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Article Sub-Title		
Article CopyRight	Springer Science+Business Media New York (This will be the copyright line in the final PDF)	
Journal Name	Journal of Community Health	
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	Revised	
	Accepted	
Abstract	While student-run clinics are often important healthcare safety nets for underserved populations, their efficacy for improving patient health knowledge has not been thoroughly explored. From September 2011 to April 2012, we assessed patients' retention of hepatitis B virus (HBV) knowledge after receiving student-led education at two student-run HBV screening and vaccination clinics. Patient education was provided by trained first and second-year medical, nursing, and pharmacy students, aided by a script and interpreters. Patient knowledge of HBV was evaluated at three points: before education, after the initial visit, and at one-month follow-up. Student-led education produced improved knowledge of HBV transmission, prevention, and management, which was retained 1 month after education for 52 patients tracked through time. Mean scores on an HBV knowledge survey improved from 56.4 % (SD = 15.2 %) at baseline to 66.6 % (SD = 15.1 %) after education, and 68.3 % (SD = 15.2 %) after one month. There was a statistically significant difference between the first and second (paired <i>T</i> test, $p < 0.001$) and the first and third tests (paired <i>T</i> test, $p < 0.001$), but no difference between the second and third tests (paired <i>T</i> test, $p = 0.45$). Multivariate analysis demonstrated that retention was correlated with patient educational background but independent of patient age, gender, income, primary language and number of years lived in the United States. Our study suggests that trained health professional students can effectively impart health knowledge that is retained by patients for at least 1 month. These results warrant consideration of student-led educational sessions at SRCs as a promising community health education model.	
Keywords (separated by '-')	Student-run clinic - Health education - Cross-cultural medicine - Knowledge retention - Hepatitis B	
Footnote Information	The authors David Ouyang and Neal Yuan contributed equally to this work. Electronic supplementary material The online version of this article (doi:10.1007/s10900-012-9631-3) contains supplementary material, which is available to authorized users.	

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Community Health Education at Student-Run Clinics Leads to Sustained Improvement in Patients' Hepatitis B Knowledge

David Ouyang · Neal Yuan · Leslie Sheu · Gary Lau · Cheng Chen · Cindy J. Lai

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Abstract While student-run clinics are often important healthcare safety nets for underserved populations, their efficacy for improving patient health knowledge has not been thoroughly explored. From September 2011 to April 2012, we assessed patients' retention of hepatitis B virus (HBV) knowledge after receiving student-led education at two student-run HBV screening and vaccination clinics. Patient education was provided by trained first and second-year medical, nursing, and pharmacy students, aided by a script and interpreters. Patient knowledge of HBV was evaluated at three points: before education, after the initial visit, and at one-month follow-up. Student-led education produced

improved knowledge of HBV transmission, prevention, and management, which was retained 1 month after education for 52 patients tracked through time. Mean scores on an HBV knowledge survey improved from 56.4 % (SD = 15.2 %) at baseline to 66.6 % (SD = 15.1 %) after education, and 68.3 % (SD = 15.2 %) after one month. There was a statistically significant difference between the first and second (paired *T* test, $p < 0.001$) and the first and third tests (paired *T* test, $p < 0.001$), but no difference between the second and third tests (paired *T* test, $p = 0.45$). Multivariate analysis demonstrated that retention was correlated with patient educational background but independent of patient age, gender, income, primary language and number of years lived in the United States. Our study suggests that trained health professional students can effectively impart health knowledge that is retained by patients for at least 1 month. These results warrant consideration of student-led educational sessions at SRCs as a promising community health education model.

Keywords Student-run clinic · Health education · Cross-cultural medicine · Knowledge retention · Hepatitis B

Introduction

In 2007, there were 111 documented student-run clinics (SRCs), which cumulatively logged more than 36,000 annual patient visits [1]. SRCs are becoming an important component of the healthcare safety net, serving patients who face substantial barriers to accessing healthcare, such as low English proficiency and lack of sufficient health insurance [1–3], and who are significantly less likely to receive preventive services [4, 5]. Recent studies have

The authors David Ouyang and Neal Yuan contributed equally to this work.

