

Community and Case Management Interventions to Address Social Determinants of Health in Infectious Disease

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ABSTRACT

Purpose/Objectives: Professional case managers are responsible to conduct education, counseling, and other interventions that address the unique needs and gaps of the patients and families they serve. Social determinants of health (SDH) can impact barriers to patient care and outcomes that may go undetected among underserved populations without reliable data. This article describes an implementation science study using patient and provider-informed data and designed interventions to mitigate barriers in SDH related to hepatitis B virus (HBV).

Primary Practice Settings: Case managers and other health care team members in community health clinics examined discordances in their own patients' and providers' beliefs about patients' barriers to HBV care. Data were then used to help identify and engage unique strategies in education, counseling, and clinic outreach to improve outcomes in HBV and lessen barriers to care among at-risk minority populations.

Findings/Conclusions: Findings from data and information conducted among the clinic patients and health care team members revealed many important barriers in key aspects of SDH occurring in each clinic. As a result, case managers and other health care team members were able to examine distinct differences in what they predicted their patients would say versus what patients actually answered about SDH aspects of their care experiences, including barriers in access to care, health monitoring, and treatment of HBV.

Implications for Case Management Practice: The study and data results have implications for case management practice that may also be applied to other infectious diseases. Implications include patient and community outreach strategies to improve access to care; resource management techniques to improve referrals and disease monitoring; and ongoing and improved education and counseling to change behaviors associated with infectious disease prevention, screening, and linkage to care.

Key words: *implementation science, social determinants of health*

The World Health Organization and U.S. public health agencies have set goals for eliminating hepatitis B virus (HBV) as an infectious disease of significant threat to underserved populations (National Academies of Sciences, Engineering, and Medicine, 2017; World Health Organization, 2017). In the United States, chronic HBV affects an estimated 1.2 million people, with Asian Americans and Pacific Islanders comprising about 50% of Americans living with HBV (Centers for Disease Control and Prevention, 2010). Foreign-born immigrants are at highest risk and also include African immigrants (Centers for Disease Control and Prevention, 2020).

Major gaps and barriers to optimal HBV care in at-risk communities limit the potential for achieving HBV elimination goals. Published data have suggested that key social determinants of health (SDH)

including barriers to appropriate testing, poor access to care, stigma, health literacy, and cultural and other factors may have a direct correlation to the burden of HBV among minority populations in the United States (Greene, Duffus, Xing, & King, 2017;

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Vijayadeva et al., 2014). The role and responsibilities of case managers can greatly impact these mitigating factors (Fink-Samnack, 2018) and influence the tipping point at which patients may avoid suffering from disparities in HBV care.

A study was conducted in 2018–2019 among 18 U.S. community health centers (CHC) across the United States to compare perceptions of barriers to HBV care between CHC health care teams and their patients. The intent of the study was to identify discordances between community-based patients and their health care teams related to perceptions and biases in prevention, diagnosis, treatment, and monitoring of HBV, as well as to encourage the design of sustainable interventions in community clinics that can overcome SDH among patients at risk or with HBV.

To identify and adopt sustainable interventions, the study engaged implementation science strategies that included collaborative patient and provider education conducted in the clinics, as well as use of a downloadable e-tool kit: “A How-to Guide for Collaborative Hepatitis B Education for High-Risk Patient Populations.” The tools in the guide were accredited for continuing education for physicians, nurse practitioners, physician assistants, nurses, certified case managers, and pharmacists. The collaborative learning tool was a patient-centered slide deck: “Ending Hepatitis B Starts with You: Protect Yourself, Protect Your Loved Ones.” The slide deck included self-guided speaker notes and evidence-based resources for case managers and other clinicians to use as part of a patient education strategy. Additional supportive tools highlighted social media and other communication formats for clinics to improve effective outreach strategies throughout the community related to HBV local resources.

Education targeted patient and provider knowledge and behavior related to HBV risk factors, testing, vaccination, and treatment. Education also targeted CHC health care teams’ role in improving patient and community access to treatment and disease monitoring and engaging shared decision making with patients.

STUDY DESIGN

To represent a diverse cultural population, CHCs were selected in states with a prevalence of HBV, as identified by the Centers for Disease Control and Prevention. Community clinics serving diverse minority populations were selected in the Hawaiian Islands, California, Washington, Louisiana, Mississippi, Georgia, Florida, Virginia, Minnesota, New York, New Jersey, Rhode Island, and Connecticut.

