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Efficient Identification of Low-Income Asian American Women at High Risk for Hepatitis B

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Abstract

Hepatitis B disproportionately affects Asian Americans. Because outreach to promote testing and vaccination can be intensive and costly, we assessed the feasibility of an efficient strategy to identify Asian Americans at risk. Prior research with California's statewide toll-free phone service where low-income women call for free cancer screening found 50% of English- and Spanish-speaking callers were willing to participate in a study on health topics other than cancer screening. The current study ascertained whether Asian Americans could be recruited. Among 200 eligible callers, 50% agreed to take part (95% confidence interval 43%–57%), a rate comparable to our previous study. Subsequent qualitative interviews revealed that receptivity to recruitment was due to trust in the phone service and women's need for health services and information. This was a relatively low-intensity intervention in that, on average, only five minutes additional call time was required to identify women at risk and provide a brief educational message. Underserved women from diverse backgrounds may be reached in large numbers through existing communication channels.

Keywords

Outreach; mixed methods; cost; low income; hepatitis B; Asian; research participation

Recruitment of participants for clinical research and for prevention and early detection programs is always challenging. Recruitment from underserved communities can be even more daunting and costly, particularly given the common practice of mounting an entire program for a single disease or risk factor. This paper reports on research intended to contribute to the growing body of interventions that address the high rate of hepatitis B (HBV) infection and the excess burden of liver cancer among Asian Americans,¹ and to do so using an efficient and readily implementable means of recruitment. The primary impetus for this study was to explore the extent to which a single communication channel, California's statewide phone referral service for free breast and cervical cancer screening, can use its existing structure and processes to offer multiple health-promoting services to its target population, low-income women of diverse ethnicities. Known as the California Department of Health Care Service's Every Woman Counts (EWC), the program currently exemplifies the single-purpose approach. However, it can clearly do more since EWC has won the trust of thousands of low-income women of diverse ethnicities who know they can call, speak with someone in one of six languages, and receive valued free services. Importantly, we demonstrated in a prior pilot study that approximately 50% of English and Spanish-speaking EWC callers were willing to talk about an entirely new topic when asked to do so by an EWC Information Specialist (IS).²

Populations with limited English proficiency (LEP) have often been described as "hard to reach," but non-English-speaking monolingual women made up almost 32% of the 17,051 EWC callers in 2010, the year of our study. The combination of need, receptivity, and trust makes this population of EWC callers an ideal audience for a range of interventions that may be best delivered by such a familiar resource.

This hepatitis B study was conducted in the context of a randomized controlled trial designed to assess the effectiveness of a strategy to identify English and Spanish-speaking women at high risk for hereditary breast cancer among EWC callers and refer them to genetic counseling.³ Because our previous pilot did not include Asian-language callers to EWC (served *via* telephone interpretation service), we could not predict their level of receptivity or barriers that might be associated with the interpretation process. As a result, we conducted this feasibility study to determine if EWC could effectively and efficiently identify Asian American callers who might be at risk for HBV and offer them information on testing and vaccination.

Hepatitis B: A major risk for Asian Americans

Worldwide, 350 million people have chronic hepatitis B.⁴ There are approximately 1.25 to 2 million people living with chronic HBV in the U.S., the majority being Asian Americans and Pacific Islanders.^{4,5,6} While the prevalence in the U.S. population as a whole is less than 1%,⁷ among Asian Americans it ranges from 6.1% to 14.8%.⁸ Thus, HBV is an important health disparity affecting the fastest growing racial/ethnic group in the 2010 Census.⁹

Screening for hepatitis B is recommended for high-risk populations,⁴ particularly since approximately 65% of those infected are unaware of their status.¹ Recently, the Institute of Medicine (IOM) found that the main barriers to controlling HBV were lack of knowledge and awareness and insufficient support for prevention, control, and surveillance of the disease.¹ Numerous interventions have been developed and tested to address hepatitis B disparities among Asian Americans, including media campaigns,^{10,11,12} lay health worker outreach,^{13,14} community mobilization,¹⁵ and church-based interventions.¹⁶ However, no published research addresses the cost of outreach or efforts to maximize efficiency through less labor-intensive strategies. Furthermore, our review of published studies revealed only dedicated HBV outreach programs as opposed to those that built upon existing infrastructure.