Electronic supplementary material The online version of this article (doi:10.1007/s10900-012-9631-3) contains supplementary material, which is available to authorized users.

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shown that SRCs can in fact provide effective preventive healthcare [6] as well as other disease management services such as mental health care [7], diabetes care [8], and smoking cessation counseling [9].

Students volunteering in SRCs may also serve an important role in educating patients on public health issues, such as preventive practices. A variety of educational methods for increasing patient knowledge on specific health conditions have been previously investigated, including utilizing healthcare professionals [10, 11], lay educators [12, 13], self-guided learning videos [14–17], and community health workers [18–21]. However, there has yet to be widespread adoption and utilization of these educational methods, and studies have demonstrated conflicting results on whether these interventions improve patients' health knowledge for significant periods of time [10–13, 15, 17]. Although little is known about the impact of SRC education on patients' understanding of preventive behaviors, given the proliferation of SRCs in recent years, SRCs may present a particularly valuable venue for patient education at the community level.

At the University of California, San Francisco (UCSF), health professional students conduct two monthly SRCs targeting hepatitis B virus (HBV) infection. At these clinics, student volunteers educate, screen, and vaccinate patients for HBV. Given the strong association between higher HBV knowledge and increased preventive practices [22–25], improving patient understanding of this disease is particularly important. Previous studies have shown that patients with higher HBV knowledge are several times more likely to be screened and vaccinated as well as have their children screened and vaccinated [22–25]. Improving patient knowledge and preventive practices for this disease is of particular concern for the Asian Pacific Islander (API) community in the United States, where HBV disproportionately affects 1 in 10 individuals from this group [26]. In San Francisco, where the UCSF SRCs are located, the API community comprises approximately 31 % of the general population [27]. Despite the prevalence of HBV, low awareness and knowledge about HBV [28, 29] and relatively low screening rates [22, 30–32] persist within the API community.

In this study, we describe how trained health professional students provide patient education at the UCSF student-run hepatitis B clinics, and investigate the impact of these scripted, student-led education sessions on immediate patient knowledge acquisition and retention 1 month later. By exploring the impact of these education sessions on patients' HBV knowledge acquisition and retention, we hope to more generally elucidate the value of SRCs as a means for addressing health knowledge gaps in underserved populations.

Methods

Study Design

A prospective non-randomized study was performed to assess changes in patient understanding of HBV transmission and management before and after student-led patient education sessions at UCSF's HBV SRCs. Patient knowledge was assessed by the administration of a knowledge survey before structured education, after structured education at the end of the screening visit, and at one-month follow-up.

Study Site and Study Participants

This study was organized by students of UCSF's San Francisco Hepatitis B Collaborative, a health professional student-run volunteer organization, and was conducted at two monthly SRCs affiliated with UCSF and the San Francisco Department of Public Health. Clinics were located at UCSF's Mount Zion campus and the Chinatown Public Health Center and were open on the first and second Saturday mornings of each month respectively. Both sites offered free HBV education, screening, free to low-cost HBV vaccinations, and follow-up visits for additional education and specialty clinic referrals for patients found to have chronic HBV infection [33]. The SRCs serve primarily monolingual Asian language speaking patients. All new patients who presented to clinic between September 2011 and April 2012 were invited to take the survey. Written informed consent was obtained from all patients upon intake during their first visit. This study was approved by the UCSF Institutional Review Board.

Student Volunteer Training and Intervention (Student-Led Education Sessions)

First- and second-year medical, nursing, and pharmacy students who elected to volunteer at the HBV SRCs were required to complete a multi-session 10-hour elective course offered in the Fall, which covered HBV epidemiology, transmission, prevention, management, and social impact. The elective also included 2 h of instruction on cross-cultural communication and working with interpreters. Students who completed the HBV elective were then eligible to volunteer at the HBV SRCs, where their roles included providing patient education, performing phlebotomy, and administering vaccinations.