Patients in the study ($N = 340$) represented foreign-born and U.S.-born people of Asian, Pacific Islander, and African descent. Table 1 identifies the race/ethnicity of patients in the study. Clinics enrolled in the study engaged members of their interprofessional health care teams to participate in surveys and group education and to identify and develop subsequent data-driven interventions. Health care team members ($N = 39$) included nurses and nurse case managers ($N = 36\%$), counselors and care managers ($N = 39\%$), nurse practitioners ($N = 17\%$), and physicians ($N = 10\%$) who provide health care at the respective clinics (see Table 2).

Surveys for patients were conducted in Burmese, Chinese, Vietnamese, and English. Patients responded to questions related to HBV screening, vaccination, treatment, personal knowledge about the disease, and attitudes and values that may contribute to social stigma and biases. Surveys for health care clinicians

TABLE 1
Patient Demographics

Patients ($n = 340$)	
Female (%)	55
Average age (years)	63
Race/ethnicity (%)	
Asian/Pacific Islander	58
African American	25
Hispanic	10
Caucasian	5
Native American/Alaska Native	2

TABLE 2**Health care Team Demographics**

Providers (N = 39)	
Female (%)	87
Average years in practice	10
Discipline (%)	
Counselor	39
Nurse/nurse case manager	36
Nurse practitioner	17
Physician	10

asked team members to estimate their patients' perceptions about these topics and designated barriers. Following the surveys, patients and providers participated in group education. Pre- and posteducation surveys were administered to assess any changes in knowledge, attitudes, and beliefs about aspects of HBV care.

Education was delivered by case managers and others clinicians during a face-to-face group session conducted over lunch or after-hours in each clinic. In addition to surveying the patients before and after the education, all clinicians participating in, observing, or conducting the education session at each clinic also completed pre- and posteducation surveys, in order to assess the extent to which the education improved knowledge, attitudes, and beliefs about HBV risks, prevention, treatment, and ongoing management. Case managers and other health care team members who participated in the education and/or provided individual counseling were supported through a train-the-trainer format. Each trainer was provided with a downloadable kit that included tips for effective, nonjudgmental communication and provided with patient-centered PowerPoint slides that included speaker notes and evidence-based references. Handouts for patients were also provided. In addition, the trainer was provided with how-to materials for scheduling, advertising, setting up, and delivering live training sessions in the clinics that would enhance community

TABLE 3**Education-Associated Changes in Patients' Knowledge About and Attitudes Toward HBV Care**

Survey Item	Pre-education	Posteducation
Believe that they are at risk for HBV (pre-education)/willing or very willing to be screened for HBV	53%	85%
Believe that HBV can be spread through sex	51%	80%
Agree that annual appointments with specialists are needed	70%	82%
Believe that traditional or natural remedies are more effective than Western medicines for HBV	21%	12%

Note. HBV = hepatitis B virus.

outreach while being sensitive to the time commitments and care burdens of busy clinicians.

CASE MANAGEMENT FINDINGS

Data gathered from the patients and from the health care team members in this study suggest key improvements. Patients in the clinics who were willing to be tested for HBV increased from about half (53%) before receiving group education to 85% after receiving education. Likewise, patients' belief that HBV can be spread through sexual relations increased from 51% prior to the education to 80% following the education (see Table 3).

When asked to rank professional services that could achieve HBV elimination in their community, health care professionals ranked case management (67%) and mental health services (61%) as highly effective counseling interventions, followed by referrals to HBV specialists (61%). The role functions of professional case managers involve key components identified in the CMSA Standards of Practice for Case Management (2016), many germane to the objectives and interventions in this study such as the following:

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- “Educating the client, the family or family caregiver, and members of the interprofessional health care team about treatment options, community resources, health insurance benefits, psychosocial and financial concerns, and case management services, in order to make timely and informed care-related decisions.”
- “Counseling and empowering the client to problem-solve by exploring options of care, when available, and alternative plans, when necessary, to achieve desired outcomes.”
- “Identifying barriers to care and client’s engagement in own health; addressing these barriers to prevent suboptimal care outcomes.
- “Striving to promote client self-advocacy, independence, and self-determination, and the provision of client-centered and culturally appropriate care.”

