Guest Editorial

Current infection control policies must be challenged

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In a guest editorial, "But the horse has left the stable" (Quintessence Int 1994; 25:151-152), Dr Enid Neidle suggested that current infection control procedures should not be challenged because they are recommended by "virtually every health agency" and expected by well informed patients.

A fundamental tenet of science is to avoid dogma by critically reviewing previously interpreted data. A second principle of scientific endeavor is familiarity with the pertinent literature; a third is application of consistent reasoning; a fourth is to recommend proven solutions to existing problems, while a fifth is to question the validity of authoritative pronouncements, especially those made by government agencies. Dentistry is proud of having followed such practices, and in the process has promoted itself from an empiric trade to a respected profession. It is revealing to apply the same principles to the reasons Dr Neidle gave to justify her opinions.

According to Dr Neidle, hepatitis B is a serious occupational infection of dentists because, in 1975, compared to the general public, three times more dentists had evidence of HBV. In fact, the figures referred to by Dr Neidle do not relate to the frequency of HBV among dentists or to the number of dentists with a clinical diagnosis of hepatitis B, but to the number of dentists exhibiting hepatitis B surface antibody. Dienstag and Ryan[1] have proposed that dentists exposed to continuous, low intensity, occupationally derived doses of HBV become naturally immunized against HBV. Thus, dentistry may prevent, rather than promote, symptomatic hepatitis B infection in its practitioners. This interpretation challenges Dr Neidle's opinion while supporting Scully's[2] contention that "Dentists have, for years, been treating (unknown) antigen positive patients with few sequelae."

Seemingly, Dr Neidle has willingly accepted the declaration of the Center for Disease Control (CDC) that, although saliva is not a high-risk body fluid for health care workers, it must be deemed so for dentists and their staff.[3] She does not question why the pathogenicity of saliva should vary according to professional affiliation. The CDC justified this apparent illogical concept by assuming that saliva in dentistry is usually contaminated by blood. On the contrary, many dental procedures are noninvasive, with saliva being no more hazardous to dental staff than it is to other health care workers. Dr Neidle and officials of organized dentistry should have challenged the validity of the assumption made by the CDC. At the same time, they should have been aware of studies by Fox et al,[4] Archibald et al,[5] and O'Shea et al,[6] which demonstrate that saliva provides natural protection against HIV transmission and which support the statement by Rodriguez- Archilla et al[7] that "the infectious capacity of saliva is so low as to be considerd negligible." The concentration of HBV-DNA in saliva is several orders of magnitude less than its concentration in serum,[8] which negates the ability of saliva to transmit HBV. These findings suggest that the infectious properties of saliva must not be considered as a given but that, at least, they are dependent on the procedure being performed and the susceptibility of the dental staff.

Dr Neidle quoted seven cases to justify her claim that dentists have acquired HIV infection by occupational exposures. A careful reading of the pertinent literature[9] reveals that these remain unsubstantiated. Dr Neidle should not have quoted them as proof of a biologic occurrence.

Not surprisingly, Dr Neidle introduced the Florida dental AIDS mystery to support her belief that HIV is transmitted by dental practice. Her inconsistency in reasoning is displayed by her conviction that Dr Acer did infect his patients, albeit she admits to having no idea how he accomplished the feat. This is analogous to Dr Neidle admitting that she is lost without having any idea where she is going. Currently, there is no irrefutable evidence that proves beyond a reasonable doubt that Dr Acer was responsible for either accidentally or deliberately transmitting HIV. However, recent information shows that 0.4% of his patients were HIV-positive.[10] 0.5% of patients attending HIV-positive dentists and physicians were HIV-positive,[11] 0.4% of patients attending for elective surgery were HIV-positive,[12] and 0.4% of the United States population were HIV-positive.[10] A reasonable interpretation of this data is that the number of HIV-positive patients attending Dr Acer's practice was simply a reflection of the number of such patients attending health care facilities in the United States.

Dr Neidle assumed that "standard infection control" (whatever that is) during dental care would prevent the transmission of herpes simplex virus, cytomegalovirus respiratory infections (including tuberculosis), syphilis, and legionellosis. Surely she is aware that these are specific microbes and diseases with different routes of transmission, different target organs, and dif-

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ferent degrees of pathogenicity, all of which demand different and individual procedures to prevent their spread. A rational approach would be *(1)* to assess if the particular microbe or disease is producing unacceptable levels of morbidity and mortality among the patients and staff of dental practices; *(2)* if so, to determine if this is related to specific aspects of dental treatment; *(3)* if yes, to develop remedial techniques; *(4)* then, to assess which of the preventive measures are clinically effective in reducing the morbidity and mortality to acceptable levels; *(5)* finally, to recommend that the most effective procedures are adopted.

Such an undertaking ensures that no action is taken until the possibility of an infection becomes a significant reality. Had such an approach been adopted for HIV, which now is considered to pose an infinitesimal risk of transmission in dentistry, current infection control policies would be based on science and not be the product of the fear, hysteria, and ignorance that still surround HIV and AIDS.

It is paradoxical that, as a scientist, Dr Neidle is prepared to reject the established methodologies of her profession in favor of using intuition to justify her opinions on infection control. Unfortunately, the instances she described do not advance her case. For example, the recommendation that physicians "abandon their frock coats and unwashed hands" to prevent puerperal fever was based not upon intuition, but upon cause and effect observations made by Semmelweis.[13] Interestingly, although Semmelweis employed scientific reasoning, his colleagues ignored his suggestions for 20 years.[13] According to Dr Neidle's intuition, dental instruments and dentists' hands must be "scrupulously clean and sterilized." It is impossible to sterilize hands, and Dr Neidle must define "scrupulously" and not rely upon the practitioner to intuitively clean the instruments to Dr Neidle's satisfaction.

Finally, Dr Neidle equates the reluctance to sterilize handpieces with the moral obtuseness of the cigarette industry, which continues to claim an absence of a cause and effect relationship between smoking and cancer. Although, in this instance, Dr Neidle has abandoned intuition in favor of solid (scientific) evidence, she is comparing apples to oranges and is guilty of inconsistent reasoning. For example, 30 years ago there were laboratory, clinical, and epidemiologic data that substantiated a relationship between smoking and cancer. However, currently, there is no similar evidence to suggest that a handpiece, whether it has or has not been subjected to a sterilization cycle, has a relationship to dentally acquired nosocomial infections.

It appears from this review that Dr Neidle is unwilling to challenge the validity of current infection control policies because to do so would require using established scientific methods, would offend health authorities, and would confuse patients, who would be required to choose between media reports, the pronouncements of regulatory agencies, and the advice of conscientious dentists, who are demanding objective evidence of the efficacy of present recommendations.

By her attitude, Dr Neidle has unlatched the stable door and, like the untrained horse, allowed the principles of her profession to gallop into the night. Thousands of concerned dentists wish to close the door before our scientific heritage is lost forever. It is the right and duty of dentists to constantly criticize dogma and investigate the justification for current standards of practice. Therefore, to challenge the efficacy of infection control recommendations is a professional obligation. It is also a definite necessity. Knowing that many procedures in infection control lack clear supporting scientific data, the Association for Professionals in Infection Control and Epidemiology[14] have challenged the CDC to "avoid immediate institution of complicated measures for select organisms causing infrequent clusters of infection and instead continue to encourage further investigation of the endemic problems and validate the effectiveness of the interventions."

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