From the Students’ Corner

Dental Students with Hepatitis B: Issues to Be Considered When Defining Policies

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Abstract: Carriers of the Hepatitis B virus represent a significant proportion of the world’s population. Since the existing policies on how to manage infected dental students lack clarity, the issues related to Hepatitis B and a set of recommendations for the adoption of a new policy will be presented here. After considering the virology, epidemiology, prevention, and treatment of Hepatitis B, the current health management policies will be reviewed, and ethical considerations, including the issue of disclosure, will be explored. The recommendations presented here for a new Canadian policy on infected health care workers include universal immunization, assessment of infectivity by measuring Hepatitis B DNA levels, and disclosure to patients on the basis of scientific evidence. These recommendations are intended to aid Canadian dental schools, and dental schools in other nations, with students who are carriers of Hepatitis B.

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The Hepatitis B virus (HBV) is an extremely infectious—yet, preventable—bloodborne pathogen, with an estimated 350 million chronic carriers worldwide1 and a prevalence of 10-18 percent in surgeons.2 In comparison to other viruses, such as HIV, HBV differs mainly in its higher infectivity and preventability. In the clinical setting, it has been an emerging topic heated with debate—specifically, over the policies governing infected health care workers (HCWs) who frequently perform exposure-prone procedures. In the context of dentistry, exposure-prone procedures refer to the “major cutting or removal of any oral or perioral tissue, including tooth structures.”2 This article will focus on dental students in Canada as the HCWs, but these discussions can be readily extended to other countries and other health professions, such as medicine.

There are gross discrepancies among the policies of Canadian dental schools on how to deal with infected HCWs at those schools. These policies also differ from the recommendations2 published by Health Canada’s Laboratory Centre for Disease Control (LCDC). Some dental schools prohibit the clinical activities of their infected dental students, based solely on one surface marker (the HBsAg), but it is unclear what foundations justify their policies. Meanwhile, other schools have apparently chosen the “don’t ask, don’t tell” approach, recommending vaccination but nothing more. Clearly, there is little consensus on what the appropriate action is for managing infected dental students. In order to protect a student from unfair treatment, a nationwide policy must be developed.

While still in the early stages, policymakers struggle to balance the rights of the dental student, the rights of the patient, and society’s expectations. The most sophisticated process thus far is to refer an infected dental student to a vaguely defined “expert review panel,” which is given the authority to control the activities of the infected student in question. This article will attempt to address factors that should be considered when expert review panels are formed.

The virology of HBV, its epidemiology, preventative measures, and current treatments will be reviewed, and then the existing policies of Canadian dental schools and elsewhere will be discussed in conjunction with ethical considerations related to these policies. Finally, a set of recommendations for

*The definition of an expert review panel varies from nation to nation. In Canada, the panel should be established by provincial and territorial bodies and, at the very least, be comprised of a local public health specialist, an occupational health specialist, a practicing dentist, an infection control expert, an infectious disease specialist, and an expert in risk assessment, ethics, or policy.
a nationwide policy will be proposed. This article is intended to help dental schools develop appropriate policies for students who are infected with HBV.

Hepatitis B Viral Infection

An infection with HBV can be detected in the serum by a positive surface antigen marker, the HBsAg, and an individual with this serostatus is classified as an HBV carrier. HBV chronic carrier status is defined as having HBsAg seropositivity for six months or more. Chronic hepatitis may develop from acute viral hepatitis, depending on a person’s immunization status. In the case of an acute HBV infection, during the “window period,” one might not detect HBsAg in the blood, but instead, immune mediated antibodies to the core antigen, anti-HBc. Presumably during this phase, the virus is attempting to replicate in the host, but no infectious viral particles have yet been produced. If a student is not immune to HBV, then HBsAg seropositivity or anti-HBc seropositivity may suggest that the infected student is potentially infectious and, therefore, requires further assessment. This involves two other serologic markers: HBV “e” antigen (HBeAg) and HBV DNA.

Seropositivity for HBeAg represents a state of viral replication and thus increased infectivity. An HBeAg negative student, on the other hand, generally has concomitant serum anti-HBe, and it is well established that such carriers represent low infectivity. However, pre-core stop codon mutations can render a chronic HBV carrier HBeAg negative despite ongoing viral replication and infectivity. At best, then, the HBeAg status is an indirect measure of HBV viraemia.

