

Surveillance: The Foundation of Effective Infection Prevention and Control

John Hardie BDS, MSc, PhD, FRCDC

Introduction

In 1980 the results of the SENIC Project (Study on the Efficacy of Nosocomial Infection Control) were published. For the first time this showed that preventing or controlling health care acquired infections was dependent on a thorough understanding of the infections. (1) This was emphasized by the Society for Healthcare Epidemiology of America which in its 1998 position paper stated that, *“The collection, analysis, and dissemination of surveillance data has been shown to be the single most important factor in the prevention of nosocomial infections.”* (2) Nosocomial infections or healthcare acquired infections are those usually occurring in hospitalized patients which were not present nor incubating at the time of admission. (3) An infectious disease proven to be transmitted during dental treatment is a nosocomial infection of dental origin or a dentally acquired infection. Dental Prevention and Control is concerned with the avoidance or reduction in severity of such infections.

Surveillance and the Ontario Ministry of Health

The 2012 edition of Best Practices for Infection Prevention and Control by the Ontario Ministry of Health acknowledges the significance of surveillance by citing the SENIC Project and by noting that 32% of nosocomial infections in acute care settings could be reduced by infection surveillance and control programs. (4) In addition the document indicates that Infection Prevention and Control (IPAC) programs require: *“surveillance based on systematic data collection to identify infections, subsequent analysis of data and timely dissemination of results to persons who require the data to make improvements.”* (4)

The Ministry of Health emphasizes that, *“A well designed surveillance program is essential for performing all of the other necessary activities of the IPAC program. The collection, analysis and dissemination of surveillance data has been shown to be an important factor in the prevention of health care acquired infections.”* (4)

There can be no doubt that the Ontario Ministry of Health considers Surveillance to be a cornerstone of effective IPAC.

The Ministry of Health identifies two forms of Surveillance, i.e. Process Surveillance and Outcome Surveillance.

Process Surveillance is a practice audit to verify that specific indicators or standards are being performed. Examples of indicators are, adherence to reprocessing protocols, adherence to environmental cleaning protocols, adherence to use of PPE, adherence to IPAC construction protocols, and adherence to an antimicrobial stewardship program. (4) However, the Ministry of Health demands that these indicators are, *“based on validated evidence that has been demonstrated to improve outcomes.”* (4)

Outcome Surveillance monitors specific clusters of infections and compares their rate of occurrence to established benchmarks or standards. The Ministry of Health acknowledges that there are no such standards for performing outcome surveillance in ambulatory care settings including dental practices. (4)

Surveillance and Dentistry

The surveillance techniques used on outpatients have been labour intensive and lacking in specificity. (5) There are no models for conducting acceptable surveillance programs in non-acute care settings. (6) Therefore, it should not be surprising that there are no surveillance programs concentrating on dentally acquired infections. In 2008, Philip Riley, Administrator of the Cochrane Collaboration: Oral Health Group indicated that the low level of frequency of infections transmitted during dental treatment prevents any meaningful study of nosocomial infections of dental origin. (7) The subsequent decade has not altered that conclusion.

This means that IPAC Programs for dentistry cannot be based on well- designed surveillance programs as mandated by the Ministry of Health. It also means that most of the indicators or standards used in practice audits are of no value since they have not been shown to improve the outcomes of dentally acquired infections. A majority of the recommendations for dental IPAC are based on the opinions of experts, but opinions do not translate into demonstrable improvements in the rate or severity of infections transmitted during dental treatment.

Conclusions

As demonstrated by the SENIC Project control of an infection cannot be achieved until it is defined, diagnosed, its route of transmission established, at risk patients recognized, and theoretical control techniques proven to be clinically effective, practical, safe and economically viable. Since nosocomial infections of dental origin have not and probably never will be subjected to such analyses, it is simply not known whether present or proposed Standards of Practice relating to IPAC are either necessary or effective.

If dental regulatory agencies intend to introduce new IPAC recommendations, they must demonstrate that existing ones have been less than adequate and will be replaced by ones proven to be effective. The recent Standard of Practice published by the Royal College of Dental Surgeons of Ontario (RCDSO) does not satisfy these criteria.

Presumably, the RCDSO accepts the Ministry of Health's declaration that indicators or standards used in practice audits must be based on validated evidence that they will improve outcomes. Accordingly, the College must be prepared to demonstrate such evidence if a dentist challenges the need to follow every single reprocessing recommendation. The absence of such proof places the College in a vulnerable position.

Based on the above it is concluded that there is insufficient surveillance of nosocomial infections of dental origin to justify creating a Standard of Practice relating to Infection Prevention and Control in the Dental Office. Instead, it is suggested that an IPAC Dental Program should be based on clinical guidelines which identify the limits of any supporting evidence.

References

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