In preparation for providing patient education and clinical services, students participated in an additional group training session prior to the start of each clinic. These 30-minute training sessions were led by second-year student clinic coordinators. The training covered clinic

workflow, patient education protocol, and procedural guidance on vaccination and phlebotomy. The portion of training that focused on preparing students for patient education included a script of content areas to be covered with the patient (Fig. 1). The patient education script was originally developed by student coordinators and reviewed by faculty advisors and content experts, and included education on HBV symptoms, transmission risk factors, sequelae of chronic infection, screening, and vaccination. Students learned how to open and close the patient encounter; specifically, students were taught to elicit the patient's initial understanding of HBV using open-ended questions and to close by asking the patient if he or she desired any further points of clarification. During content delivery, students were encouraged to speak in simple terms with frequent opportunities for questions, particularly if the patient needed an interpreter. Students were also advised to seek a faculty preceptor for answering difficult patient questions.

Each individualized patient education session was conducted by a pair of health professional students. If patients indicated that English was not their primary language, a trained undergraduate interpreter was assigned to facilitate communication. The interpreters underwent a rigorous training program which covered disease specific vocabulary

as well as opportunities to practice interpreting. Some interpreters also received official interpreter certification through a community college course.

Survey Design and Administration

Patient knowledge of HBV was evaluated with a 16-question true/false survey. The survey was adapted from a previously validated tool for assessing hepatitis C knowledge [34] and covered three main knowledge domains: positive transmission risk factors for HBV, non-positive transmission risk factors for HBV, and HBV vaccination and management. Surveys were scored on a scale of 0–16, with each question being worth one point. Consistent with previous medical knowledge questionnaires, a 'true', 'false', 'don't know' response format was used [34, 35]. For the purposes of scoring the surveys, an answer of 'don't know' was scored equivalently with an incorrect answer. Surveys were available in English, Chinese, and Korean. Surveys were translated by trained student translators and validated by reverse translation by an independent third translator.

The survey was administered twice during the first visit—once prior to education and again at the end of the clinic visit after education and phlebotomy. The third

1) Introduction

"Hello! My name is _____. I am a _____ student. We are here today to screen for hepatitis B. What do you know about hepatitis B?"
(patient answers)
Hepatitis B infects the liver.
1/10 Asian Pacific Islanders are infected.
Hepatitis B is chronic, but can be prevented with the proper vaccinations.

2) Symptoms and Consequences

- 50% infected persons have **NO symptoms** and **will NOT feel sick**.
Acute symptoms are non-specific, but can include loss of appetite, fatigue, low-grade fevers, jaundice, and dark urine.
- Over time, infection may lead to:

- Cirrhosis (hardening) of liver
- Cancer of the liver
- Liver failure

3) Transmission

You CAN get it from:	You CAN NOT get it from:
• Anything that contact blood (razor, toothbrush) • Sexual contact without condoms • Mother to child at birth • Infected needles (tattoo, IV drugs, piercings, acupuncture, etc.)	• Being near someone who is infected (casual contact) • Kissing, hugging • Breastfeeding • Sneezing, coughing • Sharing food, water, eating utensils

4) Testing and Screening

We will be testing your hepatitis B status by taking a blood sample from your arm.
Have you had problems with blood draws in the past?

5) Results

For **new** patient education (prescreening), review the 3 possible results.
"Please come back for your results in 1 month. You will have 1 of 3 results"

Antigen: Negative (Ag-) Antibody: Positive (Ab+)	Antigen: Negative (Ag-) Antibody: Negative (Ab-)	Antigen: Positive (Ag+) Antibody: Negative (Ab-)
You are PROTECTED against hepatitis B. No further treatment or testing is needed.	You are NOT PROTECTED from hepatitis B. We recommend a series of 3 vaccinations to protect you against future infection. For complete protection you must receive all <u>three</u> shots. The vaccination will protect you for life. You will be given your 1st of 3 shots at the time you receive your results. The 2nd shot will be 1 month after your 1st shot. The 3rd and final shot will be 6 months after your 1st shot. You will be able to receive all three shots at this clinic.	You are INFECTED with hepatitis B. You will need to see a doctor for evaluation and treatment. Hepatitis B is treatable and controllable with proper medical care. <i>Note: You will not be giving results to any infected patients.</i>

For **returning** patients receiving results, discuss the patient's specific hepatitis B status and explain how to read their lab results, including antigen and antibody statuses.
Offer unprotected patients the vaccine.