The prevalence of HBeAg seronegativity in HBsAg positive individuals in the United States and Northern Europe is estimated at 14 percent, with 24 percent of these individuals attributed to the pre-core stop codon mutation. Thus, when considering the infectivity of HBeAg negative students, we would only be dealing with a minority of the statistical population.

HBV DNA as a Measure of Infectivity

A more prudent measure of infectivity lies in the levels of viral DNA. A frequently quoted paper by Heptonstall et al. casts doubts on measuring HBeAg to determine infectivity, but the authors fail to mention the DNA levels that could account for the infectivity. Ballard and Boxall suggested a cut-off value of $10^4$ copies/mL of HBV DNA, below which infection is unlikely to occur; such HBV carriers can be classified as HBV DNA negative individuals. Four HBsAg positive HBeAg negative surgeons were identified by Heptonstall et al. as the sources of HBV infection to patients. All four surgeons had DNA levels above $10^5$ copies/mL, which is well within the infectious range defined by Ballard and Boxall.

Five commercial assays used to measure HBV DNA levels were reviewed by Ballard and Boxall: Abbott Genostics, which utilizes solution hybridization; Murex Digene, which performs DNA/RNA hybrid capture; Chiron, which measures signal amplification; Acugen, which is based on target amplification; and Roche, which also measures target amplification. Detection by liquid hybridization, however, may be insufficient to rule out an HBsAg positive HBeAg negative carrier as the source of infection; instead, detection by Polymerase chain reaction (PCR) and HBV DNA sequencing may be indicated. Regardless, these assays are the best and most readily accessible tools in Canada for detecting HBV DNA in an HBV carrier. Notably, PCR detection of HBV can be achieved with the Roche Amplicor test or by a newer method, the NucliSens Extractor.

HBV DNA levels are known to fluctuate in carriers, suggesting a dynamic host-parasite relationship, but once below a certain threshold, Tedder et al. suggest that these levels are unlikely to rise. In other words, a student who is a carrier of HBV, but is HBV DNA negative, will likely be non-infectious throughout his or her dental education and, possibly, career.

Transmission of HBV

HBV can be transmitted by percutaneous exposure, permucosal exposure, sexual contact, or perinatally. A significant exposure would involve “an injury during which one person’s blood or other high-risk body fluid comes in contact with someone else’s body cavity; subcutaneous tissue; or non-intact, chapped or abraded skin or mucous membrane.” Based on mathematical models, the estimated risk of transmission from an HBV-infected HCW to a patient following significant exposure is 240-2,400 transmissions per 1,000,000 procedures. This statistic, however, fails to indicate its applica-
bility to an HCW who is HBeAg negative or HBV DNA negative. Lanphear predicts that the seroconversion rates for an unprotected individual after significant exposure from an HBeAg positive HCW is 19-30 percent, but for an HBeAg negative HCW, it is 5 percent. In the cases of needle-stick injury involving an HBeAg positive individual, the risk is estimated to be 30 percent, whereas the chance of transmission with an HBeAg negative individual is only 0.5 percent. These predictions, however, fail to distinguish HBeAg negative individuals with high levels of HBV DNA from those with low or undetectable levels.

Prevention and Treatment of HBV

A recombinant vaccine (given at zero, one, and six months) can provide a 95-99 percent protective immune response against an HBV infection. Post-exposure prophylaxis includes anti-HBs immunoglobulin (HBIG) in combination with the vaccine for an unvaccinated person. In addition to universal safety precautions—which are now considered a minimum standard—double gloves can decrease the amount of blood to which the patient is exposed, thereby limiting transmission.

Despite these preventative measures, a study by Wright et al. revealed a rate of only 31.3 percent compliance with universal precautions in emergency departments, dental clinics, and plastic surgery clinics. In the UK, a study of the compliance of dental HCWs and students with cross-infection control revealed that only 56 percent of the HCWs changed their protective gloves between patients. In the United States, HCWs in surgery were surveyed, and although 85 percent reported wearing gloves, only 4 percent wore masks. Unfortunately, “the reasons for noncompliance are not known.” However, even with full compliance with universal precautions and infection control procedures, infection may still be possible if the HCW has an open wound. “Breaks in infection control practices” could result in nosocomial outbreaks such as the one reported by Petrosillo et al. Therefore, an active effort to maintain compliance with universal precautions is essential to help prevent transmission.