Study purpose

The purpose of our study was to assess the feasibility and effort required for a strategy that takes advantage of an existing phone service to identify Asian American callers—including those of limited English proficiency (LEP)—who are at high risk for HBV. We developed a protocol to identify Asian American callers and to invite their participation in a conversation on HBV with an IS. With funding from the Centers for Disease Control and Prevention (CDC) and a state tobacco tax, the mission of EWC is to reduce deaths from breast and cervical cancer among low-income women by referring helpline callers to free screening and diagnostic services statewide. The phone service is used by thousands of low-income women annually. In 2010, 17,051 people called EWC; 29% of all calls were made in Spanish and approximately 3% (485) were in one of four Asian languages: Cantonese, Mandarin, Vietnamese, and Korean. Just under half of these were in Vietnamese. Race/ethnicity included 41% Hispanic, 33% White, 9% Asian, 6% African American, and 3% American Indian. Among the 10,881 women who were assessed for eligibility for free screening, 57% were classified as low-income.

This was a participatory study in that EWC, as the key stakeholder, was an equal partner in all decisions from development of the research question to design of the intervention and data collection methods. All parties were committed to the creation of an intervention that fit as seamlessly as possible into the daily operations of EWC to maximize relevance, minimize staff effort, and thus enhance prospects for sustainability.¹⁷ Study components were reviewed and approved by the institutional review boards of the University of California, San Francisco (UCSF) and Cancer Prevention Institute of California who administers EWC.

Methods

Our study was designed to assess feasibility by ascertaining the proportion of 200 eligible callers who would agree to participate. To understand more fully our quantitative outcomes, we used an explanatory sequential mixed methods design.^{18,19} In mixed methods taxonomy,¹⁹ this is designated as “qual → QUAN → qual” to indicate that qualitative methods (in-depth interviews) were employed at the outset to inform subsequent quantitative methods (survey questions) as well as the communication process and messages. Further in-depth interviews followed to elucidate the meaning of participation in the HBV intervention.

“QUAN” indicates the dominance of the quantitative component, the purpose of which was to answer our primary research question regarding proportion and characteristics of eligible Asian American callers who agreed to participate.¹⁹ Last, we report on the time that Information Specialists needed to implement the intervention in order to assist program planners who are interested in adoption of the intervention.²⁰ This report details the findings from the (a) quantitative, (b) post-feasibility study qualitative, and (c) effort-related components of the project.

Study population

Study participants were recruited among callers to EWC between 11/16/09 and 7/26/10. At the start of every call, Information Specialists collect demographic and contact information and enter it into a computer program. We adapted the program to identify eligible women using these criteria: age 18 or over; ethnicity (Chinese, Vietnamese, or Korean); language of call (Mandarin, Cantonese, Vietnamese, Korean, or English); and county of residence (10 California counties were chosen to include the largest Asian populations while also excluding areas where a concurrent hepatitis B study for Asian Americans was testing a mass media intervention).

Formative research

To inform the features of our intervention, we conducted a series of semi-structured interviews with current and previous EWC callers (six Chinese, four Korean, and seven Vietnamese, all in the women’s native languages) to assess potential callers’ receptivity to a request to participate in research on a topic unrelated to cancer screening, and to ascertain how to deliver counseling on hepatitis B in the context of EWC.

Our original plan, designed to minimize EWC IS time, called for identification of high-risk women by EWC and referral to a telephone counselor for HBV education. Through our formative research, we found that EWC is a trusted source of health information, and that participants are receptive to learning about health topics other than cancer screening from the EWC information specialist. However, we also found that respondents were not receptive to the idea of being called back by a telephone counselor for both logistical reasons and issues of trust. As a result, EWC specialists delivered brief basic HBV counseling. Brevity was required because i) the recruitment and counseling followed the EWC usual call service consisting of eligibility assessment and referral for cancer screening; ii) service to Asian language speakers is delivered via interpreters which could be cumbersome for counseling and excessively lengthen the calls; and iii) the phone specialists’ education level (typically high school graduates) precluded provision of more in-depth counseling.

Feasibility study

Our objective was to ascertain the proportion of willing study participants in 200 consecutive attempts to recruit eligible callers, and to characterize participants compared with non-participants. At the conclusion of usual breast and/or cervical screening service (regardless of the caller’s eligibility for the cancer screening), the IS invited each study-eligible woman to take part in the research. The IS obtained informed consent from willing

participants and then asked two questions, the first for use in describing the sample and the second for eligibility to receive the educational intervention: (1) In what country were you born? (2) Have you ever been tested for hepatitis B? If the caller answered *Yes* to the latter, she was thanked and informed she was not eligible. If she answered *No* or *I don't know*, the IS implemented the education protocol. We distilled basic concepts from current HBV communication research: that HBV is a virus, how it spreads, that Asians are at high risk yet largely unaware, HBV severity, and the efficacy of treatment.²¹ The IS offered to mail callers information on local free or low-cost HBV screening and vaccination.