Be sure to ask the patient:
Have you had problems with vaccinations in the past?
Are you allergic to baker's yeast?

6) Please remind your patients to

"Come back in ONE month to receive your results."
"If you have insurance, please bring your insurance card. If you do not have insurance, you will still be able to receive the vaccination without it."
"If you have other family members or friends who have not been previously screened for Hep B, please consider recommending that they come to our clinic session next month"
Give patient a flier that lists upcoming clinic dates that they can pass on to others

Fig. 1 Educational review and flow chart provided to student educators

survey was administered during follow-up 1 month later, before patients received their screening results. The first survey had additional optional questions that solicited information on the patient's age, gender, primary language, income, education, and how long they had resided in the United States. This demographic information was correlated with survey performance for analysis of predictors of performance and retention. Patient characteristics were compared with aggregate clinic information to assess the generalizability of study results.

Statistical Analysis

Statistical analysis was performed using R 2.13.0 (R Foundation for Statistical Computing, Vienna, Austria). Paired *T* tests were used to evaluate individual progress across the three time points. Multivariate analysis was used to assess the relationship between survey performance and patient age, education, socioeconomic status, primary language, gender and time in the United States. A generalized linear model was chosen using stepwise regression with forward selection to maximize the Akaike information criterion.

Results

Study Population

From September 2011 to April 2012, 138 new patients visited the clinic (Table 1). The patient population was 67.6 % female and the mean age was 56.4 (SD = 17.3). Fifty-six percent of patients indicated a primary language other than English (predominantly Cantonese, Mandarin, and Korean). Fifty percent of patients had a high school education or less and 64.2 % of patients who indicated household income had an income less than \$25,000 per year. On average, patients had resided in the United States for 25 years. There was no statistically significant relationship between a patient's baseline HBV knowledge and his or her income, age, gender, education level beyond high school, or whether English was the patient's primary language (Table 2).

Survey Results

One hundred and twelve patients filled out the first survey (81 %), 107 patients filled out the second survey, and 92 patients filled out the third survey. We were able to match 52 patients to all three surveys. Scores of the 52-patient subset were similar to the scores from all patients. For patients tracked over the three clinic sessions, knowledge survey scores over time were 56.4 % (SD = 15.3 %) at

Table 1 Demographic information and screening results of patients visiting the student-run HBV clinics

	Study demographics ^a	General clinic demographics ^b
Age, mean (SEM)	56.4 (17.3)	50.4 (15.4)
Sex, n (%)		
Female	94 (67.6)	1,058 (56.0)
Years living in the United States (SD)	25 (11.8)	22 (13.5)
Race, n (%)		
Chinese	66 (47.8)	1,544 (82.0)
Korean	57 (41.3)	96 (5.1)
Vietnamese	3 (2.2)	79 (4.2)
Japanese	1 (0.7)	18 (1.0)
White	3 (2.2)	57 (3.0)
Black	0 (0.0)	5 (0.3)
Other	8 (5.8)	82 (4.4)
Translator required, n (%)	72 (56.3)	1,026 (56.4)
Household income, n (%)		
10,000 or less	29 (19.6)	209 (11.0)
10,001–25,000	15 (10.1)	201 (10.6)
25,001–50,000	20 (13.5)	209 (11.0)
50,001–80,000	9 (6.0)	82 (4.3)
80,001 or more	22 (14.9)	90 (4.8)
Decline to state	53 (35.8)	1,103 (58.2)
Education, n (%)		
Middle school or less	23 (18.7)	153 (14.6)
High school	39 (31.7)	358 (34.1)
College	41 (33.3)	389 (37.1)
Graduate school	20 (16.3)	149 (14.2)
HBV status		
Protected	64 (57.1)	901 (49.6)
Unprotected	46 (41.1)	777 (42.8)
Infected	2 (1.8)	138 (7.6)
Total, n (%)	138 (7.3)	1,896 (100.0)

^a Study demographics are from clinic patients from September 2011 to April 2012. 81 % of patients during time period filled out knowledge surveys; ^b General demographics are from clinic patients from January 2007 to April 2012

baseline, 66.6 % (SD = 15.1 %) after education, and 68.3 % (SD = 15.2 %) after 1 month (Fig. 2). There was a statistically significant difference in scores between the first and second tests ($p < 0.001$) and the first and third tests ($p < 0.001$), but no statistically significant difference between the second and third tests ($p = 0.450$). There was no statistically significant relationship between baseline knowledge and patient income, age, gender, education, number of years lived in the United States, or whether English was the patient's primary language (Table 2).

