

Linkage-To-Care Results

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Introduction to Hepatitis B

Hepatitis B is a fatal liver disease that once contracted, will cause liver cirrhosis and eventually, death. About 10 times more people have HBV than AIDS, but unlike AIDS, HBV is entirely preventable. If contracted, the disease is incurable, but with vaccination, the disease is preventable. Treatment of hepatitis B can extend well over \$500,000, but a preventative vaccine pales in comparison, to about \$175/shot in private practices. Many patients with Hepatitis B experience no symptoms, and when they do, Hep B has already progressed to a state equivalent to Stage IV cancer. With an overwhelming degree of patients in San Diego without this knowledge, it is imperative that they get tested and vaccinated.

Source: <http://liver.stanford.edu/education/whatishepb.html>

Results

The APHF wants to determine its efficacy in their patient linkage to care for Hepatitis B (HBV) patients. To this end, the APHF collected patient data for 519 patients over several HBV clinical screenings from October 2013 to December 2014. For each patient, the data recorded includes post-test counseling (PTC) received by the patient, referral to medical care by the APHF, and attendance to the patient's first appointment. From their sample of 519 patients, 3 patients were unable to be categorized due to absent test results. The remaining 516 patients were divided into 5 categories: not exposed to HBV; immune to HBV, having chronic HBV; exposed to HBV and cleared a recent HBV infection; and exposed to HBV and cleared a past HBV infection.

Profile 1

For those not exposed to HBV, it is critical that they receive a vaccination, and receive post-test counseling to avoid any activity in which they contract HBV. Results indicate that 137 patients, or 26.4% of this study's patients have not been exposed to HBV. A small minority of these have received post-test education, only 6 received post-test counseling. 2 patients received PTC only in risk reduction and medical education, while 4 patients received PTC in alcohol, risk reduction, and medical education. No one was referred to medical care.

Profile 2

For those immune to the disease, the APHF needs to take no action. 105 patients or 20.2% of the patients tested for immunity. All immune patients were correctly not linked to medical care. However, 2 of these patients received post-test counseling of all types, a minimal but unnecessary expenditure of APHF resources.

Profile 3

Chronic HBV patients require post-test counseling to reduce the risk of further complicating their current symptoms, and linkage to care so that their symptoms can be continually monitored. 25 patients (4.89%) tested positive for chronic Hepatitis B. Of these, 22 patients, an 88% majority, received post-test counseling. For the 3 individuals that did not receive PTC, one patient was lost to follow up, the APHF did not answer phone calls of another patient, and the third patient did not answer calls from the APHF. All patients of this category except one attended all forms of PTC: alcohol, risk reduction, and medical education, with the last patient attending only alcohol and risk reduction PTC. However, only 16 individuals, an 80% majority, were confirmed referred to medical care, with 7 individuals confirmed not referred to medical care and 2 individuals of an unknown state. Of those referred to medical care, 14 were referred to a primary care provider, and 2 of them unknown. 4 of these individuals already have previous health care, and should not have been linked to health care. 1 of these individuals have already attended their first appointment, 8 are in progress of attending their first appointment, and the state of attendance is not known for 4 patients.

Profiles 4 & 5

For those exposed to HBV and have fought off a previous HBV infection, it is most likely that these individuals have already taken post-test counseling, and are already linked to medical care. 249 patients (48.0%) tested for this category. Of these patients, 10 (4.0%) received PTC in alcohol, risk-reduction, and medical education. Four patients were referred to primary care providers, and are in progress of attending their first appointment.

Analysis

Of those with chronic HBV, the APHF provides excellent linkage for patients to post-test counseling. For those that did not make it to post-test counseling, the subject did not return calls from the APHF, or the subject was lost to follow-up. However, there was one instance where the APHF did not return calls from a patient. The APHF refers to a majority of its chronic Hepatitis B patients to health care providers. However, a sizable minority, 18%, is already linked to health care, rendering these linkages unnecessary. The APHF does not know whether a quarter of the people referred actually attended their first appointment. Those in progress of attending their first appointment also risk the possibility of not even attending. Thus, the APHF needs to implement a better form of tracking patient data.

For patients not previously exposed to HBV, a disquietingly small percentage of these people were referred to PTC. Reasons were not given as to why these people did not receive PTC. It is unknown whether these people were recommended to get vaccinated, and no current method to track vaccination status of these patients.

Regarding those immune to HBV, 2 patients received PTC. Unless they were attending it on behalf of another who is not immune to HBV, the APHF is unnecessarily expending resources to educate these people. Despite this, the APHF has not expended on vaccines or unnecessary medical care. Post-test counseling has been kept to a minimum.

For those who have fought off a previous infection of HBV, PTC and linkage-to-care was given on an as-needed basis. Only a small majority of this group needed either. For the 10 patients who needed PTC, they received PTC in all categories: alcohol, risk reduction, and medical education. The APHC has done an excellent job in providing holistic post-test counseling. For the 4 patients that needed medical care, they were all linked to primary care providers. All of them were in the process of attending their first appointment.

Discussion

In summation, the APHF has achieved most of its goals regarding linkage-to-care. A majority of patients with chronic Hepatitis B were given post-test counseling. For patients who fought off a previous HBV infection, the APHF has successfully given post-test counseling and linkage to medical care to all patients who have needed them. All patients were in the process of attending their first appointment. The APHF has also successfully minimized any expenditures incurred through the post-test counseling received by patients immune to HBV. For patients who are fighting off a current HBV infection, a large majority of the patients received post-test counseling, with those who didn't receive post-test counseling because of issues in communication. Patients were successfully linked to medical care, with a majority of those who did not were already linked to medical care. However, the study lacks an effective way to verify that the first medical appointment occurred. Regarding those who currently suffer from an HBV infection, 25% of those referred to medical care have not been verified attending their first appointment.

Discrepancies in the initial procession of the data were largely due to errors in patient code generation. 50/519 patients could not be tracked due to errors such as first-and-last initial inversion, errors in handwriting recognition (e.g., 4 was read as 9, 1 was read as L), and the insertion of unnecessary characters such as '0' prefixing the date parameter of the patient code. A suggestion to correct this error in data collection is the use of a laptop at clinical screenings in which a web interface is implemented to help doctors input patient data into a new table in a database. As the patient data is placed into the database, the patient code, given the following parameters: patient first name, patient last name, patient birth date (month + day), and event letter) will be automatically generated as well. As the clinic closes, an Excel sheet could be exported from the database for that particular event. Although there are errors on documentation on the CDC side as well, this improvement can vastly minimize the errors kept in the documentation on the APHF side.

A key error in tracking whether the patient has attended his or her first appointment lies in simply relying on the patient to provide a record of the visit. Patients who experience language barriers may not be able or willing to provide a record of their attendance to the study. There may not be someone to facilitate the verification process in their language, or it may be hard for them to attain the devices necessary to submit

verification. From the patient's point of view, the patient is expending unnecessary work to submit verification which gives them little to none marginal benefit. As a part of the doctor's appointment, the doctor/clinical aides should be able to log into a website and submit a confirmation of attendance of the patient. Performing the confirmation of attendance during the appointment incurs no additional work from either side outside of the appointment, and can even be done in parallel with the appointment. A simple web portal should be used, using HIPAA compliant, open-source, secure communications tools.