low-income consumers
regarding the specific nutrient information appearing on the “Nutrition
Facts” panel or assessed how helpful these individuals find the nutrition label
for accomplishing various food-related tasks. It is important that nutrition
professionals acquire this information, along with frequency of use data, to
assess the need among individuals and families living in poverty for nutrition
education interventions focusing on the content and use of nutrition labels. It
is well documented that low-income groups in the United States show a dis-
proportionately higher incidence of diet-related chronic diseases compared
with wealthier segments of the population. Impoverished individuals also
have higher morbidity and mortality rates associated with these conditions.\textsuperscript{15-17} Several authors\textsuperscript{18-21} have proposed that diet quality is an important factor contributing to the high occurrence of these illnesses among the poor. These investigators observe that the diet of the poor is often high in total and saturated fat and calories, putting these individuals at high risk for obesity. Obesity in turn is an important risk factor for cardiovascular disease, diabetes, and hypertension. It would, therefore, be especially important that economically disadvantaged and underserved groups comprehend and use the nutrition label to reduce their vulnerability to these conditions. Therefore, the objective of this exploratory study was to interview participants in three federal food assistance programs and low-income nonparticipants to compare their behaviors, attitudes, and awareness concerning nutrition labels. The selected programs are the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); the Food Stamp Program (FSP); and Aid to Needy Families With Children (ANFC). These three programs provide clients with food or food vouchers and with health and nutrition services, including instruction on the content and use of nutrition labels.\textsuperscript{10,22,23}

In the context of this study, the term nonparticipants refers to people eligible for but not enrolled in any USDA-funded food assistance program. The term knowledge about nutrition labels refers to the ability of consumers to identify which nutrients are referred to on nutrition labels, their awareness of the relationship between these nutrients and certain chronic diseases, and their ability to use the labels to determine the nutrient content of a serving of food. Attitudes toward nutrition labels refers to how helpful consumers find the labels when undertaking selected food-related tasks, such as comparing the nutrient content of two brands of the same food. Use of nutrition labels refers to the frequency with which labels are consulted when undertaking such tasks.

\section*{Method}

Convenience samples of 130 participants in the WIC, FSP, and/or ANFC programs and 51 low-income nonparticipants residing in or around Burlington, Vermont, were interviewed. Recruitment and interviewing occurred at a welfare office where eligible individuals can enroll or re-enroll in these three food assistance programs. As people entered the reception area to await their appointments with a program staff member, they were approached by undergraduate students who invited them to take part in this study and who interviewed those who were willing to participate. The purpose of the study and the voluntary nature of participation were explained to all interviewees who read and signed a consent form. This study was approved by the Committee on Human Research in the Behavioral Sciences at the University of Vermont.

Data were collected using a four-part close-ended interview schedule. Visual displays were used throughout the interview as recommended by Chamberlain.\textsuperscript{24} Frequency of use of nutrition labels was assessed by asking
interviewees how often they used labels when performing the following activities: determining the amount of a nutrient in a serving of food, comparing the nutrient content in different brands of the same food, shopping for foods for a special diet, meal planning, and comparing amounts of a nutrient in different foods. Response options consisted of a 5-point temporal scale depicted on a poster, with 1 = never use, 2 = seldom use, 3 = sometimes use, 4 = frequently use, and 5 = always use. Attitudes toward nutrition labels were assessed by asking interviewees how helpful they found the labels when performing the same five food-related activities they had been asked about previously. Once again, response options were depicted on a poster along a 5-point scale, with 1 = never helpful, 2 = seldom helpful, 3 = sometimes helpful, 4 = frequently helpful, and 5 = always helpful.

Consumer awareness of the nutrition label was measured by administering a 15-item multiple-choice test that assessed their ability to identify nutrients appearing on the “Nutrition Facts” panel, their knowledge of the relationship between these nutrients and certain chronic diseases, and their ability to use the label to determine the nutrient content of a food. Ten cognitive items were based on posters displaying the nutrition labels from various food packages, and 5 items were asked without the use of displays. Questions were followed by three response options and a “don’t know” option. To obtain a more accurate measure of their knowledge, interviewees were encouraged to use the “don’t know” option rather than guess.

The interview concluded by a request for demographic and health status information that was subsequently used to analyze behavioral, attitudinal, and cognitive data. Demographic variables included gender, age, education, household size, and annual household income. Health status was assessed by asking interviewees whether they had ever been diagnosed with heart disease, hypertension, diabetes, cancer, or osteoporosis. Since there were so few self-reported cases of diabetes and osteoporosis, these data were not included in the analyses. Data concerning race or ethnicity were not collected because the community where the study took place is predominately Caucasian and shows very little ethnic/racial diversity. Demographic questions were read and completed by the interviewees to provide them with greater privacy.

Each part of the interview was organized to progress from the least to the most difficult items, and as suggested by Grunlund, the vocabulary was kept at a low reading level. Content validity of the interview schedule was ascertained by having it reviewed by nutritionists with experience in developing interview instruments for various audiences and with expertise in evaluation procedures.

Interviewers were hired on the basis of their interpersonal skills and experience working with low-income individuals. They were trained in interview methodology according to the guidelines presented by Patton.

Data were analyzed using SAS System for Windows (Version 6.12, SAS Institute, Inc., Cary, NC, 1996). Frequency counts and means were obtained on all data. To reduce the number of results generated without sacrificing
accuracy, the 5-point behavior and attitude scales were collapsed to a 3-point scale; the frequently and always categories were combined, as were the seldom and never categories. Chi-square analyses identified significant differences in behaviors and attitudes between participants and nonparticipants without regard to selected demographic variables and within each sample based on these demographic variables. An item analysis performed on the original 17 cognitive questions identified 2 items that were excluded from the final analysis because they failed to discriminate between program participants and nonparticipants. In scoring the remaining 15 items, 1 point was assigned to each correct response and zero points to each incorrect response. A two-sample t-test compared mean knowledge scores of participants and nonparticipants. Since most participants were enrolled in more than one of the federally sponsored food assistance programs, comparisons among participants in the individual programs could not be made. When comparing behavioral, attitudinal, or cognitive data between participants and nonparticipants, data for participants in the three programs were combined. Statistical significance was set at p < 0.05.

Results

A total of 181 subjects—130 program participants and 51 nonparticipants—were interviewed. The two groups differed markedly in their demographic profiles. For example, the mean age of nonparticipants was significantly greater than that of participants (44.9 ± 21.3 years vs. 32.9 ± 11.6 years, p = 0.002). Table 1 presents other demographic and health data for the two samples.

Table 1 indicates that there were greater proportions of females in both samples. In addition, the nonparticipant group had a significantly greater proportion of men than the participant group (p = 0.002). The greatest proportions of participants and nonparticipants reported an annual household income ranging from $5,000 to $9,999. The greatest proportion of participants was enrolled in the FSP, followed by the WIC, followed by the ANFC program. It should be noted that it is possible to receive benefits from more than one of these programs simultaneously, and most participants were enrolled in more than one program.

Regarding educational attainment, the greatest proportions of participants and nonparticipants ended their years of formal education after completing high school. Thirty percent of participants and 25.5 percent of nonparticipants had at least some college/vocational training. The most common medical condition reported by participants and nonparticipants was hypertension, and the least common conditions were osteoporosis and diabetes.

The greatest proportion of participants lived in households of five or more people, while the greatest proportion of nonparticipants lived with one other person. A significantly greater proportion of participants than nonparticipants lived in households with children younger than age 19 (p < 0.01).
### TABLE 1

CHARACTERISTICS OF PARTICIPANTS AND LOW-INCOME NONPARTICIPANTS IN FOOD ASSISTANCE PROGRAMS

<table>
<thead>
<tr>
<th></th>
<th>PARTICIPANTS (n = 130)</th>
<th></th>
<th>NONPARTICIPANTS (n = 51)</th>
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<th>p-VALUE&lt;sup&gt;c&lt;/sup&gt;</th>
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<tbody>
<tr>
<td></td>
<td>n</td>
<td>PERCENTAGE</td>
<td>n</td>
<td>PERCENTAGE</td>
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<tr>
<td><strong>Gender</strong></td>
<td></td>
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<tr>
<td>Males</td>
<td>29</td>
<td>22.3</td>
<td>23</td>
<td>45.1</td>
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<tr>
<td>Females</td>
<td>101</td>
<td>77.7</td>
<td>28</td>
<td>54.9</td>
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<td><strong>Annual household income</strong></td>
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<td>$0-$4,999</td>
<td>19</td>
<td>14.6</td>
<td>10</td>
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<td>$5,000-$9,999</td>
<td>41</td>
<td>31.5</td>
<td>11</td>
<td>21.6</td>
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<td>$10,000-$14,999</td>
<td>27</td>
<td>20.8</td>
<td>9</td>
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</tr>
<tr>
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<td>11.5</td>
<td>9</td>
<td>17.6</td>
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<td>9</td>
<td>6.9</td>
<td>3</td>
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<td>$25,000+</td>
<td>7</td>
<td>5.4</td>
<td>4</td>
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<td><strong>Enrollment in food assistance programs</strong></td>
<td></td>
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<tr>
<td>Women, Infants, and Children (WIC)</td>
<td>64</td>
<td>49.2</td>
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<tr>
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<td>47</td>
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<tr>
<td><strong>Years of formal education</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>8 years</td>
<td>21</td>
<td>16.2</td>
<td>10</td>
<td>19.6</td>
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<tr>
<td>12 years</td>
<td>53</td>
<td>40.8</td>
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<tr>
<td>Some college/vocational training</td>
<td>39</td>
<td>30</td>
<td>13</td>
<td>25.5</td>
<td></td>
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<tr>
<td>Completed college/vocational training</td>
<td>8</td>
<td>6.2</td>
<td>11</td>
<td>21.6</td>
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<tr>
<td><strong>Presence of chronic disease</strong></td>
<td></td>
<td></td>
<td></td>
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<td>&lt; 0.05</td>
</tr>
<tr>
<td>Hypertension</td>
<td>15</td>
<td>11.5</td>
<td>12</td>
<td>23.5</td>
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</tr>
<tr>
<td>Heart disease</td>
<td>6</td>
<td>4.6</td>
<td>4</td>
<td>7.8</td>
<td>ns</td>
</tr>
<tr>
<td>Diabetes</td>
<td>4</td>
<td>3.1</td>
<td>0</td>
<td>0</td>
<td>ns</td>
</tr>
<tr>
<td>Cancer</td>
<td>2</td>
<td>1.5</td>
<td>3</td>
<td>5.9</td>
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<tr>
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<td><strong>Household size</strong></td>
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<td>Two</td>
<td>25</td>
<td>19.2</td>
<td>23</td>
<td>45.1</td>
<td></td>
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<tr>
<td>Three</td>
<td>28</td>
<td>21.5</td>
<td>11</td>
<td>21.6</td>
<td></td>
</tr>
<tr>
<td>Four</td>
<td>32</td>
<td>24.6</td>
<td>11</td>
<td>21.6</td>
<td></td>
</tr>
<tr>
<td>Five or more</td>
<td>44</td>
<td>33.8</td>
<td>6</td>
<td>11.8</td>
<td></td>
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<tr>
<td>Households with children</td>
<td>63</td>
<td>48.4</td>
<td>13</td>
<td>25.5</td>
<td>&lt; 0.01</td>
</tr>
</tbody>
</table>

Note: NA = not applicable.
<sup>a</sup> Totals do not always add up to 130 due to missing data.
<sup>b</sup> Totals do not always add up to 51 due to missing data.
<sup>c</sup> χ² test, α = 0.05.
Program participants generally read nutrition labels more often in the grocery store and at home than nonparticipants. Forty-six participants (35.4 percent) and 23 nonparticipants (45.1 percent) seldom/never read nutrition labels while grocery shopping, 41 participants (31.5 percent) and 10 nonparticipants (19.6 percent) sometimes read them, and 43 participants (33.1 percent) and 18 nonparticipants (35.3 percent) always/frequently read labels in the grocery store. Fifty participants (38.5 percent) and 21 nonparticipants (41.2 percent) seldom/never read nutrition labels at home, 43 participants (33.1 percent) and 14 nonparticipants (27.5 percent) sometimes read them, and 37 participants (28.5 percent) and 16 nonparticipants (31.4 percent) always/frequently read labels at home.

Educational attainment and age influenced frequency of label use among program participants. More educated people (people who at least finished high school) read labels more often while in the grocery store than less educated people (people who did not finish high school) \( (p = 0.004) \), and younger people (45 years old or younger) read labels more often at home than older people (46 years old or older) \( (p = 0.05) \). Among nonparticipants, the only demographic variable that influenced label use was the presence of children younger than age 19 in the household. People with children read labels more often while grocery shopping than people without children \( (p = 0.016) \).

Table 2 shows how often program participants and nonparticipants used the label when performing five food-related activities. Both groups used the label most often to determine the amount of a nutrient in a serving of food and least often to plan meals (see Table 2). Chi-square analyses showed no significant differences for any temporal category between participants and nonparticipants regarding use of the nutrition label for any of the five activities.

Frequency of use of nutrition labels among program participants was largely independent of any demographic variables for any of the five food-related activities. Findings did reveal that females read nutrition labels to determine how much of a nutrient is in a serving of a food more often than males \( (p = 0.036) \), people with a diet-related chronic disease read labels to plan meals more often than people without such a condition \( (p = 0.004) \), and people with children in the household read labels to compare the nutrients in different brands of the same food more often than people without children \( (p = 0.039) \). Among nonparticipants, frequency of label use was independent of selected demographic variables for any of the food-related activities except that less educated people read nutrition labels more often to compare the nutrients in different brands of the same food than more educated people \( (p = 0.015) \).

Table 3 indicates how often program participants and nonparticipants found the nutrition label helpful when performing the same five food-related activities they had been asked about previously. Both samples found the label most helpful when determining the amount of a nutrient in a serving of food and least helpful when planning meals. There were no significant differences
<table>
<thead>
<tr>
<th>USE THE LABEL WHEN . . .</th>
<th>PARTICIPANTS (n = 130)</th>
<th></th>
<th>NONPARTICIPANTS (n = 51)</th>
<th></th>
<th>p-VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NEVER/ SELDOM</td>
<td>PERCENTAGE</td>
<td>SOMETIMES</td>
<td>PERCENTAGE</td>
<td></td>
</tr>
<tr>
<td>Determining the amount of a nutrient in a serving of food</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>9.9</td>
<td>29</td>
<td>26.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>71</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparing nutrient contents in different brands of the same food</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>37</td>
<td>33.3</td>
<td>29</td>
<td>26.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>40.5</td>
<td></td>
<td></td>
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<tr>
<td>Shopping for foods for a special diet</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>21.5</td>
<td>7</td>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>44</td>
<td>67.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning meals</td>
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<td>32</td>
<td>28.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparing amounts of a nutrient in different foods</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>61</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>21.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Totals do not always add up to 130 due to missing data.

\(^b\) Totals do not always add up to 51 due to missing data.

\(^c\) \(\chi^2\) test, \(\alpha = 0.05\).
between participants and nonparticipants in how often they found the labels helpful when performing any of the food-related activities, except that participants found them helpful more often when shopping for foods for special diets \( (p = 0.047) \).

Among program participants, attitudes toward the nutrition label were independent of selected demographic variables with two exceptions. More educated people found the labels more helpful than less educated people when comparing the amounts of nutrients in different foods \( (p = 0.037) \), and people living in larger households found the labels more helpful than people living in smaller households when planning meals \( (p = 0.046) \). Among nonparticipants, all demographic variables were independent of attitudes toward the nutrition label except that people without children found the labels more helpful than people with children when determining the amount of a nutrient in a serving of food \( (p = 0.032) \).

When asked how easy it was to use the label in its present format, 64 participants (57.7 percent) and 21 nonparticipants (51.2 percent) found the label easy/extremely easy to use, 44 participants (39.6 percent) and 16 nonparticipants (39.0 percent) found it somewhat easy to use, and 3 participants (2.7 percent) and 4 nonparticipants (9.8 percent) found the label not very/not at all easy to use. There were no significant differences between the two groups on this attitudinal measure. In addition, this measure was independent of all demographic variables for program participants and nonparticipants.

There was no significant difference between the mean scores of program participants and nonparticipants on the cognitive items measuring awareness of label content, how to use labels to determine the nutrient content of a serving of food, and the relationship between food constituents appearing on labels and chronic disease. The mean score for participants was 11.8 ± 2.2 points and that for nonparticipants was 11.7 ± 2.5 points out of a possible 15 points.

Gender and health status appear to have influenced knowledge about the nutrition label among program participants. Females had significantly higher mean scores than males (12.0 ± 2.0 points vs. 11.0 ± 2.6 points, \( p = 0.042 \)), and people with a diagnosed chronic disease scored significantly higher than people without such a condition (12.9 ± 1.5 points vs. 11.7 ± 2.2 points, \( p = 0.026 \)). It is noteworthy that there was no significant difference between the mean knowledge scores of more educated and those of less educated participants. Analyses of cognitive data for nonparticipants showed no significant differences based on any demographic or health characteristic.

Cognitive data were compared for people with and without a diagnosed diet-related chronic disease to determine whether afflicted people would show a greater awareness of the association between their particular health condition and specific food constituents. Since there were so few cases of chronic disease within the two samples, only data for people with a self-reported diagnosis of hypertension and heart disease were included in the
<table>
<thead>
<tr>
<th>LABEL IS HELPFUL WHEN . . .</th>
<th>PARTICIPANTS (n = 130)$^a$</th>
<th>NONPARTICIPANTS (n = 51)$^b$</th>
<th>$p$-VALUE$^c$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NEVER/ Seldom</td>
<td>SOMETIMES</td>
<td>FREQUENTLY/ ALWAYS</td>
</tr>
<tr>
<td>Determining the amount of a nutrient in a serving of food</td>
<td>9</td>
<td>8.1</td>
<td>25</td>
</tr>
<tr>
<td>Comparing amounts of nutrients in different brands of the same food</td>
<td>23</td>
<td>25.8</td>
<td>33</td>
</tr>
<tr>
<td>Shopping for foods for a special diet</td>
<td>8</td>
<td>12.3</td>
<td>8</td>
</tr>
<tr>
<td>Comparing amounts of a nutrient in different foods</td>
<td>38</td>
<td>34.5</td>
<td>27</td>
</tr>
<tr>
<td>Planning meals</td>
<td>54</td>
<td>49.1</td>
<td>18</td>
</tr>
</tbody>
</table>

$^a$ Totals do not always add up to 130 due to missing data.

$^b$ Totals do not always add up to 51 due to missing data.

$^c$ $\chi^2$ test, $\alpha = 0.05$. 
analysis. Moreover, data for program participants and nonparticipants with these conditions were combined and compared with data for participants and nonparticipants without these conditions. There were no significant differences in the percentages of correct responses from people with or without hypertension on questions concerning salt/sodium or from people with or without heart disease on questions concerning total and saturated fat.

Discussion

In the present study, participants in federally sponsored food assistance programs read nutrition labels more often in the grocery store and at home than low-income nonparticipants. The gender distribution and mean age of the participants compared with nonparticipants may partly explain this difference in label use. There were greater proportions of women than men in the participant group, and the mean age of this group was significantly lower than that of nonparticipants. Other investigators have also reported greater label use among women and younger consumers. In their telephone survey of Washington state consumers, Neuhouser and coworkers found that use of nutrition labels was significantly higher among women and younger subjects. Kristal and coworkers reported a larger increase in label use among younger than among older consumers since the introduction of the new nutrition labels in 1994.

Even though the present study found more label use among program participants, the greatest proportions of participants and nonparticipants reported seldom/never using the nutrition label while grocery shopping or at home. These findings suggest that the greatest proportion of consumers in both samples either find it difficult to use the nutrition label or perceive little benefit in using the label. Attitudinal data give more credence to the latter explanation because the majority of subjects from both samples found the nutrition label easy/extremely easy to use. In addition, the mean knowledge scores for both groups indicated at least average ability to use the label correctly and average understanding of the connection between specific nutrients and chronic disease. Further evidence that subjects perceived the nutrition label to be of little benefit was that neither sample found the label very helpful for any food-related activity other than determining the content of a specific nutrient in a serving of food.

The finding that most participants and nonparticipants considered the nutrition label easy/extremely easy to use is in marked contrast to that of Brunt and Kristal and coworkers, whose respondents found the label difficult to use and wanted the label changed to make it more user-friendly. One explanation for this discrepancy may be that the majority of our subjects had more years of education than the subjects in either of these studies.

Results regarding frequency of use of the nutrition label when performing several food-related activities agree with those of Derby, Neuhouser and coworkers, Marietta and coworkers, and the National Food Processor’s
Association, although none of these studies focused on low-income consumers. All of these authors found, as reported in the present study, that consumers used the label most often and found it most helpful when determining the amount of a nutrient in a serving of food and used the label least often and found it least helpful when planning meals. The present findings suggest that low-income consumers may not be cognizant of the potential impact of their daily diet on their long-term health status. It appears that these individuals are probably more concerned about the amount of a specific nutrient in foods.

Comparisons of behavioral, attitudinal, and cognitive data between participants and nonparticipants revealed that participation in the food assistance programs made no difference in the frequency of use of the nutrition label or attitudes toward the helpfulness of the label when performing any of the selected food-related activities. Nor did participation in these programs enhance clients’ knowledge of how to use nutrition labels or of the associations between certain food components appearing on the labels and chronic disease. These findings suggest that nutritionists must do more to teach clients how to use the nutrition label and motivate clients to use the labels. Such educational interventions should take into account the nutrition/health misconceptions, food preferences, and financial restrictions of clients. Albright and coworkers suggest that nutrition education programs targeted at low-literacy, low-income groups should involve members of the target audience in the planning and implementation process. These authors note that these programs would be more effective if they included interactive discussions, demonstrations, individual and group problem solving, simulation exercises, and personal practice.

Several demographic variables other than income influenced the behaviors, attitudes, and knowledge of program participants and nonparticipants regarding the nutrition label. Among participants, those with more years of formal education had a more positive attitude toward the label and were more likely to make use of the label while grocery shopping than those with fewer years of formal education. Education, however, did not influence attitudes toward the label among nonparticipants. These findings suggest a need for more community-based nutrition education interventions designed to motivate low-income consumers to use nutrition labels. Opportunities to implement such interventions in grocery stores and at health clinics should be explored. The possibility of airing public service announcements over local radio stations about how to use nutrition labels and the importance of using these labels should also be investigated.

Another variable that influenced label use among participants, but not among nonparticipants, was the presence of a diagnosed chronic disease. Participants with such a diagnosis were more likely to use nutrition labels to plan meals than participants with no such diagnosis. These findings agree with those of Nayga and coworkers, who reported that consumers on special diets were more likely to use labels while grocery shopping. These findings, however, differ from those of Neuhouser and coworkers, who found no sig-
nificant association between label use and a history of chronic disease. In addition, in the present study, program participants were more likely than nonparticipants to always/frequently find the label helpful when shopping for foods for special diets. These findings suggest that low-income consumers are using label information to help manage existing health problems more often than to help prevent or delay the onset of such conditions.