Statistical methods

The proportion of callers who agreed to participate was computed along with its 95% confidence interval. In bivariate analyses, women who agreed to participate were compared with those who declined with respect to demographic characteristics (ethnicity, language, age, education, area of residence) and other caller characteristics potentially associated with willingness to participate (cancer screening request, eligibility for EWC services, prior call to EWC) using chi-square tests (Table 1). Next, multivariable logistic regression with backward elimination was used to determine the independent effects of these characteristics on agreement to participate; the fit of the final model *vs.* the full model was assessed using a residual chi-square test. Statistical significance was set at the .05 level (2-sided). All statistical analyses were performed with SAS software, version 9.3.²²

Qualitative interviews

After completion of the feasibility study, we conducted semi-structured telephone interviews with a subset of the 200 callers who participated in the study (n=22) to explore and explain the quantitative outcome of the feasibility study. Callers speaking English, Mandarin, Cantonese, or Vietnamese were eligible to participate in this phase. (Korean speakers were not included due to the small number recruited into the feasibility study overall.) Respondent selection began with those who had called EWC most recently until we reached our goal of 12, or (in the case of Vietnamese) until we were no longer able to reach additional callers. Interviews were conducted by trilingual/bicultural Chinese American (English, Mandarin, and Cantonese) and bilingual/bicultural Vietnamese American research associates. We sought insight into participants' decisions to take part and views of EWC services (if/how being asked to participate in research affected the caller's opinion of EWC); participation in health research (including the recruitment process and women's reasons for participating especially given that they had called EWC to obtain an unrelated service); and views on health-related telephone counseling. Two researchers (GJ, KN) coded the 22 interview transcripts using Atlas-ti qualitative data analysis software, and analyzed the data according to standard techniques for content analysis.^{23,24}

Effort analysis

The objective of the effort analysis was to provide researchers, program managers, and policymakers with information about the staff effort required to identify Asian American women at risk for hepatitis B and to deliver a brief educational intervention through an existing phone service. We enhanced the Information Specialists' standard Call Record

Form (CRF) software to capture the time required for this process. Our primary interest was the effort required when the intervention is implemented as an ongoing component of a service provider's program. Therefore, time devoted to research-related activities (e.g., staff interactions with the research team and administering informed consent to callers) was excluded from our analysis.

Results

Feasibility test

We completed the feasibility test of 200 attempts in less than five months. The overall rate of willingness to participate was 50% (95% confidence interval 43%–57%), similar to that for Spanish and English callers in our original pilot test² and in the Genetic Counseling component of the study.³ Of the 200 callers invited to participate, 77 spoke English; other languages spoken were Mandarin (41), Cantonese (21), Vietnamese (55), and Korean (6). Among the 100 callers who agreed to participate, 50 women said they had not been tested for hepatitis B or did not know if they had been tested; these women received the five-minute education protocol.

Caller characteristics

Variation in rate of participation was observed by ethnic subgroup: Vietnamese (59%), Chinese (47%), and Korean (25%, $p=.02$), as shown in Table 1. Only 28 of 77 (36%) English-speaking callers agreed to participate in the study, while 72 of 123 (59%) callers speaking Chinese, Vietnamese or Korean agreed ($p=0.002$). Callers were more likely to participate if they had less than a high school diploma, resided in Northern California, were calling to request screening, were eligible to receive EWC services, or had called EWC previously (Table 1). Significant associations between agreement to participate and ethnicity, language, and EWC eligibility remained in the final multivariable model ($p=.28$ vs. full model).

Qualitative interviews

The demographic characteristics of interview participants are shown in Table 2. We interviewed 17 women who received the five minute educational protocol and five who agreed to participate but had already been tested for hepatitis B and therefore were not eligible to receive the protocol. Interviews were conducted in English (6), Chinese (7), and Vietnamese (9). The subgroup that participated in qualitative interviews was more educated than the overall study sample (41% college graduates compared with 30% in the overall sample).

