



Breaking down barriers for hepatitis B screening in the Bronx West African community through education in collaboration with faith-based organizations: A cohort study

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Summary

Background Many residents of the Bronx are from West Africa where chronic hepatitis B is endemic. Hepatitis B screening is low in West African immigrant communities due to multiple possible cultural and socioeconomic factors.

Methods A culturally sensitive educational program on hepatitis B with a special emphasis on the relevance for the West African community was developed. Arrangements were made with leaders of West African faith-based organizations to conduct educational programs following religious services after which a survey was completed to assess changes in attitudes towards the infection and motivation for testing. Arrangements were then made for serologic testing at which time hypertension screening was also performed.

Findings Nine events in which a total of 550 people attended were held. Among the 339 (61.6%) participants who completed the questionnaire, 325 of the participants (95.1%) reported improved understanding, and 236 (67.0%) indicated greater comfort in sharing a meal and talking with an infected individual. Two hundred seventy-four participants (82.7%) indicated an intention to undergo testing, and 339 (97.8%) indicated that they would encourage family and friends to undergo screening. Three hundred thirty-two of the 550 participants (60.3%) requested serologic testing. Among those requesting testing, 224 (67.5%) underwent testing.

Interpretation A culturally sensitive educational program in collaboration with faith-based organizations is effective in motivating people from West Africa to undergo screening for hepatitis B at which time other preventative health care measures such as hypertension screening can be performed.

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Bayan XXX.

fage Yawancin mazauna Bronx sun fito ne daga Yammacin Afirka inda cutar hepatitis B ke ci gaba da yaduwa. Binciken hepatitis B yana da karanci a cikin al'ummomin baki na Yammacin Afirka saboda yuwuwar abubuwan al'adu da na tattalin arziki.

Hanyoyi An haɓaka wani shirin ilmantarwa na al'adu kan cutar hepatitis B tare da ba da fifiko na musamman ga dacewa ga al'ummar Yammacin Afirka. An yi shiri tare da shugabannin kungiyoyin addinan Afirka ta Yamma don gudanar da shirye-shiryen ilimi bayan ayyukan addini bayan haka aka kammala bincike don tantance halaye game da kamuwa da cutar da himma don gwaji. Sannan an yi shirye-shirye don gwajin serologic wanda a lokacin ne kuma aka yi gwajin hawan jini.

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Editor note: This translation in Hausa was submitted by the authors and we reproduce it as supplied. It has not been peer reviewed. Our editorial processes have only been applied to the original abstract in English, which should serve as reference for this manuscript."

Sakamakon An gudanar da abubuwa tara wanda jimlar mutane 550 suka halarta. Daga cikin mahalarta 339 (61.6%) da suka kammala tambayoyin, 325 daga cikin mahalarta (95.1%) sun ba da rahoton ingantacciyar fahimta, kuma 236 (67.0%) sun nuna karin ta'aziyya wajen raba abinci da yin magana da mai cutar.

Mahalarta dari biyu da saba'in da huɗu (82.7%) sun nuna niyyar yin gwaji, kuma 339 (97.8%) sun nuna cewa za su karfafa dangi da abokai don yin gwajin. Dari uku da talatin da biyu daga cikin mahalarta 550 (60.3%) sun bukaci gwajin serologic. Daga cikin wadanda ke neman gwaji, 224 (67.5%) sun yi gwaji.

Fassara shirin ilmantarwa mai mahimmanci na al'adu tare da haɗin gwiwar kungiyoyi masu imani suna da tasiri wajen motsa mutane daga Yammacin Afirka don yin gwajin cutar hepatitis B a lokacin da za a iya yin wasu matakan kula da lafiya kamar rigakafin hawan jini.

Kuɗi Shirin Hep B Navigation Programme wanda Majalisar New York, Kimiyya ta Gilead, Cibiyar Kiwon Lafiya ta Duniya ta Albert Einstein da Cibiyar Kyauta ta Abokai da Iyalan Jason Marks da 41–74 Club na NY suka bayar.

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Research in context

Evidence before this study

Screening for hepatitis B in the West Africa and immigrant communities is limited. Expert opinion has proposed multiple barriers to screening.

