INTRODUCTION

According to the National Library of Medicine, every state has at least 1 health sciences library that provides services to local residents or “consumers,” and there are at least 937 such facilities in the United States [1]. Health literacy advocates are encouraging health sciences libraries to expand their outreach to members of the general public [2]. However, in today’s cost-cutting environment, hospital administrators may not continue to support library outreach to consumers unless there is evidence of adequate utilization and consumer satisfaction [3].

Recent literature has urged hospital libraries to adopt a marketing orientation to maximize utilization [4, 5]. Marketers use market research to understand audience preferences and information sources and design product promotions accordingly [6]. In many cases, “formative” market research does not entail large sample sizes or measures with established reliability and validity. Instead, qualitative data and readily gathered quantitative data from multiple sources—all subject to differing threats to validity—are used to “triangulate” around an understanding of the factors that motivate, trigger, and constrain consumer behavior [7, 8]. In 2006, a triangulation approach was used to study utilization of the Community Outreach Information Network (COIN) in Richmond, Virginia, because the COIN leadership felt that usage of the centers was not commensurate with the service supply.

COMMUNITY OUTREACH INFORMATION NETWORK (COIN) BACKGROUND

The City of Richmond has 192,913 residents (62% non-white) and is part of a metropolitan area with a population of almost 1.2 million [9]. COIN comprises 4 consumer health information centers and has holdings in multiple languages and formats. COIN provides access to print materials and the Internet and offers face-to-face and telephone reference assistance as well as a virtual reference service that allows users to interact electronically with a medical librarian. A COIN website [10] posts information about local resources and provides “quick links” to reliable health information in English and Spanish. As a group, the COIN centers have provided health information to almost 31,000 individuals since 2002. Moreover, use of COIN center services has been increasing; for example, in 1 center, website usage has exceeded the desired annual growth rate of 7.5%.

The largest of the network’s centers, the Community Health Education Center (CHEC), is located in the lobby of a teaching hospital in an inner-city business district. CHEC has 3,370 print books and pamphlets, 24 magazine subscriptions, 7 computers with Internet access, anatomical models, and children’s materials.
Some materials are tailored for people with low literacy levels or visual impairments. CHEC is staffed by a professional medical librarian, who is a faculty member of the Virginia Commonwealth University Libraries. She is often joined by 1 of several trained volunteers or a student intern. CHEC is an organizational unit of the Virginia Commonwealth University Health System (VCUHS) and is financed and operated by a partnership that includes the VCUHS, the Medical College of Virginia Hospitals Auxiliary of the VCUHS, and the VCU Libraries.

CHEC strives to provide health information that is accurate, current, understandable, and relevant to people in central Virginia who have no health insurance, are underinsured, or are publicly insured. In 2006, this center had a total of 5,653 visitors (3,062 females and 2,591 males); of whom, over 1,000 were children and 2,726 were repeat visitors. According to routinely maintained records, 1,998 users reported learning CHEC existed when they walked by, and 693 reported referrals from VCU Libraries staff and health care providers. The CHEC Internet site [11] had 62,443 hits in 2006, and 11,281 website visitors went beyond the home page.

The Linen Powell Resource Library (LPRL), the second COIN center located on the downtown VCU Medical College of Virginia Campus, is part of VCU’s Massey Cancer Center. It has materials on cancer topics only (1,295 books and some videotapes and audiocassettes) and refers general health questions to CHEC. LPRL distributes an average of 2,060 information packets annually. Some patients are referred to this center by their health care providers, but most receive center materials directly from health intermediaries. LPRL is staffed by a certified health educator, who is an employee of the VCU Massey Cancer Center and is occasionally assisted by volunteers.

The Patient Resource Center (PRC), a smaller cancer library, and the Charlotte K. Roberts Women’s Health Resource Center (WHRC) are located at the suburban VCUHS Stony Point Clinic. The PRC (which distributes 250 cancer-related information packets to provider-referred patients each year) is staffed part-time by volunteers, and the WHRC (which is open to the public during business hours even when unstaffed) employs a part-time information specialist. Both centers offer some print and video materials as well as Internet access.

