

**Title:** Contact tracing for chronic hepatitis B in primary care? A 'snapshot' audit in Grampian, Northeast Scotland

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## **Abstract**

### **Introduction:**

Contact tracing for chronic hepatitis B (CHB) infection is an important activity for preventing the spread of hepatitis B infection. In the UK, the “Green Book” recommends that all sexual and household contacts of individuals with CHB should be tested and vaccinated if required. This audit aimed to evaluate contact tracing in primary care. Barriers to effective follow-up of contacts of patients’ with CHB were explored and recommendations made.

### **Methods and Results:**

Mixed method, including a survey of general practitioners and review of hepatitis B surveillance data from 01/06/2015 to 31/12/2015 held by NHS Grampian Health Protection Team. The audit was carried out in August 2016. Contact tracing was mainly by patient referral. Only 20% (4/20) of identified close contacts were tested. No contact eligible for vaccination was vaccinated. 57% (8/14) of GPs who completed the audit questionnaire suggested that GPs do not have a role in contact tracing. Barriers identified were; lack of time, lack of resources and contacts being registered with a different practice.

### **Conclusions:**

This audit suggests that contact tracing for CHB in primary care is largely incomplete. Moving contact tracing from general practice to health protection teams in Boards may be a pragmatic way of improving follow-up activities.

### **Key words**

Chronic Hepatitis B; Contact Tracing; Vaccination; Primary Care

## Introduction

Contact tracing or partner notification is defined as the identification and follow-up of persons who may have come into contact with a person with an infectious disease such as tuberculosis (TB), human immunodeficiency virus (HIV) infection, or sexually transmitted diseases (STDs). Effective contact tracing for hepatitis B infection is a vital component of any prevention strategy as individuals with chronic hepatitis B (CHB) are a potential source of infection. There are three main approaches to contact tracing for such diseases; provider referral, patient referral and contract referral. In provider referral, the healthcare worker (HCW) obtains the household and sexual contacts from the index patient and then directly notifies these contacts of their exposure and provides counselling, testing, treatment and/or vaccination without disclosing the identity of the index patient. In patient referral, the infected persons are asked by the HCW to themselves inform their household and sexual **contacts**, and ask them to contact their GP for counselling, testing, plus treatment and/or vaccination. In contract referral, the patient has an agreed period of time to notify their household and sexual contacts. If this does not happen within the stipulated time frame the HCW notifies the contacts directly.

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Where the test is requested by the **general practitioner** in Grampian, it is expected that the GP will carry out contact tracing. For hepatitis B, 'The Green Book' (*Immunisation against infectious disease*)<sup>3</sup> recommends that close family and sexual contacts should be tested and offered hepatitis B vaccination if required.

There is currently no cure for Hepatitis B infection. However, the use of antiviral drugs to treat those with chronic infection has been shown to reduce the risk of cancer and death<sup>4</sup>.

In Scotland, viral hepatitis, including CHB, is a notifiable disease.<sup>5</sup> All newly diagnosed cases of CHB are notified (Public Act (2008) Scotland) to Health Protection Teams, (HPT) in Board areas, **who** are responsible for communicable diseases control and prevention. The HPT will then send a letter by email to the patients' general practitioner explaining the diagnosis and the need for the identification of close contacts and subsequent vaccination of nonimmune contacts. The responsibility then falls on the GP to inform the patient of the diagnosis and to initiate discussion regarding contact tracing. Identified contacts are then either notified of their potential exposure by the patient or the GP based on discussion with the patient. If agreed with the patient, the GP then invites contacts for follow-up, where counselling, testing and vaccination are offered. If the identified contact is registered at a practice different from the case, then the HPT will assist with informing the contact's GP who will then perform the above.

When the diagnosis of CHB is made in the Genito-Urinary medicine (GUM) clinic or in Occupational Health Service (OHS), contact tracing is carried out by these services. In most GUM clinics and OHS across the UK, sexual health advisers are employed to undertake contact tracing.<sup>6</sup>

### **Aims**

To review the completeness of, and explore barriers to, 'contact tracing' in primary care.

### **Audit Standards**

All named close contacts (household and sexual) of an individual newly diagnosed with CHB should be contacted, offered HBV testing, and where found to be nonimmune, vaccinated fully against HBV.

## **Methods**

This was a retrospective audit looking at all newly diagnosed chronic hepatitis B patients notified to the health protection team of NHS Grampian between 1<sup>st</sup> June and 31<sup>st</sup> December 2015. The audit was carried out in August 2016, eight months after the last notification, to allow time for completion of contact tracing and, where indicated, completion of a course of hepatitis B vaccination in eligible contacts. Patients were excluded if they were diagnosed via the genito-urinary medicine (GUM) clinic or occupational health service (OHS).

A mixed method of data collection was used. Data on number of new cases and demographic characteristics of cases of chronic hepatitis B notified during the study period were obtained from the hepatitis B surveillance database held by the HPT, using a pre-designed proforma. Data included the name of the index patient's GP. A pre-tested questionnaire was sent to all the GPs of patients diagnosed with CHB during the audit period to collect information in the patients notes on number of household and sexual contacts of each patient, number of contacts tested and the proportion of contacts found to be nonimmune that were vaccinated. The questionnaire included a question on barriers to contact tracing, testing and/or vaccination. GPs were asked to complete one questionnaire for each patient diagnosed with CHB. The information obtained was collated and analysed using Microsoft Excel.