Participants with chronic diseases also scored significantly higher on cognitive items than participants without such conditions. This implies that government-sponsored food assistance programs are teaching clients with chronic diseases about how to use the nutrition label to help them manage their conditions. Alternatively, program participants with chronic diseases may recognize the importance of learning to use the nutrition label and are more motivated to use it.

**Conclusion**

In conclusion, the present findings suggest a strong need for educational interventions that teach low-income consumers how to use the nutrition label and promote a more positive attitude toward label use. These results challenge nutritionists working with low-income individuals to develop, implement, and evaluate more educational materials and teaching strategies that would convey information about the nutrition label in a manner that is tailored to their clients’ educational, financial, and cultural circumstances. Educational programs for people with diagnosed chronic diseases should continue to emphasize the importance of the labels for use in meeting specific dietary needs.

**Acknowledgments**

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**REFERENCES**


DR. McARTHUR is an assistant professor in the Department of Nutrition and Hospitality Management at East Carolina University in Greenville, North Carolina. DR. CHAMBERLAIN is a professor in the Department of Nutrition and Food Science and MR. HOWARD is statistician in Academic Computing Services, both at the University of Vermont in Burlington.
WHETHER AND WHERE COMMUNITY HEALTH CENTER USERS OBTAIN SCREENING SERVICES

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JERRILYNN REGAN, RN, MS, MPA
U.S. Department of Health and Human Services

Abstract: This study measures associations between minority and low socioeconomic status and the use of screening services for secondary prevention among adult community health center users. Among those who obtained timely screening services, the study also measures associations between minority and low socioeconomic status and obtaining these preventive services at a community health center. The data include 1,175 individuals ages 18 and older from a 1995 survey of community health center users. Minority and lower socioeconomic status adult community health center users were not less likely to obtain timely screening services than other adult community health center users. This differs from the trend in the general population. Minority and lower socioeconomic status community health center users who used timely screening services were more likely to obtain them at community health centers, which appear to facilitate the use of timely screening services for minority and low socioeconomic status users.

Key words: Prevention, screening, community health centers, socioeconomic status, minority populations.

Healthy People 2000 and Healthy People 2010 set goals for the level of utilization of a variety of preventive services. Healthy People 2010 focuses national attention on limiting and eliminating the differences in utilization between individuals from different demographic groups. Numerous studies either list the utilization of timely screening services by minorities and low-income individuals as an important issue or demonstrate empirical results that highlight their low utilization of screening services. The findings of racial and income-based differences in screening are not universal but the general consistency of these findings makes it interesting to look at whether...
these differences persist among users of community health centers (CHCs) since, by definition and mission, these safety net providers are committed to providing care to vulnerable populations.

A CHC is defined here as a community health center funded under Section 330 of the Public Health Services Act. The CHC Program is a federal grant program funded under this legislation to provide primary and preventive services to medically underserved areas. The majority of CHCs that receive this federal funding are private, not-for-profit organizations; a few are health departments. Approximately 26 percent of their revenue is from the federal grant.

Regan et al. performed an initial study of cancer screening services used by female CHC users. The authors found that female CHC users met or exceeded Healthy People 2000 recommendations with respect to screening for breast and cervical cancer. The authors also compared screening utilization among women in CHCs with screening utilization among a low-income comparison group drawn from the 1992 National Health Interview Survey (NHIS). Female CHC users were more likely to be up-to-date on their screenings than the low-income comparison group. While this suggests that CHCs were helping their users to achieve relatively high levels of preventive care utilization, the analyses were not multivariate and did not include several screening services that are applicable either to male users or to both male and female users.

Community health centers have the potential to provide high-quality primary care for all users and to play an important role in achieving the goals for eliminating disparities in preventive care set by Healthy People 2010. The present paper analyzes, in terms of various demographic characteristics, (1) whether CHC users obtain timely screening services and (2) whether those who do obtain timely screening services do so at a CHC.

**Method**

For the present study, the authors analyzed data from the Community Health Center User/Visit Survey, which was conducted for the Bureau of Primary Health Care by Mathematica Policy Research, Inc. (MPR, Inc.) in 1995. This survey was the first large-scale personal interview of users and review of medical visits at CHCs. It was modeled after the NHIS and the National Hospital Ambulatory Medical Care Survey (NHAMCS) of the Centers for Disease Control (CDC), National Center for Health Statistics (NCHS). To ensure comparability with the NHIS and NHAMCS, Mathematics Policy Research, Inc. consulted the NCHS for technical assistance throughout all stages of the survey design and implementation (the survey tool design and testing, sampling methodology, and statistical analyses). MPR, Inc. developed the tools and survey methodology and pilot-tested and field-tested the CHC User/Visit Survey. The authors of the present study had access to the data through a cooperative agreement with and work at the Bureau of Primary Health Care.
The Bureau of Primary Health Care maintains a database of CHCs. A two-stage sampling process was designed by the NCHS for the CHC User/Visit Survey. All CHCs in the coterminous United States that were in continuous operation from 1992 through 1994 were considered eligible for the first stage. From these, 50 were selected, the probability of selection being proportional to size. At each selected center, users were considered eligible for inclusion in the user survey if they had had at least one medical encounter with a physician, nurse practitioner, nurse midwife, or physician assistant at the selected site in calendar year 1994. A medical encounter was defined as a face-to-face contact between a user and a health care provider who exercises independent judgment in the provision of health services to individual patients. The second stage of sample selection for the user survey involved choosing a random sample of users from ordered lists of all eligible users.

The user survey was administered to 1,932 users, achieving a 76 percent response rate. Interviewers administered the survey using a computer-assisted personal interview that took from 1½ to 2 hours to complete. Surveys were administered in English (82 percent), Spanish (16 percent), and Chinese (2 percent). While most of the surveys were conducted in person at the clinic/another location (74 percent), a sizable minority were conducted over the telephone (26 percent). Users who participated in the study received $20 remuneration.

The use of five adult screening services was examined in this study: clinical breast exam, mammogram, Pap smear, testicular exam, and cholesterol measurement. The survey asked two types of questions about these services that are relevant for this paper: (1) Had the individual ever been screened using this particular type of screening; if so, how recently? (2) If the person had been screened recently, did this occur at the community health center? To be asked whether the screening had occurred at a CHC, the users had to have had a clinical breast exam within the past year, a mammogram within the past 3 years, a Pap smear within the past 3 years, and a cholesterol measurement within the past year. Only those women age 30 and older were asked about the clinical breast exam and mammogram. All adult females (age 18 and older) were asked about having had a Pap smear. All adults were asked about cholesterol measurements. All adult males were asked about having had a testicular exam. They were asked when their last exam was but were not asked whether they had had an exam during a particular time period as there is no standard recommendation on the frequency of testicular exams for asymptomatic men. The survey did not query respondents about whether their testicular exams took place at a CHC. In all cases, data for any individual who did not respond to the question were considered missing.

The explanatory variables were chosen based on a combination of theories suggesting that individuals who differ on these variables may face different constraints or have different preferences, as well as past research suggesting that these differences might be significantly related to the use of screening or other preventive services.14,21,22 Many of the variables (including education,
home ownership, income, employment, and insurance status) are indicators of or are highly associated with socioeconomic status (SES). While home ownership has not been used in past research on screening or preventive behaviors, it has been used as an additional measure of SES. Variation in utilization by SES may persist at a CDC because of nonfinancial barriers that vary with SES that the provider may or may not address (e.g., availability of child care). Most CHC users are of relatively low SES, and CHCs provide an opportunity to eliminate variation in utilization along this dimension because they provide a wide range of enabling services to eliminate nonfinancial barriers.

Other variables analyzed include indicators of urban location of the CHC, being male, being married, age, and health status. An array of considerations led to this choice of variables. Urban location is generally associated with greater availability of health care services. Men and women may have different preferences for care. Those who are married may value prevention and screening differently from those who are not, and individuals reporting better health status may perceive lower risk of disease. The preferences of older individuals may differ from those of younger individuals; equally, older individuals may act on perceived differences in clinical risks.

Several of the variables require elaboration. Income ranges were obtained from respondents. Respondents were first asked to indicate whether household income was above or below $20,000 and then asked about smaller ranges within each of these. Income was treated as a continuous variable by assigning the midpoint of each range. Income was divided by $10,000 for the logistic regression analyses. The indicator of being white compared with being nonwhite was collapsed from a race variable that had several nonwhite categories, the largest of which was African American. In addition to African American respondents, respondents identified themselves as belonging to the following nonwhite racial categories: American Indian, Eskimo, Aleut, Chinese, Filipino, Hawaiian, Korean, Vietnamese, Japanese, Asian Indian, Samoan, Guamanian, other Asian Pacific Islander, and other. The number of individuals in each of these categories was too small for a separate analysis. While education was reported as the number of grades completed, this was coded as an indicator of whether the respondent had completed at least 9 years of education. Individuals were coded as working if they had worked for pay in the past 2 weeks or if they reported having a job even though they did not work in the past 2 weeks. For insurance status, individuals were coded as having Medicaid, Medicare but not Medicaid, or some insurance other than Medicare or Medicaid; these three groups were compared with those having no insurance. Health status was reported on a 5-point scale ranging from excellent to poor; this was coded as an indicator of being in excellent, very good, or good health in comparison with being in fair or poor health.

Most variables had very little missing data. Income was the one variable with substantial missing data; for this variable, a hot-deck imputation method was used to assign values for individuals who were missing data. Hot-deck imputation begins by finding observations with reported income that are...
similar to an observation with missing income based on observable characteristics. One of the similar observations with reported income is chosen at random, and its income is assigned to the observation with missing income. This type of imputation routine has two advantages over mean imputation: hot-deck imputation does not distort the sampled values of income and does not artificially decrease the variance of income.27

The analyses were cross-tabulations and logistic regressions performed using SUDAAN (Version 7.5.2, Research Triangle Institute, Research Triangle Park, NC, 1996)28 to properly account for the weights and the complex sampling design in the calculation of standard errors. The variables indicating use or no use of the screening services within the relevant time periods were cross-tabulated with each of the explanatory variables individually to give some idea of the relationships that might be important. Separate multivariate logistic regressions were then run with each of the screening services as a dependent variable and the full set of explanatory variables. Following this step, data on the individuals who had obtained services within the relevant time period were used in similar cross-tabulations and logistic regressions in which the dependent variable was whether or not the screened users had obtained the screening services at the CHC. Sensitivity analyses were performed to determine whether the results were strongly influenced by the inclusion of observations about individuals for whom income was imputed.

**Results**

The left-hand column of Table 1 lists the demographic characteristics considered in this study. In the columns for each type of screening service, the proportion of individuals in each demographic category who obtained a timely screening service is shown along with the number of observations in each subgroup and an indicator of the significance of the difference between groups.

Many differences were statistically significant in the bivariate analyses based on a chi-squared test in SUDAAN. Urban users were more likely to have timely mammograms and Pap smears than nonurban users. Users with less than 9 years’ education were more likely to get a mammogram but less likely to obtain a Pap smear than those with 9 or more years’ education. Working individuals were more likely to obtain a Pap smear but less likely to obtain a cholesterol measurement than their nonworking counterparts. Older individuals were less likely to get a Pap smear and more likely to get a cholesterol test than their younger counterparts. Users with Medicare and not Medicaid were least likely to obtain a timely breast exam, and uninsured users were less likely than those with Medicaid or some type of insurance other than Medicaid or Medicare to obtain a timely breast exam. Users with Medicare and not Medicaid were the least likely to obtain a Pap smear, by a wide margin. Users with Medicare but not Medicaid were also substantially less likely than other insurance status groups to obtain a cholesterol screening. Marital status and health status were both associated with having a recent cholesterol
### TABLE 1
PERCENTAGE OF COMMUNITY HEALTH CENTER USERS RECEIVING TIMELY SCREENING SERVICES BY PERSONAL CHARACTERISTICS

<table>
<thead>
<tr>
<th></th>
<th>BREAST EXAM</th>
<th>MAMMOGRAM</th>
<th>PAP SMEAR</th>
<th>TESTICULAR EXAM</th>
<th>CHOLESTEROL EXAM</th>
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<td></td>
<td>PERCENTAGE</td>
<td>PERCENTAGE</td>
<td>PERCENTAGE</td>
<td>PERCENTAGE</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td></td>
<td>(n)</td>
<td>(n)</td>
<td>(n)</td>
<td>(n)</td>
<td>(n)</td>
</tr>
<tr>
<td>Total</td>
<td>81.42 (552)</td>
<td>60.80 (489)</td>
<td>83.75 (826)</td>
<td>47.83 (312)</td>
<td>45.60 (1,079)</td>
</tr>
<tr>
<td>Urban</td>
<td>79.66 (285)</td>
<td>65.01 (251)</td>
<td>86.44 (444)</td>
<td>46.67 (132)</td>
<td>46.45 (547)</td>
</tr>
<tr>
<td>Rural</td>
<td>83.41 (267)</td>
<td>56.05 (238)*</td>
<td>80.52 (382)*</td>
<td>48.74 (180)</td>
<td>44.68 (532)</td>
</tr>
<tr>
<td>Male</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>47.83 (312)</td>
<td>47.40 (301)</td>
</tr>
<tr>
<td>Female</td>
<td>81.42 (552)</td>
<td>60.80 (489)</td>
<td>83.75 (826)</td>
<td>a</td>
<td>44.89 (778)</td>
</tr>
<tr>
<td>Education &lt; 9 years</td>
<td>76.82 (141)</td>
<td>73.44 (122)</td>
<td>77.61 (174)</td>
<td>45.50 (77)</td>
<td>49.39 (236)</td>
</tr>
<tr>
<td>Education ≥ 9 years</td>
<td>82.91 (411)</td>
<td>56.85 (367)**</td>
<td>85.31 (652)**</td>
<td>48.59 (235)</td>
<td>44.58 (843)</td>
</tr>
<tr>
<td>White</td>
<td>82.85 (300)</td>
<td>57.86 (274)</td>
<td>82.58 (423)</td>
<td>47.63 (173)</td>
<td>44.29 (567)</td>
</tr>
<tr>
<td>Nonwhite</td>
<td>79.87 (252)</td>
<td>64.18 (215)</td>
<td>84.91 (403)</td>
<td>48.06 (139)</td>
<td>46.96 (512)</td>
</tr>
<tr>
<td>Owns home</td>
<td>83.68 (290)</td>
<td>61.03 (265)</td>
<td>83.15 (380)</td>
<td>44.57 (181)</td>
<td>47.09 (531)</td>
</tr>
<tr>
<td>Does not own home</td>
<td>79.12 (262)</td>
<td>60.54 (224)</td>
<td>84.24 (446)</td>
<td>52.09 (131)</td>
<td>44.20 (548)</td>
</tr>
<tr>
<td>Married</td>
<td>81.25 (230)</td>
<td>63.39 (203)</td>
<td>81.38 (317)</td>
<td>45.49 (166)</td>
<td>48.90 (458)</td>
</tr>
<tr>
<td>Not married</td>
<td>81.54 (322)</td>
<td>59.02 (286)</td>
<td>85.17 (509)</td>
<td>50.37 (146)</td>
<td>43.24 (621)*</td>
</tr>
<tr>
<td>Working</td>
<td>85.16 (219)</td>
<td>57.20 (198)</td>
<td>87.20 (348)</td>
<td>44.22 (182)</td>
<td>39.56 (502)</td>
</tr>
<tr>
<td>Not working</td>
<td>79.64 (331)</td>
<td>63.02 (290)</td>
<td>81.22 (476)*</td>
<td>52.57 (130)</td>
<td>50.51 (379)**</td>
</tr>
<tr>
<td>Age ≥ 60</td>
<td>75.08 (159)</td>
<td>67.11 (147)</td>
<td>67.11 (162)</td>
<td>54.08 (64)</td>
<td>63.85 (219)</td>
</tr>
<tr>
<td>Age &lt; 60</td>
<td>84.00 (393)</td>
<td>58.08 (342)</td>
<td>87.91 (664)**</td>
<td>46.08 (248)</td>
<td>40.82 (860)**</td>
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<tr>
<td>Income ≥ $20,000</td>
<td>87.90 (147)</td>
<td>63.47 (131)</td>
<td>87.66 (211)</td>
<td>50.68 (113)</td>
<td>45.16 (320)</td>
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<tr>
<td>Income &lt; $20,000</td>
<td>79.04 (405)*</td>
<td>59.81 (358)</td>
<td>82.39 (615)</td>
<td>46.23 (199)</td>
<td>45.79 (759)</td>
</tr>
<tr>
<td>Health Status</td>
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<td>Fair-poor health</td>
<td>Any Medicaid</td>
<td>Medicare and not Medicaid</td>
<td>Some insurance, not Medicaid or Medicare</td>
</tr>
<tr>
<td>-------------------------------------</td>
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<td>------------------</td>
<td>--------------</td>
<td>---------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Total</td>
<td>81.19</td>
<td>81.79</td>
<td>85.26</td>
<td>71.44</td>
<td>88.13</td>
</tr>
<tr>
<td>N</td>
<td>(331)</td>
<td>(221)</td>
<td>(152)</td>
<td>(93)</td>
<td>(147)</td>
</tr>
<tr>
<td>% still in care</td>
<td>57.27</td>
<td>65.99</td>
<td>62.73</td>
<td>63.55</td>
<td>58.99</td>
</tr>
<tr>
<td>N</td>
<td>(286)</td>
<td>(203)</td>
<td>(132)</td>
<td>(85)</td>
<td>(132)</td>
</tr>
<tr>
<td>% still in care</td>
<td>(571)</td>
<td>(255)</td>
<td>(270)</td>
<td>(94)</td>
<td>(202)</td>
</tr>
<tr>
<td>% still in care</td>
<td>48.46</td>
<td>46.56</td>
<td>43.43</td>
<td>49.66</td>
<td>49.54</td>
</tr>
<tr>
<td>N</td>
<td>(209)</td>
<td>(103)</td>
<td>(61)</td>
<td>(47)</td>
<td>(94)</td>
</tr>
<tr>
<td>% still in care</td>
<td>38.53</td>
<td>61.12</td>
<td>28.99</td>
<td>13.32</td>
<td>27.00</td>
</tr>
<tr>
<td>N</td>
<td>(736)</td>
<td>(343)**</td>
<td>(305)</td>
<td>(139)</td>
<td>(284)</td>
</tr>
</tbody>
</table>

Note: All tests use a $\chi^2$ test for differences among all groups listed.
* Service not applicable to males/females.
* $p \leq 0.05$. ** $p \leq 0.01$. *** $p \leq 0.005$. 
measurement. Relatively high income was associated only with having a clinical breast exam. The only variable that is consistently associated with a greater likelihood of utilization of screening services is urban location, and this is only true for two of five cases (mammogram and Pap smear). No variable was significantly associated with having had a testicular exam. Neither homeownership (one indicator of socioeconomic status) nor race (often a matter of concern in studying the utilization of screening services) was significantly associated with the use of any screening services in this population.

Table 2 shows the point estimates of the odds ratios estimated in logistic regressions run in SUDAAN. For each odds ratio, the upper and lower bounds of a 95 percent confidence interval are also shown. An indicator of statistical significance appears next to the odds ratio where relevant. Age was the only variable that was significantly associated with the use of more than two of the screening services in the logistic regressions. People age 60 years and older were more likely to have had a mammogram or testicular exam, and cholesterol measurement and less likely to have had a Pap smear than their younger counterparts. These results confirm and extend the clinically relevant findings from the bivariate analyses. The maximum ages demonstrate the broad applicability of these findings: 102 for having had a recent breast exam, a recent Pap smear, or a recent cholesterol measurement; 87 for having had a recent mammogram; and 91 for having had a testicular exam.

Healthier individuals were less likely to have had either a Pap smear or a cholesterol measurement. The significance of the health status indicator in the Pap smear analysis was surprising as the proportions who obtained a Pap smear did not vary in Table 1. The relationship between health status and Pap smear use emerges when controlling for age: for those younger than age 60 and for those age 60 or older, the likelihood of obtaining a Pap smear was lower among those in better health. Individuals with Medicaid were more likely to have had a clinical breast exam and less likely to have had a testicular exam than were uninsured individuals.

The multivariate logistic regressions suggest that urban users were only more likely to have had a mammogram. None of the other sociodemographic variables that had a significant relationship to the receipt of screening services in bivariate analyses proved to have a relationship in the logistic regressions. Race and home ownership continued to be unrelated to utilization of the screening services.

Table 3 is similar to Table 1, but it focuses on the relationship between the use of screening services at a CHC among those who had timely screenings and the demographic characteristics of the CHC users. The screening services included in this table are the same as those in Tables 1 and 2, with the exclusion of a testicular exam, as the location of the last testicular exam was not queried in the survey.

Several differences were statistically significant based on a chi-squared test. Urban CHC users who had timely clinical breast exams and Pap smears were more likely to have obtained them at a CHC than were rural users. Less
educated CHC users were more likely to have obtained the women’s health screenings at a CHC than more educated CHC users, but this was not true for cholesterol measurement; the same was true of those who did not own their homes. Further, white CHC users were less likely than nonwhite CHC users to have obtained their timely screening services at a CHC for all services analyzed. Greater income was negatively associated with obtaining a Pap smear at a CHC.

Those with no insurance were more likely to have obtained all the women’s health services at a CHC than those with insurance. The relationship between insurance status and having obtained screening services at a CHC was significant for all the women’s health services. In an analysis including all CHC users who had obtained timely cholesterol screenings, utilization at a CHC did not vary with insurance status.

While the number of significant associations was relatively small in the logistic regressions, the results are consistent. Individuals of lower socioeconomic status are more likely to use the CHC for their timely preventive care services. This is suggested by the fact that less educated individuals are more likely to obtain a mammogram at a CHC, individuals who do not own their homes are more likely to obtain a mammogram at a CHC, and lower income individuals are more likely to obtain a breast exam at a CHC. In addition, individuals with some type of insurance other than Medicaid or Medicare (possibly private) are less likely to obtain each of the services studied at a CHC than uninsured individuals. Further, the analysis of mammogram utilization suggests that nonwhite CHC users are more likely to obtain their mammogram at a CHC. Urban CHC users also were more likely to obtain a Pap smear at a CHC. While age was not significantly associated with having obtained a screening service at a CHC, the maximum ages again demonstrate the broad applicability of the findings: 87 for having had a breast exam or Pap smear at a CHC, 86 for having had a mammogram at a CHC, and 102 for having had a cholesterol measurement at a CHC.

The analyses using only observations for which income was not imputed are consistent with the findings from the analyses including these individuals.