At the time of the data collection reported here, COIN had already been advertised in newspapers, and gatekeepers such as the Urban League of Greater Richmond, the SeniorNavigator network, and pharmacists had been asked to promote the network’s services. CHEC alone conducted more than a dozen promotional programs in 2006. Facility tours were conducted for teen hospital volunteers. The center hosted classes on maternal/infant health for Hispanic mothers and smoking cessation workshops. CHEC served as the resource center for the Urban League for Greater Richmond’s “Lift Every Voice,” a diabetes education program, and Central Virginia Care Connections for Children. CHEC also provided space for meetings, lectures, and classes to health professional groups including VCUHS clinical staff and residents. Finally, CHEC launched a news blog that featured reviews of health information materials. Some of these promotional efforts spurred temporary spikes in individual center usage, but excess service capacity remained.

METHODS

In the summer of 2006, formative research was conducted to inform a possible future intervention to promote center usage. The data-collection methods were crafted by a faculty member who specializes in social marketing at VCU’s developing School of Public Health and were approved by the VCU Institutional Review Board. The methods included direct observations, brief central location intercept interviews, and key informant interviews.

Direct observations

The direct observation procedure was similar to those used to map retail store traffic patterns [12] and point-of-purchase micro-marketing strategies for consumer goods (e.g., eye-level shelf placement) [13]. These methods are based on the assumption that consumer behavior reflects the interaction of immediate perceptions and decision making. Previous observational research has established an association between the length and number of visual fixations and brand choice [14]. The present study noted whether people passing by a center oriented to it visually, because that would be a logical prerequisite to approaching and ultimately using it. Their initial direction of approach was noted to inform future placement of signs.

The 2 observers, both psychology graduate
students, were required to achieve at least 80% agreement on the observational variables during pilot observations before formal data collection began. Then nonintrusive observations were conducted by 1 observer at a time. Observers were stationed in lobby lounge areas just outside of 3 (CHEC, PRC, WHRC) of the COIN centers. The fourth center (LPRL) serves patients through medical staff intermediaries and does not rely on foot traffic at all, so observations were not conducted there.

Observation periods were 30 minutes long and divided into 10-minute tracking sessions. Within these sessions, the first 2 minutes were spent counting the number of people passing by or in the vicinity of a center. Ranges of numbers (e.g., 100–150) were used to record counts. During the remaining 8 minutes, the seated observer visually tracked one person who had glanced at a center. A map of the hospital or clinic lobby was used to record the direction from which each of these subjects approached a center, and a checklist was used to record what they did after the initial glance.

**Brief central location intercept interviews**

Marketers conduct brief intercept interviews with small convenience samples in settings such as shopping malls to gain insight into what distinguishes users of their product from nonusers [15]. Perceived benefits of and barriers to using the product are given special emphasis. A variation of this method was employed by Turtle [16] to study library usage.

For this study, only adults were eligible. Two-minute interviews were conducted with “users” who had just used the services of the COIN centers (see Table 1 for questions), “nonusers” who were in proximity to the centers but did not use them, and individuals in various public places around the city (“street interviewees”). The same students who had conducted the observations read a request for consent to participate to prospective interviewees. After agreeing to participate, an individual was given a $5 coupon for food from a nearby vendor. The interviews were conducted orally, and the interviewers completed short paper-and-pencil interview records. No respondent names or other individual identifiers were collected or retained. Each interview was coded by 2 different interviewers, creating 2 data files for each type of interview. The frequency of occurrence of each possible closed-ended response was calculated on both file versions. The frequencies were compared for verification, and all discrepancies were resolved by referring to the original interview records.

**Key informant interviews**

The third source of data was key informant interviews with stakeholders [17]. These interviews were conducted to gain an in-depth understanding of the issues that affect usage of the information centers in the COIN network. Several initial respondents were nominated by the COIN director to reflect key insider perspectives. These respondents suggested others. Thirteen individual hour-long key informant interviews were conducted by either the social marketer or a graduate student in VCU’s master’s of public health (MPH) program.