## **Results**

A total of 26 patients were notified during the study period. Of these, two patients were initially seen in the GUM clinic and one was seen by Occupational Health. Contact tracing for these three were carried out by the respective services. These 3 patients were

excluded from the review. Two patients (students) who had returned home to their country of origin and had no record of a named GP, and one other patient who had subsequently died of an unrelated cause, were further excluded. Thus, the final analysis included 20 patients spread across 19 GP practices. HPT records show that a standard letter was sent to the GPs of all 20 patients with CHB, advising them of the diagnosis and the need to undertake contact tracing. This was done at the time of notification. Four of the patients with CHB were not previously known to the NHS, and had been given the diagnosis of CHB whilst living abroad. They had no contacts in the UK.

Of the 20 patients included in the analysis, 50% were female and majority 95% (19/20) were migrants from; Africa (6/20), Asia (7/20) and Eastern Europe (6/20). They were aged between 23-42 years. One of the patients was a sexual contact of a previously diagnosed patient with CHB.

Fourteen GPs returned questionnaires giving a response rate of 70%. A total of twenty close contacts were identified from fourteen patients. **Of these twenty, only 20% (4/20) had HBV testing. Of these four,** one was already known to be positive for HBV infection and three were negative for HBV infection. None of the three who tested negative for HBV infection (nonimmune) **was** vaccinated. Patient referral was the main approach to contact tracing.

In a third of the practices, it was suggested that newly diagnosed CHB patients were routinely referred to the GUM clinic for contact **tracing**, but available information indicated that this was not always the case.

Just over half (57%) of the responding GPs indicated that they felt GPs should not have a role in contact tracing (figure 1). The three main barriers to contact tracing identified by

GPs were; lack of time (90%), lack of resources (79%) and contacts being registered at a different practice (79%) figure 2.

**Figure 1:** Do GPs have a role in contact tracing for patients with CHB?

**Figure 2:** Barriers to contact tracing in primary care.

## Discussion

This audit reviewed contact tracing for all notified newly-diagnosed cases of chronic hepatitis B in Grampian region over a 7-month period with the aim of determining if all identified contacts were tested and vaccinated where appropriate.

In our audit, only four (20%) of the twenty identified close contacts were tested for HBV and none of the three contacts that were eligible for immunisation were vaccinated. This rate is low compared to those of Mascarenhas and colleague in Australia<sup>7</sup> where the overall contact tracing success rate i.e. the proportion of identified contacts tested and found to be negative who completed a course of hepatitis B vaccination was 57%. In one UK study<sup>8</sup>, 27% of contacts that were found to be non-immune were vaccinated.

Even though the number of cases of CHB reviewed in this audit is small, we believe our findings are important and are an indication that contact tracing in primary care is not optimal.

Contact tracing in this audit was conducted mainly by GPs as part of the normal consultation process. In most instances, GPs in Scotland have ten minutes to see a patient, probably insufficient to review the patient and discuss contact tracing. Such

patients might be best served if seen specifically at another appointment to discuss this subject. Similar audits from Australia indicate that contact tracing is undertaken either by nurses, or by both nurses and doctors. However, these audits also suggest that contact tracing by nurses is more successful, owing to time constraints on the part of the doctor<sup>7 8 9</sup>.

Our results show that the main approach to contact tracing was patient referral. Although there is insufficient evidence with regards CHB, several studies and systematic reviews have concluded that provider referral is more effective than patient referral in ensuring notification and treatment for HIV and other STIs.<sup>10, 11</sup>

Our audit found that many identified contacts were not referred for testing and vaccination. A number of GPs surveyed indicated that most of these CHB patients did not attend the practice to receive their results in the first place, so the possibility of discussing contact tracing did not even arise. The initial consultation provides the opportunity for the patient to be told about their results and the need for contact tracing to be highlighted. Other suggested barriers to effective contact tracing included lack of time and lack of resources. This suggestion is not surprising as GPs' workload has continued to increase over the years.

Although lack of incentive was not specifically mentioned by GP as a barrier, the authors assumed this may have been implicit when lack of resources was highlighted.

GPs also indicated that patients who did attend for results, did not always provide details of their close contacts. When they did, the contacts did not themselves attend when invited for follow-up by the GP. Stigma associated with partner notification and non-attendance remains a major problem. For such individuals psychological and counselling support is required and many GPs are not trained to provide this support.

Interestingly, a number of responding GPs felt contact tracing was not a task for GPs to undertake. If GPs are to provide this service in an effective way, then support is

required. This would presumably include both training and perhaps financial incentives.

The **latter** however, may not be feasible in the current NHS financial situation.

The way forward may be to take advantage of the Scottish Government's Vaccine Transformation Programme<sup>12</sup> which aims to move the delivery of immunisation from general practice to Health Boards in order to reduce GP workload. This programme may provide a window of opportunity for discussions about contact tracing for CHB, **in particular the vaccination of non-immune contacts**. Although the Vaccine Transformation Programme itself does not include screening and testing of contacts, we believe this is a unique opportunity to improve the process, and ensure that all contacts that require vaccination do indeed receive it. The government's transformation process is expected to take up to three years. This time frame provides the opportunity for the HPTs to develop protocols and pathways for follow-up of patients with CHB and their contacts.

This would certainly require further discussion with GP colleagues and HPTs across Scotland. However, we believe shifting the task of contact tracing for CHB from general practice to health protection teams may improve notification rates nationwide.

## **Conclusions**

**This small study suggests** that contact tracing for CHB in primary care is largely incomplete and inadequate. The Scottish Government's Vaccine Transformation Programme provides a unique opportunity to ensure that all non-immune contacts of patients with CHB are vaccinated.

## **Recommendations**

Health Protection Teams should consider taking on the follow-up of contacts of patient diagnosed with CHB including testing and vaccination of their non-immune contacts.

**Conflict of interests**

None

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