Discussion

The relationships between demographic characteristics of CHC users and the timely utilization of screening services at the CHCs were more consistent than the relationships between demographic characteristics and the receipt of timely screening services. While race and home ownership were not related to the utilization of screening services, they were both consistently related to individuals receiving the services at a CHC. A sufficient number of the bivariate relationships remained statistically significant in multivariate logistic regressions, suggesting that these differences are important. Neither age nor health status was ever related to obtaining screening services at a CHC, suggesting that while some relevant clinical variation was occurring in the
<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>BREAST EXAM (n = 550)</th>
<th>MAMMOGRAM (n = 488)</th>
<th>PAP SMEAR (n = 824)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>0.93 0.50 1.72</td>
<td>1.62* 1.04 2.53</td>
<td>1.61 0.98 2.65</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 9 years of education</td>
<td>0.76 0.37 1.55</td>
<td>1.72* 1.05 2.82</td>
<td>0.87 0.54 1.39</td>
</tr>
<tr>
<td>White</td>
<td>1.21 0.76 1.93</td>
<td>0.74 0.47 1.17</td>
<td>1.14 0.73 1.79</td>
</tr>
<tr>
<td>Owns home</td>
<td>1.41 0.75 2.67</td>
<td>0.92 0.50 1.67</td>
<td>1.37 0.83 2.27</td>
</tr>
<tr>
<td>Married</td>
<td>0.74 0.37 1.48</td>
<td>1.52 0.86 2.70</td>
<td>0.62 0.34 1.13</td>
</tr>
<tr>
<td>Worked past 2 weeks/has job</td>
<td>1.15 0.67 1.98</td>
<td>1.13 0.65 1.95</td>
<td>0.98 0.60 1.58</td>
</tr>
<tr>
<td>Medicare/not Medicaid/Insurance but not Medicaid/ Insurance but not Medicaid/ Medicare</td>
<td>0.92 0.39 2.14</td>
<td>0.49* 0.24 0.98</td>
<td>0.74 0.29 1.90</td>
</tr>
<tr>
<td>Any Medicaid</td>
<td>1.59 0.87 2.91</td>
<td>0.96 0.55 1.68</td>
<td>1.50 0.75 2.99</td>
</tr>
<tr>
<td>Age</td>
<td>1.89* 1.00 3.57</td>
<td>1.19 0.75 1.89</td>
<td>1.21 0.65 2.26</td>
</tr>
<tr>
<td>Income</td>
<td>0.98 0.96 1.01</td>
<td>1.05*** 1.03 1.07</td>
<td>0.97*** 0.95 0.98</td>
</tr>
<tr>
<td>Excellent, very good, or good health status</td>
<td>1.27 0.95 1.70</td>
<td>1.19 0.93 1.52</td>
<td>1.26 0.96 1.66</td>
</tr>
<tr>
<td></td>
<td>0.76 0.41 1.43</td>
<td>0.87 0.56 1.36</td>
<td>0.54*** 0.36 0.81</td>
</tr>
<tr>
<td>VARIABLE</td>
<td>TESTICULAR EXAM (n = 312)</td>
<td>CHOLESTEROL TEST (n = 1,077)</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>---------------------------</td>
<td>-------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td>LOWER 95</td>
<td>UPPER 95</td>
</tr>
<tr>
<td>Urban</td>
<td>0.80</td>
<td>0.41</td>
<td>1.54</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>1.02</td>
<td></td>
</tr>
<tr>
<td>Less than 9 years of education</td>
<td>0.78</td>
<td>0.45</td>
<td>1.35</td>
</tr>
<tr>
<td>White</td>
<td>1.02</td>
<td>0.55</td>
<td>1.88</td>
</tr>
<tr>
<td>Owns home</td>
<td>0.66</td>
<td>0.43</td>
<td>1.03</td>
</tr>
<tr>
<td>Married</td>
<td>0.74</td>
<td>0.41</td>
<td>1.33</td>
</tr>
<tr>
<td>Worked past 2 weeks/has job</td>
<td>0.54*</td>
<td>0.30</td>
<td>0.97</td>
</tr>
<tr>
<td>Medicare/not Medicaid</td>
<td>0.55</td>
<td>0.23</td>
<td>1.33</td>
</tr>
<tr>
<td>Insurance but not Medicaid/Medicare</td>
<td>1.26</td>
<td>0.61</td>
<td>2.61</td>
</tr>
<tr>
<td>Any Medicaid</td>
<td>0.5*</td>
<td>0.25</td>
<td>1.00</td>
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<tr>
<td>Age</td>
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<td>1.00</td>
<td>1.04</td>
</tr>
<tr>
<td>Income</td>
<td>1.01</td>
<td>0.78</td>
<td>1.29</td>
</tr>
<tr>
<td>Excellent, very good, or good health status</td>
<td>1.30</td>
<td>0.71</td>
<td>2.38</td>
</tr>
</tbody>
</table>

*p ≤ 0.05. ***p < 0.005.
TABLE 3
PERCENTAGE OF COMMUNITY HEALTH CENTER (CHC) USERS OBTAINING SCREENING SERVICES AT THE CHC BY PERSONAL CHARACTERISTICS AMONG CHC USERS WHO OBTAIN TIMELY SCREENING SERVICES

<table>
<thead>
<tr>
<th></th>
<th>BREAST EXAM</th>
<th>MAMMOGRAM</th>
<th>PAP SMEAR</th>
<th>CHOLESTEROL SCREENING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PERCENTAGE</td>
<td>(n)</td>
<td>PERCENTAGE</td>
<td>(n)</td>
</tr>
<tr>
<td>Total</td>
<td>63.68</td>
<td>(448)</td>
<td>24.62</td>
<td>(299)</td>
</tr>
<tr>
<td>Urban</td>
<td>73.20</td>
<td>(228)</td>
<td>28.82</td>
<td>(162)</td>
</tr>
<tr>
<td>Rural</td>
<td>53.35</td>
<td>(220)**</td>
<td>19.13</td>
<td>(137)</td>
</tr>
<tr>
<td>Male</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>a</td>
</tr>
<tr>
<td>Female</td>
<td>63.68</td>
<td>(448)</td>
<td>24.62</td>
<td>(299)</td>
</tr>
<tr>
<td>Education &lt; 9 years</td>
<td>73.58</td>
<td>(107)</td>
<td>35.80</td>
<td>(89)</td>
</tr>
<tr>
<td>Education ≥ 9 years</td>
<td>60.71</td>
<td>(341)*</td>
<td>20.12</td>
<td>(210)**</td>
</tr>
<tr>
<td>White</td>
<td>58.16</td>
<td>(247)</td>
<td>16.44</td>
<td>(161)</td>
</tr>
<tr>
<td>Nonwhite</td>
<td>69.92</td>
<td>(201)*</td>
<td>33.13</td>
<td>(138)*</td>
</tr>
<tr>
<td>Owns home</td>
<td>58.00</td>
<td>(240)</td>
<td>15.85</td>
<td>(163)</td>
</tr>
<tr>
<td>Does not own home</td>
<td>69.73</td>
<td>(208)*</td>
<td>34.24</td>
<td>(136)**</td>
</tr>
<tr>
<td>Married</td>
<td>63.52</td>
<td>(190)</td>
<td>24.71</td>
<td>(131)</td>
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<tr>
<td>Not married</td>
<td>63.78</td>
<td>(258)</td>
<td>24.56</td>
<td>(168)</td>
</tr>
<tr>
<td>Working</td>
<td>60.13</td>
<td>(188)</td>
<td>22.01</td>
<td>(115)</td>
</tr>
<tr>
<td>Not working</td>
<td>66.09</td>
<td>(260)</td>
<td>26.30</td>
<td>(183)</td>
</tr>
<tr>
<td>Age ≥ 60</td>
<td>65.25</td>
<td>(119)</td>
<td>19.52</td>
<td>(99)</td>
</tr>
<tr>
<td>Age &lt; 60</td>
<td>63.10</td>
<td>(329)</td>
<td>27.16</td>
<td>(200)</td>
</tr>
<tr>
<td>Income ≥ $20,000</td>
<td>56.99</td>
<td>(130)</td>
<td>17.80</td>
<td>(84)</td>
</tr>
<tr>
<td>Income &lt; $20,000</td>
<td>66.42</td>
<td>(318)</td>
<td>27.29</td>
<td>(215)</td>
</tr>
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<td>Health Status</td>
<td>CHC</td>
<td>MHM</td>
<td>NHM</td>
<td>THR</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Excellent-good health</td>
<td>61.70</td>
<td>26.21</td>
<td>60.46</td>
<td>67.66</td>
</tr>
<tr>
<td>Fair-poor health</td>
<td>66.76</td>
<td>22.58</td>
<td>63.41</td>
<td>64.87</td>
</tr>
<tr>
<td>Any Medicaid</td>
<td>68.52</td>
<td>31.33</td>
<td>65.57</td>
<td>69.71</td>
</tr>
<tr>
<td>Medicare and not Medicaid</td>
<td>59.35</td>
<td>16.66</td>
<td>61.21</td>
<td>69.40</td>
</tr>
<tr>
<td>Some insurance, not Medicaid or Medicare</td>
<td>51.30</td>
<td>11.56</td>
<td>46.98</td>
<td>54.00</td>
</tr>
<tr>
<td>Uninsured</td>
<td>74.10</td>
<td>35.76</td>
<td>69.30</td>
<td>73.11</td>
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</tbody>
</table>


* Not applicable to males.

*p ≤ 0.05. **p ≤ 0.01. ***p ≤ 0.005.
## TABLE 4
ODDS RATIOS (OR) OF RECEIVING SCREENING SERVICES AT THE COMMUNITY HEALTH CENTER (CHC) AMONG CHC USERS RECEIVING TIMELY SCREENING SERVICES

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>BREAST EXAM (n = 448)</th>
<th>MAMMOGRAPHY (n = 298)</th>
<th>PAP SMEAR (n = 696)</th>
<th>CHOLESTEROL TEST (n = 480)</th>
</tr>
</thead>
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<tr>
<td></td>
<td>LOWER 95%</td>
<td>UPPER 95%</td>
<td>LOWER 95%</td>
<td>UPPER 95%</td>
</tr>
<tr>
<td></td>
<td>OR  PERCENT</td>
<td>LIMIT</td>
<td>OR  PERCENT</td>
<td>LIMIT</td>
</tr>
<tr>
<td>Urban</td>
<td>2.15***</td>
<td>1.29</td>
<td>3.56</td>
<td>1.00</td>
</tr>
<tr>
<td>Male</td>
<td>1.17</td>
<td>0.71</td>
<td>1.93</td>
<td>1.38</td>
</tr>
<tr>
<td>Less than 9 years of education</td>
<td>1.40</td>
<td>0.79</td>
<td>2.50</td>
<td>2.49**</td>
</tr>
<tr>
<td>White</td>
<td>0.69</td>
<td>0.44</td>
<td>1.08</td>
<td>0.39*</td>
</tr>
<tr>
<td>Owns home</td>
<td>0.80</td>
<td>0.46</td>
<td>1.37</td>
<td>0.4*</td>
</tr>
<tr>
<td>Married</td>
<td>1.68*</td>
<td>1.00</td>
<td>2.84</td>
<td>1.41</td>
</tr>
<tr>
<td>Worked past 2 weeks/has job</td>
<td>1.05</td>
<td>0.65</td>
<td>1.67</td>
<td>0.84</td>
</tr>
<tr>
<td>Medicare/not Medicaid</td>
<td>0.51</td>
<td>0.19</td>
<td>1.35</td>
<td>0.54</td>
</tr>
<tr>
<td>Medicare only</td>
<td>0.53*</td>
<td>0.29</td>
<td>0.98</td>
<td>0.24***</td>
</tr>
<tr>
<td>Any Medicaid</td>
<td>0.83</td>
<td>0.47</td>
<td>1.44</td>
<td>0.81</td>
</tr>
<tr>
<td>Age</td>
<td>1.02</td>
<td>0.99</td>
<td>1.04</td>
<td>1.00</td>
</tr>
<tr>
<td>Income</td>
<td>0.83*</td>
<td>0.70</td>
<td>0.98</td>
<td>1.30</td>
</tr>
<tr>
<td>Excellent, very good, or good health status</td>
<td>1.10</td>
<td>0.72</td>
<td>1.66</td>
<td>1.89</td>
</tr>
</tbody>
</table>


*p ≤ 0.05. **p ≤ 0.01. ***p < 0.005.
case of using or not using services, this was not determining who used the CHC to obtain these services. Further, urban CHC users and less educated CHC users (measures of availability of services and another SES measure) were more likely to use the CHC to obtain screening services than were rural or more educated CHC users.

The combination of results suggests that one set of characteristics (age and health status) was associated with the receipt of services, while another set of characteristics (race and low SES) was associated with using the services at a CHC. CHCs are serving an important function in primary care for these individuals.

Prevention is one important part of the broader range of services that are a part of high-quality primary care. The findings of this study suggest that CHCs are providing primary care services to vulnerable groups that would otherwise be underserved. In combination with earlier findings on the role of CHCs in providing women’s health screening services, this suggests that CHC users are obtaining screening services in clinically appropriate ways with few barriers.

Further studies of other aspects of care at CHCs are needed to determine whether CHCs are improving the overall quality of care that is received by their more vulnerable minority and low SES user groups. In addition, further studies could determine what characteristics of CHCs are important in eliminating barriers to the utilization of services.

The data set’s restriction to CHC users limits the policy conclusions that can be drawn and suggests areas for future research. A goal of CHCs is to increase access to primary and preventive services for their target populations and not simply to eliminate differences in utilization among users of care. To determine whether CHCs need to and could eliminate differences in the remainder of their target populations, additional information is needed regarding the care-seeking behaviors and motivation of that portion of their target population not currently seeking care at the CHC. Additional analyses to determine the screening patterns among all residents of the CHCs catchment area may be conducted to determine whether disparities exist.

Further, the analysis at present does not provide insight into the reason that some CHC users do not use CHCs for all of their primary care. These individuals may be motivated by different factors than those who obtain screening services at the CHCs, and future studies to reveal the differences in motivation would help with planning for improvements in primary care for the CHC’s target population.

**Conclusion**

Community health centers are used for preventive services by minority and lower SES users who are often underserved. Rates of utilization of screening services by CHC users do not vary by racial or socioeconomic characteristics. Thus, for their users, CHCs have already helped to meet some of the goals
of Healthy People 2010 for the general population in terms of eliminating racial and socioeconomic disparities in utilization. Future work should focus on whether the similar rates of screening also translate into similar referral rates for treatment among those who screen positive for the conditions studied here and whether there are similar outcomes for acute illness and preventable chronic diseases. Furthermore, it is important to explore the question of which characteristics of CHCs are facilitating the positive contribution made by these providers and whether this has implications for other providers responsible for the care of CHC users.

Acknowledgments

This study was supported by the Bureau of Primary Health Care, HRSA, and the Johns Hopkins Primary Care Policy Center for the Underserved (Cooperative Agreement #U30CS00189-06). We would like to thank Barbara Starfield and an anonymous reviewer for useful comments and Jue Luo for his programming.

REFERENCES


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LOW-INCOME CALIFORNIANS’ EXPERIENCES WITH HEALTH INSURANCE AND MANAGED CARE

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Abstract: California is rapidly implementing mandatory managed care for most of its Medicaid (Medi-Cal) beneficiaries. To assess the impact of this delivery system change, the authors analyzed a 1996 statewide population-based random-sample telephone survey of 3,563 adults between the ages of 18 and 64. Respondents with Medi-Cal managed care and Medi-Cal fee-for-service rated access to care and quality of care significantly higher than uninsured respondents yet lower than low-income privately insured individuals. While the authors did not find a difference in health care access and quality among Medi-Cal managed care enrollees compared with Medi-Cal fee-for-service enrollees, they also did not find that managed care provided any observed advantages to Medi-Cal recipients.

Key words: Health care surveys, insurance coverage, managed care programs, Medicaid, medically uninsured, patient satisfaction.

Medicaid is the largest public health insurance program for the poor in the United States. While the creation of Medicaid in 1965 improved access to health care for the nation’s poor, access problems persist for Medicaid beneficiaries compared with those who have private insurance.

One present-day strategy for improving health care access for Medicaid recipients is managed care. Managed care could improve access if physicians who were previously unwilling to participate in Medicaid because of low reimbursement rates were attracted to the opportunity to care for a large volume of patients linked with a dependable payment stream. Forty-eight states now have some of their Medicaid beneficiaries in managed care programs.
The total Medicaid enrollment in managed care has grown nationwide from 2.7 million (9.5 percent) in 1991 to 16.6 million (53.6 percent) in 1998. The effect of Medicaid managed care expansion has been mixed. In New York City’s predominantly voluntary Medicaid managed care program, managed care enrollment is associated with increased access to care and improved patient satisfaction compared with Medicaid fee-for-service. Survey results in five other states with a mixture of mandatory and voluntary programs also indicate that Medicaid managed care participants are more likely to have a regular provider than are Medicaid fee-for-service beneficiaries; however, the Medicaid managed care enrollees report more problems in obtaining care and are less satisfied with their health plans.

Beginning in the mid-1980s, four California counties performed demonstration projects of mandatory Medi-Cal (California Medicaid) managed care. In 1996, the state began much broader implementation of mandatory Medi-Cal managed care in several additional counties. Medi-Cal managed care involves a heterogeneous mix of program designs at the county level, with mandatory enrollment for various categories of Medi-Cal beneficiaries (depending on the organizational model). By January 1997, more than 1.5 million (29 percent) Medi-Cal beneficiaries were in managed care plans. With full implementation in 2000, more than 3 million Medi-Cal participants receive their health care through managed care. While this transition is well under way, little is known about whether managed care will actually improve health care access and quality for Medi-Cal enrollees. Furthermore, questions exist about how this new Medi-Cal delivery model will compare with private health insurance or a complete lack of health insurance, particularly because, with alterations in the Medi-Cal program, there are concerns about erosion in the adequacy of Medi-Cal coverage. To explore these issues, we undertook an analysis of a statewide population-based survey.

Method

A probability sample of 3,563 Californian adults (ages 18 to 64) was surveyed by telephone between August 1996 and January 1997. A total of 1,641 interviews were derived using random-digit dialing throughout the state to reach Californians with listed and unlisted telephone numbers. To ensure adequate representation of low-income respondents, an oversample of 1,912 low-income adults was obtained by random-digit dialing to telephone exchanges in communities with a median household income of $27,000 or less. Among eligible households and households in which we could not determine eligibility, either because there was no answer or because the potential respondents refused before eligibility could be determined, the completion rate was 40 percent. This probably represents an underestimate of the true response rate, as many of those for whom we could not determine eligibility were most likely ineligible.
Participants could choose to complete the interview in English \((n = 3,024)\) or Spanish \((n = 539)\). They were asked about their sociodemographic characteristics, health status, health care experiences, and health insurance. Respondents were classified into five insurance categories: Medi-Cal fee-for-service, Medi-Cal managed care, private fee-for-service, private managed care, or uninsured. Participants were classified based on the name of their insurer and the name of their insurance plan. As of December 31, 1996, mandatory Medi-Cal managed care for some Medi-Cal beneficiaries existed in eight California counties. Voluntary enrollment in Medi-Cal managed care was available in urban areas, where more than 90 percent of Medi-Cal beneficiaries reside. Thirty-four respondents had Medicare and were excluded from analysis.

Using a 4-point scale ranging from poor \((1)\) to excellent \((4)\), insured respondents rated their health plan overall and eight aspects of their health plan: choice of doctors, availability of telephone advice, amount of paperwork, reasonableness of out-of-pocket fees, reasonableness of premiums, quality of services, ease of changing doctors, and ease of getting night and weekend care. We created the variable insurance summary to dichotomize respondents by whether their mean rating on the eight health plan measures (Cronbach’s alpha = 0.88) was fair or poor versus good or excellent \((\text{mean} < 3 \text{ vs.} \geq 3)\). Cronbach’s alpha is a statistical measure of internal consistency that is commonly used to measure the reliability of multi-item scales. Cronbach’s alpha is scored on a scale from 0 to 1; it is considered acceptable to group items for comparisons when alpha is 0.5 or above.\(^\text{7}\) Participants were asked if they had major, minor, or no problems getting treatment a doctor thought was necessary, getting treatment the respondent thought was necessary, getting care approved, or dealing with health plan rules. We used the variable insurance problems to divide respondents into two groups (any problem vs. no problem) based on whether they reported any problems on any of the four questions.

Access to care for the past 12 months was measured in terms of having a regular doctor, choosing a regular doctor, putting off needed health care, not getting needed health care, waiting more than 3 days for a medical appointment when sick, and waiting more than 2 weeks for a medical appointment for routine care. Those who reported having a regular doctor were asked where the doctor practiced. Using the 4-point scale, respondents rated four aspects of physician availability: wait time for appointments, wait time in the office, doctor’s location, and time spent with the doctor. We created the variable doctor availability to group respondents by whether the average score on these four questions (Cronbach’s alpha = 0.77) was fair or poor compared with good or excellent \((\text{mean} < 3 \text{ vs.} \geq 3)\). Respondents were asked to report if they had major, minor, or no problems getting medication, mental health services, specialty care, or diagnostic tests. The variable referral problems categorized respondents into two groups based on whether they reported any problems on any of the four questions.

To assess quality of care, respondents rated on the 4-point scale their health care services, their doctors’ care, and their doctors’ communication in three
areas: ensuring patients’ understanding, treating patients with respect, and listening to patients. The three communication questions were combined (Cronbach’s alpha = 0.88) to divide respondents based on whether their physicians had fair or poor versus good or excellent communication skills (mean < 3 vs. ≥ 3).

Based on age, women were asked if they had in the past 12 months received up to three screening procedures recommended by the U.S. Preventive Services Task Force: clinical breast exam (all women), Pap smear (all women), and mammogram (women older than age 50). The percentage of recommended preventive services a woman reported was used as a summary indicator of preventive care.

In the analysis, the survey data were weighted by age, education, household size, income, race, and sex to generate estimates for the entire nonelderly adult Californian population. Weights were based on the 1995 Current Population Survey.

We used chi-square statistics to compare ratings of health plan performance, health care access, and health plan quality among respondents in different insurance categories. To isolate the impact of insurance status on these ratings of health plan performance, health care access, and health plan quality and on the occurrence of preventive services, we constructed multivariate logistic regression models that adjusted results for age, education, health status, income, language, race/ethnicity, and sex. The coefficients from these models were converted to odds ratios. In all regression models, Medi-Cal managed care was set as the referent with an odds ratio equal to 1.

We used chi-square statistics to compare the summary preventive services score among respondents in different insurance categories. The summary preventive service score was not tested in a multivariate logistic model because the preventive services were evaluated only for women and on different age groups depending on the test.

When the dependent variable was dichotomized from an ordinal scale and when combining major and minor problems into one category, we tested whether the results were sensitive to alternative cut-points and found that these changes did not have any significant effect on our results (data not shown).