The interviewer took written notes on the responses to fifteen open-ended questions. Topics ranged from respondent role to ways to maximize center usage. Perceptions of current usage and users were also solicited because, when deep penetration into a particular market segment has not yet been achieved, market share can sometimes be increased by promoting a product or service to people who are similar to current customers [18]. After each interview, the notes were typed and sent to the interviewee for comment and correction.

**Analysis**

The undergraduate psychology students who had collected the observational and brief intercept interview data were trained to code them and analyze them using SPSS 13 for Windows. The key informant interview transcripts were read several times and then themecoded by the social marketer (Kennedy). The MPH graduate student (Kiken) read all transcripts and provided an independent assessment of the adequacy and completeness of the list of themes.

**RESULTS**

**Observational findings**

**Passers-by.** Ninety-six 2-minute observations took place between 9:18 a.m. and 2:52 p.m. during weekdays in July. The number of data collections at each center is provided in Table 2.

**CHEC** had more than 50 passers-by during two-thirds of the observation periods. At WHRC, the average number of passers-by was 6.8 in 2 minutes. One observer used the metaphor of “seeing tumbleweeds” at PRC to underscore the dearth of passers-by, where the average number was 2.7.

**Activity tracking.** There were ninety-one eight-minute periods of tracking people who glanced at a center.

---

**Table 1 Brief intercept interview questionnaire items (user version)**

| Question                                                                 | Response Options |
|-------------------------------------------------------------------------|------------------|
| 1. Of the following choices, which word would you use to describe this facility? (reading room, resource room or center, library, information center, other) | (reading room, resource room or center, library, information center, other) |
| 2. How did you find out about this facility? (sign or brochure; doctor, nurse, other hospital staff referral; friend or family member; walked by it; other) | (sign or brochure; doctor, nurse, other hospital staff referral; friend or family member; walked by it; other) |
| 3. Did anyone encourage you to come here? (doctor, nurse, other hospital staff; friend or family member; someone at work; other) | (doctor, nurse, other hospital staff; friend or family member; someone at work; other) |
| 4. When you came here, did you have a specific question in mind? (yes, no) | (yes, no) |
| 5. How much information did you get? (not as much as I expected, about as much as I expected, more than I expected) | (not as much as I expected, about as much as I expected, more than I expected) |
| 6. Was it hard or easy to find this facility? | (hard or easy) |
| 7. What made it (hard or easy)? | (hard or easy) |
| 8. What do you think would help more people know about this facility? | (sign or brochure; doctor, nurse, other hospital staff referral; friend or family member; walked by it; other) |
| 9. Would it help to have ads on the radio or TV or in a newspaper? | (yes, no) |
| 10. Would you refer this facility to a friend or family member who needed health information? | (yes, no) |
| 11. Does knowing that this facility is here: (make your attitude about this hospital more positive or negative, make no difference in your attitude about this hospital in general). | (make your attitude about this hospital more positive or negative, make no difference in your attitude about this hospital in general). |
Only twenty-eight of tracked passers-by went into a center. The majority of CHEC users approached the center from the direction of the restrooms and automated teller machine instead of from general information or appointment desks located nearby in the hospital lobby.

**Brief intercept interview findings**

**Users.** Thirty-seven user intercept interviews were conducted with people who had used reference assistance or some other center service. Three additional people declined to be interviewed, citing time constraints or lack of interest in the incentives. When given a list of terms to describe the centers, respondents chose “resource room or center” (n=18, 49%) and “information center” (n=8, 22%) most frequently. “Library” was a less popular choice (n=2, 5%). Just over half of the users (n=20, 54%) found out about the center by walking by. Other referral sources mentioned more than once were a “doctor, nurse, or other hospital staff member” (n=8, 22%) and a “family member or friend” (n=2, 5%). Only 2 users said the center was hard to find. About half (n=18, 49%) had visited the center with a specific question in mind, and only 1 respondent reported receiving less information than expected. Users suggested advertisements (television, newspaper, radio, and Internet) as well as word of mouth or referrals and improved signage to increase awareness of the centers. Users supported various combinations of such channels, but no particular combination stood out. Most users (n=32, 86.5%) said knowing the facility was there made their attitude about the hospital more positive. All of the users said that they would refer others to the centers for health information. Consumer satisfaction data from users, immediate vicinity nonusers, and street interviewees are presented in Figure 1.