Added value of this study

In this study we report that West Africa medical personnel working in collaboration with local religious organizations to promote education and trust is an effective approach to motivate screening.

Implications of all the available evidence

Our Program can potentially serve as a model for outreach to all immigrant and underserved communities and their integration into the US health system for other health concerns.

Introduction

Chronic hepatitis B (CHB) is highly endemic in the countries of West Africa where its prevalence in regions may be as high as 14.5%.^{1–3} The United States, especially the borough of the Bronx of New York City, has experienced a great increase in the number of residents who are immigrants from sub-Saharan Africa. The West African population in the Bronx increased 39% between 2000 and 2011 and represented 10% of the immigrants in the Bronx according to a Department of City Planning report.⁴ Because transmission of the disease and its complications can be prevented, screening for the infection among Bronx West African immigrants is an important public health goal.

Public screening programs have traditionally been challenging in immigrant populations. Hepatitis B virus (HBV) screening remains low in West Africa and among foreign-born communities in the US, including African immigrant communities.^{5–8} According to estimates by the WHO, less than 1% of cases of hepatitis B in West Africa

have been diagnosed.⁷ In a cross-sectional study from Ghana where 5–10% of the population is infected, only 20% of 426 random students from two senior high schools had been tested for HBV.⁵ In a survey of 643 pregnant women in Nigeria, 76% had inadequate knowledge, and only 19.5% had been screened.⁸

Multiple barriers such as stigma, cultural attitudes and practices, and the complexity of Western health care systems have been proposed to impede screening.^{9–15} Limited medical knowledge about the infection, however, is considered to be one of the most important factors. Although two-thirds of 149 participants from rural sites in Senegal in an in-depth semi-structured study involving individual interviews and focus group discussions recognised signs and symptoms of end-stage liver disease, only a third of lay populations had ever heard of “hepatitis B,” and many were unable to evoke local language diagnostic terms that resembled the illness.¹⁶ In a survey of parturient West African immigrant women who were positive for hepatitis B surface antigen (HBs Ag) at a local Bronx Hospital, only half had heard of HBV.¹⁰ In a recent survey of foreign-born African immigrants there was very limited knowledge of HBV transmission, and only 44.39% and 49.23% had undergone HBV screening and vaccination, respectively.¹¹

West African communities place great importance on community and religious centres, and reports of expert opinion have emphasized the important role played by these centres in the immigrants' experiences of health and illness.^{12,13,15} To break down the barriers towards screening, we created a culturally sensitive educational program staffed by West African health care providers who work in collaboration with local faith-based centres to provide educational events on HBV that emphasize the importance of the infection to the community. In this report we describe its development and implementation.

Methods

Program personnel and community networking

The core members of the Program included medical professionals of West African origin, most important of which was a Patient Navigator from the Check Hep B

Navigation Program funded by the New York Council. The responsibilities of the Hepatitis B Patient Navigator include enrolling established patients at Montefiore into a database to monitor compliance with regular testing, anti-viral therapy if clinically indicated, and screening for hepatocellular carcinoma. The Navigator also serves as a liaison for patients enrolled in the program with their treating physician for hepatitis B-related issues, participates in outreach educational programs to the Bronx West African community, and coordinates on-site serologic screening for the infection for participants in the outreach education programs, referrals from participants, and referrals from established Montefiore patients with chronic hepatitis B.

Intensive networking was conducted with leaders of the Bronx West African community to identify religious leaders (pastors, imams, faith healers). Members of the Program regularly attended the Bronx African Community Council which meets monthly at the Bronx County Court House to discuss important issues concerning the community, and arrangements were made for one of its members to join the Community Board of the Montefiore Medical Center.