Perhaps the best solution is to start educating HCWs on transmission of bloodborne infections, as well as the principles and benefits of universal precautions, while they are students. The LCDC further recommends providing information on risk assessment of procedures and control measures to prevent the exposure of bloodborne pathogens to another person. Such measures are intended to support compliance throughout one’s dental career.

A chronic carrier of HBV can undergo antiviral therapy with Lamivudine or interferon-alpha. Lamivudine is successful in only 16 percent of cases, but has the advantage of little or no observable side effects. Therapy by interferon alpha is somewhat effective, but there are serious side effects to this method of treatment. Even after successful therapy, relapses have been known to occur. Adefovir dipivoxil, recently approved for use in the United States and the UK, has also been shown to be effective against HBV, but this drug has not yet been licensed for use in Canada.

Policies at Canadian Dental Schools

As of the academic year 2003-04, accredited Canadian dental schools had addressed the issue of the HBV-infected student to varying degrees, and this was reflected in their differing policies. The following information was obtained from each school’s online calendar or program description.

The University of Montreal and Laval University have not posted any policy online regarding immunization or an infected student. Dalhousie University requires immunization, but has no documented policy regarding HBV. The University of Saskatchewan is in the process of discussing mandatory testing for certain infectious diseases, but, like the schools mentioned thus far, no policy actually exists.

At the other end of the spectrum, the University of Manitoba is similar to McGill University in that both schools require proof of immunization and an HBsAg positive status automatically prevents the student from attending clinics.

In the middle of the spectrum are the universities of British Columbia, Toronto, Western Ontario, and Alberta. An HBsAg positive student at the University of British Columbia would be counseled, but there is no stipulation that such a student would be prevented from working in the clinic. The University of Toronto allows an HBsAg positive student to pursue studies pending medical opinion, but does not state that the student cannot work in the clinic. The universities of Western Ontario and Alberta order further tests on the HBsAg positive
student to check the student’s HBeAg and HBV DNA levels. If either HBeAg or HBV DNA is positive, then the offer of acceptance is withdrawn at both schools; otherwise, there is no documented action against the HBeAg negative or HBV DNA negative student.

Policy in Canada

A separate discussion on the policy in Canada is warranted since it so greatly differs from the current policies at Canadian dental schools.

Law and policy on the issue of HBV-infected students are still in their infancy and subject to a great degree of uncertainty and controversy, admit Barrigar et al.36 Canadian guidelines from the LCDC were introduced in 1992 and reconsidered in 1996, but no actual policy was ever drafted. Instead, LCDC arrived at a consensus on national recommendations.2

It is interesting to note that the draft of this consensus was met with much opposition from both the Canadian Dental Association (CDA) and the Canadian Medical Association (CMA). Both associations expressed concerns about the LCDC’s proposed mandatory system of immunization and testing for HCWs and argued against these proposals in light of a more preferable voluntary system.2

Nevertheless, the LCDC published its report and suggested that mandatory immunization and testing of HCWs were necessary. However, it also stated that, as long as an HCW has been assessed by an expert panel and that recommendations are followed, disclosure of infected status before an exposure-prone procedure is not required. But after a significant exposure, a patient must be notified. Furthermore, the HCW has an ethical obligation to be tested following significant exposure, and the patient has a right to know which pathogen he or she was exposed to in order to access appropriate post-exposure protocol.2

Ideally, HBsAg and HBeAg testing should be done before hospital privileges are granted and also on renewal of privileges, such as annually.2 In the opinion of the LCDC, in terms of the HBV-infected student, HBeAg seropositivity should be an indication to cease practice immediately, but an HBeAg negative HBV carrier need not cease practice pending the panel’s assessment. In both cases, the student should be referred to an expert panel for direction.

The expert review panel consists of many members and necessarily requires input from professionals in many different fields. Presumably, the lengthy definition of an expert review panel by the LCDC is intended to address this requirement. It would otherwise be impractical to allow an ill-equipped expert panel to determine the fate of an infected dental student.

Since the LCDC publication, the CMA has released a policy on HBV that recommended that HBsAg positive physicians cease activities until reviewed by an expert committee.37 It appears that such organizations are beginning to recognize the advantages of expert review panels and their potential to make informed decisions. Contrary to the LCDC recommendations, the CMA further suggested that mandatory vaccination or serologic testing is not warranted. The CDA has yet to publish a policy on the management of HBV-infected HCWs.