Results

The demographic characteristics of the respondents are shown in Table 1. Consistent with the sampling design, respondents were more likely poor compared with the California population. Sixty-five percent of respondents (n = 2,190) had annual incomes that were less than 200 percent of the 1996 federal poverty standards adjusted for household size as compared with the final weighted sample of 46 percent. Twenty-five percent of respondents (n = 872) were uninsured, and 18 percent (n = 623) had Medi-Cal, including 8 percent (n = 287) who were in Medi-Cal managed care. Thirteen percent (n = 35) of the 287
<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>SAMPLE CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UNINSURED (n = 872)</strong></td>
<td><strong>MEDI-CAL MANAGED CARE (n = 287)</strong></td>
</tr>
<tr>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>18-49</td>
<td>751</td>
</tr>
<tr>
<td>50-64</td>
<td>120</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>452</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>61</td>
</tr>
<tr>
<td>Asian</td>
<td>34</td>
</tr>
<tr>
<td>Latino</td>
<td>483</td>
</tr>
<tr>
<td>Other</td>
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</tr>
<tr>
<td>White</td>
<td>246</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>&lt; High school</td>
<td>277</td>
</tr>
<tr>
<td>≥ High school</td>
<td>591</td>
</tr>
<tr>
<td><strong>Language</strong></td>
<td></td>
</tr>
<tr>
<td>Spanish</td>
<td>287</td>
</tr>
<tr>
<td>English</td>
<td>585</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
</tr>
<tr>
<td>&lt; 100 percent poverty</td>
<td>514</td>
</tr>
<tr>
<td>100 to &lt; 200 percent</td>
<td>219</td>
</tr>
<tr>
<td>≥ 200 percent</td>
<td>95</td>
</tr>
<tr>
<td>Health</td>
<td>45</td>
</tr>
<tr>
<td>-------------</td>
<td>-----</td>
</tr>
<tr>
<td>Poor</td>
<td>223</td>
</tr>
<tr>
<td>Fair</td>
<td>407</td>
</tr>
<tr>
<td>Good</td>
<td>196</td>
</tr>
</tbody>
</table>

Note: Individual categories may not add up to the total because of rounding and nonresponse to questions.
Medi-Cal managed care respondents lived in counties with mandatory Medi-Cal managed care. The remaining Medi-Cal managed care respondents were in the program voluntarily.

**Health plan performance.** Medi-Cal beneficiaries overall had a less favorable assessment of their health plan’s performance than did privately insured respondents. One quarter of Medi-Cal recipients rated their health plan as fair or poor compared with 19 percent of privately insured respondents (see Table 2). Among Medi-Cal enrollees, there was no significant difference between how managed care and fee-for-service beneficiaries rated their health insurance plan overall. On the insurance summary variable on the raw percentages, however, more Medi-Cal managed care participants (53 percent) rated their health insurance as fair or poor than did any other insured group, including Medi-Cal fee-for-service (45 percent, \( p < 0.05 \)). This difference was statistically significant in the chi-square analysis comparison of the raw percentages, but the differences in health plan ratings were eliminated after adjusting for sociodemographic and health status differences. Approximately one-third of Medi-Cal beneficiaries reported some insurance plan problem, whether in managed care or fee-for-service. Medi-Cal managed care enrollees reported more problems with their health insurance plan than private fee-for-service enrollees, a difference that remained statistically significant even after adjusting for sociodemographic and health status factors.

**Access to care.** Medi-Cal respondents reported fewer barriers to care than the uninsured and more barriers than the privately insured, but among Medi-Cal beneficiaries, managed care participants did not differ from fee-for-service (see Table 3). For example, Medi-Cal respondents were less likely than the uninsured to lack a regular doctor (45 percent vs. 67 percent, \( p < 0.0001 \)) but were more likely than the privately insured to lack a regular doctor (45 percent vs. 28 percent, \( p < 0.001 \)). Within Medi-Cal, there was no significant difference in the raw percentage of respondents without a regular doctor between managed care and fee-for-service. In the multivariate analysis, Medi-Cal managed care enrollees were more likely to see their physician in a clinic or hospital outpatient department, while all other insured individuals were more likely to receive care in a private office or health maintenance organization (HMO) setting. Medi-Cal managed care and Medi-Cal fee-for-service beneficiaries were equally likely to report no choice of doctors and were more likely than privately insured respondents to say that they lacked a choice of doctors.

Medi-Cal participants were significantly more likely than those with private fee-for-service insurance to put off needed care and not to get needed care, but Medi-Cal managed care and Medi-Cal fee-for-service respondents did not differ significantly on these access indicators. On the raw percentages, Medi-Cal managed care enrollees (46 percent) were more likely to rate physician availability fair or poor compared with both private managed care (35 percent, \( p < 0.05 \)) and private fee-for-service (37 percent, \( p < 0.05 \)) enrollees but
### TABLE 2
HEALTH PLAN PERFORMANCE BY INSURANCE CATEGORY

<table>
<thead>
<tr>
<th></th>
<th>MEDI-CAL MANAGED CARE (n = 208)</th>
<th>MEDI-CAL FEE-FOR-SERVICE (n = 221)</th>
<th>PRIVATE MANAGED CARE (n = 1,924)</th>
<th>PRIVATE FEE-FOR-SERVICE (n = 520)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RAW PERCENTAGE</td>
<td>ADJUSTED OR</td>
<td>RAW PERCENTAGE</td>
<td>ADJUSTED OR</td>
</tr>
<tr>
<td>Health plan performance Insurance plan overall (fair/poor)</td>
<td>24</td>
<td>1.00</td>
<td>25</td>
<td>1.02</td>
</tr>
<tr>
<td>Insurance summary (fair/poor)</td>
<td>53</td>
<td>1.00</td>
<td>45</td>
<td>0.75</td>
</tr>
<tr>
<td>Insurance problems (any)</td>
<td>33</td>
<td>1.00</td>
<td>29</td>
<td>0.79</td>
</tr>
</tbody>
</table>

Note: Odds ratios (OR) are adjusted for age, education, health status, income, language, race/ethnicity, and sex.

* p < 0.05 compared with Medi-Cal managed care in multivariate logistic regression.
<table>
<thead>
<tr>
<th>Access to care measures</th>
<th>MEDI-CAL MANAGED CARE (n = 208)</th>
<th>MEDI-CAL FEE-FOR-SERVICE (n = 221)</th>
<th>PRIVATE MANAGED CARE (n = 1,924)</th>
<th>PRIVATE FEE-FOR-SERVICE (n = 520)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RAW %</strong></td>
<td><strong>ADJUSTED OR</strong></td>
<td><strong>RAW %</strong></td>
<td><strong>ADJUSTED OR</strong></td>
<td><strong>RAW %</strong></td>
</tr>
<tr>
<td>Access to care measures</td>
<td><strong>RAW %</strong></td>
<td><strong>ADJUSTED OR</strong></td>
<td><strong>RAW %</strong></td>
<td><strong>ADJUSTED OR</strong></td>
</tr>
<tr>
<td>Without regular doctor</td>
<td>67</td>
<td>2.65&lt;sup&gt;a&lt;/sup&gt;</td>
<td>43</td>
<td>1.00</td>
</tr>
<tr>
<td>Location of regular doctor</td>
<td></td>
<td></td>
<td>46</td>
<td>1.13</td>
</tr>
<tr>
<td>Office/health maintenance organization</td>
<td>46</td>
<td>1.70&lt;sup&gt;a&lt;/sup&gt;</td>
<td>36</td>
<td>1.00</td>
</tr>
<tr>
<td>Clinic/hospital outpatient</td>
<td>48</td>
<td>0.54&lt;sup&gt;a&lt;/sup&gt;</td>
<td>60</td>
<td>1.00</td>
</tr>
<tr>
<td>Emergency room</td>
<td>4</td>
<td>1.50</td>
<td>2</td>
<td>1.00</td>
</tr>
<tr>
<td>Did not choose doctor</td>
<td>4</td>
<td>1.77&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2</td>
<td>0.98</td>
</tr>
<tr>
<td>Put off needed care</td>
<td>29</td>
<td>1.82&lt;sup&gt;a&lt;/sup&gt;</td>
<td>21</td>
<td>0.75</td>
</tr>
<tr>
<td>Did not get needed care</td>
<td>11</td>
<td>2.47&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6</td>
<td>0.47</td>
</tr>
<tr>
<td>Wait more than 3 days when sick</td>
<td>25</td>
<td>1.54</td>
<td>18</td>
<td>1.08</td>
</tr>
<tr>
<td>Wait more than 2 weeks for routine care</td>
<td>19</td>
<td>0.79</td>
<td>20</td>
<td>0.94</td>
</tr>
<tr>
<td>Rating of doctor availability</td>
<td>55</td>
<td>1.48&lt;sup&gt;a&lt;/sup&gt;</td>
<td>46</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Referral problems</strong></td>
<td><strong>RAW %</strong></td>
<td><strong>ADJUSTED OR</strong></td>
<td><strong>RAW %</strong></td>
<td><strong>ADJUSTED OR</strong></td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>1.05</td>
<td>17</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Odds ratios (OR) are adjusted for age, education, health status, income, language, race/ethnicity, and sex.

<sup>a</sup> p < 0.05 compared with Medi-Cal managed care in multivariate logistic regression.
not compared with Medi-Cal fee-for-service (42 percent) enrollees. Medi-Cal managed care beneficiaries were less likely to put off needed care, not get needed care, or rate physician availability poor or fair compared with the uninsured. In the multivariate analysis, private fee-for-service but not private managed care beneficiaries continued to have statistically better ratings on several measures of access to care compared with Medi-Cal managed care. Uninsured respondents persisted in having worse ratings of access to care than Medi-Cal managed care respondents after adjusting for sociodemographic factors and health status.

**Health care quality.** All Medi-Cal respondents (both those in fee-for-service and those in managed care) were more likely to rate their health care and their doctors as fair or poor than privately insured individuals and less likely to give these low ratings than the uninsured (see Table 4). There was little difference in the ratings of health care and doctors between Medi-Cal managed care and Medi-Cal fee-for-service, however, and adjustment for sociodemographic characteristics and health status eliminated the differences between the privately insured and Medi-Cal enrollees. In the adjusted analyses, the uninsured remained more likely than Medi-Cal respondents to rate their care and physicians as fair or poor.

**Preventive care.** Reports of receiving preventive services were consistent with other ratings of health care. After adjusting for sociodemographic characteristics and health status, there were no significant differences in the reported rates of mammograms, clinical breast exams, or Pap smears among women with Medi-Cal managed care and Medi-Cal fee-for-service insurance (see Table 5). Medi-Cal managed care enrollees were significantly more likely than uninsured respondents to receive these three preventive services.

The mean adjusted percentage of preventive services received by Medi-Cal managed care (60 percent) and Medi-Cal fee-for-service (58 percent) beneficiaries did not differ significantly. In contrast, respondents with private managed care reported significantly more preventive services than those with private fee-for-service insurance (61 percent vs. 51 percent, \( p < 0.05 \)). The uninsured’s adjusted mean of 41 percent was significantly lower than any of the other insurance categories.

**Discussion**

We did not find evidence that a managed care model improved access to care for Medi-Cal recipients. We found no difference between the percentages of Medi-Cal beneficiaries in managed care and fee-for-service who reported having a regular doctor or having a choice of doctors. In fact, there were few differences between Medi-Cal managed care and Medi-Cal fee-for-service respondents on any of the measures of health plan performance, health care access, health care quality, or preventive services. The main difference was that Medi-Cal managed care patients were more likely to be seen in a clinic
<table>
<thead>
<tr>
<th></th>
<th>UNINSURED (n = 669)</th>
<th>MEDI-CAL MANAGED CARE (n = 208)</th>
<th>MEDI-CAL FEE-FOR-SERVICE (n = 221)</th>
<th>PRIVATE MANAGED CARE (n = 1,924)</th>
<th>PRIVATE FEE-FOR-SERVICE (n = 520)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating of care (fair/poor)</td>
<td>36 1.88&lt;sup&gt;a&lt;/sup&gt;</td>
<td>24 1.00</td>
<td>23 0.97</td>
<td>17 1.21</td>
<td>17 1.06</td>
</tr>
<tr>
<td>Rating of doctor (fair/poor)</td>
<td>25 1.59&lt;sup&gt;a&lt;/sup&gt;</td>
<td>20 1.00</td>
<td>16 0.88</td>
<td>11 0.98</td>
<td>10 0.82</td>
</tr>
<tr>
<td>Rating of doctor communication (fair/poor)</td>
<td>28 1.84&lt;sup&gt;a&lt;/sup&gt;</td>
<td>20 1.00</td>
<td>18 1.00</td>
<td>15 1.32</td>
<td>12 0.92</td>
</tr>
</tbody>
</table>

Odds ratios (OR) are adjusted for age, education, health status, income, language, race/ethnicity, and sex.

<sup>a</sup> p < 0.05 compared with Medi-Cal managed care in multivariate logistic regression.
### Table 5
PREVENTIVE SERVICES BY INSURANCE CATEGORY

<table>
<thead>
<tr>
<th></th>
<th>UNINSURED (n = 300)</th>
<th>MEDI-CAL MANAGED CARE (n = 126)</th>
<th>MEDI-CAL FEE-FOR-SERVICE (n = 141)</th>
<th>PRIVATE MANAGED CARE (n = 983)</th>
<th>PRIVATE FEE-FOR-SERVICE (n = 206)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preventive care</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mammogram</td>
<td>11</td>
<td>0.15&lt;sup&gt;a&lt;/sup&gt;</td>
<td>53</td>
<td>1.00</td>
<td>55</td>
</tr>
<tr>
<td>Clinical breast exam</td>
<td>32</td>
<td>0.42&lt;sup&gt;a&lt;/sup&gt;</td>
<td>49</td>
<td>1.00</td>
<td>47</td>
</tr>
<tr>
<td>Pap smear</td>
<td>47</td>
<td>0.46&lt;sup&gt;a&lt;/sup&gt;</td>
<td>66</td>
<td>1.00</td>
<td>62</td>
</tr>
<tr>
<td>Summary preventive services score</td>
<td>41&lt;sup&gt;b&lt;/sup&gt;</td>
<td>60</td>
<td>58</td>
<td>1.00</td>
<td>61</td>
</tr>
</tbody>
</table>

Note: Odds ratios (OR) are adjusted for age, education, health status, income, language, race/ethnicity, and sex.

<sup>a</sup> p < 0.05 compared with Medi-Cal managed care in multivariate logistic regression.

<sup>b</sup> p < 0.05 compared with Medi-Cal managed care in χ².
while Medi-Cal fee-for-service patients were more likely to be seen in a private office or HMO setting. This difference in the site of care is the opposite of what has been seen in other states’ Medicaid managed care programs.9

Medi-Cal beneficiaries reported worse health care access than low-income privately insured respondents. Individuals with private fee-for-service insurance and private managed care reported greater choice of physicians, and privately insured fee-for-service respondents reported fewer instances when they put off or did not get needed care. While a greater percentage of Medi-Cal participants than privately insured participants rated their care as fair to poor, these differences were not statistically significant once we controlled for sociodemographic and health status differences across insurance categories.

Numerous studies have demonstrated that private managed care enrollees consistently receive more preventive services than fee-for-service enrollees.10 In this study as well, low-income private managed care respondents reported receiving more preventive services than private fee-for-service participants. Such an association, however, was not seen among Medi-Cal beneficiaries. Medi-Cal managed care participants did not report significantly more preventive services than those with Medi-Cal fee-for-service insurance. This may be due to the fact that private managed care enrollees are more likely to have a regular provider, while the same is not true for Medi-Cal beneficiaries. Previous studies have documented the importance of a regular provider for increasing the likelihood that an individual receives preventive care.11,12

There are several possible reasons that we did not find that managed care improved access to care and preventive services for Medi-Cal beneficiaries. First, this study was conducted relatively early in the implementation of Medi-Cal managed care in some counties. It may take time for patients to establish relationships with providers and for the provision of preventive care. Second, most of the respondents in Medi-Cal managed care entered managed care voluntarily. Perhaps patients in mandatory Medi-Cal managed care would benefit more. We suspect, though, that volunteers for Medi-Cal managed care might be more sophisticated users of health care options and be more inclined to have a regular provider and to pursue preventive services. Third, differences in health care beliefs, health care behaviors, or other unmeasured characteristics between respondents in Medi-Cal fee-for-service insurance and Medi-Cal managed care might affect ratings of health care access and quality. However, adjusting our results for known differences in sociodemographic characteristics and self-rated health had little effect on the results. Fourth, our results may reflect the quality of particular health plans rather than the potential benefits of managed care as such. Although California counties are exploring different models of Medi-Cal managed care, our sample size did not permit us to compare these various approaches. Finally, our data are all self-reported, and Medi-Cal managed care respondents might underreport any advantages of this delivery model compared with Medi-Cal fee-for-service. While it is recognized that survey participants tend to overestimate the amount of preventive care they have received,13 we have no reason
to suspect that self-reports would systematically differ between Medi-Cal beneficiaries in fee-for-service and managed care plans.

Conclusions
Our study reaffirms the importance of the overall Medi-Cal program for preserving health care access for the state’s low-income population. Medi-Cal beneficiaries have significantly better access to care and ratings of health care quality compared with the uninsured. As of December 1996, however, managed care within the Medi-Cal program did not appear to offer any additional advantages to Medi-Cal beneficiaries. We did not evaluate whether Medi-Cal managed care was associated with any cost savings. We also could not address whether the introduction of Medi-Cal managed care in a community was associated with changes in access to care for the uninsured. Future studies should explore whether Medi-Cal managed care provides benefits for the Medi-Cal population over time as the delivery systems mature and whether Medi-Cal managed care reduces health care access for the uninsured as safety net providers are limited in their ability to shift costs of the uninsured to the Medi-Cal population.

Acknowledgments
This work was supported by the Henry J. Kaiser Family Foundation. The authors gratefully acknowledge Larry Levitt’s insightful suggestions and Marie Moron’s assistance with statistical analyses.

REFERENCES

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HEALTH INSURANCE COVERAGE-
ENROLLMENT AND ADEQUACY
OF PRENATAL CARE UTILIZATION

VILMA COKKINIDES, PhD
American Cancer Society

Abstract: Most studies have concluded that good prenatal care plays an
essential role in improving birth outcomes, and numerous reports have
documented barriers to adequate prenatal care. The relationship between
health care insurance eligibility and enrollment procedures and adequacy
of prenatal care, however, has not been suitably investigated. This study
used data from a statewide representative sample of recently delivered
women in South Carolina to assess (1) patterns of health care insurance
source and (2) the independent effects of Medicaid enrollment and appli-
cation procedures on receipt of prenatal care. Health insurance during
pregnancy varied by sociodemographic characteristics. Black women’s
experiences with Medicaid enrollment and application procedures were
associated with less than adequate prenatal care. Programmatic efforts
and policies should emphasize further improvement in the systems of
health care access and delivery to disadvantaged women.

Key words: Health insurance, prenatal care, minority women, health
care access.

Most studies have concluded that good prenatal care plays an essential role
in improving birth outcomes and longer term life chances.1 A substantial
proportion of women in the United States fail to receive adequate prenatal
care.2,3 Women who get inadequate prenatal care do so for a variety of reasons
related to characteristics of the health care system, provider practices, and
their own individual and social characteristics.4 In a national study of low-
income women, 71 percent of the women experienced problems getting pre-
natal care, and 50 percent of the women cited multiple barriers to earlier and
more frequent prenatal care.5 From a list of 24 barriers, these women identified
3 barriers most often: financial barriers (lack of money to pay for care), preg-
nancy unawareness, and lack of transportation. Of the women receiving the

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least amount of care, the inability to pay for care was the “most important rea-
son” for not getting prenatal care sooner or more often.

Due to concern with the slowing improvement in the nation’s infant mort-
ality in the mid-1980s, Congress passed a series of bills intended to increase
access to prenatal care and enhanced services available through the Medicaid
program. During the late 1980s, Congress focused heavily on expanding
Medicaid eligibility at the state level for low-income pregnant women. By
1990, states were required to extend Medicaid coverage to all pregnant
women with family income below 133 percent of the federal poverty level
(FPL), with the option to cover those with incomes up to 185 percent of FPL.
States were also permitted to drop the assets test and expedite the eligibility
process in other ways.6

Although previous research and evaluation studies7-10,11 have focused on
the influence of Medicaid expansion and health insurance as determinants of
inadequate prenatal care and birth outcomes, the relationship between health
care insurance receipt and enrollment eligibility procedures and adequacy of
prenatal care has not been adequately investigated in large representative
populations of women. The extent to which these barriers affect eligible preg-
nant women’s access or utilization of prenatal care is critically important
information for drafting policy and designing programs to reduce financial
barriers to health insurance for low-income persons. Furthermore, these barri-
ers to Medicaid enrollment may reduce the intended effect of expanded
Medicaid eligibility on perinatal outcomes. This study’s purpose is to assess
the effects of health insurance coverage and barriers to the Medicaid eligibility
and enrollment process on prenatal care utilization.

Method

This study was intended to address two major questions: (1) Do women
with Medicaid coverage differ in prenatal care utilization patterns from
women with private insurance? (2) What are the effects of obstacles to
Medicaid application and enrollment on access to early and adequate prenatal
care?

This study used data from the South Carolina Pregnancy Risk Assessment
Monitoring System, 1993-1996 (SC PRAMS). The SC PRAMS is an ongoing
population-based survey of maternal behaviors, attitudes, psychosocial factors,
health insurance status and prenatal care, and other perinatal program
participation.12 New mothers are identified monthly from birth certificates
and mailed a questionnaire 3 to 6 months after delivery; to enhance response
rates, up to two additional questionnaires are mailed and phone follow-up is
conducted with nonrespondents. Between 1993 and 1996, the SC PRAMS Pro-
ject surveyed 12,443 women who had delivered live births and were 4 to 6
months postpartum. Of these women, 8,816 participated in the PRAMS sur-
vey (71 percent response rate). The data from survey participants are
weighted to account for survey design and nonresponse rates.
For the purpose of the present study, data from black and white women who participated in the SC PRAMS survey and had complete and consistent information on prenatal care and health insurance coverage during pregnancy were used, yielding a study population of 7,533 (3,415 black women and 4,118 white women). Excluded from the original sample of survey respondents were women of race/ethnicity other than black or white (2 percent); women with no prenatal care (1.2 percent); women with missing data on prenatal care (2.5 percent), poverty status (5 percent), or health insurance status (1.9 percent); and women with inconsistent health insurance status (0.3 percent).

Health insurance status during pregnancy was grouped this way: private insurance, Medicaid, or other types. Women who reported at least one of the following and did not report private or Medicaid insurance coverage for prenatal care or delivery were grouped into “other” types of insurance: personal income, military facility/CHAMPUS, a health department source, or “still owe money.” This group included women who experienced changes in health insurance coverage during the pregnancy period and the uninsured. More fine-grained categorization of women in the group was precluded by small cell sample size and inability to distinguish which source of payment(s) was the most significant for covering costs.

In this study, eight barriers pertaining to the Medicaid eligibility and enrollment process among Medicaid-eligible women were assessed. (A pregnant woman in South Carolina was eligible for Medicaid during the study period if she had a family income less than or equal to 185 percent of the FPL.) In the PRAMS survey, women who reported that they applied for Medicaid during their most recent pregnancy were asked, “Which of these happened when you applied for Medicaid during your most recent pregnancy?” In response, they could check one or more of the following: (1) It took longer than 4 weeks to get my Medicaid card, (2) I had to go over to the Department of Social Services, (3) I had a hard time finding the information they needed, (4) I had a hard time reaching the Medicaid staff on the telephone, (5) I had a hard time getting help from the Medicaid staff, (6) I had to make many trips to the Medicaid office, (7) I gave up applying for Medicaid, (8) I had too many papers to fill out, and (9) I had problems getting a Medicaid card for my baby. The distribution of these barriers was examined. In the multivariate analyses, the barrier question was analyzed categorically by grouping women into those experiencing one or more barriers and those having no barriers. The Cronbach alpha for this barrier question (represented by these eight barriers) was 0.72, which means that this measure (or construct) had moderately high reliability to conceptually measure barriers associated with Medicaid enrollment and application.