Educational events

The sequence of events of the organization of the education events and screening is presented in Fig. 1. A presentation was prepared that began with typical clinical West African vignettes (vertical transmission, rapid death from hepatocellular carcinoma). It then provided detailed information on epidemiology with an emphasis on West Africa, modes of transmission, chronic hepatitis, cirrhosis, hepatocellular carcinoma, clinical evaluation, vaccination, and screening. Members frequently attended religious services to gain an understanding of how the mosque or church functioned. The religious leader was then either contacted directly or by email and/or telephone to request a meeting at which time

the impact of hepatitis B on the West African community and the importance of education and screening for the infection were reviewed, and a date for an educational event for the members of the church or mosque scheduled. Information regarding the events was disseminated by the religious leaders through flyers, social media, and announcements at weekly worship times. The educational events were usually held after weekly worship to attain maximal attendance. The Program members arrived early to ensure that the presentation started on time, and refreshments were usually provided. After the presentation, a question-and-answer session was held. Free ball-point pens with the program logo and contact information and a voluntary 6-question survey without identifiers were then distributed to assess the impact of the presentation regarding a change in attitude towards the infection and motivation for testing. Finally, a brochure reviewing the importance of screening for hepatitis B among individuals of the West African community was distributed. To determine whether the findings can reliably be reproduced, enough sessions to allow participation of at least 500 individuals at the education event were held.

Serologic testing for hepatitis B and hypertension screening

At the conclusion of the educational events, participants who wished to be screened for hepatitis B provided their name and telephone numbers so that they can be contacted after the event.

Medical record numbers (MRNs) for the participants were created, and specific appointments were scheduled in a dedicated schedule in the scheduling system of the electronic medical record for each person requesting testing. If a participant did not show for the scheduled appointment, two additional attempts were made.

Testing was done at the Moses Hospital of the Montefiore Medical Center. The Patient Navigator greeted

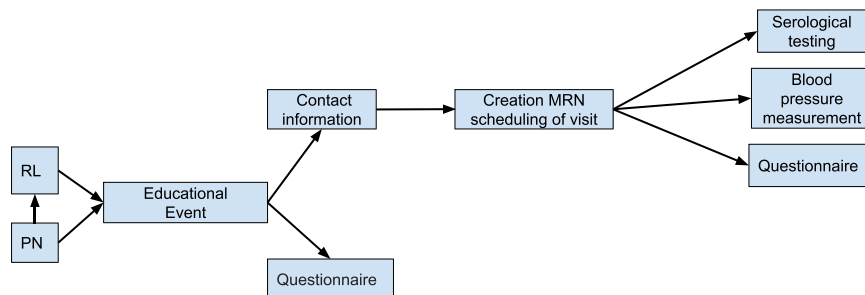


Figure 1. The Patient Navigator (PN) initially met with the Religious Leader (RL) to review the importance of screening for hepatitis B in the West African community who then assisted with organizing the Educational Event. A questionnaire assessing the impact on the participant's attitudes towards hepatitis B and motivation for testing was completed after the Education Event, and Contact Information was provided by those requesting testing. Medical record numbers were then created, and participants scheduled for screening visit at which time serologic testing and blood pressure measurements were obtained, and a voluntary questionnaire about previous testing, history of hypertension, and family history of hepatitis B and liver cancer completed.

the participants at the hospital entrance, performed the blood pressure measurements, and arranged a phlebotomy appointment for testing for the presence of hepatitis B surface antigen (HBs Ag) and antibody (HBs Ab). Participants were also asked to complete a questionnaire that assessed demographics, previous testing for hepatitis B and vaccination, medical history, and family history. A return visit for results was then provided.

Serologic results and linkage to care

All participants were provided the results of testing. The results were incorporated into a letter with an interpretation about whether the individual had active infection, had evidence of either resolved infection or vaccination, or required vaccination. The initial plan was for all participants to return for the results. However, essentially all contacted the Patient Navigator to obtain the results by telephone and indicated that they would not be able to return in person. For those who tested negative for HBs Ag, the results were provided over the telephone, and the report was mailed to the participant. For those who tested positive for HBs Ag, the participant was rescheduled until he/she returned for an in-person discussion with the supervising physician at which time the possible sources of infection, variable natural history of hepatitis B, requirements for a complete evaluation, importance of regular surveillance for hepatocellular carcinoma, and importance of screening of all close contacts were reviewed. The Patient Navigator always accompanied the participants to these sessions and frequently the initial follow-up clinical evaluation visits as well. In addition, an informational brochure that reviewed the details of the testing required for a complete evaluation was provided.