**Nonusers.** Thirty-eight nonuser intercept interviews were conducted with people who were in the proximity of a center that day but did not use it. Few (n=6, 16%) nonusers knew that there were 2 places the public could go to get free help finding health information at the medical facility at which they were interviewed.† Among those who knew about at least 1 center (n=10, 26%), 4 acquired the information because they walked by and 3 heard about it from a doctor, nurse, or pharmacist. One respondent each learned about the center through a sign or brochure, through a family member or friend, and by attendance at a seminar held there. To increase awareness of the centers, most nonusers (n=33, 87%) said advertisements would help, and a quarter (n=10, 26%) of these respondents made unprompted calls for better and more numerous signs. Newspaper, television, and radio were commonly cited channels for advertisements.

All of those who fell into the nonuser category in this study but had used the center in the past reported receiving at least as much information as they wanted. Strong majorities of nonusers said that they would think better of a hospital with a health information center (n=35, 92%) and that they would refer a family member or friend (n=34, 89%). One subject did not expect to think more highly of a hospital with a health information center because a hospital “is supposed to have one.”

**Street intercept interviewees.** Interviews were conducted at 7 different public places in the Richmond area; 17 of these “street” interviews were collected in all. Three interviewees said yes when asked if they knew that “at Stony Point Women’s Health Center and Downtown at MCV Hospital and Massey Cancer Center, there are places where the public can go to get free help finding health information.” Two people reported that they were encouraged to go to the centers by a doctor, a nurse, or other hospital staff, and 1 had heard about it from a friend or family member. Only 2 interviewees had tried to find a center. Both found doing so difficult because they were not given directions or signs were hard to see or read. Once these interviewees found the center, they received at least as much information as they wanted. Almost all (n=16, 94%) said advertisements would help boost awareness, and 10 of these respondents mentioned advertisements without being specifically prompted to do so. Television, radio, newspapers, and the Internet were suggested as advertising channels, with television being most popular (n=9, 53%). Four people (24%) recommended radio, and 4 recommended a combination of television and another medium. One person suggested using a testimonial interview format in advertisements. All street interviewees said that they would think better of a hospital with a consumer health information center, and almost all (n=16, 94%) said they would refer a family member or friend.

† Both the downtown and suburban medical centers have a general health information center and one that specializes in cancer. Unfortunately, the questionnaire did not capture knowing about at least one of the Community Outreach Information Network (COIN) centers. Because a quarter of the interviewees explained how they heard about a center, at least a quarter of the nonusers knew about at least one COIN center.

---

**Table 2**

| Community Health Education Center | Patient Resource Center | Women’s Health Resource Center | Linen Powell Resource Library |
|------------------------------------|-------------------------|--------------------------------|------------------------------|
| 2-minute observations              | 39                      | 28                             | 29                           |
| 8-minute activity* tracking         | 39                      | 25                             | 27                           |
| User intercept interviews           | 13                      | 10                             | 9                             |
| Nonuser intercept interviews        | 16                      | 9                              | 13                            |
|                                    |                         |                                | N/A                           |

* Numbers tracked are smaller than the number of 1-minute observations in some cases because no one glanced at a center during some 2-minute observations and so subsequent activity could not be tracked.

† Users at Linen Powell Resource Library were health care provider intermediaries such as physicians and oncology nurses.
Key informant interview findings

**Key informant perspectives and jobs.** Interviewees spoke from the perspectives of clinical care providers, clinical care managers, COIN managers, and COIN center staff members or volunteers. Interviewee job titles ranged from dean-level university librarian to clinic receptionist. Regardless of the nature or level of job held, every informant felt that a priority of COIN should be “to educate people about disease and how not to come back to the hospital.”