Policy Outside of Canada

Outside of Canada, the recommendations on restricting the practice of HCWs who perform exposure-prone procedures are mainly based on serum HBeAg status. In contrast to the LCDC’s recommendations for mandatory vaccination and testing of HCWs, no such recommendations exist outside of Canada.38-40,42,43 Instead, vaccination is encouraged, especially for those who perform exposure-prone procedures.

In the United States, the Center for Disease Control (CDC) has prepared a guideline for infection control in dental settings.38 This document suggests that an HBeAg positive HBV carrier should be restricted from performing “exposure-prone invasive procedures until counsel from an expert review panel has been sought.” Such a restriction would be in place until the personnel is HBeAg negative. One might assume that HBeAg negative personnel would have no work restrictions, although this was not explicitly stated. Still, no guidelines are currently available for the HBV DNA negative HCW.

The Society for Healthcare Epidemiology of America (SHEA) lists and explains many recommendations related to the HBV-infected HCW. The SHEA suggests that such HCWs “should not be prohibited from participating in patient-care activities solely on the basis of their bloodborne pathogen infection.” However, the recommendations do state that HBeAg positive HCWs should not perform exposure-prone procedures.39 Unfortunately, there are no specific recommendations for the HBeAg negative or HBV DNA negative HCW.
The National Health Service (NHS), an organization run by the UK Department of Health, has published a Health Service Circular, which addresses the issues regarding HBV-infected HCWs. They now stipulate that the HBV DNA level must not be greater than $10^3$ copies/mL since, from experience, such a condition is unlikely to be associated with transmission during exposure-prone procedures.40 Furthermore, any restrictions based on HBV DNA levels greater than $10^3$ copies/mL would likely affect less than half of the HBV-infected HCWs.41 According to the NHS, HBV carriers with DNA levels less than $10^3$ copies/mL “need not be restricted from performing exposure-prone procedures or from any other areas of work.”41

In Australia, the Australian National Health and Medical Research Council and the Australian National Council on AIDS conducted a joint review of infection control guidelines.42 Their guidelines stipulate that HCWs who are HBsAg positive and HBeAg positive or HBV DNA positive should not perform exposure-prone procedures;42 however, there was no directive for the HBeAg negative or HBV DNA negative HCW. In addition to these guidelines, the New South Wales Health Department published a Health Circular that stipulated that HBsAg positive but HBeAg negative and HBV DNA negative HCWs may continue to perform exposure-prone procedures.43

Ethical Considerations in Restricting the Education of the Infected Dental Student

Current policies on restricting the practice of HCWs who perform exposure-prone procedures can have detrimental ramifications on a dental student’s chosen profession. The ethical implications of these policies should be examined carefully. Barrigar et al.36 describe an effective ethical analysis, addressing the infected HCW’s interests, the patient’s interests, and society’s interests. The infected student’s interests include furthering one’s career, role in improving patient health, right to privacy, and right to freedom from discrimination. The patient’s interests include protection from harm, right to autonomy, and right to informed choice. The society’s interests include maintaining effective and affordable health care, as well as the benefits and burdens of any policies.

Clearly, the adoption of any successful policy is a difficult balancing act of these three factors. Accordingly, the following sections address ethical issues related to the expert panels, as well as the issues of disclosure, privacy, discrimination, and fairness.

The Expert Panel

The complete expert panel is advised to consider factors such as type of infection, viral load, procedural techniques, skill and experience of HCW, evidence of prior transmission, compliance with universal precautions, and likelihood of compliance with practice recommendations.5

But Barrigar et al.36 feel that too much discretion is left in the hands of the elusive expert panel that has the power to dictate the conditions in which an infected student can work. More detailed guidelines need to be in place to ensure a fair process that is not vulnerable to the particular biases and experiences of the members of the expert panel.