In addition to the pre- and posteducation results, findings from the surveys conducted among the clinic patients and health care team members revealed many important barriers in key aspects of SDH occurring in each clinic. As a result, case managers and other health care team members were able to examine distinct differences in what they predicted their patients

would say versus what patients actually answered about SDH aspects involving access to care, health monitoring, and treatment of HBV. Through subsequent team meetings, clinicians were then encouraged to consider individualized care coordination strategies that their respective clinics could implement, such as improving awareness of the clinic’s HBV services within the community; identifying resources to educate the staff and the patients in specific areas of need; and implementing social outreach and reminders for patients to return for annual checkups. Often, health care teams are not aware of these gaps or how these unresolved gaps can negatively impact patient and community health outcomes.

Among findings from the surveys, discordances were seen in perceived barriers to HBV screening, with the majority of health care clinicians believing that their patients do not get screened because they do not feel the need to get tested, whereas most patients responded that they do not know where to go to be tested (see Figure 1). Similarly, clinicians mostly predicted that their patients feared side effects from HBV vaccination or did not believe in a vaccine’s effectiveness, whereas the majority of patients responded that not knowing where to go to get vaccinated was their primary reason for not getting vaccinated (see Figure 2). By reviewing these results, case managers and other health care team members were able to consider shifting some of their resources from inward to outward strategies. In other words, rather than focus only on individual patients in the clinics, team members turned their attention to the local community, where they could distribute flyers and advertising and communication strategies to build awareness for the clinic’s HBV screening and vaccination services as well as how to access those services.

Health care team members cited several reasons why their patients might not follow up for annual

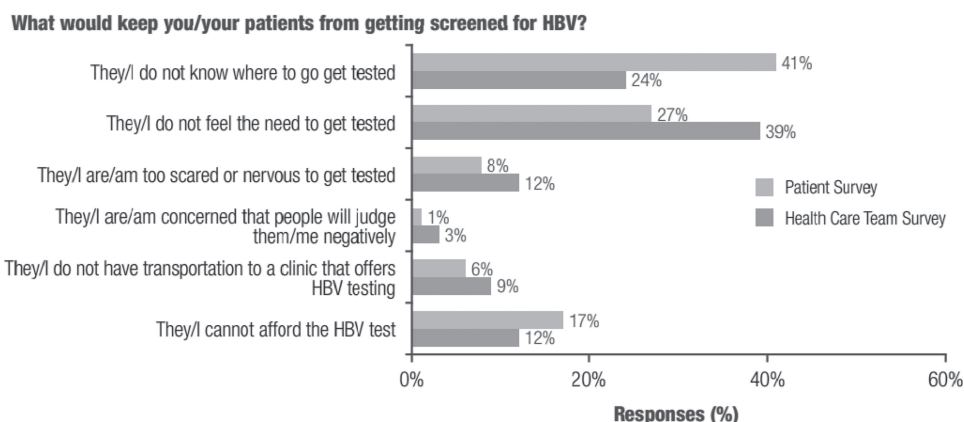


FIGURE 1

Patient and health care team perceptions of barriers to HBV screening. HBV = hepatitis B virus.

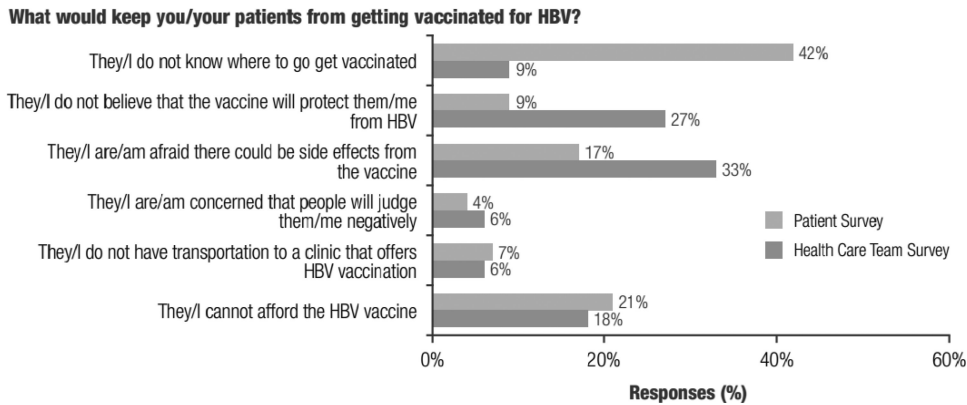


FIGURE 2
Patient and health care team perceptions of barriers to HBV vaccination. HBV = hepatitis B virus.