Through the qualitative interviews, we sought to understand *why* callers were willing to participate in our study, particularly since they called EWC for cancer screening. Despite the unexpected introduction of a new health topic and the fact that our intervention was part of a research study, participants were willing to take part for several reasons discussed under seven themes summarized below: (1) trust in EWC; (2) relevance of hepatitis B; (3) grateful for services; (4) opportunity to learn; (5) opportunity to help others; (6) additional EWC

service vs. participation in research; and (7) lack of health insurance/inadequate access to care.

Qualitative interview themes

Trust in EWC—Consistent with findings in our earlier study, callers perceived EWC as a reliable, trustworthy source for health services. Many participants had received cancer screening services through EWC previously, usually without any problems. They had a high degree of trust in the program.

Actually ... it's my second time calling EWC. I feel this is a good program because it provides services to women that are low-income or without insurance; and it is a gospel for these women. I personally think that since they provide interpreter services and solve your problems, I think they provide great services ... They are also very fast at mailing the materials pertaining to local clinics around your house for mammogram screening and Pap smear. Not only that, they even call me back after-wards to ask how the service went and if I have any questions ... with my two years of experience at EWC, I think they are reliable, I can trust them, and indeed they really provided the services. (CH02)

It's like they [EWC] care about you, ... they asked how I was and I was very glad, you know? (VT04)

Relevance of hepatitis B—Some participants were aware that hepatitis B is more prevalent among Asians. For this reason, they felt the intervention was relevant to them, they wanted to learn more, and thus they felt comfortable when the IS brought it up.

I know a lot of Asians, not every Asian, are carriers of hepatitis B. And myself, I am aware of that so I want to ... you know be part of the research group to find out why Asians have this kind of problem. (CH03)

I may not have [participated] had it not been hepatitis B because of the raised awareness of the disease. I felt that there are many Chinese who have this disease. I felt that you are doing the right thing. (CH07)

Several women stated that they were aware of hepatitis B through ethnic newspapers and television programs, likely the result of the outreach efforts by hepatitis B awareness public health campaigns aimed at Asian communities in California.

... sometime I read newspaper and I saw the advertisement talking about hepatitis disease. Therefore I'm also worry. Majority Asian have hepatitis B. Coming here from Vietnam, Asian people usually have this disease therefore it also concerns/worries me. I'm worried that one day if I get it then it'll be an issue. (VT05)

The intervention seemed to increase awareness about hepatitis B. One participant said she had not thought about hepatitis B before the call, but the call made her curious about the topic and might discuss it with her doctor at her next clinic visit:

I never thought of hepatitis. But maybe I should read up on it in my free time. Maybe I should look into it or when I go to the doctor the next time, maybe I

should ask and get it screened while I'm there.... When I go get my physical I would definitely look into it. (CH06)

Grateful for services—Many participants expressed genuine gratitude that someone was taking an interest in their health and that these services were available even in difficult economic times.

Really, I'm very moved because I don't have health insurance and don't have anything ... Truly I'm so grateful for this program. . . . it helps low-income people and gives them an opportunity to know their health status. flat is very valuable and very good. . . . flank you very much on behalf of all women who have had illness or no illness, wanting to say thank you to the program who's supporting us, thank you very much. (VT03)

Opportunity to learn—Some participants reported that they agreed to participate in the research study because they saw it as an opportunity for general learning about health (as distinct from learning specifically about Hepatitis B). One woman cited the opportunity to receive health information in her native language as a reason for participating.

Because our English is not good, so we are not able to learn many things. So through study, through our fellow countryman talking to us about this, it is good for us. It is a chance of education. (CH10)

Opportunity to help others—Some participants indicated a desire to “help the community” (some in general, some specified Asians), and believed that their participation in research would help build knowledge that could ultimately help others.

I think I have certain obligations to do it. I mean its part of human social responsibility to help each other basically. So if I just think if it doesn't cost me more than an hour, I will be very happy to contribute and give opinion and contribute my experience about how I feel and ... I just feel like I should do it. (CH08)

Additional EWC service vs. participation in research—Specialists at EWC administered a oral informed consent and described the research study. Nevertheless, the qualitative interviews revealed a misunderstanding among some callers who misinterpreted the provision of information over the phone about hepatitis B and the offer to send screening/vaccination information for follow-up as an additional service rather than as an invitation to participate in research.

... now I know State has another program that I didn't know before. (CH01)

I think it's pretty good because they didn't talk about hepatitis B the first time when I called last year, but they're offering it this year. (CH02)

When asked how they felt about being asked to participate in a study about hepatitis B or whether they were “bothered” by it even though they had called for breast or cervical cancer screening, most said they did not mind at all. Rather, the opportunity to obtain additional health services at no cost was perceived favorably.