The adequacy of the prenatal care utilization index (APCUI)\textsuperscript{13} was used for this study, and the source of data was the corresponding infant’s birth record uniquely linked to the PRAMS record. According to the APCUI index, adequacy of the initiation of prenatal care can be assessed independently from the adequacy of the number of visits after controlling for the timing of entry into
care and the gestational age at delivery. In addition, an overall measure in the adequacy of prenatal care utilization can be obtained by combining the timing of initiation and number of visits of prenatal care adjusted for gestational age. Women with no prenatal care (1.2 percent) were excluded from the analysis.

The following correlates were considered in the multivariate analyses: maternal race (black and white), age (less than 20 years, 20-29 years, and 30 years or older), educational attainment (less than 12 years of education, 12 years, and more than 12 years of education), marital status (married or unmarried), percentage of FPL based on household annual income and for family size (<100 percent, 100 percent to 185 percent, ≥185 percent of poverty rate), county of residence (urban or rural), and pregnancy intendedness (unwanted, mistimed, and wanted).

Descriptive analyses of weighted data were performed to describe the maternal sociodemographic characteristics and prenatal care utilization index of black and white women by health insurance status. The distribution of barriers to the Medicaid application and enrollment process in black and white women eligible for Medicaid was compared using descriptive analyses. Chi-square tests with significance level of alpha = 0.05 were used.

Two sets of logistic regression analyses stratified by maternal race were performed. The first multivariate logistic regression analysis assessed the likelihood of inadequate prenatal care utilization by health insurance coverage (Medicaid versus private insurance only) controlling for sociodemographic characteristics. Confounders were selected if their addition in the model changed the crude association by 10 percent or more.

The second multivariate logistic regression analysis assessed the likelihood of inadequate prenatal care utilization by number of barriers in the Medicaid application and enrollment process among women who applied for Medicaid during pregnancy. The criteria for selecting confounders mentioned before were also applied here. All analyses were conducted using SUDAAN software. This allows the reporting of the results in terms of weighted percentages (which can be interpreted as estimates of the population proportion). The odds ratio, presented in the results, assesses the strength of the association between the independent variable (health insurance status or barriers to Medicaid application) and the dependent variable (adequacy of prenatal care utilization).

Results

The pattern of health care insurance source for prenatal care and delivery differs by race (see Table 1). Private health care insurance is more common among white women (52 percent) than black women (18 percent); in contrast, Medicaid coverage among black women predominated (77 percent), but it did not among white women (38 percent). White women were more than two times as likely to report “other” sources/forms of insurance than black women (10 percent vs. 4 percent). A large proportion of both white and black...
young women younger than 20 years of age were covered by Medicaid (85 percent and 95 percent, respectively; Table 1). White women 30 years old and older were less likely to be on Medicaid than their black counterparts (16 percent vs. 48 percent). Maternal age and education are highly correlated; thus, a similar pattern of insurance coverage was seen for maternal educational attainment as was seen for maternal age (see Table 1). Black women on Medicaid were significantly more likely to report an unwanted pregnancy than white women on Medicaid (26 percent vs. 12 percent; Table 1). Black women with private insurance were also significantly more likely to have unwanted and mistimed pregnancies than their white counterparts (16 percent and 32 percent vs. 4 percent and 20 percent; Table 1).

Table 2 shows the distribution of prenatal care utilization indices (time of entry into prenatal care, prenatal care visits utilization, and overall adequacy of prenatal care utilization) by health insurance status in white and black women. The following are important observations from these data: compared with white women on Medicaid, higher proportions of black women on Medicaid had inadequate and intermediate prenatal care initiation (6 percent and 21 percent vs. 8 percent and 32 percent), inadequate and intermediate levels in the number of expected prenatal care visits (5 percent and 12 percent vs. 8 percent and 21 percent), and inadequate and intermediate prenatal care utilization (1 percent and 21 percent vs. 30 percent and 15 percent). A similar disparity in prenatal care utilization was seen in black women with private health insurance coverage compared with their white counterparts. Within each race, women with Medicaid coverage during pregnancy were more likely to have inadequate levels of prenatal care utilization compared with women with private health insurance. The findings on women with other types of health insurance coverage are presented in the table but not interpreted because of this group’s heterogeneity and small sample size.

Table 3 shows the results of logistic regression analysis to estimate the independent effects of health insurance coverage (Medicaid and private insurance) after controlling for maternal characteristics associated with less than adequate prenatal care. Compared with black women with private health insurance, black women on Medicaid were significantly more likely to initiate prenatal care during the second trimester relative to women who received first trimester prenatal care (adjusted odds ratio [OR] = 1.9, 95 percent confidence interval [CI] = 1.2-3.2) and more likely to have an inadequate level of overall prenatal care utilization relative to women who had adequate prenatal care (adjusted OR = 2.0, 95 percent CI = 1.1-3.8) after controlling for maternal demographics. Similarly, compared with white women with private insurance, white women on Medicaid were significantly more likely to initiate prenatal care during the second trimester relative to women who received first-trimester prenatal care (adjusted OR = 5.3, 95 percent CI = 2.1-13.5), have an inadequate number of prenatal care visits relative to women receiving an adequate number of prenatal care visits (adjusted OR = 3.8, 95 percent CI = 2.0-7.0), and have an inadequate level of overall prenatal care utilization index.
(adjusted OR = 6.0, 95 percent CI = 3.7-9.9) after adjusting for maternal characteristics.

Table 4 shows that there were five types of barriers most commonly encountered by Medicaid-eligible women: having to go over to the Department of Social Services (DSS), taking longer than 4 weeks to get a Medicaid card, having to make too many trips to the Medicaid office, having too many papers to fill out, and having a hard time reaching the Medicaid staff on the phone. Compared with white women, black women were less likely to experience some of these barriers. However, black women were just as likely to have experienced the following three barriers: having to go over to DSS, having too
many papers to fill out, and giving up applying for Medicaid (about 2 percent in each group). Most black and white women reported that they experienced one or more barriers to the Medicaid application/enrollment process while applying for Medicaid (59 percent and 66 percent, respectively).

Table 5 shows the results of the logistic regression analysis for the association between barriers to the Medicaid application and enrollment process and prenatal care utilization by maternal race. Having one or more barriers did not perceptively affect the timing of prenatal care initiation in either black or white women applying for Medicaid who were Medicaid eligible. However, black women who reported one or more barriers were 2.7 times (95 percent CI = 1.3-5.8) more likely to have received an inadequate number of prenatal care visits and 1.8 times (95 percent CI = 1.1-2.9) more likely to have an inadequate level

**TABLE 2**

PRENATAL CARE UTILIZATION IN WHITE AND BLACK WOMEN WITH LIVE BIRTHS BY HEALTH INSURANCE TYPE DURING PREGNANCY IN SOUTH CAROLINA (WEIGHTED PERCENTAGE ESTIMATES)

<table>
<thead>
<tr>
<th></th>
<th>WHITE WOMEN</th>
<th></th>
<th>BLACK WOMEN</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PRIVATE/HMO</td>
<td>MEDICAID (n = 1,687)</td>
<td>OTHER (n = 362)</td>
<td>PRIVATE/HMO</td>
</tr>
<tr>
<td>Initiation into prenatal care</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-9 months</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4-6 months</td>
<td>5</td>
<td>21</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>1-3 months</td>
<td>94</td>
<td>73</td>
<td>88</td>
<td>83</td>
</tr>
<tr>
<td>Prenatal care visits utilization</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inadequate</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Intermediate</td>
<td>16</td>
<td>12</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>Adequate</td>
<td>50</td>
<td>42</td>
<td>56</td>
<td>41</td>
</tr>
<tr>
<td>Adequate plus</td>
<td>32</td>
<td>41</td>
<td>28</td>
<td>38</td>
</tr>
<tr>
<td>Adequacy of prenatal care utilization index (APNCU)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inadequate</td>
<td>3</td>
<td>20</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Intermediate</td>
<td>16</td>
<td>11</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Adequate</td>
<td>49</td>
<td>37</td>
<td>55</td>
<td>38</td>
</tr>
<tr>
<td>Adequate plus</td>
<td>32</td>
<td>32</td>
<td>25</td>
<td>36</td>
</tr>
</tbody>
</table>

Source: Data from SC PRAMS 1993-1996.

* APNCU (a summary index of two main components: initiation into prenatal care and expected visit ratio).
of the overall prenatal care utilization (due to the combined effects of inadequate timing and number of visits) after controlling for important maternal characteristics. In white women, the number of barriers to the Medicaid application/enrollment process was not associated with a less than adequate level of overall prenatal care utilization index, after controlling for maternal characteristics associated with inadequate prenatal care.

**Discussion**

Two important observations can be drawn from this study. First, after taking into account maternal characteristics, black and white women with Medicaid coverage were more likely to have less than adequate levels of prenatal care utilization than their respective counterparts with private insurance. These observations are in keeping with previously reported findings.5,16 Second, only in black women was there an effect for the number of barriers to

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**TABLE 3**

**ADJUSTED ODDS RATIO (OR) AND 95 PERCENT CONFIDENCE INTERVAL (CI) FOR THE ASSOCIATION BETWEEN HEALTH INSURANCE TYPE (MEDICAID VERSUS PRIVATE) AND ADEQUACY OF PRENATAL CARE UTILIZATION (APNCU)**

<table>
<thead>
<tr>
<th></th>
<th>WHITE WOMEN</th>
<th>BLACK WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR (95 PERCENT CI)</td>
<td>OR (95 PERCENT CI)</td>
</tr>
<tr>
<td>Initiation into prenatal care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-9 months</td>
<td>5.3 (2.1-13.5)</td>
<td>2.1 (0.8-5.6)</td>
</tr>
<tr>
<td>4-6 months</td>
<td>4.1 (2.6-6.4)</td>
<td>1.9 (1.2-3.2)</td>
</tr>
<tr>
<td>1-3 months</td>
<td>1.0 (referent)</td>
<td>1.0 (referent)</td>
</tr>
<tr>
<td>Prenatal care visits utilization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inadequate</td>
<td>3.8 (2.0-7.0)</td>
<td>2.2 (0.6-7.9)</td>
</tr>
<tr>
<td>Intermediate</td>
<td>0.7 (0.5-1.1)</td>
<td>0.9 (0.5-1.6)</td>
</tr>
<tr>
<td>Adequate plus</td>
<td>0.6 (0.3-1.0)</td>
<td>0.8 (0.6-1.3)</td>
</tr>
<tr>
<td>Adequate</td>
<td>1.0 (referent)</td>
<td>1.0 (referent)</td>
</tr>
<tr>
<td>Adequacy of prenatal care utilization index (APNCU)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inadequate</td>
<td>6.0 (3.7-9.9)</td>
<td>2.0 (1.1-3.8)</td>
</tr>
<tr>
<td>Intermediate</td>
<td>0.7 (0.5-1.0)</td>
<td>1.1 (0.6-1.9)</td>
</tr>
<tr>
<td>Adequate plus</td>
<td>0.7 (0.4-1.1)</td>
<td>0.8 (0.7-1.1)</td>
</tr>
<tr>
<td>Adequate</td>
<td>1.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Source: Data from SC PRAMS 1993-1996.
Note: Models adjusted for the following confounders: maternal age, marital status, and pregnancy intendedness; in these models, women with adequate plus level of prenatal care were omitted from the analysis to minimize bias associated with greater risk status. The comparison group is private insurance during pregnancy. Expected visit ratio: inadequate (≤ 49.99), intermediate (> 49.99-79.99), adequate (> 79.99-109.99), adequate plus (> 109.99).

* APNCU (a summary index of two main components: initiation into prenatal care and expected visit ratio).
the Medicaid application and enrollment process and inadequate levels of
prenatal care, even after adjustment for sociodemographic characteristics.
Clearly, the provision of a single enabling factor—ability to pay by insurance—
would not necessarily be expected to make a difference in access unless the
“facilitation” of access leads to appropriate entry and utilization of prenatal
care services. Direct comparisons with previous studies are not possible since
no other previous study has specifically examined the relationship between
barriers to the Medicaid application and enrollment process in a population-
based survey. Moreover, this study cannot make any direct determination on
whether this racial difference is the result of inherent inequalities in the health
care system since discrimination per se was not examined, the result of dif-
fferences associated with other Medicaid expansion efforts that were more suc-
Failure (or aggressive) with white women than with black women, or the
result of something else. A prospective approach with additional efforts
toward data collection related to discriminatory practices in health care access
and utilization, as well as eligibility, enrollment, and continuity in insurance
coverage before and during pregnancy and the postpartum period, would be
necessary to examine such potential factors.

The following are important strengths of this study: the use of data from a
representative sample of women with live births and the ability to control for
numerous confounders and potential confounders. The study’s weaknesses

### TABLE 4
NUMBER OF BARRIERS AND BARRIER TYPE BY RACE AMONG WOMEN ON MEDICAID DURING PREGNANCY (WEIGHTED PERCENTAGE ESTIMATES)

<table>
<thead>
<tr>
<th>BARRIER TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Had to go over to the Department of Social Services</td>
</tr>
<tr>
<td>Took longer than 4 weeks to get my Medicaid card</td>
</tr>
<tr>
<td>Had to make many trips to the Medicaid office</td>
</tr>
<tr>
<td>Had too many papers to fill out</td>
</tr>
<tr>
<td>Had a hard time reaching the Medicaid staff on the phone</td>
</tr>
<tr>
<td>Had a hard time getting help from the Medicaid staff</td>
</tr>
<tr>
<td>Had a hard time finding the information they needed</td>
</tr>
<tr>
<td>Had problems getting a Medicaid card for my baby</td>
</tr>
<tr>
<td>Gave up applying for Medicaid</td>
</tr>
<tr>
<td>Number of barriers</td>
</tr>
<tr>
<td>Two or more barriers</td>
</tr>
<tr>
<td>One barrier</td>
</tr>
<tr>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHITE WOMEN (n = 1,687)</th>
<th>BLACK WOMEN (n = 2,690)</th>
<th>p-VALUE</th>
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</thead>
<tbody>
<tr>
<td>Had to go over to the Department of Social Services</td>
<td>53</td>
<td>55</td>
</tr>
<tr>
<td>Took longer than 4 weeks to get my Medicaid card</td>
<td>33</td>
<td>29</td>
</tr>
<tr>
<td>Had to make many trips to the Medicaid office</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>Had too many papers to fill out</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Had a hard time reaching the Medicaid staff on the phone</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td>Had a hard time getting help from the Medicaid staff</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Had a hard time finding the information they needed</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>Had problems getting a Medicaid card for my baby</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Gave up applying for Medicaid</td>
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<td>2</td>
</tr>
<tr>
<td>Number of barriers</td>
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<td>Two or more barriers</td>
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<td>26</td>
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<tr>
<td>One barrier</td>
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<td>33</td>
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<tr>
<td>None</td>
<td>34</td>
<td>41</td>
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</table>

*a Nonsignificant differences by race.
TABLE 5
ADJUSTED ODDS RATIO (OR) AND 95% CONFIDENCE INTERVAL (CI) FOR THE ASSOCIATION BETWEEN NUMBER OF BARRIERS OF MEDICAID APPLICATION PROCESS (TWO OR MORE BARRIERS VERSUS NONE) AND ADEQUACY OF PRENATAL CARE UTILIZATION (APNCU) AMONG WOMEN ON MEDICAID

<table>
<thead>
<tr>
<th></th>
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<th>BLACK WOMEN</th>
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<tr>
<td></td>
<td>ONE OR</td>
<td>ONE OR</td>
<td>ONE OR</td>
<td>ONE OR</td>
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<tr>
<td></td>
<td>MORE</td>
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<td>MORE</td>
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<tr>
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<td>BARRIERS OR (95 PERCENT CI)</td>
<td>BARRIERS</td>
<td>BARRIERS OR (95 PERCENT CI)</td>
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<tr>
<td>Initiation into prenatal care</td>
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<tr>
<td>7-9 months</td>
<td>6</td>
<td>4</td>
<td>9</td>
<td>9</td>
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<tr>
<td></td>
<td>1.5 (0.7-3.5)</td>
<td></td>
<td>1.6 (0.8-3.2)</td>
<td></td>
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<tr>
<td>5-6 months</td>
<td>13</td>
<td>10</td>
<td>22</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>1.4 (0.7-2.5)</td>
<td></td>
<td>1.6 (0.9-2.6)</td>
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<tr>
<td>3-4 months</td>
<td>40</td>
<td>38</td>
<td>36</td>
<td>36</td>
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<tr>
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<td>1.0 (0.7-1.5)</td>
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<td>1.3 (0.8-1.9)</td>
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<tr>
<td>1-2 months</td>
<td>41</td>
<td>48</td>
<td>33</td>
<td>39</td>
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<td>1.0 (referent)</td>
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<tr>
<td>Prenatal care visits utilization</td>
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<td>4</td>
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<td>6</td>
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<tr>
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<td>1.4 (0.6-3.4)</td>
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<td>2.7 (1.3-5.8)</td>
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<tr>
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<td>15</td>
<td>12</td>
<td>18</td>
<td>21</td>
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<tr>
<td></td>
<td>1.3 (0.7-2.3)</td>
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<td>1.1 (0.7-1.9)</td>
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<tr>
<td>Adequate plus</td>
<td>38</td>
<td>43</td>
<td>35</td>
<td>40</td>
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<tr>
<td></td>
<td>0.9 (0.6-2.0)</td>
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<tr>
<td>Adequate</td>
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<td>41</td>
<td>36</td>
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<td>1.0 (referent)</td>
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<td>1.0 (referent)</td>
<td></td>
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<tr>
<td>Adequacy of prenatal care utilization index (APNCU)</td>
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<tr>
<td>Inadequate</td>
<td>21</td>
<td>17</td>
<td>35</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>1.5 (0.9-2.6)</td>
<td></td>
<td>1.8 (1.1-2.9)</td>
<td></td>
</tr>
<tr>
<td>Intermediate</td>
<td>14</td>
<td>11</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>1.5 (0.8-2.7)</td>
<td></td>
<td>0.9 (0.5-1.7)</td>
<td></td>
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<tr>
<td>Adequate plus</td>
<td>28</td>
<td>35</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>0.8 (0.5-2.3)</td>
<td></td>
<td>0.8 (0.4-1.3)</td>
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<tr>
<td>Adequate</td>
<td>37</td>
<td>38</td>
<td>30</td>
<td>34</td>
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<tr>
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<td>1.0 (referent)</td>
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</table>

Source: Data from SC PRAMS 1993-1996.

Note: Models adjusted for maternal age. In these models, women with adequate plus level of prenatal care were omitted from the analysis to minimize bias associated with greater risk status. Expected visit ratio: inadequate (≤ 49.99), intermediate (> 49.99-79.99), adequate (> 79.99-109.99), adequate plus (> 109.99).

* APNCUI (a summary index of two main components: initiation into prenatal care and expected visit ratio).
center on the accuracy of self-reported information. To corroborate maternal self-report of health care insurance status during pregnancy would necessitate access to other sources of information for the women in the study (e.g., Medicaid claims data or hospital discharge data). It should be noted that the author of this report examined the distribution of Medicaid and private insurance coverage for deliveries using data from South Carolina birth records linked to maternal delivery hospitalizations for 1995 to 1996 (data not shown here). This independent comparison revealed health insurance distributions comparable to those reported in this study. Thus, it is unlikely that the findings pertaining to health insurance coverage during pregnancy were biased by recall of insurance coverage. Another potential limitation of this study is the quality of the birth certificate records for prenatal care information. In South Carolina, there has not been any systematic study to examine the quality of the prenatal care data from birth certificate records; however, other studies have reported problems with accuracy and completeness of reporting “accurate” prenatal care information on the birth record.\textsuperscript{18,19} Finally, this study could not assess other important efforts toward Medicaid expansion such as outreach efforts to enroll eligible women into Medicaid, increased reimbursement to prenatal care providers of women on Medicaid, or the enrollment of pregnant Medicaid-eligible women into enhanced prenatal care support services (e.g., care coordination). Such programs have been shown to have positive effects on prenatal care participation and pregnancy outcomes.\textsuperscript{20}

**Conclusion**

The Healthy People 2000 (HP2000) objectives for improving the health status of mothers and infants call for 90 percent or more pregnant women initiating prenatal care in the first trimester. In this study, white women with private sources of health insurance during pregnancy met this goal (92 percent), whereas a smaller proportion of black women with private insurance coverage during pregnancy (88 percent) began prenatal care in the first trimester. Women who had Medicaid coverage during pregnancy lagged behind in meeting the HP2000 goal (73 percent in whites and 60 percent in blacks). Over the course of the 1990s, there was a consistent improvement in the percentage of women who initiated prenatal care in the first trimester.\textsuperscript{21} As this research shows, even though more low-income women are now qualifying for Medicaid coverage during pregnancy (thereby potentially removing a financial access barrier), there are still many pregnant women who are unable to achieve adequate levels of prenatal care. Further, this study showed the negative effect of the number of obstacles encountered by black women during their Medicaid application and enrollment process on prenatal care utilization.

At least two policy recommendations toward improvement of Medicaid applications may be made: the procedures and administration of the Medicaid application and enrollment process for eligible pregnant women should be
Procedural changes such as allowing mail-in applications for Medicaid coverage and administrative changes that expand outreach to draw more Medicaid-eligible women into enhanced prenatal care support services (i.e., “presumptive eligibility”) may help to counteract some of the inadequacies reported here. Presumptive eligibility has been shown to have potential benefits with greater and earlier enrollment into first-trimester prenatal care. To help correct for persistent inadequate access to prenatal care, multiple measures besides expanding Medicaid eligibility will be necessary.

Acknowledgments

This research was prepared with the support from the Centers for Disease Control and Prevention (grant U50/CC407132). The paper was presented in part at the 1998 meeting of the American Public Health Association, Washington, DC. The author wishes to acknowledge Maureen Sanderison, PhD, University of South Carolina, School of Public Health, and Donna Richter, PhD, South Carolina Department of Health and Environmental Control, for their helpful comments on earlier versions of this manuscript. The opinions expressed in this document are those of the author and do not necessarily reflect the policies or opinions of the South Carolina Department of Health and Environmental Control, the South Carolina Health Care Finance Commission, or the sponsors of this research.