Disclosure

In Canada, the legal precedence for disclosure of infected HCWs began in an Ontario court that deemed that risks of 1 percent or less are significant and that the risks of contracting hepatitis through blood transfusion should be disclosed to the patient.44 However, Barrigar et al.36 admit that it is difficult to know if the blanket statement “there is a 1 percent risk of infection from this procedure” is adequate or if the HCW ought to specify the type and source of infection. Such information may be considered very significant for many patients, especially if the procedure is widely available and the patient can choose to have the procedure performed by someone else. On the other hand, the long-term effects of illness due to HBV may not be a concern for a terminally ill patient or for a patient who has longstanding trust with the HCW. Notably, the risk of death due to general anesthesia is 10 per 1,000,000 and is still undisclosed to patients, yet the vast majority of these patients are willing to accept these risks.36

According to the CDC, if a decision is made to allow an HBeAg positive student to continue with exposure-prone procedures, that student is responsible for notifying his or her patients of the student’s seropositivity before the procedure.45 Indeed, this issue on disclosure has been subject to much criticism.36 However, on the issue of disclosure, the CDC issued no directive for the HBeAg negative or HBV
DNA negative student. The SHEA, on the other hand, has a different standpoint. This organization has stated that, with the exception of significant exposures, HBV-infected HCWs “should not be required to disclose their infection status to any patient.”

The proponents of disclosure argue primarily for a patient’s right to know, without addressing issues from the HCW’s perspective. While acknowledging the limited protection of disclosure for patients, Tereskerz et al. do not consider disclosure adequate. They argue that patients may find it difficult to evaluate scientific information and may be reluctant to request an alternative physician when the patient’s own physician is infected. Since a patient’s perception of transmission risks is likely to be exaggerated, the rights of the infected HCW should be considered.

If we balance the rights of the patient and the student equally, then the only factor left to be considered is the relevant scientific evidence. If any sound evidence exists, then disclosure of the risks involved may be necessary; otherwise, communication of any risks would be unsubstantiated.

If a patient is known to be immunized, then the risk of transmission is virtually negligible, especially if the student is HBeAg negative and HBV DNA negative. In this case, it is conceivable that disclosure of seropositivity would not be necessary; indeed, disclosure may actually cause undue alarm if the patient does not fully understand the scientific information.

Privacy

We treat a patient’s privacy with the utmost respect and confidentiality; the privacy of an infected HCW should be handled in the same manner. Serological status, for example, is private information. As recommended by the LCDC, if practice modifications are made, then disclosure of such personal health information should be done on a “need to know” basis. Barrigar et al. bring to light other factors that can potentially cause harm to the same degree, such as stress, fatigue, medication side effects, family problems, and legal disputes. Practically, it is difficult for a student to have had practice restrictions imposed and then not disclose to patients and colleagues the reasons for the restrictions. Disclosure inherently breaches privacy.

Indeed, according to the SHEA, should the infected HCW ever be questioned by a patient regarding his or her infected status, the HCW is “encour-aged to provide an indirect answer to all such questions.” This is intended to preserve the HCW’s right to privacy.

Discrimination

An infected HCW has the right to freedom from discrimination. Since HBV can be acquired from being born or spending early childhood in a part of the world with high prevalence, discrimination against people from certain regions of the world may occur. But, most importantly, as Pinching argues, the profession of dentistry puts the dental student at most risk from bloodborne infections from their patients.

Students, then, can be regarded as having fewer health rights if transmission is known to travel from patient to student.

A poorly designed policy can allow for the discrimination of HBV DNA negative carriers in which no documented transmission to a patient has ever been made.

Fairness

Above all, the infected student needs to be treated fairly. Fairness can be based on formal justice, which acts to treat like cases alike and different cases differently. Clearly, the discrepancies observed between dental schools on how they manage HBV-infected students violate fairness. Clearly, a nationwide policy is essential.

Conversely, one might argue that, above all, our patients need to be treated fairly. This argument necessarily brings us back to the issue of disclosure, which—again—should be based on scientific evidence. Disclosure of the risks involved if a student is HBeAg positive or HBV DNA positive should be made, but disclosure of the student’s personal serostatus, in light of privacy concerns, may not be necessary. Since there is currently no clear evidence that an HBV-infected dental student who is HBeAg negative and HBV DNA negative represents any risk to the patient, disclosure or any other work restriction may not be required. A student in such a situation could, therefore, knowingly do harm to a patient; simultaneously, the patient would be afforded the fairest treatment that is currently reasonably possible.