Patients, on average, scored 10 and 11 % higher on the second and third tests, respectively, when compared to the

Table 2 Multivariate analysis examining relationship between income, age, education, primary language, and baseline performance on HBV knowledge survey

	Beta	SE	p value
English as primary language	0.886	1.134	0.441
Income	0.019	0.014	0.199
Age	−0.012	0.031	0.713
Gender—male	−1.267	1.062	0.242
Education—high school or less	(Ref)		
Education—college	−2.612	1.485	0.089
Education—graduate school	−2.400	1.595	0.142

^a Statistically significant value ($p < 0.05$); ^bVariable of number of years in the United States had low explanatory power and was not included in the final model

first test (Table 3). At baseline, patients correctly answered more questions about positive risk factors for transmission (68 % correct) and knew relatively less about non-positive risk factors and HBV management (49 and 51 % correct). Patients exhibited similar gains of knowledge in each domain, with an absolute improvement ranging from an additional 9–16 % correct for each domain.

A multivariate model was used to analyze the relationship between score improvement (the difference in scores between the first and third surveys) and patients' baseline performance, income, age, and education level (Table 4). A reference category of having only high school education or less was used to assess the comparative effect of additional education on survey performance. Additional variables of gender, primary language, and number of years

living in the United States exhibited no correlation with score improvement and were not included in the final model because of their insufficient explanatory power. Patients' baseline knowledge ($p = 0.741$), age ($p = 0.785$) and income ($p = 0.209$) were not significantly predictive of score improvement. Our model did suggest that there was a predictive relationship between score improvement and higher education. Consistent with this multivariate model, patients with college and post-graduate degrees exhibited more improvement immediately after education (15.6 vs. 4.3 %, $p = 0.015$) and retention at 1 month (18.2 vs. 4.4 %, $p = 0.006$) compared to patients with only high school education or less.

Discussion

Little has been published on the efficacy of SRCs in providing patient education. We found that disease-specific education led by trained health professional students at SRCs improved patients' immediate understanding of the transmission, prevention, and management of HBV infection, with more highly educated patients demonstrating larger knowledge gains. This knowledge was retained 1 month after initial education, irrespective of a patient's language, age, education, years lived in the US, or income. These findings suggest that structured teaching in SRCs may be an effective education model for imparting disease-specific knowledge across a variety of domains to a diverse range of patients.

A number of successful strategies to teaching and implementing student-led patient education at our SRC may explain patients' improved health knowledge retention. Our SRCs benefited from focusing only on the prevention and complications of one disease, which allowed us to standardize the educational script and quality of delivery by the student educators. Additionally, our HBV clinics were able to focus on a specific at-risk patient population, which enabled student coordinators to gain depth in experience with this patient group to optimize the clinic's message and ultimately deliver an educational script that was both culturally and linguistically appropriate. By requiring students to take an elective on HBV and related cultural competencies, students also gained familiarity and comfort with the content of the education sessions and the target patient population before conducting educational sessions with patients. In addition, SRCs generally have less stringent time constraints on patient visits compared to traditional providers' offices, which may enable more intimate patient-provider education sessions and dialogue between provider and patient. Another aspect of SRCs that may positively influence the tenor of the education sessions is the self-selected group of student