**User profiles.** When the key informants were asked an open-ended question about who the current COIN center users were, no one mentioned members of the broader community. First-time users were described as patients, their family members, people visiting patients, and medical staff intermediaries. Repeat customers were thought to constitute a substantial proportion of users. Additional descriptions distilled users into two groups. Members of one group were computer literate, assertive about asking for assistance, and clear about their questions. They came specifically for health information, and some of them just needed advice about which websites were credible. Members of the other group were at the opposite end of the health literacy spectrum. These individuals remembered only part of what the doctor told them, described their symptoms to center staff and volunteers, and, in essence, asked for a diagnosis. These user wanted “to know more [about] what I’ve got” and required substantial personalized assistance to formulate and narrow their health questions.

Most users are under stress from their own illness or that of a relative. Occasionally, a user just needs to talk. As one library staff member put it:

“We’re not counselors . . . but we will talk. In one instance, a family came in for information about bone cancer and the wife broke down. I took her to a quiet place in the center, she composed herself, and I offered her the number of our social work program.

Some patients and visitors need general information (e.g., directions and maps). Others are drawn to the pleasant COIN center settings. People who have to spend long hours in the hospital to help care for a relative can check their email. Use of the business services or children’s areas often leads to curiosity about the other services offered and the receipt of health information.

**Ways users find the centers.** Key informants held the view that a major share of the usage of all the COIN centers came from referrals from doctors and nurses, and one key informant doubted the value of written materials for bringing users into the centers. One of the cancer centers was getting about twenty telephone calls a month from people in the community, so callers might be finding the number on the Internet. Reportedly, some people learned about a facility by attending a support group held there. Respondents also described a pilot outreach project in which a librarian visits all the patients in a women’s surgical care wing to assess their information needs and deliver relevant health information on requested topics. This approach
was considered very successful by several key informants.

Adequacy of holdings. Having adequate center holdings should contribute to customer satisfaction and repeat business, but adequacy must be operationally defined. One respondent expressed the view that center holdings vary according to center service philosophy. Specifically, “two centers provide standard packets of health information to many of their consumers, one teaches people to find health information themselves, and one has a mixed model.”

Some respondents felt that books seem more credible than handouts printed from computer files, but books go out of date quickly. Because orders for new items must go through a larger “parent” library system, the computer was described as “invaluable” for acquiring current information. While there is material for adults written at a low reading level, materials for the very low literate were considered inadequate. For example, audio tutorials from the National Library of Medicine were described by one key informant as “written from a professional point of view.”

One respondent was enthusiastic about the LPRL program for users with low literacy that entails one-on-one information sessions with a retired physician. The respondent also praised a product that LPRL developed to help cancer patients maintain and organize key information about their disease and treatment: the Journeys notebook defines oncology, clinical trials, and treatment team roles and has blank space in which contact information for treatment team and support staff members can be inserted. It explains transportation options and lab results for blood work and includes appointment calendars, medication rosters, and other resources that attempt to bridge the gap between what patients know and “what they need to know.”

Holdings in some topic areas (e.g., bariatrics and wellness) were flagged as lacking sufficient depth. A perceived dearth of material in foreign languages other than Spanish was considered partially addressed by a real-time telephone translation service.

Current and potential levels of center traffic. Center traffic at the suburban centers was said to be heavier when doctors had more appointments scheduled, and traffic was thought to be slow during the summer. There were marked cross-site differences in degree of satisfaction with current traffic levels. Several respondents said they would like to see more traffic because “it’s easier to recruit volunteers if they stay busy.” However, they described the current level of traffic as “nontrivial” and “overwhelming some days and underwhelming other days.” Volunteer availability was intermittent; a respondent explained that when there were no volunteers, librarians in three of the centers must close the facilities to leave for breaks and mandatory meetings. Even when the centers were open, users were not approached when staff members are performing required administrative duties. If staffing levels were not increased, respondents predicted that a significant increase in traffic would require switching to less personalized forms of service and using more interns. Conversely, with more staff, service could be extended to nights and weekends, laptop computers with wireless Internet connectivity could be used to take information to patients in the clinics, external outreach could be conducted, and more information could be sent via email or “pushed” to Website visitors.