I did not feel bothered because it was good for us to discuss the topic of hepatitis B prevention.... If there is a chance of free service for people who don't have Medicare, or are low-income, have no job, have no income, it is an act of care. (CH10)

Later in the interview, this participant (CH10) expressed concerns that the study might include medications; in that case, she said, she would not have agreed to participate.

As long as I don't have to participate in trial medication, then my mind is at ease. Then things are fine. (CH10)

Another woman was concerned that her participation could reveal additional health problems that would further burden her, given her limited access to care.

I am afraid that I might find out other problems after participation, then I would not know how to handle it. (CH09)

We also asked participants what they think of when they hear "research study" and found that some participants had positive perceptions.

I feel that your work as an interviewer is for the purpose of our good health. (CH10)

When I hear the word research I don't feel afraid or worry ... because nowadays all the doctors, all the scientists, they are doing the research. I need to know more and learn more. It doesn't hurt. (VT05)

Lack of health insurance/inadequate access to care—It is not surprising given the nature of the EWC service that lack of health insurance emerged as an important underlying reason for interest in the hepatitis B intervention, and for willingness to participate in our study. Many emphasized their lack of health insurance and the limited access to care that resulted.

First I didn't have health insurance ... and I am getting old. I'm really scared of getting the illness which is considered chronic illness, because first my income is very low. My family is very poor ... and if I have this illness without knowing it and having it for a long time, then it'll be very miserable ... (VT03)

Even among EWC callers who had insurance, high deductibles often made care unaffordable. Some mentioned that they were "waiting" to become eligible for Medicare while others said that they were low-income but had too much income to qualify for MediCal (California's Medicaid program). Participants perceived the study as a source of health information and/or services that, without insurance, were unattainable.

Back then I had something almost like cervical cancer. I had to check every year, so near the annual time I had to check, suddenly my husband's company was closed. So I lost the insurance. I was concerned that I didn't have a place to get the exam. Suddenly my best friend knew about it and introduced me to this Every Woman something, "Uh, call that place, so you don't pay." I don't have MediCal. So I called the place and I was very happy the day they approved me, very happy. So I was able to get the Pap exam done. (VT04)

The most common reason participants cited for not having had hepatitis B screening was lack of insurance or inadequate insurance.

I wanted to [get screened] but in the past two years I don't have health insurance. flat's why I cannot do anything. (VT09)

In fact, for some participants, the referral information we sent was not useful because the services were not free. (In counties where no free services were available, we sent information on low-cost screening and vaccination).

When I received that letter I thought it's free ... first of all it is too far. Secondly, there is a cost to it; therefore I have declined. (VT06)

Effort analysis

Calls were answered by six Information Specialists. Table 3 shows time spent with callers in English and translated calls for both total time (including informed consent) and intervention only (excluding informed consent). The latter was calculated for use by service providers who are interested in replicating this intervention. We eliminated research time (primarily time spent administering informed consent) by estimating the average informed consent time based on non-participant call duration since those callers received only the informed consent. This was subtracted from time spent with callers who agreed to participate. More time was required for translated compared to English calls. According to EWC data for 2012, usual service call duration averaged 9.5 minutes for English language calls and 18.2 minutes for Asian language translated calls. The hepatitis B intervention added 3.75 minutes (35%) to English calls and 6.40 minutes (39%) to those that were translated.

Discussion

We used mixed methods (qual → QUAN → qual) to assess the feasibility and effort of a strategy to identify low-income Asian American women at risk for hepatitis B among callers seeking referrals to free breast and cervical cancer screening through a statewide toll-free phone line. Our formative research indicated that we should deliver the HBV counseling intervention during the EWC call, rather than through a follow-up phone call by non-EWC staff. We sought to determine if the introduction of an unexpected health topic to the call would deter Asian women from participating in our study. The quantitative results indicated that the rate of willingness to take part in research or discuss an issue different from a woman's reason for the call was no different for Asian American women speaking Mandarin, Cantonese, Vietnamese, and English than it was for the English and Spanish speakers who took part in our prior research.² This was the case despite the additional complication of communication *via* interpreters for the non-English speakers who agreed to participate at an even higher rate than the English-speakers. Chinese, Vietnamese, or Korean speakers agreed at a rate of 59% compared with 36% of those who spoke English. Participation rates also varied by ethnicity, with Koreans significantly less likely to participate than Vietnamese and Chinese (Vietnamese: 59%, Chinese: 47%, and Korean: 25%; $p=.02$). We also found that callers were more likely to participate if they had less than a high school diploma. This is notable since those of low income and education and/or limited English proficiency can be the most challenging to reach for risk assessment and

intervention. The fact that these individuals were more responsive than their better-educated and English-fluent counterparts underscores the value of EWC as a recruitment channel.