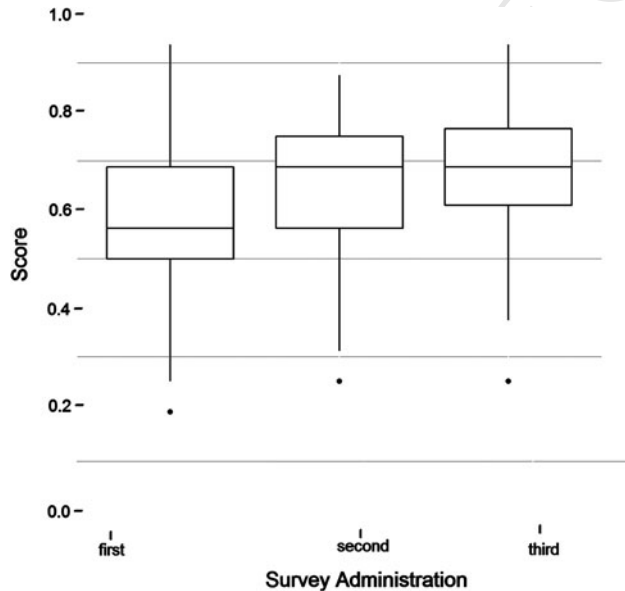


Fig. 2 Distribution of HBV knowledge survey results immediately after, and 1 month after student-led patient education

Table 3 HBV Knowledge survey results before, immediately after, and 1 month after student-led patient education (n = 53) stratified by knowledge domain

	Proportion correct (change from baseline)		
	Before education	After education	At follow-up
HBV transmission, positive risk factors			
People with hepatitis B can safely share their toothbrushes and razors with other people ^F	0.58	0.62 (0.04)	0.67 (0.09)
People who received a blood transfusion in the US before 1992 may have been infected with hepatitis B ^T	0.5	0.46 (−0.04)	0.52 (0.02)
People who inject street drugs with ‘used needles’ are more likely to be infected with hepatitis B ^T	0.88	0.9 (0.02)	0.92 (0.04)
Babies born to hepatitis B pregnant women can be infected with hepatitis B at birth ^T	0.83	0.92 (0.09)	0.79 (−0.04)
Hepatitis B can be given to someone during sexual intercourse ^T	0.63	0.88 (0.25)	0.85 (0.22)
People can get infected with hepatitis B from tattoos and body piercing ^T	0.63	0.81 (0.18)	0.85 (0.22)
Subtotal (6 questions)	0.68	0.77 (0.09)	0.77 (0.09)
HBV transmission, non-positive risk factors			
Using ‘new’ (i.e. never used before) needles, syringes, and equipment reduces the risk of being infected with hepatitis B ^T	0.83	0.92 (0.09)	0.94 (0.11)
Coughing and sneezing can spread hepatitis B ^F	0.27	0.58 (0.31)	0.5 (0.23)
The hepatitis B virus can be spread from shared kitchen cups, plates or utensils ^F	0.19	0.52 (0.33)	0.42 (0.23)
Hepatitis B can be given by hugs or handshakes ^F	0.65	0.75 (0.10)	0.73 (0.08)
Subtotal (4 questions)	0.49	0.69 (0.20)	0.65 (0.16)
HBV Vaccination and Management			
There exists a hepatitis b vaccine that can be used to prevent people from getting infected with the hepatitis B virus ^T	0.73	0.9 (0.17)	0.94 (0.21)
People can live with hepatitis B for many years without knowing that they have been infected with the virus ^T	0.88	0.87 (−0.01)	0.96 (0.08)
It is a good idea for people living with hepatitis B to be vaccinated against hepatitis B ^F	0.17	0.06 (−0.11)	0.15 (−0.02)
People living with hepatitis B can further damage their liver when they drink alcohol ^T	0.73	0.87 (0.14)	0.96 (0.23)
Hepatitis B can be cured ^F	0.21	0.23 (0.02)	0.27 (0.06)
Once someone’s hepatitis B virus has been completely treated and cleared, one cannot get re-infected with hepatitis B ^T	0.35	0.42 (0.07)	0.46 (0.11)
Subtotal (6 questions)	0.51	0.56 (0.04)	0.62 (0.11)
Total	0.56	0.67 (0.10)	0.68 (0.11)

Correct answer: T = true, F = false

volunteers, whose passion for SRCs’ underserved mission may translate into additional efforts to ensure patients’ understanding of medical content within a culturally appropriate context [1, 36].

