Infection control procedures among New Zealand general practitioners: changes since the emergence of HIV infection

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SUMMARY. A random sample of 1000 general practitioners in New Zealand were surveyed to assess their infection control procedures in the surgery, particularly since the emergence of the human immunodeficiency virus (HIV). Forty three per cent of the sample routinely used surgical gloves for minor surgical procedures, 8% used gloves for venepuncture, and 7% for blood glucose testing. Thirty two per cent reported a change in glove use since the emergence of HIV infection. Changes in sterilization procedures were also studied. Thirty eight per cent of the sample reported increased use of disposable equipment, and 38% reported changes in the sterilization solution used. Increased time spent by equipment in the sterilizer was reported by 33% of respondents and increased use of an autoclave by 18%. In general, women were more likely to have adopted infection control procedures than men. Infection control was also more common among those doctors having the greatest number of patients requesting HIV testing.

Introduction

CONTROL of infection in general practice has received increasing attention in recent years, particularly with the emergence of the human immunodeficiency virus (HIV) and the human papillomavirus (wart virus). Several authors have commented on the safety of various decontamination procedures[1-3] and others have reported surveys of the procedures currently in use.[4,5] Recommendations for appropriate procedures have also been given.[5,6]

While patient–patient cross-infection is the main focus of interest, there is also increasing concern about patient–doctor and doctor–patient infection. To this end there have been several recent studies on the effectiveness of surgical gloves as a protection against contamination.[7-9]

The aims of this study were to examine the use of surgical gloves by a sample of general practitioners and to see whether there have been changes in this use since the emergence of HIV; to examine changes in sterilization procedures; and to see whether these practices varied according to the sex of the doctor, the number of years since graduation and the extent of contact with patients requesting HIV testing.

The study was undertaken among general practitioners in New Zealand where most general practitioners are privately employed on a fee-for-service basis which has a small government subsidy. So far the acquired immune deficiency syndrome (AIDS) has not been a common problem. The number of notified cases to the end of 1988 was 101; this represents a similar case rate per million people to that of the UK or Australia. Most AIDS cases are found in the major cities (80% in Auckland and Wellington to end of 1988). However, concern about the disease is widespread. Findings reported earlier showed that almost all general practitioners had had contact with patients concerning AIDS in the last 12 months.[10]

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Method

A sample of 1000 general practitioners was drawn from the 2250 currently practising in New Zealand (excluding locums). The sample was drawn randomly so as to be representative of all general practitioners in the country and no attempt was made to bias the sample in favour of areas of greater AIDS prevalence.

The doctors were sent a brief questionnaire together with a post-paid envelope for completed replies. The questionnaires were completed anonymously and identification codes were used only for follow up of non-respondents by an independent organization. The study was conducted in mid-1988.

Questions concerned the doctors' use of surgical gloves for various procedures including minor surgery, venepuncture and blood glucose testing, as well as changes that may have been made in these procedures since the emergence of HIV infection. Further questions asked whether doctors had changed the ways they sterilized equipment in the last two years. They were asked whether they had started to use an autoclave, whether they had changed the sterilizing solution they used, whether they had increased the time that equipment was in the sterilizer, and whether they were now making greater use of disposable equipment. Those who had changed their sterilization procedures were asked about their reasons for the change. Information on practice characteristics and sociodemographic variables was also requested.

The data were summarized using frequency tables. Chi-squared tests were used to analyse differences by sex, number of years since graduation, and the number of contacts with patients requesting HIV antibody testing in the previous 12 months.

Results

Response rate and profile of sample

Forty eight general practitioners indicated that they were no longer practising and these doctors were excluded from the sample. Completed questionnaires were returned by 822 respondents, representing 86% of the eligible sample. Of the respondents, 80% were men and 20% women. A third (33%) had graduated over 20 years ago, a further 30% between 11 and 20 years ago and 37% up to 10 years ago. In the last 12 months 86% of respondents had seen at least one patient requesting HIV antibody testing and the mean was six requests. Thirty five per cent of respondents came from Auckland or Wellington, 38% from other cities and 27% from rural areas.

Use of surgical gloves

Details of the use of surgical gloves are shown in Table 1. For minor surgical procedures, 43% of the sample routinely used gloves. This was significantly more common among women than men and also as the doctors' contacts with patients requesting HIV antibody testing increased. In addition, recent graduates were significantly more likely to wear gloves for minor surgical procedures than were earlier graduates.

Table 1. Percentage of respondents reporting routine use of gloves for minor procedures by sex, number of years since qualifying and number of requests for HIV testing in the previous 12 months.