It should be noted though that education and language limitations may have contributed to a poor understanding of our research consent process, as indicated by the qualitative explanatory interviews that followed the feasibility study. Many qualitative interview participants perceived the information as an additional service and were not particularly focused on or concerned by the research aspect of the intervention. Yet, it may also be the case that some participants did not adequately understand the informed consent process even though the script stated an invitation to participate in a research study and did not offer a new service. The misinterpretation of the study invitation in this way is likely due to the lack of prior experience with health research; the perception of research as involving medical care or drugs rather than information, and lack of health insurance coupled with an overwhelming need for services. It is also possible that there was miscommunication caused by the utilization of the telephone interpreters who are not trained in research (although we did provide a translation of our script for the interpreters to use). To address this in future research, more information and sensitivity training may be required for interpreters. It is also the case that the poor recall of the consent process reflected in the qualitative interviews may have been compromised by the length of time that had passed since the EWC calls (mean number of days = 17.9).

The qualitative explanatory interviews also showed that women who agreed to participate in our study did so as a result of their trust in the EWC program, and their perceived need for both health services and health information. We suspect that an even higher rate of acceptance could be achieved in the absence of the research consent process.

The effort analysis suggests that the addition to EWC of a new service that identifies high-risk Asian American callers and delivers a brief counseling protocol is feasible and requires little additional effort.

Limitations

This study has several limitations. Foremost among them is that, as indicated by findings from the qualitative interviews, our informed consent process for the research appears to lack sufficient clarity for all callers to fully understand that they were agreeing to participate in a research study. The perception of the research as just another service was understandable in the context of the EWC call. In addition, the fact that callers with less education and who were LEP were more likely to participate may have contributed to a poor understanding of our research consent process. In any future research, we must ensure that informed consent is adequately understood by potential research volunteers by making this the focus of more intensive formative research that identifies specific sources of confusion and tests a variety of messages.

A second limitation is that participants in the qualitative interviews commonly experienced confusion about hepatitis B causes and risks that have been reported by others.^{25,26} A more in-depth counseling intervention might have addressed this issue; however, based on the findings of our formative research we opted for the brief counseling provided by EWC

specialists. Nevertheless, the goal of our study was feasibility of recruitment as distinct from effectiveness of an intervention.

Another limitation is that there are not enough low-cost or free HBV services throughout the state. Prior to beginning recruitment, we identified free and/or low-cost hepatitis B screening and vaccination services in the ten recruitment counties. However, these were not always easily accessible to callers.

A limitation of the qualitative interviews was that the length of time from initial contact by EWC until the qualitative interview was quite long for some participants, potentially compromising recall. The delay was due to completion of the feasibility study more quickly than we had anticipated, leaving less time to find and hire appropriate interviewers.

Despite these limitations, it is clear that EWC provides a feasible means of reaching low-income Asian American women of diverse ethnicities throughout the state who are concerned about their health. While women who call EWC for cancer screening may be regarded as a select group already interested in and knowledgeable regarding healthy practices, the association between low socioeconomic status (SES), adverse health behaviors, and poor health outcomes is well documented, with lack of knowledge being only one of many contributing factors. Given the relative ease of accessing this audience, it appears that enhancement of services such as EWC can be a unique and useful new public health strategy for reducing health disparities.