Our educational intervention incorporated certain didactic techniques that have been shown to improve patient comprehension. Sessions were initiated with open-ended questions to assess patient baseline understanding, a strategy which has been shown to result in more individually customized and therefore effective education [37]. The educational content of our student-led sessions was also adapted to the target population’s vocabulary level

[38–40] and utilized simplistic statistics [41]. The use of interpreters and student volunteers who were trained in cross-cultural communication with the clinic’s target API population also contributed to the efficacy of the sessions. Indeed, prior research has shown that culturally-tailored patient education results in enhanced patient knowledge retention [42–45].

The demonstration of knowledge retention 1 month after educational intervention in this study is important because of the link between knowledge improvement and changes in health behaviors. Studies in different disease contexts have articulated that patients with better

Table 4 Multivariate analysis examining relationship between initial performance, patient income, age, education and survey improvement at 1 month

	Beta	SE	p value
First survey results	0.095	0.278	0.741
Income	0.016	0.012	0.209
Age	0.007	0.024	0.785
Education—high school or less	(Ref)		
Education—college	3.086	1.257	0.040 ^a
Education—graduate school	5.479	1.714	0.013 ^a

^a Statistically significant value ($p < 0.05$); ^bVariables of gender, English as primary language, and number of years in the United States had low explanatory power and were not included in the final model

understanding of disease will often make healthier decisions [46–54]. In the context of hepatitis B, individuals with better knowledge of the disease are more likely to complete HBV screening for themselves and their children [22–25]. Patients who retain disease-specific health knowledge for periods even as short as a month may make significantly better health choices with important consequences. In this study, for example, knowledge retention after 1 month may have influenced patients to return to the UCSF SRCs for important follow-up HBV vaccinations.

For future improvements in the effectiveness of patient education sessions, SRCs should consider incorporating teach-back methods [55, 56] and additional modalities of information presentation. For example, SRCs could complement their sessions by providing printed information [57, 58] or video material [17, 59–63], both of which has been shown to significantly improve knowledge retention and even influence health behaviors. With the growing familiarity of patients with computer-based learning tools, computer educational modules are another supplemental educational component that have been shown in some studies to help increase patient understanding of disease [64].

Limitations

A limitation of our study is the inability to explicitly correlate improvements in HBV knowledge with changes in behavior after SRC education, a relationship that would be an important topic for further future research in this area. Also of note, in choosing to strengthen the validity of our results by adapting a previously validated survey instrument, we did not fully mirror the content covered in our patient education script. For example, although our script emphasized the symptoms of chronic hepatitis B, as well as its sequelae of liver cancer and cirrhosis—important educational points to encourage all at-risk patients to seek screening—questions on symptoms or sequelae were not

part of the previously validated survey. On the other hand, the survey included questions such as, “It is a good idea for people living with hepatitis B to be vaccinated against hepatitis B,” and “Hepatitis B can be cured,” which were not addressed in our patient education script. As predicted, score improvement in these two questions was not significant. Serving in effect as negative controls, they strengthen the claim that SRC patient education sessions may have been uniquely responsible for the observed improvements in those knowledge areas that were directly addressed in the education script.

Conclusions

Our findings suggest that targeted, disease-specific preventive education at SRCs can be effective across a broad spectrum of different patients in improving several areas of a patient’s health knowledge. These knowledge improvements can be retained for periods as long as a month or more, which although not proven, may lead to preventive behaviors. Given the prevalence of SRCs nationwide and their prominent role in preventative care, our model for training students to provide structured, disease-specific patient education at student-run clinics may be an effective method for providing community health education.

Acknowledgments We would like to acknowledge Dr. Joshua Adler and Dr. Albert Yu for their guidance and leadership in supporting the Mt. Zion and CPHC Hepatitis B clinics. Special thanks to Gladys Morazan for irreplaceable and tremendous support, our faculty preceptors for their time and eagerness to teach, Christy Boscardin for statistical advice, and Angela Chen, Judy Lim, and Berkeley VHIO for their interpretation help.

Conflicts of interest All authors report no financial conflicts of interest.

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