Linkage to care was provided through either the patient's primary care provider or referral for hepatology consultation depending on the patient preference and situation. For those without immunity, philanthropic funds for free vaccination were raised. The Patient Navigator routinely spent a significant amount of time to coordinate care for those screened who required medical follow-up. For participants with an elevated blood pressure (>140/90 mmHg), the importance of treatment was discussed, and the participants were instructed to contact their primary care provider or referred to a primary care provider based on the situation. She routinely contacted those with uncontrolled hypertension after the screening visit to ensure that adequate control had been achieved. Participants without insurance were enrolled in a Medicaid program if eligible or referred to a hospital of the New York City municipal health care system where free care or that provided on a sliding scale based on the patient's circumstance was available.

Statistical analysis

The mean percentage with 95% confidence intervals of the participants who answered in the affirmative to each

of the 6 questions of the post-presentation questionnaire was determined.

Institutional review board

Serologic screening was performed as a free clinical service for individuals requesting testing at the hepatitis B education events in addition to those referred by participants at the time of screening and by established patients with chronic hepatitis B at Montefiore. The questionnaires were approved by the Albert Einstein Institutional Review Board, and they were voluntary and lacked all subject identifiers.

Role of the funding sources

The Check Hep B Navigation Program funded the Hepatitis B Navigator. Funding for serologic testing was provided by grants from Gilead Sciences and the Albert Einstein College of Medicine Global Health Center and donations by Friends and Family of Jason Marks. Funding for hepatitis B vaccination was provided by donations from the 41–74 Club of NY.

Results

Educational events

All religious leaders who were approached readily agreed to host an educational event. Nine educational events were held (3 churches, 6 mosques) between March 2019 to February 2020. A total of 550 people attended the events. The presentation lasted approximately 30 min, and the post-presentation question and answer period from 30 to 60 min.

Three hundred thirty-nine (61.6%) of those attending the presentations agreed to complete the post-presentation questionnaire. Results of the post-presentation questionnaire are presented in [Table 1](#). Three hundred twenty-five (95.1%) of those completing the questionnaire reported improved understanding of the infection. The presentation made a significant impact on attitudes towards the infection. Stigma towards the infection was significantly reduced. Two hundred thirty-six (67.0%) of respondents indicated greater comfort in sharing a meal and in talking with someone with the infection. Two seventy-four (82.7%) indicated an intention to undergo testing. Three hundred and thirty-one (97.8%) indicated that they would encourage family and friends to undergoing testing for the infection.

Serologic testing for hepatitis B

Three hundred and thirty-two of 550 participants (60.3%) participants requested serologic testing. At the start of the Program coordination for scheduling of the participants for screening was problematic. A non-West African administrative assistance was initially

Did this presentation improve your understanding of Hepatitis B?	95.1 (94.8 to 95.4)
Did this presentation increase your willingness to get tested for hepatitis B?	82.7 (81.7 to 83.7)
Do you intend to see your doctor to get tested for hepatitis B?	82.7 (81.9 to 83.6)
Are you more comfortable in talking and sharing a meal with someone who has hepatitis B?	67.0 (65.8 to 68.3)
Are you more willing to talk with your family and friends about hepatitis B?	93.1 (92.2 to 94.0)
Do you plan on encouraging your family members and friends to get tested for hepatitis B?	97.8 (97.3 to 98.3)

Table 1: Percentage of participants who answered in the affirmative on post-presentation questionnaire (mean, 95% confidence interval).

responsible for the process. Creating MRNs proved to be a challenge because of trust. Many participants would not answer her calls from a telephone indicating its hospital origin, and few showed for the scheduled appointments. However, these issues were rapidly resolved after the responsibility was transferred to the Patient Navigator who is of West African origin with the use of a private cell phone. The Patient Navigator's calls were readily answered, and participants frequently contacted her if they were unable to make an appointment.

Among those requesting testing, 164 (49.4%) showed for the first appointment, 44 (13.2%) for the second appointment, and 14 (4.2%) for the third appointment. Overall, 224 (67.5%) of those who requested testing travelled to Montefiore Medical Center to undergo testing within 3 attempts. On a significant number of occasions, the participants spontaneously indicated that they had only agreed to testing because of the presence and reassurance of the program's West African personnel.