REFERENCES


Dr. COKKINIDES is an epidemiologist at the American Cancer Society in Atlanta, Georgia.
Abstract: Infectious syphilis disproportionately affects African Americans living in poverty in metropolitan areas in the southeastern United States. In this population, where syphilis persists, the rates of HIV and AIDS are also persistently high. In an effort to facilitate the design of more effective prevention programs, the present investigation employed focus groups to obtain information from low-income African Americans concerning the determinants of high rates of syphilis and HIV/AIDS in their communities. The subjects were 36 African American men and women ages 18 to 56 residing in metropolitan Memphis and surrounding Shelby County, Tennessee. Overall, the authors found significant lack of awareness of the magnitude of HIV/AIDS and syphilis in African American communities and lack of knowledge about the etiology and transmission of syphilis. The investigation points to the important role of women and partnerships of community organizations in preventing the spread of HIV, syphilis, and other sexually transmitted diseases in this population.

Key words: African American, low income, focus groups, health promotion, disease prevention, intervention, syphilis, HIV/AIDS.

According to the Centers for Disease Control and Prevention (CDC), the national syphilis rate has declined after rising to its peak in 1990. However, syphilis still remains a public health problem in a small number of communities within the United States. In 1998, the majority of primary and secondary syphilis cases were reported in the southeastern United States. Of particular note is that in the regions where syphilis persists in the United States, it
disproportionately affects African Americans living in poverty in metropolitan areas. In 1998, metropolitan Memphis and surrounding Shelby County, Tennessee, ranked second in the nation in the incidence of infectious syphilis, with an incidence 11 times higher than the national average. During this period, 97 percent of cases were reported among African Americans, a rate 40 times higher than their white counterparts.

The incidence of syphilis among the “at-risk” population has far-reaching public health implications in that it greatly increases the likelihood of HIV transmission. In fact, syphilis incidence has greatly amplified the emerging subepidemic of HIV/AIDS among young, African American women in the southeastern United States. This is in part because syphilis has indicators of behavior that are considered high risk for HIV. Recent scientific evidence supports the role of syphilis in significantly facilitating HIV transmission. Sexually active persons with chancres, lesions, and abrasions in the genital area are more likely to become infected if exposed to HIV or other infectious agents.

The overrepresentation of African Americans among cases of HIV/AIDS is well documented. While African Americans constitute approximately 12 percent of the U.S. population, they represent 34 percent of reported AIDS cases. Also, African American men represent 46 percent of reported cases of HIV infection among American men, while African American women represent 66 percent of the cases of American women with HIV. Similarly, while African Americans constitute 45 percent of the population of Memphis and Shelby County, they represent 80 percent of reported HIV cases and 66 percent of AIDS cases. Fifty-six percent of HIV cases and 52 percent of AIDS cases reported Memphis and Shelby County in 1998 through March 31, 1999, were reported among African American males. African American females account for 24 percent of the HIV cases and 14 percent of the AIDS cases reported in this area during the same period.

The persistently high rates of syphilis and HIV/AIDS among African Americans living in poverty suggest a fundamental failure of the traditional, provider-centered public health approach toward prevention of sexually transmitted diseases (STDs) and HIV infection in these communities. Evidence points to a lack of communication and understanding between communities affected by syphilis and HIV/AIDS and prevention practitioners, and it suggests that these gaps have impeded the progress of public health prevention interventions.

Effective interventions will require involving the communities at high risk for syphilis and HIV infection in program needs assessment and implementation. The present investigation employed focus groups to obtain information from low-income African Americans concerning the determinants of high rates of syphilis and HIV/AIDS among African Americans residing in Memphis and surrounding Shelby County, Tennessee, as well as to facilitate the design of more effective prevention programs. Specifically, the investigation employed focus group interviews to gather information from low-income African Americans about their perceptions, opinions, and
attitudes concerning the high rates of syphilis and HIV and how to prevent their occurrence among African Americans residing in metropolitan Memphis and Shelby County.

**Method**

A descriptive, qualitative design was used for this study. The methodology involved organizing and conducting a series of focus group interviews aimed at better understanding the perceptions, opinions, and attitudes about syphilis and HIV/AIDS incidence among low-income African Americans. There has been an increased use of focus groups within the past several years in applied social science research,\textsuperscript{11,12} as they allow program planners to obtain information about a group’s perceptions, attitudes, and opinions on issues.\textsuperscript{13} Although prevention practitioners have increasingly used focus groups as a research methodology for data collection, program development, and evaluation, studies of focus groups with low-income African Americans on the issue of HIV/AIDS and STDs are relatively sparse.\textsuperscript{14-17} The investigators elected to use focus groups in this study instead of individual interviews to allow for interaction among participants. The investigators determined questions to guide focus group discussions, selected facilitator(s), and identified project logistics and protocols for selecting focus group participants and sites.

A sample of 36 African Americans drawn from low-income inner-city areas of Memphis and surrounding Shelby County, Tennessee, participated in the study. The study was conducted in July 1999. Participants ranged in age from 18 to 56, with an average age of 29.6 years. Criteria for selecting participants were age, race, sex, income, and high risk for HIV.

The process of recruiting participants was through contact with community-based agencies (including the Public Housing Authority, Union Mission for the Homeless, and New Directions, Inc.) and the local institutions of higher education. Four groups from the community were identified, from which individuals were recruited to participate in the focus group discussions because of the increased risk for syphilis and HIV infection among these groups.\textsuperscript{9} These groups included (1) females from multiple public housing developments in public assistance (Fresh Start) programs; (2) males who are homeless, previously resident in drug and alcohol centers or corrections facilities; (3) females in a residential drug and alcohol program; and (4) female college students from multiple campuses in Memphis and Shelby County. Each of the four groups comprised nine participants.

A team approach was employed in developing focus group protocol, including date and time and nonthreatening, comfortable location for group sessions. To conduct focus groups, at least two facilitators are needed: a moderator and an assistant moderator.\textsuperscript{18} One of the authors acted as moderator, and another acted as the moderator’s assistant and recorder. The study design called for moderators of African American or African descent because of the expectation that the race of the facilitator was a variable that should be
While the moderator facilitated the discussion, the assistant took handwritten notes, handled the tape recorder, and observed participants. A combination of complementary approaches was used to develop questions to guide focus group discussions, including literature reviews, development of initial drafts, and brainstorming sessions. The questions developed to guide the focus group discussions (see Box 1) were based on literature reviews in the areas of focus group research and behavioral risk factors for STDs and HIV transmission. These questions focused on knowledge, beliefs, perceptions, attitudes, self-efficacy, and barriers concerning syphilis and HIV prevention. The questions were provocative and open-ended, leaving the participants free to agree or disagree and to elaborate. The facilitator’s probe of responses was allowed to evolve freely with the group discussion.

Participants completed a consent/contract of confidentiality form indicating (1) their willingness to participate in the focus group, (2) that the information provided and discussed would be confidential, (3) that the group sessions would be taped for the purpose of data analysis, and (4) that the findings would be used to provide and enhance understanding of ways to prevent the incidence of HIV and syphilis in Memphis and Shelby County. The Memphis and Shelby County Health Department’s institutional review board approved the study.

A series of four focus group discussions were conducted. The interview began with a background questionnaire administered by the moderator on demographics and source of medical care. To control for differences in reading level among participants, the questionnaire was read aloud by the moderator to each group of participants. Then focus group sessions were conducted with full participation of respondents. Each group session lasted approximately 90 minutes, the exact duration depending on the group interactions. Each of the two female groups (one in Fresh Start programs and the other in a residential drug and alcohol center and correctional facility) was interviewed separately at a church-based center for social services. The college student female group was interviewed at the Memphis and Shelby County Health Department training center. The homeless males were interviewed at the Union Mission for the Homeless. Participation was enhanced by conducting the interviews at a time and place convenient for participants. All discussions were conducted within the same week at different times during the day in a private conference room. An honorarium of $50 was given to each participant. Lunch was provided to the participants after each group session as an additional token of appreciation.

Four focus groups were conducted. At the completion of each session, audiotape recordings, transcripts, and facilitator notes were collected. An informal postfocus group debriefing was conducted among all four authors after each group session to obtain a general sense of the flow of the discussions and participants’ input. Content was analyzed within and between groups relative to the following perspectives: (1) to identify the diversity of responses
to each issue probed; (2) to evaluate the relevance of these responses for indicating respondents’ perceptions, attitudes, and opinions concerning syphilis and HIV/AIDS among African Americans; and (3) to identify possible similarities and/or differences in responses on a particular issue.

To interpret the data, the four authors each repeatedly read the transcripts to identify sentences, phrases, and concepts widespread among respondents; conducted a pertinent literature review; and subsequently discussed the content of the transcripts with one another. The analysis of a particular issue was considered complete when additional rereading and reflection failed to supply new information. Each author developed a preliminary list of major themes and categories; the final list was compiled after discussion among the authors. The authors agreed that the fundamental goals of the focus groups had been achieved.

Results

A sample of 36 low-income African Americans participated in the study. As shown in Table 1, 75 percent \((n = 27)\) of the participants were females, 75 percent \((n = 27)\) were unmarried, and 47.2 percent \((n = 17)\) were unemployed. Some 44.4 percent \((n = 16)\) were enrolled in managed care organizations (MCOs) (e.g., Access Med Plus and OMNI) as a source of reimbursement for medical care. While 2 (5.5 percent) of 36 participants who completed the background questionnaire indicated they had previously used public health
facilities in Memphis and Shelby County, 34 (94.5 percent) had not. Sixty-one percent \((n = 22)\) were single parents with children. The number of children by participants ranged from 1 to 7, with a mean of 2.7 children. Six major themes emerged from the content analysis: (1) lack of accurate information about HIV and syphilis relative to etiology, transmission, and susceptibility; (2) attitudes and beliefs about multiple sex partners; (3) HIV incidence in correctional facilities; (4) barriers to condom use; (5) barriers to HIV testing; and (6) approaches

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to the prevention of HIV/AIDS and syphilis. Each of the themes is discussed below.

**Lack of accurate information about HIV and syphilis.** A major theme related to a lack of accurate information concerning the etiology, modes of transmission, and susceptibility to HIV and syphilis (see Box 2). More alarming is the fact that almost none of the participants (including college students) expressed any basic knowledge about syphilis in terms of etiology, transmission, diagnosis, and treatment. One participant stated, “Untreated gonorrhea leads to syphilis.” Another said, “Prostitution, drug use, and lack of personal hygiene lead to syphilis.” The majority indicated they did not know what caused syphilis and expressed a desire for information on this issue.

The issue of trust of the federal government on HIV/AIDS was identified as a major concern. Respondents suggested that the government is not interested in making HIV/AIDS treatment trials available to ethnic minorities who are infected with HIV. All respondents expressed their mistrust of federal government on HIV/AIDS. One stated, “They do not report all cases.” Another remarked, “They don’t tell all about the causes and treatment of AIDS.” Some, however, do trust government information about HIV transmission and prevention.

**Attitudes and beliefs about multiple sex partners.** There was a general consensus among female respondents that men cannot be trusted with fidelity (see Box 3). About 50 percent of female participants indicated, “Multiple sex partners is a thing of the ’90s.” An important revelation by college students was the perception that college students constitute a high-risk population for the spread of HIV and other STDs. It was a consensus among this group based on their personal experiences that the college student population is at high risk for HIV/AIDS and syphilis. One stated, “College students don’t talk about safer sex, they talk about sex. They don’t practice safer sex. This is a major problem among college students.” Another indicated, “Since females are more likely to practice safer sex than males, they should take leadership in changing the popular beliefs about multiple sex partners.”

**HIV in correctional facilities.** As shown in Box 4, participants suggested that apathy, hopelessness, and drug abuse contribute strongly to HIV incidence in correctional facilities. In addition, it was pointed out that the lack of involvement by correctional facility officers in monitoring activities to prevent homosexual rape contributes to the spread of HIV and other STDs among inmates. Some remarked that inmates who are incarcerated long term legitimize homosexual behavior that promotes the spread of HIV among this population. A critical need for HIV testing and prevention education programs was underscored. One group member suggested, “Separate HIV-positive inmates from the rest of the inmates in order to prevent infections and spread.” It seems evident that respondents consider the spread of HIV among inmates an important public health problem.
Barriers to condom use. Comments by participants pointed to poverty and drug use as major barriers to condom use (see Box 5). Most low-income minorities could not afford to buy condoms because it was not considered a priority among the basic needs for health and well-being. They also indicated that males were less likely to use condoms than females because males believe that condoms inhibit “natural feelings” during sexual intercourse. One female participant stated, “Guys pay for sex without condoms.” Another remarked, “Drug use and addiction affects individuals’ state of mind and causes one to have sex without condoms.”

Fatalism in Delta culture (i.e., denial and depersonalization of the magnitude of a health problem) was also identified as a barrier to condom use. As used here, fatalism is the belief that death is inevitable when some potentially
deadly disease such as cancer and AIDS is diagnosed. Fatalism is believed to be associated with a complex psychological cycle characterized by perceptions of hopelessness, worthlessness, powerlessness, and social despair. Specifically, the development of fatalism is associated with poverty, lack of knowledge of disease process, fear of hospitals, and distrust of health care providers. Prevention practitioners and health behavior researchers have
suggested that fatalism may be a deterrent to participation in health-promoting behaviors.24,25

In considering the incidence of HIV and other STDs among African Americans living in poverty, it becomes evident that fatalism may help explain the lack of participation in preventive practices for HIV, syphilis, and other STDs among the target population. Denial of the consequences of unsafe sex, depersonalization of HIV/AIDS problems, and a sense of hopelessness independently and collectively may contribute to barriers toward preventing HIV and syphilis incidence among the target population. The discussants suggested that females could play a major role in initiating and sustaining the use of condoms during sexual activities. This proposition was supported by an emphatic statement by a female participant: “No condoms, no mama.”

**Barriers to HIV testing.** Participants affirmed the importance of HIV testing (see Box 5), some of the respondents had been tested, and those who had not been tested indicated a desire to do so. However, certain barriers to testing, including health workers’ negative attitudes and the cost of testing, were identified by the groups. Remarks by female participants underscored the negative attitudes of health workers who conduct these tests. One stated, “Health workers’ attitude is so bad it turns people off from getting tested.” Another remarked, “They assume that those who come forward for testing are poor, promiscuous, on welfare, and have many babies.” If a client tests negative for HIV, they say, “You are lucky this time.” The general opinion among participants is that public health workers who conduct HIV tests are not “customer friendly.” Respondents also pointed out that societal attitudes toward HIV testing deter people from testing. Specifically, they indicated that HIV testing is associated with promiscuity and therefore brings the client embarrassment and shame.

On the issue of testing for syphilis, participants responded that since they were not familiar with the etiology of syphilis or with tests for it, they did not feel knowledgeable enough to comment on barriers. However, they alluded to the likelihood that societal and provider attitudes toward persons infected with syphilis would also bring the client embarrassment and shame. It is well documented that the behavioral risk factors for syphilis are the same for HIV.6,7 While most syphilis cases are acquired through heterosexual transmission, recent community outbreaks have been reported among men who had sex with men. Many of these men were also infected with HIV.15

**Approaches to prevention.** The groups emphasized the development of comprehensive and community-based prevention education initiatives as critical in reversing the trend of HIV and syphilis incidence in Memphis and Shelby County (see Box 6). Suggestions for prevention included the following: (1) make prevention a community and family issue; get the faith community to work together on this issue. One participant stated, “Get the churches together, come together as a family and quit hiding it, talk about it.” (2) Show
the face of AIDS by using teenagers who have AIDS and who volunteer to provide testimonials about HIV/AIDS. (3) Observe and celebrate African American AIDS Awareness Day. Design colorful T-shirts to promote awareness and prevention, and encourage people to wear the T-shirts on African American AIDS Awareness Day by offering incentives: “Whoever wears his or her T-shirt gets something free.” (4) Distribute pamphlets containing information about syphilis and HIV at grocery stores and gas stations and during African American concerts. (5) Distribute condoms at various sites within the at-risk African American communities. (6) Use African American radio stations to disseminate accurate information about HIV and syphilis.

Participants emphasized the need for a heightened education about syphilis in both high schools and colleges. One college student remarked, “Be serious about educating people about syphilis. People, including myself, don’t know about syphilis.” The group of college student participants suggested that the level of awareness for syphilis should be raised to that of HIV/AIDS. The students underscored a critical need to observe AIDS Awareness Day on college campuses and to ensure active participation of the Black Students Association (BSA) as well as African American Greek organizations. They also suggested that free food and refreshments should be provided during these events. In addition, they affirmed that all sexually active persons, including school-age youth, should be encouraged to get tested for HIV.

Discussion

Focus groups, as a qualitative research method in social science research, have been widely used in the business community, particularly for marketing purposes. Although prevention practitioners are beginning to use focus groups as a means of data collection, program development, and evaluation, studies of focus groups with low-income African Americans on the issue of
HIV/AIDS have been limited in the scientific literature. Focus groups were employed in the present investigation to obtain information from low-income African Americans concerning the determinants of HIV and syphilis incidence in metropolitan Memphis and surrounding Shelby County, Tennessee. Findings from this investigation indicate that while some of the participants have basic knowledge about HIV/AIDS, a significant number of them did not have accurate information about its etiology or the magnitude of the problem. Particularly evident from the transcripts is a lack of knowledge about syphilis relative to its etiology, transmission, and the seriousness of the problem in the region. This may explain, in part, why high rates of syphilis are currently reported among some of the nation’s impoverished communities.

The syphilis epidemic in the United States currently affects some of the nation’s most disadvantaged, poverty-stricken communities, where good health is already compromised by drug addiction, lack of health insurance, and inadequate access to primary health care. The rate of HIV among this population continues to be disproportionately higher than the general population. A persistently high rate of syphilis and HIV/AIDS among African Americans living in poverty suggests a fundamental failure of the traditional, provider-centered public health approach to preventing infectious diseases. The present study strongly suggests that the prevention of infectious diseases, particularly syphilis and HIV, will require community-based partnerships. Assuming the views expressed in the focus groups are widespread in poor, urban, African American communities, a partnership that involves lay members of the community, public health workers, academic institutions, the faith community, health behavior researchers, and other prevention groups should be formed if syphilis is to be eliminated and the spread of HIV/AIDS is to be checked among this at-risk population.

The issue of trust of the federal government on HIV/AIDS was a concern among participants. While the majority of discussants in the focus groups were familiar with and supported prevention modalities, they believed that the government was untrustworthy on reporting HIV/AIDS cases (e.g., believing that cases are underreported) and on explaining disease etiology and transmission. Some respondents cited the Tuskegee Syphilis Study as the basis for the mistrust of the government on HIV/AIDS incidence. Others posited that the government is not interested in making HIV/AIDS treatment trials available to ethnic minorities who are infected with HIV. The general belief expressed is that the federal government is more interested in protecting the rights of the gay community to treatment trials for HIV infection than they are for ethnic minority populations. The trust factor is complex due to a lack of clear understanding of its dynamics. Nevertheless, it is an area of concern and should be systematically examined for the purpose of prevention education.

The attitudes of health workers toward clients are also a major concern. Specifically, discussants contend that public health workers who are charged with conducting HIV tests often assume that anyone who comes for testing is promiscuous, is on welfare, and has lots of babies. These attitudes deter
people from seeking preventive services for HIV and STDs. In light of this, it will be important to consider ways to improve public health workers’ interactions with clients, particularly for those charged with testing for HIV.

Perhaps the most intriguing finding from this investigation is the potential role of females in the target population toward preventing the spread of HIV, syphilis, and other STDs. Responses suggest that females are more likely to practice safer sex than their male counterparts. In fact, female participants advocate the use of condoms. Responses from male participants suggest that their decisions to use condoms were heavily influenced by their female sexual partners. If this supposition has merit, then prevention strategies should consider focusing on women as agents of prevention.

While the use of focus groups is a scientific method for obtaining information about the attitudes, beliefs, perceptions, and experiences of the target population, the data are nonquantifiable and thus may elude standard statistical analysis. Findings from this study may not be generalized to other African American populations since the purpose of focus groups is not to generalize research findings. Rather, they are used as the preliminary step to better understanding the dynamics of issues and problems in an effort to develop new program approaches. Focus groups provide an avenue for obtaining information from a high-risk, hard-to-reach ethnic minority population concerning critical health problems. The information gathered here is especially useful in modifying extant community-based health promotion interventions designed to mitigate the high rate of syphilis and HIV/AIDS among the at-risk population by involving community residents in establishing needs and developing relevant prevention intervention approaches.

**Conclusion**

Findings from this study have several implications for health promotion and disease prevention approaches. First, the study demonstrates the applicability of the focus group method for needs assessment with the poor and underserved, a population at high risk for syphilis and HIV/AIDS. Second, findings from the investigation are currently being considered by the local health department as the basis for planning a citywide health promotion campaign to eliminate syphilis and mitigate the incidence of HIV/AIDS among African Americans residing in Memphis and Shelby County. Finally, the results from this study are also being used to generate the involvement of stakeholders in the community (e.g., city government, community-based organizations, the local minor league baseball team, the faith community, academic institutions, and the media) in health promotion efforts toward eliminating syphilis and preventing the spread of HIV.

Participants were grateful that someone cared enough about the health problems in their community to allow them to participate in finding solutions. Based on the findings from this investigation, the following recommendations are presented.
• Develop and implement prevention approaches that are culturally relevant for African Americans (e.g., using colorful T-shirts, fliers, and brochures that have African American images).
• Establish and observe African American AIDS Awareness Day. Activities should include food and refreshments; distribution of condoms; dissemination of information about HIV, syphilis, and other STDs; and testing for HIV. Involve African American faith communities, CBOs, and African American Greek organizations on college campuses in prevention campaigns.
• Strive toward improving the attitudes of health workers who interact regularly with the poor and underserved, particularly concerning testing for HIV.
• Make condoms more readily available to the poor, college students, and those who are incarcerated. Promote the use of condoms for all sexually active persons, including youth.
• Make treatment trials for HIV available to the HIV-infected poor.
• Make concerted efforts to address prevention at college campuses.

In general, findings from this study point to a critical need for partnerships in developing and implementing comprehensive and community-based prevention programs for HIV, syphilis, and other STDs. Prevention practitioners must be encouraged to involve community residents in prevention efforts. A good initial step in this direction would be a community needs assessment in which segments of the targeted community are involved in determining the magnitude of the identified problems and developing strategies for intervention. Collaborations of this nature could have far-reaching public health implications by reducing the devastating public health consequences of syphilis and, more important, helping prevent the spread of HIV among the high-risk populations.

REFERENCES


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IMPACT OF A PERSONAL RESPONSE SYSTEM ON HOSPITAL USE BY LOW-INCOME AFRICAN AMERICAN AND WHITE ELDERS

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Abstract: In 1994, the American Red Cross initiated a subsidized personal response system program for low-income elders in the Detroit area to help these elders maintain their independence at home. Data were collected on 379 low-income, at-risk elderly clients from Detroit and surrounding Wayne County, Michigan. More than 80 percent of the sample were African American (n = 313), and the remainder were white (n = 66) elders. Statistically significant changes in number of emergency room visits only occurred among white subscribers, increasing on average by 1.4 annual visits. One year after the installation of the personal response system, white users were twice as likely as the African Americans to make an emergency room visit or to stay overnight in the hospital. Subsidized personal response system may be an appropriate third-party government-supported secondary intervention for home-based low-income and at-risk elders to prevent premature emergency room use, hospitalizations, and institutional placements.