	Percentage of respondents using gloves for:			Percentage of respondents changing use since emergence of HIV
	Minor surgery	Vene-puncture	Blood glucose testing	
All ($n=822$)	*43*	*8*	*7*	*32*
Sex				
Male ($n=662$)	*39*	*6*	*6*	*31*
Female ($n=160$)	*60***	*14***	*12***	*35*
No. of years since qualifying				
<10 ($n=306$)	*54*	*7*	*6*	*35*
10–20 ($n=244$)	*43*	*7*	*8*	*37*
21+ ($n=272$)	*29****	*9*	*6*	*26**
No. of HIV test requests				
0–3 ($n=437$)	*36*	*6*	*6*	*24*
4–10 ($n=281$)	*50*	*8*	*6*	*36*
11+ ($n=104$)	*53****	*11*	*12**	*47****

n = total number of respondents in group; data was missing in some cases. *$P<0.05$; **$P<0.01$; ***$P<0.001$.

Use of gloves for blood glucose testing or venepuncture was much less common than for surgical procedures (Table 1). However, again, there was a significant sex difference. Glove use for these procedures did not vary significantly with the number of years since graduating but those seeing large numbers of patients requesting HIV testing were significantly more likely to use gloves for blood glucose testing than those seeing small numbers of such patients. They were also more likely to use them for venepuncture but this difference was not statistically significant.

The sample were also asked about changes in the routine use of gloves for these procedures since the emergence of HIV infection (Table 1). Overall, 32% of the sample reported a change in routine use of gloves. The change was significantly greater among the recent graduates and those seeing the most patients requesting HIV testing. More women than men had changed their use but this difference was not statistically significant.

Changes in sterilization procedures

Table 2 gives the doctors' reports of changes made during the last two years in procedures for sterilizing equipment. Thirty eight per cent reported that they had made changes in the sterilizing solution used. Detailed descriptions of the solutions used were not obtained but it seems reasonable to assume that doctors had changed in the direction of a more effective solution. An increase in the use of disposable equipment was also reported by 38% of the sample, and 33% reported that they had increased the time that their equipment was left in the sterilizer. Eighteen per cent of the sample reported that they had started to use an autoclave.

Sex differences were again evident with women generally more likely to have made changes in sterilizing procedures than men.

The most common reasons given for changing sterilization procedures were HIV (91%), hepatitis B (87%), wart virus (41%) and herpes simplex virus (36%).

Table 2. Percentage of respondents reporting changes in sterilization procedures in the last two years.

	Percentage of respondents who:			
	Have changed sterilizing solution	Have increased use of disposable equipment	Have increased time in sterilizer	Now use an autoclave
All ($n=822$)	*38*	*38*	*33*	*18*
Sex				
Male ($n=662$)	*36*	*36*	*31*	*17*
Female ($n=160$)	*46**	*44*	*42**	*22*
No. of years since qualifying				
<10 ($n=306$)	*39*	*33*	*27*	*18*
10–20 ($n=244$)	*46*	*41*	*38*	*20*
21+ ($n=272$)	*29****	*40*	*35**	*15*
No. of HIV test requests				
0–3 ($n=437$)	*34*	*37*	*30*	*17*
4–10 ($n=281$)	*41*	*38*	*36*	*19*
11+ ($n=104$)	*44*	*37*	*33*	*16*

n = total number of respondents in group; data was missing in some cases. *$P<0.05$; ***$P<0.001$.

Discussion

It is apparent from these findings that there has been considerable change among general practitioners in their infection control precautions since the emergence of the human immunodeficiency virus. Concern about cross-infection between patients has resulted in increased use of sterilization procedures among at least a third of the doctors surveyed. Concern for personal safety has led a similar proportion to increase their use of surgical gloves so that now almost half of those studied reported routine use of gloves for minor surgical procedures.

The study was undertaken on a random sample of general practitioners and a response rate of 86% was achieved. These two factors give some assurance that the findings are representative of all general practitioners in New Zealand. To give even greater assurance, it would be useful to know something about the characteristics of those who did not respond, but unfortunately this information was not available because of the degree of confidentiality incorporated in the study design.

The significant differences found between men and women on almost all the safety precautions studied is worthy of comment. It is clear that women are much more willing to use gloves than men. Perhaps New Zealand general practitioners considered it unmanly to wear gloves in the surgery. A further, more practical consideration is that men, having larger hands, tend to be less agile than women and they may find gloves make them too clumsy for adequate manipulation of instruments. Whatever the reason, women in this study were more likely to have acted to limit cross-infection and personal infection in the surgery than were men.

The issue of confounding variables must also be addressed. There are many more women among recent graduates than there were in the past, so perhaps the differences found in this study are a function of age rather than sex. Certainly age did affect some of the infection control procedures which were adopted but the differences were not significant in all comparisons, neither were they consistently different in one direction. This suggests that over and above the differences due to age, there were also a difference according to sex.

Greater safety precautions were also apparent among those doctors who had the greatest contact with patients requesting HIV testing. This finding is not surprising and lends further support to the immediacy hypothesis of behaviour change. This has been postulated to explain the finding that homosexuals most likely to have changed to safer sex practices are those who have a close friend with AIDS or HIV infection.[11]

It is apparent from this study that considerable changes in infection control have been made by general practitioners in New Zealand since the emergence of HIV. However, there is room for more improvement, particularly among older men doctors and among those having the least contact with patients requesting an HIV test.

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