care to evaluate their liver health, with the majority of clinicians believing that cost was a primary driver. However, an overwhelming 60% of patients cited no barriers to care and indicated that they would follow up with an HBV specialist at least once a year (see Figure 3). These data assisted clinics in focusing resources less on education related to care continuity and more on effective referral processes.

CASE MANAGEMENT AND CARE COORDINATION INTERVENTIONS

Case managers and other members of the clinic teams uncovered and addressed important patient outcomes that could be improved through patient counseling, education, and simple community strategies implemented at the clinic level. These milestones could affect the tipping point at which SDH negatively impacts a community and provides strategies that can be applied across other infectious diseases.

Through the support of their case managers and other team champions, several clinics pledged

to adopt newly identified action plans unique to their clinic's own patient population and intended to improve care coordination processes in patient care delivery. These strategies were determined by each health care team after reviewing the results of their own patients' survey data and observations gained from their education and counseling sessions. Not surprisingly, health literacy became a greater focus of some of the enrolled clinics.

For example, an Asian-dominated clinic in Atlanta, GA, determined that it would repurpose the educational materials provided in English as part of the study's interventions. It set a goal to create culturally competent printed "knowledge nuggets" for HBV prevention and care that would be transcribed into Chinese, Vietnamese, Japanese, and Korean, and distributed throughout the community. Recognizing that foreign-born older patients in their community were at greater risk for HBV, the health care team also determined to conduct educational sessions in their clinic specifically geared toward Asian seniors. In 2020, this Atlanta clinic reported conducting a community

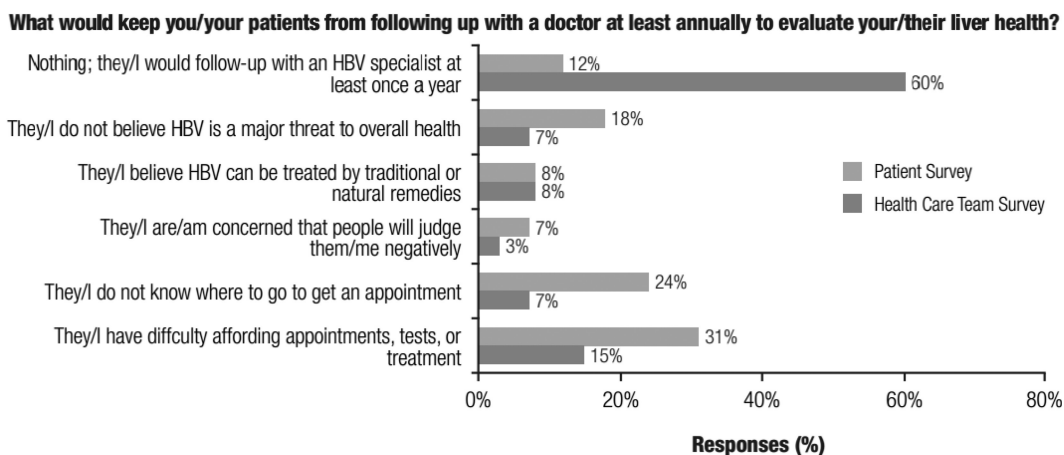


FIGURE 3
Patient and health care team perceptions of barriers to HBV monitoring. HBV = hepatitis B virus.

Case managers can take a leadership role in propelling other members of the health care team toward simple but sustainable solutions to mitigate SDH related to HBV prevention and treatment, which might also be applied across other infectious diseases.

education program in Korean, after which it successfully screened and tested more than 100 patients for HBV. This outcome suggests that clinics are following through with their action plans to thwart the impact of HBV in their own communities.