Ways usage could be increased. Ideas for boosting utilization fell into three categories: changes to the physical environment, media promotions to the public, and encouragement of medical staff referrals. The major themes in the suggestions are listed in Table 3.

Words of caution about traffic promotions. One respondent wanted to see evidence that usage mattered in terms of patient outcomes or satisfaction with hospital services before endorsing efforts to increase usage, but all of the key informants said that they would be willing to participate in creating and implementing an intervention designed to boost COIN center traffic. When asked what might impede the success of such an intervention, they mentioned the barriers listed in Table 4.

Table 3
Key informant suggestions for boosting center traffic levels

| 1. Using clearer signage |
| 2. Promoting specific centers through various media channels |
| 3. Adding staff |
| 4. Making referrals more routine through visual reminders, procedural changes, staff training, or promotional activities like rewards for staff |
| 5. Targeting community members or families instead of patients |
| 6. Holding more staff and community meetings in the center |
| 7. Moving some centers to locations that get more foot traffic |

Table 4
Potential barriers to success of a center utilization campaign

| 1. Overloading of the current center capacity |
| 2. Delays in clearing proposed intervention procedures through the complex and decentralized reporting structure of the hospital |
| 3. Tension between patient education on targeted health topics and open-ended consumer health information, a function of concern about return-on-investment |
| 4. Potential of promotions to soak up resources |
| 5. Provider discomfort with the term “information prescription” (used in a pilot project in which physicians were asked to refer patients to a COIN center for health information) |
| 6. Parking shortages and safety concerns about inner-city locations |

Table 5
Key informant quotes about a lack of a customer-centric perspective among center staff

| 1. The librarians and volunteers don’t really want sick people down there; they’re afraid someone will require medical assistance or soil the holdings. |
| 2. People don’t have the time or knowledge to use our centers; maybe we should close them and go to people. |
| 3. The attitude that we work [only] 9–5 must change. |
| 4. Information should be provided at teachable moments, and we don’t know how. |
need for more flexibility and customer-centrism regarding the location and manner in which information is offered. Together, they represent the view that increasing center traffic may be the wrong objective.

**DISCUSSION**

In this study, heavy foot traffic was observed outside of CHEC, the largest COIN center. Data from CHEC user intercept interviews and routine center usage records showed that users learned about three of the COIN centers mainly from walking by. However, most nonusers in the immediate vicinity of a center did not know that the center was there. Intercept interview respondents reported very high levels of consumer satisfaction with center services or support of the center concept, and they recommended increasing center awareness through media promotions. In contrast, key informants stressed hospital-based promotion measures (e.g., routinizing referrals from medical staff).

Each of the data collection methods used in the study had limitations. The observational procedure could not discern whether a passer-by who looked at a center really understood its purpose. The intercept interviews were convenience samples, and there were very few street interviewees and venues, so the intercept interview findings from the samples could not be generalized to the hospital or community populations. The fact that the COIN administrator nominated key informants might have introduced selection bias. On the other hand, for just under $5,000 (not counting the in-kind donation of the social marketer’s time), information was cross-validated across several sources, including primary target audience members [19].

A physical move of one of the COIN centers was suggested by key informants. Such a move is planned and will probably increase foot traffic. Some of the other suggestions for promoting center usage would be relatively inexpensive and could have enduring effects, but additional formative research is needed to design intervention strategies with the greatest chance of increasing center utilization. It is especially important to pretest message concepts, promotional materials, and signs with low-literacy groups. Procedures for such tests are spelled out in *Making Health Communications Work*, a technical assistance manual developed by the National Cancer Institute [20]. A marketing campaign to increase center traffic that would involve additional formative research is under consideration by the CHEC Steering Committee. Committee members are weighing the possibility that a major influx of users could offset the health literacy benefits of one-on-one assistance from trained staff.

Several key informants suggested bringing information to consumers and pointed to a successful hospital waiting room pilot program. Taking this procedure to full hospital-scale would require investing in portable computers, wireless Internet access, and more staff as well as changing the mindsets of some professionals and volunteers who currently play a more reactive role in a fairly controlled environment.