Fairness may also be considered in terms of distributive justice, where the benefits and burdens are distributed equally among the different groups involved. Accordingly, this allows for an infected student to practice on susceptible patients only if the
student is willing to disclose seropositivity. Distributive justice may also include retraining or financial compensation for the HBV-infected student, should the student be compelled to discontinue his or her dental education.

Recommendations

In an attempt to protect the rights of the infected student and the rights of the patient, while maintaining society’s expectations, the following set of recommendations are proposed.

Universal Immunization

Admittedly, successful implementation of universal immunization may be impractical given the cost, logistical, and patient compliance requirements. Further investigations will be needed to assess the feasibility of such a program. The recommendations presented here are, at the very least, meant to stimulate discussion.

Surgical patients could be offered immunization prior to elective invasive procedures. During the six months required to complete immunizations, the patient may be referred to a non-carrier student or an HBV-infected student who is HBeAg negative or HBV DNA negative.

In dentistry, patients return regularly for dental work, so immunization not only provides lifelong protection for the patient, but allows years of dental students down the line to continue their education, regardless of their HBV serostatus. Realizing that not all patients will agree to immunization, if the entire dental school works to immunize patients and keep records of immunization status, then a sufficient number of patients should be available for the infected dental student to work with to complete his or her clinical requirements. Certainly, as more members of the public are immunized, the pool of potential patients that are protected will correspondingly grow.

There are enough proponents of universal HBV vaccination that the costs should not be difficult to justify. As Barrigar et al. suggest, routinely providing HBV vaccination to surgical patients would simply be an extension of a pre-existing public health program. Daniels adds that resources may be more effectively utilized in areas of general infection control measures and epidemiological research. To confirm successful immunization, the CDA has a policy that states that “dentists have the right to order any tests required to support the oral health care of a patient.” For dental schools, whose primary interest is to protect the patient, universal immunization of patients would be the best solution. Eliminating susceptibility in patients effectively eliminates any risks of HBV transmission and infection.

Assessment of Infectivity

In determining the suitability of an infected student for continued education in dentistry, given the current information available from the medical literature, the following would be appropriate. (See Table 1.)

Immunization should be offered to students, and everyone should be tested for HBV seropositivity prior to being admitted to the clinics. If HBsAg is negative, but anti-HBc is positive, then an acute infection has occurred, and the student should be offered prophylactic HBIG. No restrictions are warranted until HBV DNA tests positive. In the case of HBsAg seropositivity, the HbeAg status should be considered. HBeAg seropositivity would indicate infectivity, and the student should be provided antiviral therapy and an opportunity to rejoin the program after successful therapy. In the case of HBeAg seronegativity, the HBV DNA levels should be considered. HBV DNA levels greater than $10^3$ copies/mL may be an indication for antiviral therapy. Students with HBV DNA negative serostatus should be granted entrance to the clinics and be allowed to continue studying in an unmodified curriculum, with the exception of obtaining yearly blood tests to confirm low HBV DNA levels.

In addition to following universal precautions, students should double-glove to minimize the risks of transmission through small cuts and wounds in the hand. To support compliance, education on infectious diseases and preventative measures should be provided early in the dental student’s education.

All students, regardless of their HBV status, should inform their patients of the statistical risks of infection not only due to bloodborne pathogens, but also risks related to hemorrhage, wound infection, and anesthesia. In doing so, the privacy of the infected worker is protected, and the interests of the patients are maintained. Disclosure of risks should be based on sound scientific evidence. Since no statistically significant figures exist for the risks of transmission from an HBV carrier who is HBeAg negative and HBV DNA negative, disclosure of such risks
may not be necessary. Furthermore, if a patient is known to be immunized, then transmission from an infected student is virtually impossible, and disclosure may not be necessary, regardless of the student’s serostatus.

**Conclusion**

HBV chronic carriers represent a significant proportion of the world’s population. Dental schools are likely to admit or have already matriculated infected students and must develop appropriate policies that protect the rights of both patients and students while minimizing related health risks.

The recommendations in this article are proposed as a possible solution to the inconsistent policies across Canada and in other nations. Immunization of students and patients, assessments of infectivity by measuring DNA levels, and disclosure of transmission risks when appropriate data are available are recommended. It is hoped that these recommendations will be taken into consideration when defining an acceptable policy for the management of students who are HBV carriers. Such a policy will protect the interests of the infected student as well as the interests of patients and will simultaneously meet society’s expectations of professional oral health care.

**REFERENCES**