Other health care teams utilized linkages established through the study to set up continued collaborations with other community and state-level organizations that allow them to gain better access to important resources. Examples of larger organizations include Boat People SOS (BPSOS), the Asian Pacific Health Foundation, the Harm Reduction Services Branch of Hawaii, and various state departments of health. Some clinic case managers also reached out to case management departments in their local area hospitals to set up a streamlined referral process for at-risk patients needing HBV screening and vaccination services. One clinic identified strategies to increase disease monitoring of patients with HBV, including a method to engage text messaging and mail alerts to inform patients when it is time for an annual clinic visit, or to help them follow up with a referral for specialty care.

Most of the clinics expressed a desire to continue to conduct the patient education sessions that were initiated as part of the study's interventions. When clinic health team members were asked what were the most beneficial aspects of the study, the highest selection by health care providers (60%) was "Determining what my patients know and do not know about HBV." Case managers and all health team members who are better informed about the knowledge, values, and beliefs of their patients are better prepared to advocate for their patients and to engage in truly patient-centered care.

IMPLICATION FOR CASE MANAGEMENT

This study rendered several conclusions that have implications for case management practice.

Health care teams in the community clinics largely underestimated their patients' lack of knowledge about access to care for HBV, including where to go for screening, and vaccination for HBV. Access to care is a key SDH. Simple solutions, such as improving awareness among underserved populations related to accessing clinic services, could reduce SDH at the grassroots level.

Likewise, health care teams largely underestimated their patients' barriers to receiving annual follow-up disease monitoring and care. As stewards of resource management, case managers can be instrumental in disease monitoring and care continuity by helping patients afford health care appointments and treatments and assisting patients with care transitions, such as identifying HBV specialists.

Ongoing education and counseling interventions through case management can be developed, tailored, and implemented at the clinic level to improve population-based knowledge and behaviors associated with HBV prevention, screening, and linkage to care.

Case managers can take a leadership role in propelling other members of the health care team toward simple but sustainable solutions to mitigate SDH related to HBV prevention and treatment, which might also be applied across other infectious diseases.

CONCLUSION

Hepatitis B virus is an infectious disease having a profound impact in underserved populations of the United States. Social determinants of health including barriers to appropriate testing, access to care, health literacy, and cultural and other factors may have a direct correlation to the burden of HBV among minority populations. Case managers working in unison with other health care team members can mitigate the impact of SDH at the local community level. Data-informed strategies and interventions that uniquely leverage insights on patients' and providers' knowledge, attitudes, beliefs, and competence in HBV can support sustainable improvements in the delivery and coordination of care. Interventional techniques identified by case managers and other health care team members in this study may also be applied to other infectious diseases impacting underserved patients in our communities, particularly when infectious diseases impact patients' long-term health.

REFERENCES

Case Management Society of America. (2016). *Standards of practice for case management (2016 Revision)*. Retrieved from <http://solutions.cmsa.org/acton/media/10442/standards-of-practice-for-case-management>

- Centers for Disease Control and Prevention. (2010). *Hepatitis B: Are you at risk?* Retrieved from <https://www.cdc.gov/hepatitis/HBV/PDFs/HepBAtrisk.pdf>
- Centers for Disease Control and Prevention. (2020). *Asian Americans and Pacific Islanders and chronic hepatitis B*. Retrieved from: <https://www.cdc.gov/hepatitis/populations/api.htm>
- Fink-Samnick, E. (2018). Managing the social determinants of health: Part I: Fundamental knowledge for professional case management. *Professional Case Management*, 23(3), 107–129.
- Greene, K. M., Duffus, W. A, Xing, J., & King, H. (2017). Social determinants of health associated with HBV testing and access to care among foreign-born persons residing in the United States: 2009–2012. *Journal of Health Disparities Research and Practice*, 10(2), 1–20.
- National Academies of Sciences, Engineering, and Medicine. (2017). *A national strategy for the elimination of hepatitis B and C*. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK442227/>
- Vijayadeva, V., Spradling, P. R., Moorman, A. C., Rupp, L. B., Lu, M., Gordon, S. C., ... Nakasato, C. (2014). Hepatitis B virus infection testing and prevalence among Asian and Pacific Islanders. *American Journal of Managed Care*, 20(4), e98–e104.
- World Health Organization. (2017). *Global hepatitis report, 2017*. Retrieved from <http://apps.who.int/iris/bitstream/10665/255017/1/WHO-HIV-2017.06-eng.pdf>

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