A similar theme in the key informant data was seizing “teachable moments.” Existing medical literature defines teachable moments as encounters in the immediate aftermath of a diagnosis or other event that increased a sense of personal risk and prompted strong emotional responses [21]. There is evidence that when physicians and nurses have conversations with patients in such moments and the conversations are extended and focused on specific risk reduction steps, retention of the actionable health information increases [22, 23]. However, there is still much to learn about how consumer health information center staff can provide the most useful health information, in the most convenient places, at times when it can be processed best, without crossing the line into counseling.

An estimated 14% of the US population falls below a basic level of health literacy [24], and insufficient health literacy skills have been associated with negative health outcomes and financial costs to the health system [25]. Two key components of health literacy are the abilities to access accurate, up-to-date health information and to use the information to make appropriate decisions about one’s health [26].

Part of the mission of the National Network of Libraries of Medicine (NN/LM) is improving public access to the information necessary to make informed health decisions, and libraries have been urged to reach out to low literate groups in the community [27-29]. The COIN centers are members of NN/LM and were developed with the conscious goal of increasing health literacy. This project grew out of a health literacy interest group organized for VCU personnel by a director of COIN. Full utilization of COIN center services is a feasible, tangible objective along the path to health literacy in Richmond.

**CONCLUSIONS**

Formative market research that employed triangulation of findings generated by various data collection methods provided valuable guidance for a future intervention to increase consumer health information center usage. At a minimum, steps should be taken to make the centers with substantial foot traffic more visible. It is likely that more active measures would be needed to achieve the full service potential of the centers. Community members move in and out of hospital patient status, so usage promotions aimed at one subgroup should eventually facilitate access in the other; both hospital-based and community-based center usage promotions may be warranted. The consistency of the indicators of public support and consumer satisfaction was striking to the research team and should not be dismissed by health system decision makers [30].

**ACKNOWLEDGMENTS**

The authors acknowledge Amy Green for her work on the study proposal, design, and instruments. We also thank the interviewers—Miranda Vielot, Krystal Green, and Shayla Anderson—for their commendable efforts.
REFERENCES

1. National Library of Medicine. Find a library [web document]. The Library. [rev. 13 Aug 2007; cited 16 Aug 2007]. <http://www.nlm.nih.gov/medlineplus/libraries.html>.

2. Parker R, Kreps GL. Library outreach: overcoming health literacy challenges. J Med Libr Assoc 2005 Oct;93(4 suppl): S81–S85.

3. Wells K. White Paper: Cost savings of closing, downsizing, resource cutting, and outsourcing: myth or truth? [web document]. Chicago, IL: Medical Library Association. [rev. 5 Jul 2007; cited 16 Aug 2007]. <http://www.mlanet.org/resources/vital/>.

4. Sen B. Market orientation: a concept for health libraries. Health Info Libr J 2006 Mar;23(1):23–31.

5. Wakeman M. Marketing and health libraries. Health Info Libr J 2004 Dec;21(4):237–44.

6. Andreassen A. Strategic marketing for nonprofit organizations. Englewood Cliffs, NJ: Prentice Hall, 2004.

7. Bonoma TV. Marketing in marketing: opportunities, problems, and a process. J Marketing Res 1985 May;22(2):199–208.

8. Thurmond VA. The point of triangulation. J Nurs Scholarsh 2001;33(3):253–8.

9. US Census Bureau. Population estimates [web document]. The Bureau. [rev. 5 Apr 2007; cited 17 Aug 2007]. <http://www.census.gov/population/www/estimates/CBSA-est2006-annual.html>.

10. Community Outreach Information Network [web document]. Richmond, VA: Virginia Commonwealth University. [rev. 4 Oct 2006; cited 16 Aug 2007]. <http://www.library.vcu.edu/coin/>.

11. Community Health Education Center [web document]. Richmond, VA: Virginia Commonwealth University. [rev. Aug 2006; cited 16 Aug 2007]. <http://www.vcuhealth.org/cheec/1>.

12. Koontz C. Customer-based marketing: retail interior layout for libraries [web document]. Marketing Libr Serv 2005 Feb;19(1). (Available from: <http://www.infotoday.com/MLS/jan05/koontz.shtml>. [cited 16 Aug 2007].)