Key words: Elders, minority health care, personal response systems, long-term care, length of stay, hospitalization.

The U.S. elderly population is growing rapidly. Older people (65 years and older) are expected to make up 20 percent of the entire U.S. population by year 2030.¹ The most dramatic increases are projected to occur between the years 2020 and 2050. By 2020, the proportion of elderly people who are among the oldest old (80 years and older) is projected to be 17 percent. Those figures will increase substantially once “baby boomers” start to become elderly in 2026.¹ Minority populations are projected to represent 25 percent of the elderly population in 2030 compared with 13 percent in 1990. Today, life expectancy is 76 years in the United States; it is expected to reach 83 years by 2050.¹

The vast majority of today’s elders are living healthier longer. However, a growing number of older people are living longer with multiple chronic ill-
nesses and disabilities. Their needs are putting increasing pressure on community-based social and health services nationwide. Although elderly Americans represented 12.6 percent of the population in 1987, Medicare accounted for 42 percent of acute care hospital admissions. The average length of stay (LOS) of elders 65 years and older, according to the annual National Hospital Discharge Survey of the United States, is 7.2 days for males and 7.5 days for females. The impact on hospitals serving increasing numbers of aging baby boomers will be significant, with a greater proportion of Medicare expenditures going to hospitals.

One type of technological assistance to help elders live independently and avoid premature and/or prolonged hospitalization is a personal response system (PRS), a supportive device distributed widely in Western Europe and North America. On average, subscribers to PRSs are charged an installation fee of $25 to $30 (U.S. currency) and a monthly fee of $35 to $40. In 1995, the four million PRS users in the United States and Canada were identified as mostly female and elderly. According to Sherwood and Morris, the benefits of PRSs for elderly users have included reduced anxiety about living alone and increased ability to live independently. PRSs can help elders get immediate assistance when a serious home-based accident or injury occurs, whereas delayed attention may result in an emergency room (ER) visit, hospital admission, prolonged hospital stay, premature institutionalization, or death.

Despite these well-established benefits, the cost of PRSs put them out of reach of most low-income elders, although this may be changing in some measure. Occasionally, private insurance companies pay for PRSs on a case-by-case basis, and in some cases, Area Agencies on Aging have made funds available for hospitals to purchase the equipment for indigent patients. Recent reviews of support for formal third-party coverage of PRSs suggest a growing trend to increase the inclusion of secondary services in the homes of frail adults, particularly the elderly.

Michigan, like many states, has stepped up its efforts to encourage the delivery of long-term care services in the home. The Michigan Waiver Program for the elderly and physically disabled is jointly administered by the Office of Services to the Aging (in the Department on Aging) and the Medicaid program. The most commonly delivered services under the waiver program are personal care, home-delivered meals, and PRSs. However, the rigorous screening process in Michigan prohibits or delays many indigent or near-indigent frail elders from qualifying for subsidized support for a PRS.

In 1988, responding to the health care needs of adults in their communities, the American Red Cross initiated a Lifeline emergency response service in five chapters across the country, including the Southeastern Michigan Chapter. Lifeline is the trade name of a personal response system invented in 1974 by Boston gerontologist Andrew Dibner. Lifeline served approximately four million users in the United States and Canada in 1992.

In 1994, responding to high demand and limited third-party coverage, the American Red Cross developed the Low-Income Lifeline Program to target
elderly subscribers who are both poor and frail to help them maintain an independent lifestyle at home. The chapter established collaborative relationships and sponsorships with a number of churches, municipalities, health care organizations, civic groups, and other nonprofit agencies willing to cover all or some of the costs for needy clients. Other sources of funding included grants and private donations. Prior to establishing outside funding, the chapter was only able to provide 29 subsidized units, a number that increased greatly after outside funding was secured.

Each PRS subscriber has a Lifeline home communicator connected to his or her telephone and a personal waterproof help button to wear as a bracelet or neck chain. When the button is pressed, the communicator sends a help-needed signal to the 24-hour monitoring center. Upon receiving this message, a trained staff member uses the communicator box in an effort to speak to the subscriber to find out what kind of assistance is needed. If the subscriber indicates that he or she needs help or is unable to respond, the staff member contacts the subscriber’s designated responder (usually a relative or neighbor who can come to his or her aid quickly). If the responder is not available, the local police or fire department is called to provide assistance. The responder must depress a flashing yellow reset bar on the communicator to let the monitoring center know that someone has come to the incapacitated person’s aid.

Numerous investigators of PRS technology report positive outcomes of its use, such as reductions in ER visits, reductions in the number of hospital admissions, and shortened average LOS. These findings are especially strong when PRS units have been placed in the homes of carefully screened individuals. Koch found that PRS users experienced a 26 percent reduction in LOS. A 1985 replication of Koch’s study conducted in four Boston hospitals showed that Lifeline technology brought about a 23.2 percent reduction in LOS and a 6.5 percent decrease in ER admissions. Cain’s 1987 study reported that Lifeline participation reduced LOS by 69.3 percent.

Studying the effectiveness of PRSs, Roush and colleagues achieved results similar to some of those of the present study. Analyses comparing hospital utilization before and after subscription to the PRS by 106 subjects in Canada (with a mean age of 78.6 years, 76.4 percent female) revealed no significant change in ER visits (0.58 vs. 0.72, p = 0.4) but a significant drop in the mean number of days of hospitalization (14.37 vs. 5.85, p = 0.01). Roush and Teasdale later replicated the Canadian study in the United States among community-based PRS users. During the 1-year follow-up period, both American and Canadian subscribers using the system experienced a statistically significant (p = 0.05) decrease in LOS, with a mean reduction of 6.5 days. No significant change in the number of ER visits occurred.

These impact studies were for the most part conducted on white, middle-class, or private pay subscribers, with none of the studies reviewed conducted on African American, low-income, or subsidized users of PRSs. African American elders tend to be in poorer health than white elders, and they and their caregivers tend to have fewer fiscal resources than their white...
counterparts, suggesting an increased need for PRSs, on one hand, and fewer resources to pay for it, on the other. Because these groups have their own needs and interests, programs and services often prove effective only when tailored to fit. Furthermore, given the growing number of urban elders who are poor but not Medicaid eligible, differences in hospital utilization rates among PRS users must be studied in a more purposeful way.

Method

For the present study, the sample consisted of everyone \((n = 379)\) who had subscribed to the low-income PRS program of the Southeastern Michigan Chapter of the American Red Cross for at least one full year between 1994 and 1997. A comparison group was subdivided along racial lines to include African American \((n = 313)\) and white \((n = 66)\) elderly subsidized PRS users. To ensure that clients identified to receive the Lifeline technology were both low income and at risk for becoming incapacitated due to home-bound accidents or premature institutionalization, the American Red Cross collaborated with a number of agencies that work with the elderly to establish appropriate selection criteria, resulting in the following list: age, health status, hospital use, social circumstances, ability to use the equipment, and financial status.

All of the 379 people enrolled since the program was launched have (or had) incomes below, at, or minimally above the poverty level. The poverty line, defined by the 1995 Department of Health and Human Services Poverty Guidelines, is $7,470 for a single person and $10,030 for a couple. No client had income greater than the threshold for Medicaid eligibility.

Selected clients were surveyed by American Red Cross staff and/or partner agency volunteers using a brief four-page quantitative questionnaire. Interviews were conducted in the home and self-reported or reported by an informal caregiver. During the initial visit, agency staff asked the client or the designated informal caregiver a number of questions to complete the baseline assessment form. If the client was accepted into the program, a follow-up assessment was made every 6 months, usually by telephone. Questions were asked to compare the effectiveness of the technology by demographic group, health status, activities of daily living (ADL) stabilization patterns, and formal health care utilization patterns. The latter two measures were collected at baseline and 1 year after PRS installation.

Demographic measures included race, age, gender, marital status, monthly income, and household expenses. Income included Social Security, Supplemental Security Income (SSI), disability payments, pension, family support, and savings. Household composition, living situation, and geographical place of residence were also assessed.

Multiple health problems were assessed by asking clients if they had been diagnosed with any of nine diseases or debilitating illnesses. These illnesses included cardiovascular disease (heart attack, stroke, hypertension, renal failure), a severe crippling or disabling disease (e.g., arthritis, Parkinson’s
disease, multiple sclerosis), diabetes, severe pulmonary problems (e.g., asthma, emphysema), a physical handicap (e.g., paralysis, cerebral palsy), cancer, blindness or significant loss of sight, deafness or significant hearing loss, and obesity.

ADL measurements to track clients' abilities to perform certain functions and to maintain an independent lifestyle were assessed by asking elders about local transportation, meal preparation, taking medications, bathing/showering, dressing and undressing, and getting in and out of bed. Clients were asked, for example, if they could travel using buses, taxi, or their own car and selected one of three possible responses: (1) unable to travel without special arrangements (e.g., ambulance), (2) with some help (e.g., traveling with a companion), and (3) without help (traveling alone).

Outcome measures included frequency of hospital admissions, total number of days hospitalized, and total number of ER visits for 1 year prior to the installation of the PRS and for 1 year following installation of the PRS. Two-tailed t-tests for independent samples were employed to measure and compare between-group differences by race stratified by designated hospital utilization variables. Two-tailed t-tests for paired samples were employed to test for statistically significant changes within racial groups.

Results

Descriptive analyses revealed that, regardless of race, this group of subscribers was very homogeneous with respect to several demographic variables (gender, age, income, and type of residence), health, and ADL stabilization patterns. Of the PRS users studied here, 82.6 percent were African American and 17.4 percent were white (see Table 1). As in other PRS studies, the majority were female (82.4 percent, \( n = 330 \)), very old (more than 25 percent among the oldest old, ranging in age from 85 to 99 years), and widowed. Marital status was statistically significant by race \(( p < 0.05)\), with more African Americans than whites being widowed. This finding is consistent with other studies showing premature deaths of African American men due to health problems associated with social, economic, and environmental conditions.\(^{23,26,28}\)

There were no significant differences within the sample in monthly income, although African American users were more likely than white users to have less than $500 monthly income. There were significant differences between the African Americans and whites studied in monthly expenses, with the African Americans being more likely than the whites to spend less than $500 per month (57.7 percent vs. 40.9 percent, \( p < 0.01 \)). Overall monthly expenses were just slightly below the level of subscribers' monthly income, for all subscribers studied.

Most of the PRS users lived alone in Detroit in single-family dwellings. In keeping with eldercare literature on extended-family makeup among African Americans,\(^{21,22,29-32}\) African Americans were significantly more likely than whites to have two or more persons living in the household \(( p < 0.01)\). In
keeping with the current racial makeup of most large U.S. cities and migration patterns to the suburbs, more than 91.3 percent of the African American PRS users lived in the city of Detroit compared with 66.7 percent of white users \((p < 0.001)\). Approximately half of the subscribers served by the program lived in single-family houses, while one-quarter lived in subsidized “senior” housing.
This reflects the fact that multiple single-family dwellings were built to showcase and meet the needs of a thriving and successful automobile industry in Detroit’s heyday as “Motor City”; Detroit boasts a greater proportion of single-family homes than any other city in the country.

Most of the clients receiving Lifeline services reported having multiple health problems (see Table 2). Consistent with other studies, heart disease was the most prevalent for both groups, with 80 percent reporting cardiovascular disease. More African American PRS users than white users reported that they had a crippling disease ($p < 0.05$), were diabetic ($p < 0.05$), or were blind ($p < 0.001$). In contrast, more whites than African Americans reported that they suffered from pulmonary illnesses ($p < 0.01$) and obesity ($p < 0.01$). There were no statistically significant differences between the races regarding cardiovascular disease, physical handicap, cancer, or deafness. The higher incidence of blindness among African American elders may be due to a higher rate of diabetes and possible delay in receiving treatment. The higher incidence of pulmonary disease among whites may be due to smoking. Findings from comparative studies indicate that African Americans are more likely to be in poorer health than whites.1,7,26,29,32

A comparison of elders’ self-report of ADL at both baseline and a follow-up assessment taken 1 year after installation of the PRS indicates favorable ADL stabilization patterns for both African Americans and whites (see Table 3), findings compatible with other studies.7,24,35,36 Mean scores indicate that while these elders are frail, since installation of the service, there was no significant decline in functional status or disability or level of independence. The vast majority were able to complete ADLs (traveling, meal preparation, taking medications, bathing/showering, dressing/undressing, getting in/out of bed) with some help, indicating that most of these frail elders were able to maintain an independent lifestyle at home. These findings are consistent with recent studies of disability among the elderly showing that 1.2 million fewer elderly Americans were disabled in 1994 than had been projected, trends that may be associated with increased levels of exercise and improvements in medicine, rehabilitation, and public health, as well as to the use of PRSs.

Within-group analyses of hospital use, including a pre- and a postassessment of the PRS, measured by admissions, mean number of annual ER visits, and LOS, revealed mixed results (see Table 4). Among African American users, ER visits stayed constant at 1.2 visits yearly, but among white users, there was a significant increase from 1 ER visit per year to 1.4 visits ($p < 0.01$). An increase in ER use is not consistent with most PRS studies.12,20 As expected, there were statistically significant declines in admissions and LOS for both groups: among African Americans, there was a 49 percent reduction in reported hospital admissions ($p < 0.001$) and 4.5 fewer days hospitalized ($p < 0.001$). Similarly, among whites, there was a 37 percent reduction in admissions ($p < 0.001$) and 3.6 fewer days hospitalized ($p < 0.01$). These declines are consistent with other PRS studies.5,12,20
Between-group differences exist on all hospital use variables measured 1 year after PRS installation (see Table 5). White users were twice as likely to make visits to the ER (p < 0.001), be admitted to the hospital (p < 0.001), and stay in the hospital longer (p < 0.001).

### Table 2

**SELF-REPORTED MORBIDITY FOR LOW-INCOME PERSONAL RESPONSE SYSTEM SUBSCRIBERS (IN PERCENTAGES)**

<table>
<thead>
<tr>
<th></th>
<th>Blacks (n = 313)</th>
<th>Whites (n = 66)</th>
<th>Significance (t-TEST)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular</td>
<td>80.8</td>
<td>80.3</td>
<td>ns</td>
</tr>
<tr>
<td>Crippling diseases</td>
<td>44.4</td>
<td>31.8</td>
<td>-1.48*</td>
</tr>
<tr>
<td>Diabetes</td>
<td>28.8</td>
<td>22.7</td>
<td>1.04*</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>20.4</td>
<td>30.3</td>
<td>-1.61**</td>
</tr>
<tr>
<td>Physical handicap</td>
<td>17.3</td>
<td>21.2</td>
<td>ns</td>
</tr>
<tr>
<td>Cancer</td>
<td>16.9</td>
<td>19.7</td>
<td>ns</td>
</tr>
<tr>
<td>Blindness</td>
<td>14.4</td>
<td>6.1</td>
<td>2.28***</td>
</tr>
<tr>
<td>Deafness</td>
<td>11.2</td>
<td>15.2</td>
<td>ns</td>
</tr>
<tr>
<td>Obesity</td>
<td>5.8</td>
<td>10.6</td>
<td>-1.20**</td>
</tr>
</tbody>
</table>

*p < 0.05. **p < 0.01. ***p < 0.001.

### Table 3

**ACTIVITIES OF DAILY LIVING (ADL): COMPARISON OF PRE– AND POST–PERSONAL RESPONSE SYSTEM INSTALLATION (MEAN)**

<table>
<thead>
<tr>
<th>ADL</th>
<th>Baseline Assessment</th>
<th>One Year After Installation</th>
<th>Significance (t-TEST)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blasts (n = 313)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel</td>
<td>1.89</td>
<td>1.90</td>
<td>ns</td>
</tr>
<tr>
<td>Meals</td>
<td>1.89</td>
<td>1.94</td>
<td>ns</td>
</tr>
<tr>
<td>Medications</td>
<td>2.29</td>
<td>2.14</td>
<td>ns</td>
</tr>
<tr>
<td>Bath/shower</td>
<td>2.00</td>
<td>2.23</td>
<td>ns</td>
</tr>
<tr>
<td>Dress/undress</td>
<td>2.22</td>
<td>2.13</td>
<td>ns</td>
</tr>
<tr>
<td>Get in/out of bed</td>
<td>2.32</td>
<td>2.17</td>
<td>ns</td>
</tr>
<tr>
<td>Whites (n = 66)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel</td>
<td>1.89</td>
<td>1.93</td>
<td>ns</td>
</tr>
<tr>
<td>Meals</td>
<td>1.95</td>
<td>1.97</td>
<td>ns</td>
</tr>
<tr>
<td>Medications</td>
<td>2.33</td>
<td>2.19</td>
<td>ns</td>
</tr>
<tr>
<td>Bath/shower</td>
<td>2.01</td>
<td>2.25</td>
<td>ns</td>
</tr>
<tr>
<td>Dress/undress</td>
<td>2.30</td>
<td>2.17</td>
<td>ns</td>
</tr>
<tr>
<td>Get in/out of bed</td>
<td>2.32</td>
<td>2.23</td>
<td>ns</td>
</tr>
</tbody>
</table>

Note: Mean values: 1 = unable to do without special arrangements; 2 = can do with some help; and 3 = can do without help.
This study shows that the greatest benefits to subsidized PRS users was a reduction in hospital use—specifically, a reduction in admissions and in the number of inpatient days. Emergency room visits by African Americans, which averaged one per year, remained constant while those by whites significantly increased from one to almost two and a half annually.

A variety factors may explain the increase in ER use by white elders, including race, gender, fear of asking for help, lack of social support, or lack of alternatives to emergency rooms for urgent care for the poor in southeastern Michigan. It is not known how patients in this sample were transported to the ER.

### TABLE 4
USE OF HOSPITAL SERVICE: WITHIN-GROUP PRE- AND POST-PERSONAL RESPONSE SYSTEM INSTALLATION COMPARISONS (MEAN)

<table>
<thead>
<tr>
<th></th>
<th>ONE YEAR BEFORE INSTALLATION</th>
<th>ONE YEAR AFTER INSTALLATION</th>
<th>t-VALUE FOR CHANGE (t-TESTS)*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Blacks</td>
<td>1.20</td>
<td>1.23</td>
</tr>
<tr>
<td></td>
<td>Whites</td>
<td>1.02</td>
<td>2.41</td>
</tr>
<tr>
<td>Emergency room visits (n)</td>
<td>Blacks</td>
<td>0.72</td>
<td>0.23</td>
</tr>
<tr>
<td>Admissions (n)</td>
<td>Whites</td>
<td>0.69</td>
<td>0.37</td>
</tr>
<tr>
<td>Overnight stays (n)</td>
<td>Blacks</td>
<td>6.02</td>
<td>1.24</td>
</tr>
<tr>
<td></td>
<td>Whites</td>
<td>6.04</td>
<td>2.42</td>
</tr>
</tbody>
</table>

*p < 0.05. **p < 0.01. ***p < 0.001.

### TABLE 5
USE OF HOSPITAL SERVICE: BETWEEN-GROUP COMPARISONS (MEAN)

<table>
<thead>
<tr>
<th></th>
<th>ONE YEAR AFTER INSTALLATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EMERGENCY ROOM VISITS (n)</td>
</tr>
<tr>
<td></td>
<td>Blacks</td>
</tr>
<tr>
<td></td>
<td>Whites</td>
</tr>
<tr>
<td>Significance: t-test</td>
<td>−1.2*</td>
</tr>
</tbody>
</table>

*p < 0.001.

### Discussion

This study shows that the greatest benefits to subsidized PRS users was a reduction in hospital use—specifically, a reduction in admissions and in the number of inpatient days. Emergency room visits by African Americans, which averaged one per year, remained constant while those by whites significantly increased from one to almost two and a half annually.

A variety factors may explain the increase in ER use by white elders, including race, gender, fear of asking for help, lack of social support, or lack of alternatives to emergency rooms for urgent care for the poor in southeastern Michigan. It is not known how patients in this sample were transported to the ER.
(ambulance or private transport) or how they paid for their visits. White elders in the metropolitan Detroit PRS sample had somewhat more disposable income, and this may have contributed to their making more ER visits. Alternatively, fear and isolation among some white elders may be associated with greater rates of ER use. Frail white elders, often widows, living alone in single-family homes may be part of a small minority of white residents in predominately African American neighborhoods. Some research suggests that ethnic and racial characteristics of neighborhood environments may influence the social ties of residents. For example, Thompson and Krause suggest that anticipated social support is lower among elders who live in deteriorated neighborhoods than among older adults who live in well-maintained neighborhoods, particularly among older adults who live alone. Other research suggests that white elders may be less likely to identify a neighbor as a PRS respondent because they fear becoming victimized by crime or because they do not know any neighbor well enough to ask.

The availability of family caregivers may be another key factor associated with increased number of visits to the ER. Specifically, white elders might have named as their respondent a family member who lives outside the city more frequently than African American elders did. Such a respondent is more likely to be delayed than someone who lives nearby and, furthermore, may be put off by urban conditions such as limited street parking, physical quality of structures, abandoned buildings, and fear of crime and, for one of these reasons, fail to respond promptly to calls for help from the elder, thus necessitating a visit to the ER.

While family and fictive kin (nonblood relatives such as neighbors) may have been able to attend to the needs of African American elders earlier than whites, another reason African American elders may have visited the ER less frequently is that a fear of not returning home caused African American elders and their families to avoid hospital visits whenever possible. Research by Gurley et al. has shown high rates of hospitalization with no return home among this population.

Although the findings of this study are intriguing, several limitations suggest that they should be interpreted with caution. Limiting the study to a single location minimizes generalizability of these results to comparable populations of urban, elderly PRS users. This may be particularly true because the location chosen was the Detroit metropolitan area, which has significant de facto racial segregation in housing and residence patterns. These concerns can be addressed by focusing future research on hospital use over time by a randomly selected matched sample of private pay and subsidized elders from a highly integrated urban community. Such a design might allow one to identify other sources of variation that might have predicted observed changes on the dependent variables (e.g., admissions, number of days hospitalized, ER visits). Other sources of variance that might have predicted changes in outcomes include such confounding variables as demographics (age, race, monthly income, and expenses), living arrangements, insurance status, health, frailty, 

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social support (primary and/or secondary caregivers, distance from elder, home health care), and level of isolation based on a sociability leisure scale (leisure activities such as TV watching, reading, crafts, telephone use, attendance at religious services, outside visits, and shopping). The question to be answered is, “What contributes to differences in admissions, ER visits, and LOS for African American and white elderly users of PRSs?”

The strength of the present study lies in the fact that the sample includes comparable groups of previously understudied, urban, low-income African American and white elderly PRS users. The African American and white subgroups are almost equally matched on demographics, health, functional status, and hospital use at baseline. Also, the analyses consisted of intergroup and intragroup comparisons. Intragroup comparisons are particularly important because there is substantial diversity within racial groups. The heterogeneity with regard to hospital use needs to be recognized and tested further. For both groups, although elders are frail, ADL measures indicate that there was no significant decline in functional status, indicating that these elders remained stable and independent at home after the installation of the PRS. While elders and their caregivers will simply celebrate this finding, formal health care providers and policy makers should take note of them as an indication that a secondary intervention such as a PRS is often successful in helping to maintain the independence of elders at home.