All individuals who underwent testing completed the second questionnaire. Only 43 (19.2%) reported previous HBV vaccination, and most (73%) did not know whether it had been done. Similarly, only 29 (12.9%) reported previous testing for HBV, and 157 (70.1%) did not know. Only 7 (3.1%) and none reported a family history of HBV and liver cancer, respectively. The percentage of individuals who were positive for HBs Ag was in line with expectations. Concerning the individuals who required vaccination, they were initially referred to their PCP or Department of Health. A list of those needing vaccination but who lacked insurance was maintained, and they were recalled for free vaccination after philanthropic funds for this purpose were raised.

Discussion

In this study we demonstrate the effectiveness of a HBV screening program targeting at risk West African community members in the Bronx conducted by West African personnel in conjunction with religious based institutions. We propose that the success of the Program can be attributed to four important factors: respect, education, emphasis on the total health care needs of the participants, and trust. In organizing the educational events, the team members approached the religious leaders with great care and respect, and there

was universal acceptance and support by the religious leaders. The educational events were organized and conducted in a manner that recognized the Program's appreciation of the congregants' time.

The Program was developed based on the premise that the community would readily endorse screening if provided with the proper information. As a result, the presentation was at a high level of medical information. In addition, a detailed brochure that reviewed the importance of screening for individuals from West Africa was provided. After the 30 min presentation, most participants reported improved understanding of and less stigma with the infection, and many were motivated to be screened and encourage family and friends to get tested for the infection. Of great importance, 67.5% followed up on their stated intention to obtain testing. The inclusion of hypertension screening and coordination of linkage to care were important components of the Program as they acknowledged a major health concern of the community and emphasized that the Program was interested in the entire person – not just hepatitis B.

Developing an environment in which the participant trusts the program is essential in an outreach program to a vulnerable population with significant cultural concerns. In contrast to most screening programs in which there is on-site testing, this program required a special trip to the hospital, an experience which can be rather daunting to an immigrant who is not familiar with the US health care system. Frequently, participants spontaneously indicated that they were undergoing testing only because of the reassurance and the presence of West African personnel. To obtain this level of trust, the overriding message was that the health of the participant and the West African community were the only concerns. This approach was critical in the initial experience of a participant due to great stigma and distrust of the US healthcare system in the West African community. Many of the participants had never encountered Western medicine, and some did not have legal status. There are significant differences between Western and traditional African medicine, and navigating a hospital can be stressful experience, especially with COVID regulations. To allay the participants anxiety, the Patient Navigator was personally involved at every step of the process. Many of the subjects determined to be HBs Ag positive were initially reluctant to meet with the

supervising hepatologist because of his non-African origin, but all agreed to meet with him after a discussion with the Patient Navigator. At many of the visits, the initial demeanor of the participant was frequently one of distrust and anxiety. However, the situation invariably changed by the end of the visit, and most requested to continue their care at Montefiore.

Distrust in the West African community is especially intense with respect to research. There is great concern among the community about being involved in research and “being experimented upon.” Several of the first few patients screened raised the concern about their blood potentially being used for research because two tubes were drawn rather than only one which was mentioned at the educational event. Although only one tube was theoretically required, two are drawn because the HBs Ag and HBs Ab are sent to different laboratories. To address this concern, the presentation was modified to state two tubes of blood will be drawn and the explanation provided. We believed that it would have been counterproductive to the development of trust to be overly intrusive for research at a screening visit. Out of respect for the concern about involvement in research, the data in this study is limited to the number of individuals participating at the various stages of the process and responses to voluntary questionnaires that lacked identifiers. Because of the importance of building trust, consent to analyze personal health information was not requested, and this data is not provided.