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Notes

1. Institute of Medicine. Hepatitis and liver cancer: a national strategy for prevention and control of hepatitis B and C. Washington, DC: The National Academies Press; 2010.
2. Joseph G, Kaplan CP, Pasick RJ. Recruiting low-income healthy women to research: an exploratory study. *Ethn Health*. 2007 Nov; 12(5):497–519. [PubMed: 17978946]
3. Joseph G, Kaplan C, Luce J, et al. Efficient identification and referral of low-income women at high risk for hereditary breast cancer: a practice based approach. *Public Health Genomics*. 2012; 15(3–4):172–80. Epub 2012 Apr 4. [PubMed: 22488460]
4. Lok AS, McMahon BJ. Chronic Hepatitis B: update 2009. *Hepatology*. 2009 Sep; 50(3):661–2. [PubMed: 19714720]
5. Mast EE, Weinbaum CM, Fiore AE, et al. A comprehensive immunization strategy to eliminate transmission of Hepatitis B virus infection in the United States: recommendations of the Advisory Committee on Immunization Practices (ACIP) Part II: immunization of adults. *MMWR Recomm Rep*. 2006 Dec 8; 55(RR-16):1–33. [PubMed: 17159833]
6. Kowdley KV, Wang CC, Welch S, et al. Prevalence of chronic hepatitis B among foreign-born persons living in the United States by country of origin. *Hepatology*. 2012; 56(2):422–33. [PubMed: 22105832]
7. Centers for Disease Control and Prevention. Hepatitis B virus: a comprehensive strategy for eliminating transmission in the United States through universal childhood vaccination: recommendations of the Immunization Practices Advisory Committee (ACIP). *MMWR Recomm Rep*. 1991 Nov; 40(RR-13):1–19.

8. Hu KQ. Hepatitis B virus (HBV) infection in Asian and Pacific Islander Americans (APIAs): how can we do better for this special population? *Am J Gastroenterology*. 2008 Jul; 103(7):1824–13.
9. U.S. Census Bureau. Overview of race and hispanic origin: 2010. Washington, DC: U.S. Department of Commerce; 2011.
10. McPhee SJ, Nguyen T, Euler GL, et al. Successful promotion of Hepatitis B vaccinations among Vietnamese-American children ages 3 to 18: results of a controlled trial. *Pediatrics*. 2003 Jun; 111(6 Pt 1):1278–88. [PubMed: 12777542]
11. Chao SD, Chang ET, Le PV, et al. The Jade Ribbon Campaign: a model program for community outreach and education to prevent liver cancer in Asian Americans. *J Immigr Minor Health*. 2009 Aug; 11(4):281–90. [PubMed: 17990118]
12. Nguyen TT, McPhee SJ, Stewart S, et al. Factors associated with Hepatitis B testing among Vietnamese Americans. *J Gen Intern Med*. 2010 Jul; 25(7):694–700. [PubMed: 20306150]
13. Taylor VM, Teh C, Lam W, et al. Evaluation of a Hepatitis B educational ESL curriculum for Chinese immigrants. *Can J Public Health*. 2009 Nov-Dec;100(6):463–6. [PubMed: 20209742]
14. Bastani R, Glenn BA, Taylor VM, et al. Integrating theory into community interventions to reduce liver cancer disparities: the health behavior framework. *Prev Med*. 2010 Jan-Feb;50(1–2):63–7. [PubMed: 19716379]
15. Bailey MB, Shiao R, Zola J, et al. San Francisco Hepatitis B free: a grassroots community coalition to prevent Hepatitis B and liver cancer. *J Community Health*. 2011 Aug; 36(4):538–51. [PubMed: 21125320]
16. Hsu CE, Liu LC, Juon HS, et al. Reducing liver cancer disparities: a community-based Hepatitis-B prevention program for Asian-American communities. *J Natl Med Assoc*. 2007 Aug; 99(8):900–7. [PubMed: 17722668]
17. Green LW, Glasgow RE, Atkins D, Stange K. Making evidence from research more relevant, useful, and actionable in policy, program planning, and practice slips “twixt cup and lip”. *Am J Prev Med*. 2009 Dec; 37(6 Suppl 1):S187–91. [PubMed: 19896017]
18. Palinkas LA, Aarons GA, Horwitz S, et al. Mixed method designs in implementation research. *Adm policy mental health*. 2011 Jan; 38(1):44–53.
19. Morse JM. Approaches to qualitative–quantitative methodological triangulation. *Nursing Research*. 1991 Mar-Apr;40(2):120–3. [PubMed: 2003072]
20. Ritzwoller DP, Sukhanova A, Gaglio B, et al. Costing behavioral interventions: a practical guide to enhance translation. *Ann Behav Med*. 2009 Apr; 37(2):218–27. Epub 2009 Mar 17. [PubMed: 19291342]
21. Bastani R, Glenn BA, Taylor VM, et al. Integrating theory into community interventions to reduce liver cancer disparities: The Health Behavior Framework. *Prev Med*. 2010 Jan-Feb;50(1–2):63–7. Epub 2009 Aug 27. [PubMed: 19716379]
22. SAS Institute Inc. SAS version 9.3 of the SAS System for Microsoft Windows. Cary, NC: SAS Institute Inc; 2000–2004.
23. Crabtree, B.; Miller, W. *Doing qualitative research*. Thousand Oaks, CA: Sage Publications; 1999.
24. Berg, BL. *Qualitative research methods for the social sciences*. Boston, MA: Allyn and Bacon; 1995.
25. Choe JH, Chan N, Do HH, et al. Hepatitis B and liver cancer beliefs among Korean immigrants in Western Washington. *Cancer*. 2005 Dec 15; 104(12 Suppl):2955–8. [PubMed: 16276533]
26. Burke NJ, Do HH, Talbot J, et al. Chumnguh thleum: understanding liver illness and hepatitis B among Cambodian immigrants. *J Community Health*. 2011 Feb.36(1):27. [PubMed: 20496000]