Economic constraint and denial of need are obstacles to PRS use. All elders are susceptible to becoming incapacitated in their homes, particularly the oldest old, who are more likely to have high rates of incapacitation, leading to premature institutionalization or death. The rate of such incidents increases dramatically with age. In 1996, people turning 65 could expect 12.2 additional years of full function and 5.3 years of dysfunction characterized by acute or chronic illness. Mittlemark and his colleagues reported that among elders with no ADL limitations, 34 percent of African Americans and 26 percent of whites reported having unmet needs for one or more formal community or home services. Thus, a comprehensive model for long-term care should consider the distribution of PRSs as an effective health promotion and primary prevention strategy for all elders.

Personal response system use would be more widespread if it were subsidized. The current method of payment for long-term care services for all elders regardless of health status is a barrier to primary preventive, restorative care, and health maintenance. Publicly funded health care programs rarely pay for personal response systems. Medicare does not cover them at all, and the criteria for coverage under the Medicaid Waiver Program by some states are often extremely restricted, promoting tertiary intervention at a time when frail elders are most vulnerable for costly hospitalization, institutionalization, or death.

Given the extraordinary cost of hospital and emergency care, it is extremely important that the use of PRSs is associated with elders’ ability to live independently. Because Medicare is primarily an acute care system, it has not
historically supported preventive geriatric care. Personal response systems are a long-term care service and should be part of any comprehensive long-term care effort. Until they are, third-party coverage under Medicaid is vital for elders living near, at, or below the poverty level.

In conclusion, the growth and acceptance of PRSs are being fueled both by changes in the population and the need to reduce health care costs. Because home care is preferred by individuals, personal response systems can benefit elders by helping them maintain their sense of security and independence in the community. At the macro level, PRSs may contribute to reduced acute-care hospitalization and attendant costs.

Acknowledgments

The author wishes to acknowledge the support of her late colleague and friend Lucille H. Davis, PhD, RN, FAAN, who read earlier drafts of this manuscript; Fay Flowers, RN, Director, Department of Health and Community Outreach, Southeastern Michigan, Chapter of the American Red Cross, 100 Mack Avenue, Detroit, MI; and Patricia Perryman, Lifeline Program Manager at the Southeastern Michigan Chapter of the American Red Cross.

REFERENCES

502  Impact of a Personal Response System


DR. McGADNEY-DOUGLASS is visiting scholar at the University of Ghana, Legon Campus, Accra, Ghana, West Africa. She completed the present paper while associate professor in the School of Social Work at Wayne State University in Detroit, Michigan.
EFFECTIVENESS OF REMINDER SYSTEMS ON APPOINTMENT ADHERENCE RATES

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YOLANDA CABRERA, BA
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Abstract: The aim of this study was to determine the impact of reminder systems on appointment nonadherence rates in a low-income inner-city clinic population. A total of 2,304 consenting patients were randomly assigned to one of three groups: (1) automated telephone reminder, (2) postcard reminder, or (3) no reminder. In contrast with research on other populations, the results of this study demonstrated no significant difference in appointment adherence rates among the three groups. To aid in the development of more effective interventions in the future, individuals not attending their scheduled appointments were interviewed by telephone to determine reason for nonadherence.

Key words: Ambulatory care, women’s health, appointment adherence, reminder systems.

Noncompliance with clinic appointments is a widespread problem well documented in the literature. The rate of no-shows in clinics is commonly 15 to 30 percent of all scheduled appointments.1 Women’s Ambulatory Health Service (WAHS) at Hartford Hospital provides health care for approximately 100 to 120 patients per day, 5 days a week, with three evening clinic sessions. The patients served by WAHS are members of a culturally diverse, low-income inner-city population. At WAHS, patients receive obstetrical, gynecological, preventative, and primary care services. Specialty services include urogynecology services, dysplasia care and follow-up, infertility counseling and treatments, and high-risk obstetrical care. The no-show rates for the general clinic population are 30 to 35 percent of scheduled
appointments. At the dysplasia specialty service, the rate has been as high as 50 percent.

The economic losses caused by no-shows can be estimated in terms of clinician time lost and revenues not collected. Clinician time lost due to no-shows is unrecoverable. Because of the unpredictable nature of appointment nonadherence, providers’ schedule gaps cannot be filled with other patients. Since no-shows tend to occur at spotty intervals, creating short periods of downtime, it is even difficult for providers to fill the time with administrative tasks. The loss of revenue from fees that would have been charged for services had patients kept their appointments affects clinic budgets significantly. Wasted consultant time in specialty clinics and clerical efforts directed toward follow-up for appointment nonadherence are also costly. Missed appointments also bring about gaps in preventative health care, risks to patient health due to the failure to fill prescriptions, and failure to follow through with diagnostic tests or treatments.

Bean and Talaga, reviewing the literature on factors that contribute to appointment noncompliance, report that (1) younger, less educated women of lower socioeconomic status, whose appointments are for preventative care, make up the largest group of no-shows; (2) race and marital status have not been significant predictors of noncompliance; (3) a history of missed appointments and psychological or substance abuse problems do appear to contribute to noncompliance; and (4) the absence of a general concern about health or a belief in the value of preventative care also coincide with a greater likelihood of noncompliance. Factors mentioned as possible causes of appointment noncompliance include long wait times for scheduling appointments, transportation and parking difficulties, the expectation of waiting too long at the clinic, and missing too much time from work.

Numerous methods other than reminder systems for increasing compliance have been attempted, including improving waiting time before and at appointments, making efforts toward improved parking or provide transportation assistance, using incentives, and offering parking passes lowered the no-show rate at one pediatric clinic and have met with limited success.

Reminder systems have met with a greater degree of success, and the literature reports some differences among types of reminder systems. Although both telephone and mail reminders have influenced appointment compliance rates positively, some studies have shown telephone reminders to be more effective and more acceptable to patients. Calculating the mean percentage of attended appointments from 10 studies, Bean and Talaga reported the rate of attended appointments with no reminders as 58.2 percent compared with 76.4 percent for phone reminders. Koren et al. did not find significant differences between telephone and mail reminders but did find that some reminder was more effective than none in ensuring compliance: adherence with phone reminders resulted in 82.1 percent of appointments kept, 81.1 percent with mailed reminders, and 74.1 percent with no reminders.
Most recently, the use of computerized, automated phone reminder systems has been described in the literature as a successful innovation for minimizing the rate of no-shows. Nonattendance rates at facilities using these systems were decreased by 4 to 50 percent compared with rates achieved with no reminders, and such systems have the added benefit of saving money associated with staff time and/or mailings. Since the computer can be programmed to call more than once and ask the patients to indicate whether they will keep their appointments (or need to reschedule) and to do so at hours when staff are not available, it demonstrates much more versatility than either the postcard reminder or staff call.

The present study was motivated by the needs of WAHS and by an important gap in the literature on appointment compliance. Neither the reasons for no-shows nor the effectiveness of reminder systems had been reported in the literature for a poor inner-city population at the time the study was undertaken. The authors agreed that an effective automatic telephone reminder system would have obvious benefits for WAHS: (1) increased efficiency, (2) cost benefits relative to mail or personal telephone reminder systems, (3) revenue from increased appointment compliance among fee-for-service patients, and (4) reduced use of the emergency department and inpatient hospitalization.

A mailer reminder system had been put in place at WAHS and other ambulatory services at Hartford Hospital shortly before the study was conducted, and it was felt that a comparison study of reminder methods was needed before any changes to this reminder system were considered. In addition, it was felt that such a study would provide a valuable opportunity to gather data on the reasons patients in the population served by WAHS often miss their appointments, enabling the authors to design specific interventions for those patients identified as being at high risk for missing appointments.

The central hypothesis of the study reported here was that there would be statistically significant differences between the appointment adherence rates among patients receiving any reminders (telephone or postcard) and those receiving no reminder. The secondary hypothesis (discussed below) was that there would be no significant difference in adherence rates between those receiving telephone reminders and those receiving mailer reminders. The study design also included follow-up phone calls to find out why appointments were missed.

**Method**

Patients due for an initial/annual gynecology visit, follow-up visit, or initial prenatal intake visit in the women’s health department over a period of 2 months were eligible for the study. Exclusion criteria were no access to a telephone and/or no mailing address. The three types of visits described above account for approximately 90 appointments per day. It was anticipated that approximately 3,600 appointments would be made during the 2-month study period. From a daily list (in medical record number sequence) of women
scheduling appointments, patients who verbally consented to participate in the study were randomly assigned to receive a phone reminder, mailed reminder, or no reminder (control group). Group assignment was unknown to those administering health care, and there was no difference in clinical care as a result of the study. The three groups consisted of (1) patients receiving an automated telephone reminder of their appointment the day prior to the actual appointment, (2) patients receiving a postcard reminder within 5 days prior to the actual appointment, and (3) patients receiving no reminder.

While much of the literature on show rates simply groups patients into those who show and those that do not show for their appointment,1,4,6,7 the present study tracks patients three ways: those who show, those who do not show, and those who call to cancel or postpone their appointments. However, it does not directly address individuals or providers who call to cancel or reschedule an appointment. A preliminary analysis found that more than 10 percent of visits are either canceled or rescheduled, and the authors determined it prudent to categorize these cases separately from those who kept or failed to keep appointments.

As it was not feasible to eliminate multiple appointments during the study, individuals who scheduled more than one appointment were identified in the analysis phase, and the sample was analyzed both in its entirety and by subsetting only the initial appointment scheduled by an individual. The final sample included 2,694 appointments. Of these, 1,515 were from patients who scheduled only one appointment during this period while the remaining appointments represented multiple visits ranging from two to five visits per person.

To address the secondary aim of the study, patients not showing for their appointments were contacted via telephone by a single, trained research assistant to inquire as to the reason for their no-show. A single open-ended question was posed to the individuals, and the responses were coded into predetermined categories (e.g., transportation, childcare, forgot, didn’t think needed to come) established by the authors. In addition, an “other” category was available so that responses that did not clearly fit into one of the predetermined categories would also be captured. Additional information collected from all patients included age, ethnicity, marital status, and type of visit (initial, annual, or follow-up).

The criterion for significance (alpha) was set at 0.05 (two-tailed). To determine whether the sample size was sufficient to test our hypothesis, power was calculated using historical Hartford Hospital data and data reported previously in the literature. Prior to implementing a postcard reminder system in August 1997, Hartford Hospital’s WAHS’s no-show rate was approximately 35 percent, compared with a no-show rate after implementation of approximately 25 percent. The existing literature has demonstrated no statistically significant differences in adherence rates between patients receiving a postcard compared with those receiving a telephone reminder.4 Therefore, in addition to our primary hypothesis regarding the effectiveness of reminders over
no reminders, we further hypothesized that the observed no-show and adherence rates for patients receiving postcard reminders would be equal to those patients receiving a telephone reminder.

Using these rates, an effect size, $w$, of 0.105 corresponding to a contingency coefficient of 0.104 and a Cramer’s phi coefficient (phi) of 0.105 were calculated. With the given effect size, a sample size of 1,140 would have a power of 90 percent to yield a statistically significant result using a $3 \times 2$ chi-square contingency test. Recalculating power assuming a $3 \times 3$ matrix to account for rescheduled appointments, it was possible to find as small an effect as 7 percent $w = 0.072$ and a Cramer’s phi coefficient of 0.051 and still have 83 percent power to confirm a statistically significant effect.

Our anticipated number of appointments (2,520) exceeded both sample size estimations. Additional data analysis of the sample was stratified by ethnicity, marital status, and type of visit to determine if any of these factors correlated with appointment compliance.

The secondary aim of exploring reasons why patients do not show for scheduled appointments was accomplished using descriptive statistics to examine the frequency of reasons for nonadherence.

Using the randomization procedures described above, three groups of patients—those receiving automated telephone reminders, those receiving mailer reminders, and the control group receiving no reminder—with approximately equal numbers of appointments associated with each group. After eliminating multiple appointments, those receiving automatic telephone reminders were slightly overrepresented, while the mail and control groups were almost equal in representation.

Demographic information was available on 1,986 to 1,988 individuals, of whom 65.7 percent were Hispanic, 18.8 percent black, 12.7 percent white, and 2.82 percent other; 74.4 percent were single, 12.5 percent were married, and 13.1 percent were divorced, widowed, or separated. The mean age of the group was 29.1 years, with a range of 14 to 81 years.

**Results**

Beginning with the complete set of randomized responses for the three response categories (no-show, show, and canceled/reschedule), show rates ranged from 49.9 percent in the control group to 52.1 percent in the mailer group. No-show rates ranged from a low of 34 percent in the mailer group to a high of 37 percent in the control group (see Table 1). The total appointment sample was compared with that for patients with multiple appointments during the study period. Eliminating the duplicate cases had virtually no effect on the outcome rates. Although the rates shifted downward, they sustained the same pattern between groups. Cramer’s V showed very little association (0.021-0.025) (see Table 2). In addition, the outcomes of show and no-show were modified to incorporate postsurvey corrections (among them, cases where patients logged as no-shows were subsequently determined actually to
have kept their appointments). Rerunning the analysis showed that eliminating the third category of cancel/reschedule did not affect the results. It should be noted that because the cancel/reschedule population represents a

### TABLE 1

**TEST OF COMPLETE SAMPLE WITH MULTIPLE APPOINTMENTS**  
(ENTIRE SAMPLE MULTIPLE CASES INCLUDED)

<table>
<thead>
<tr>
<th></th>
<th>CANCEL/ RESCHEDULE</th>
<th>NO SHOW</th>
<th>SHOW</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>129</td>
<td>320</td>
<td>463</td>
<td>912</td>
</tr>
<tr>
<td>Percentage</td>
<td>14.1</td>
<td>35.1</td>
<td>50.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Mailer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>125</td>
<td>305</td>
<td>468</td>
<td>898</td>
</tr>
<tr>
<td>Percentage</td>
<td>13.9</td>
<td>34.0</td>
<td>52.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>114</td>
<td>329</td>
<td>441</td>
<td>884</td>
</tr>
<tr>
<td>Percentage</td>
<td>12.9</td>
<td>37.2</td>
<td>49.9</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>368</td>
<td>954</td>
<td>1,372</td>
<td>2,694</td>
</tr>
<tr>
<td>Percentage</td>
<td>13.7</td>
<td>35.4</td>
<td>50.9</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### TABLE 2

**TEST OF SINGLE APPOINTMENT SAMPLE**  
(UNDUPLICATED SAMPLE)

<table>
<thead>
<tr>
<th></th>
<th>CANCEL/ RESCHEDULE</th>
<th>NO SHOW</th>
<th>SHOW</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>95</td>
<td>258</td>
<td>347</td>
<td>700</td>
</tr>
<tr>
<td>Percentage</td>
<td>13.6</td>
<td>36.9</td>
<td>49.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Mailer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>91</td>
<td>242</td>
<td>331</td>
<td>664</td>
</tr>
<tr>
<td>Percentage</td>
<td>13.7</td>
<td>36.4</td>
<td>49.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>80</td>
<td>268</td>
<td>322</td>
<td>670</td>
</tr>
<tr>
<td>Percentage</td>
<td>11.9</td>
<td>40.0</td>
<td>48.1</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>266</td>
<td>768</td>
<td>1,000</td>
<td>2,034</td>
</tr>
<tr>
<td>Percentage</td>
<td>13.1</td>
<td>37.8</td>
<td>49.2</td>
<td>100.0</td>
</tr>
</tbody>
</table>
substantial number of subjects, retention of the group is necessary to depict the population and the interventions studied accurately.

While neither ethnicity nor age showed any significant association with appointment adherence, there were statistically significant differences in compliance by marital status \( (p = 0.027) \). Women who were married showed the highest compliance rates (51.8 percent) followed by single women (48.4 percent). Compliance rates by divorced and separated women were the lowest (43.8 percent).

To investigate the reasons for missed appointments, a total of 530 phone interviews were compiled representing 504 individuals, 502 of whom were successfully interviewed. The respondents were roughly equally distributed among the types of reminders (with telephone reminders slightly overrepresented at 37 percent), reflecting the random assignment in the original sample. This subsample of patients was also demographically representative of the original group, with no significant differences in age, marital status, or ethnicity. The telephone interview of individuals who did not show for their appointments revealed some important information regarding reasons for appointment nonadherence. The most common reasons reported by study participants are summarized in Figure 1, with by far the largest proportion saying the cause of missing the appointment was forgetting it.

When these responses are aggregated into more general categories, two important themes emerge. Patients’ reasons for not attending included forgetting the appointment, not feeling the need to come, feeling that the visit would not help them, not understanding the reason for the appointment, or a lack of understanding related to language difficulties. If the group is divided into whether the patient received a reminder (mail or phone), and the same aggregated reasons for missing appointments are calculated, there is a difference in reported reasons between the group that received reminders and those who did not. Those without any reminder are more likely to report both that they did not know about the appointment and that they did not perceive its importance or did not understand its purpose (see Table 3).

Finally, reasons for no-show were analyzed by type of appointment (i.e., initial appointment vs. follow-up visit). While there were some differences between adherence rates for initial versus follow-up visit (e.g., more of the initial missed appointments were attributed to errors of memory, and more of the unmet follow-up appointments were explained as misunderstandings), none of these differences were statistically significant.

A number of women who were identified as no-shows provided unanticipated responses. When called by the interviewer to determine the reason for the no-show, they stated that they did show for their appointment. Out of the 502 women who were contacted, 28 (5.6 percent) stated that they did not miss their appointment. While some of these patients admitted being late and were indeed not seen, many merely stated the fact that they did not miss their appointment. To assess the impact of this potential miscalculation, the
FIGURE 1
TOP 10 REASONS FOR MISSING APPOINTMENTS

TABLE 3
REASONS FOR MISSED APPOINTMENTS BY TYPE OF REMINDER (REASONS FOR NO-SHOW COLLAPSED)

<table>
<thead>
<tr>
<th>GROUP COMBINED</th>
<th>NO REMINDER</th>
<th>MAILER OR PHONE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>COUNT</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>Misperception of appointment importance (didn’t understand)*</td>
<td>43</td>
<td>26.1</td>
</tr>
<tr>
<td>Forgot/didn’t know/thought was different day*</td>
<td>74</td>
<td>44.8</td>
</tr>
<tr>
<td>Total</td>
<td>165</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*p < 0.05.
previous analysis was rerun with corrected rates. The results of this analysis show no significant difference between those receiving the telephone reminder and either the postcard or the control group, a follow-up result consistent with the findings presented earlier in this paper.

Discussion

Managing a high-volume ambulatory service in an urban setting is an enormous challenge. Patient no-shows for appointments add an unpredictable element to the scheduling that adds exponentially to this challenge. In addition, no-shows may result in impediments to good health such as lack of prenatal care, untreated sexually transmitted diseases, and problematic Pap smears with no follow-up, conditions that are more difficult to track than appointment compliance. Although there was great hope that a telephone reminder system would have a positive impact on attendance at appointments, this study failed to show a significant difference between those receiving a telephone reminder and either the postcard or control group.

Limitations in study design and methodology were minimal. Accurate capture of no-show rates was within plus or minus 5 percent, and additional analysis conducted to determine the effect of a 5 percent error on significance still failed to show a difference. There was a concern that multiple appointments would affect the results if they occurred more frequently within one group, but further analysis showed that multiple appointments did not confound the results. Two issues we were not able to address analytically were the possibilities (1) that the message was never received by the individual with the appointment (because, e.g., another family member listened to the message or read the postcard and did not forward the information) and (2) that a response to the telephone reminder takes conditioning and might have been realized after several reminders as opposed to, in most cases, a single appointment reminder during the study period. These issues bear further investigation, particularly in view of the large proportion of respondents who said they missed their appointments because they forgot about it.

We would like to emphasize the importance of keeping track of rescheduled and cancelled appointments as such in studying appointment adherence rates. The overall rate of true no-shows (appointments neither kept, cancelled, nor rescheduled) in the present study was 35.4 percent (sample with multiple appointments) or 37.8 percent (single appointment sample), and this compares reasonably well with the mean 42 percent no-show rate reported in the literature. The overall rate of kept appointments in the present study was 50.9 percent (sample with multiple appointments) or 49.2 percent (single appointment sample), but this appears surprisingly low given the mean of 58 percent appointment compliance reported in the literature. Critically, previous reports do not make it clear whether compliance statistics include those who rescheduled or cancelled their appointments. In the present study, such cases
accounted for 13.7 percent (sample with multiple appointments) or 13.1 percent (single appointment sample) of the total. Adding these to the cases of kept appointments would result in a somewhat higher rate of appointment compliance in the present study than is reported as the mean from earlier studies.

Analyses based on demographic factors and appointment type failed to show that any particular demographic subgroup of patients would benefit from reminders more than others. However, the fact that married women were more likely to come for their scheduled appointments than either the single or the divorced or widowed women suggests that possible differences based on social support and family responsibilities should be explored further.

A finding that was not statistically significant but nevertheless bears mentioning was that no-show rates for follow-up visits were higher than no-show rates for initial or annual visits. This is understandable due to the crisis-oriented health care–seeking behaviors of our patient population. Another factor that may influence the higher no-show rate for follow-up visits is that for initial or annual examinations, it is often the patient who identifies the need for a visit, while the provider often identifies the need for follow-up care. Therefore, follow-up visits may not be as highly valued by the patient.

Women’s health clinic staff looked closely at the reasons patients gave for no-shows and identified the reasons over which staff might have some influence, including, most prominently, the following: no need to come, did not know about the visit, thought it was a different day, and day/time was inconvenient. These account for approximately 27 percent of the reasons given for no-shows. The staff then made recommendations for increasing appointment adherence, including the following: (1) all staff should be encouraged to educate patients as to the importance of follow-up visits and implications for patients’ health if they are not kept, (2) clerical staff should be reminded to consistently ask patients to choose a time for their visits that is convenient for them rather than assigning them a date and time without patient consultation, and (3) all patients should have their appointment date and time written on their appointment cards that they take home with them.

While the above strategies are likely to have some impact at the study site, they are not designed specifically to influence the large number of patients who forget their appointments. Furthermore, it should be noted that the reasons for appointment nonadherence might vary by geographic region or by the actual clinical service. For example, transportation may be a greater impediment to appointment adherence in rural areas than it is in an urban area such as Hartford. Strategies that target forgotten appointments more effectively than a single telephone or mailer reminder and strategies that target needs specific to particular areas or clinical services are still needed.
Conclusion

This study reinforces the fact that extreme caution must be taken when generalizing the results of research to demographically different populations. Results from other populations are often not generalizable to the poor and underserved. This may be even more apparent for issues that deal with access to, navigation of, and satisfaction with the health care delivery system.

Future endeavors include continuing to carefully track no-show rates and evaluating the reasons for the no-shows. Until successful strategies are designed and implemented, we will continue to overbook appointments to compensate for the high no-show rates. Overbooking will be monitored so that patient wait times will not result in a subsequent decrease in patient and provider satisfaction. Unfortunately, there is no simple solution for decreasing the no-show rates of our patients as the reasons for non-adherence are complex.

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