13. Wells WD, Lo Scuito LA. Direct observation of purchasing behavior. J Marketing Res 1966 Aug;3(3):227–33.

14. Russo JE, Leclerc F. An eye-fixation analysis of choice processes for consumer nondurables. J Consumer Res 1994 Sep;21:274–90.

15. Bush AJ, Hair JE. An assessment of the mall intercept as a data collection method. J Marketing Res 1985 May;22(2):158–67.

16. Turtle KM. A survey of users and non-users of a UK teaching hospital library and information service. Health Info Libr J 2005 Dec;22(4):267–75.

17. Gilchrist V. Key informant interviews. In: Crabtree B, Miller D, eds. Doing qualitative research. Newbury Park, CA: Sage Publications, 1992.

18. Gensch D, Ulf PW. Optimum budget allocation model for dynamic, interaction market segments. Management Sci 1973 Oct;20(2):179–90.

19. Brawn TS. Consumer health libraries: what do patrons really want? J Med Libr Assoc 2005 Oct;93(4):495–6.

20. National Cancer Institute. Making health communications work [web document]. Bethesda, MD: The Institute. [cited 16 Aug 2007]. <http://www.cancer.gov/pinkbook/>.

21. McBride CM, Ostroff JS. Teachable moments for promoting smoking cessation: the context of cancer care and survivorship. Cancer Control 2003 Jul–Aug;10(4):325–33.

22. Flocke SA, Stange KC. Direct observation and patient recall of health behavior advice. Prev Med 2004 Mar;38(3):343–9.

23. McBride CM, Emmons KM, Lipkus IM. Understanding the potential of teachable moments: the case of smoking cessation. Health Educ Res 2003 Apr;18(2):156–70.

24. Kutmner M, Greenberg E, Jin Y, Paulsen C. The health literacy of America’s adults: results of the 2003 National Assessment of Adult Literacy. Washington, DC: National Center for Educational Statistics, Department of Education. DE pub no. 2006483 Sep 2006.

25. Berkman ND, DeWalt DA, Pigeon MP, Sheridan SL, Lohr KN, Lux L, Sutton SE, Swinson T, Bonito AJ. Literacy and health outcomes. Evidence report/technology assessment no. 87. Rockville, MD: Agency for Healthcare Research and Quality. AHRQ pub no. 04-E007-2 Jan 2004.

26. Institute of Medicine. Health literacy: a prescription to end confusion. Washington, DC: National Academies Press, 2004.

27. Peay WJ, Rockoff ML. The National Library of Medicine’s 2004 “Symposium on Community-based Health Information Outreach”: introduction. J Med Libr Assoc 2005 Oct;93(4 suppl):S43–S48.

28. Wood FB, Lyon B, Schell MB, Kitendaugh P, Cid VH, Siegel ER. Public library consumer health information pilot project: results of a National Library of Medicine evaluation. Bull Med Libr Assoc 2000 Oct;88(4):314–22.

29. Stephenson PL, Green BE, Wallace RL, Earl MF, Orick JT, Taylor MV. Community partnerships for health information training: medical librarians working with health-care professionals and consumers in Tennessee. Health Info Libr J 2004 Jun;21(suppl 1):20–6.

30. Friedman CP. “Smallball” evaluation: a prescription for studying community-based information interventions. J Med Libr Assoc 2005 Oct;93(4 suppl):S43–S48.

AUTHORS’ AFFILIATIONS

May G. Kennedy, PhD, MPH, mkgkennedy@vcu.edu, Associate Professor, Department of Social and Behavioral Health, School of Medicine, P.O. Box 980149; Laura Kiken, MPH, lkikiken@vcu.edu, Department of Psychology, P.O. Box 842018; Jean P. Shipman, MSLS, AHP, jshipma@vcu.edu, Director, Tompkins-McCaw Library for the Health Sciences, and Associate University Librarian, Virginia Commonwealth University Libraries, P.O. Box 980582; Virginia Commonwealth University, Richmond, VA 23298

Received July 2007; accepted August 2007