Multiple barriers for HBV screening in the West African community have been proposed based on expert opinion.^{9,14} In a moderated focus group that addressed questions related to transmission, screening, and vaccination of viral hepatitis among Ethiopian, Liberian, and Kenyan communities, three major themes emerged – lack of knowledge, cultural and societal barriers, and need for culturally relevant health education.¹⁴ The overall impression was that the knowledge of viral hepatitis was minimal with respect to awareness, modes of transmission, prevention, and development of liver disease, and infected individuals were ostracized. Additional impediments included lack of insurance, undocumented status with fear of deportation, and lack of confidence in Western medical practice. It was suggested that education could overcome these obstacles, especially if conducted in a culturally supportive environment in conjunction with religious clergymen. Similarly, a report of 17 in-depth interviews with community health experts working with African immigrant communities indicated that the important barriers to care and screening included lack of HBV knowledge and awareness, cost, language, racism, understanding of Western Medicine, and usage of traditional medicine.¹⁵ Low level of HBV knowledge was common in contrast to other disease such as diabetes, hypertension, and HIV infection. Myths and misconceptions about transmission and a view that the infection was related

to moral wrongdoing were prevalent. The complexity of the US health care system was an especially important issue as it involved language barriers, health literacy, provider trust, cost, and the navigation of a foreign health care system. In addition, screening is further hindered by the practice of African immigrants only interacting with health systems for acute care and having only limited motivation for screening for asymptomatic infections.¹⁷

A critical factor of our Program success was its composition of West African medical providers.¹⁴ This finding is in sharp contrast to a survey of the views of HBV infected Asian or Hawaiian/Pacific Islanders attending Hepatology Clinics in which a physician speaking the same language was predictive of lower patient satisfaction and provider communication.¹⁷ We propose that the discrepancy is related to the difference in screening versus established care. After a patient is enrolled in the medical system, cultural and language concerns are less relevant. However, they are critical to breaking down the barriers for patient entry.

A substantial limitation of our study is the inability to determine the degree to which the participants were representative of the Bronx West African community. In addition, we cannot assess how their responses compare with those who attended the weekly worship sessions but did not attend the educational events, and only 61.6% of attendees completed the post-presentation questionnaire. The very low reported rates of a family history of hepatitis B (3.3%) and absence of liver cancer most likely reflected a reporting bias due to a very limited understanding of the infection prior to participation in the Program. Finally, the descriptive, observational, and cross-sectional design of the program did not directly assess the impact of the intensity of the educational presentation.

CHB represents a major health disparity that disproportionately affects vulnerable populations, especially immigrant communities.¹⁷ Although point of care testing has recently been proposed as a means to increase testing,¹⁸ this approach lacks the ability to readily transition the patient into on-going care. Our findings demonstrate that education in a culturally sensitive program can maintain the attention of the participants and motivate them to travel to a hospital setting for testing is an extremely successful strategy in breaking down the barriers for screening. Our approach has the advantage of seamlessly enrolling and transitioning patients for the first time into the US health care system, arranging for insurance coverage for those eligible, and screening for other important health issues, and we are currently in the process of expanding the program to promote compliance with anti-hypertensive therapy and an educational program for hypertension in the same model as the one for hepatitis B screening. We propose that our Program can potentially serve as a model for outreach to all immigrant and underserved communities and

their integration into the US health system for other health concerns.

Data sharing statement

The numbers of participants attending each education event and obtaining testing and responses to the questionnaires are available upon request by email to Dr. Samuel Sigal.

All data is deidentified.

CRedit authorship contribution statement

Emmanuel U. Emeasoba: Investigation, Methodology, Project administration, Supervision, Visualization. **Fatima Omarufilo:** Data curation, Investigation, Project administration. **John Nnaemeka Bosah:** Investigation, Project administration. **Samuel H. Sigal:** Conceptualization, Funding acquisition, Methodology, Supervision, Visualization, Writing - review & editing.

Declaration of Competing Interest

Samuel Sigal has honoraria for consultations on Advisory Boards sponsored by Gilead Sciences. Emmanuel U. Emeasoba, Fatima Omarufilo, and John Nnaemeka Bosah have no potential or actual conflicts of interest from funding or affiliation-related activities.

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Supplementary materials

Supplementary material associated with this article can be found in the online version at doi:[10.1016/j.lana.2021.100120](https://doi.org/10.1016/j.lana.2021.100120).

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