Table 1
AGREEMENT TO PARTICIPATE IN HEPATITIS B STUDY VS. CALLER CHARACTERISTICS

	Total (n)	Agree (%)	Bivariate p-value ^a	Odds Ratio ^b	95% Confidence Interval ^b
Total	200	50			
Ethnicity			.0197		
Chinese	93	47		0.75	(0.40, 1.43)
Korean	20	25		0.26	(0.08, 0.85)
Vietnamese	87	59		1.00	
Age (years)			.7230		
20–39	33	45			
40–49	68	47			
50–59	73	55			
60–79	24	54			
Language of EWC call			.0023		
English	77	36		0.46	(0.24, 0.86)
Non-English	123	59		1.00	
Education			.0069		
College graduate	61	46			
Some college	35	40			
High school graduate	70	47			
Less than high school graduate	32	78			
Area of residence			.0047		
Northern California	102	60			
Southern California	98	40			
Cancer screening request			.0013		
None	30	23			
Both breast and cervical	42	62			
Cervical only	27	70			
Breast only	101	48			
Eligible for EWC services			<.0001	3.45	(1.86, 6.42)
Yes	91	67			

	Total (n)	Agree (%)	Bivariate p-value ^a	Odds Ratio ^b	95% Confidence Interval ^b
No/NA	109	36		1.00	
Prior call to EWC					
Yes	57	61	.0417	—	—
No/Don't know	143	45			

^a Chi-square tests.

^b From multivariable logistic regression model (n=197) including ethnicity, language, and eligibility for EWC services.

EWC=Every Woman Counts

Table 2**QUALITATIVE INTERVIEW PARTICIPANT DEMOGRAPHICS**

	Total	12 Chinese	10 Vietnamese
Age (years): mean	52.7	53.4	51.8
Language			
English	6 (27%)	5 (42%)	1 (10%)
Mandarin	5 (23%)	5 (42%)	0
Cantonese	2 (9%)	2 (17%)	0
Vietnamese	9 (41%)	0	9 (90%)
Education			
College graduate	9 (41%)	8 (67%)	1 (10%)
Some college	2 (9%)	2 (17%)	0
High school graduate	8 (36%)	2 (17%)	6 (60%)
Some high school	0	0	0
Grade school	3 (14%)	0	3 (30%)
Mean # days from EWC call to interview	17.9	24.8	9.7
Tested Hep B			
No	12 (55%)	6 (50%)	6 (60%)
Yes	5 (23%)	3 (25%)	2 (20%)
Don't know	5 (23%)	3 (25%)	2 (20%)

Table 3
NUMBER OF CALLERS AND DURATION OF CALLS IN MINUTES BY LANGUAGE (PARTICIPANTS AND NON-PARTICIPANTS)

	English Calls			Translated Calls			Total All Calls
	Agreed to Participate	Did Not Agree	All English Calls	Agreed to Participate	Did Not Agree	All Translated Calls	
Number of callers	28	49	77	72	51	123	200
Total time in minutes	141.45	64.23	205.68	707.58	174.73	882.32	1088.0
Average minutes and seconds (range)	5:03 (1:12–10:01)	1:19 (0:06–7:51)	2:40 (0:06–10:01)	9:50 (0:04–42:42)	3:26 (0:02–12:13)	7:10 (0:02–42:42)	5:26 (0:02–42:42)
Intervention time in minutes (excluding informed consent)	104.75			460.62			565.37 ^a
Intervention time per caller in minutes	3.75			6.40			5.65 ^a

^aFor 100 intervention participants.