AIDS: knowledge, skills and attitudes among vocational trainees and their trainers

PAMELA BROWN-PETERSIDE

BONNIE SIBBALD

PAUL FREELING

SUMMARY. In order to assess the adequacy of learning about the human immunodeficiency virus (HIV) and the acquired immune deficiency syndrome (AIDS) in vocational training for general practice, a postal questionnaire survey was carried out among trainers and their trainees in seven health regions of England and Scotland. A total of 616 trainers (62%) and 538 trainees (58%) responded to the questionnaire asking about their knowledge, skills and attitudes regarding HIV and AIDS.

Trainees' principal difficulties with HIV and AIDS resembled those of general practitioners currently in practice. More than 60% of trainees lacked knowledge about HIV and AIDS in babies, 50% would not accept intravenous drug misusers onto their list, only 12% found it easy to discuss sex with homosexual male patients, and only 37% felt able to offer counselling about HIV and AIDS. Trainees who had had a tutorial on HIV and AIDS as part of vocational training were significantly more knowledgeable than the remainder (P<0.01). In addition, trainees who found workshops on HIV and AIDS useful were more willing than others to take on drug misusers (P<0.05) and more confident in their ability to counsel patients with HIV infection (P<0.01). No significant associations were found between the trainers' own knowledge, attitudes and skills regarding HIV and AIDS and those of their trainees.

It is concluded that there is a need to improve teaching about HIV and AIDS in vocational training for general practice. All general practitioner trainees should receive a tutorial to update their knowledge about HIV and AIDS, and attend a suitable workshop to challenge unfavourable attitudes and improve confidence in counselling.

Introduction

GENERAL practitioners have an important part to play in curbing the spread of the acquired immune deficiency syndrome (AIDS). Yet recent surveys suggest that many general practitioners are ill-prepared to meet this challenge.[1-10] The problems commonly encountered include lack of knowledge about the human immunodeficiency virus (HIV) and AIDS;[1,4,6-8,10] a marked antipathy towards the care of intravenous drug misusers;[4,5,7,8,10] hesitancy in discussing sex with patients;[4,6-8] and lack of confidence in counselling.[1,2,3,5,10] Others have shown that general practitioner trainers are no better prepared than their non-training colleagues to cope with the problems posed by HIV and AIDS.[4,9,10] It is therefore appropriate to ask whether vocational training for general practice is providing new general practitioners with the knowledge, skills and attitudes they need to cope with HIV and AIDS.

In order to assess the adequacy of education about HIV and AIDS in vocational training for general practice, we carried out a national survey of the knowledge, skills and attitudes of trainers and their trainees. In this paper we focus on those aspects which previous surveys have shown pose problems in general practice, notably doctors' knowledge of HIV and AIDS; willingness to accept patients at high risk of HIV and AIDS onto their list; ease in discussing sex with patients; and confidence in providing counselling on HIV and AIDS. Trainees' teaching and training about HIV and AIDS is examined with a view to identifying those elements associated with desirable outcomes. In particular we assess the influence of the trainers' own knowledge, skills and attitudes on those of their trainees.

Methods

In 1989 general practitioner trainers and their current trainees were sent a questionnaire asking about their knowledge, skills and attitudes regarding HIV and AIDS. The following health regions were studied: west Scotland, south east Scotland, Yorkshire, Mersey, north west Thames, north east Thames and south east Thames. These were selected to reflect both diversity in the prevalence of HIV and AIDS and the different patient groups affected. Mersey and Yorkshire have a relatively low prevalence of HIV and AIDS, whereas in the Thames regions and Scotland the prevalence is high. In Scotland intravenous drug misusers constitute the largest proportion of cases, while in the Thames regions homosexuals predominate.

Doctors who failed to respond to the questionnaire within four weeks were sent a second questionnaire. Course organizers were notified of those who still did not respond and were asked to request these doctors to complete questionnaires. Course organizers, known as associate advisers in Scotland, are general practitioners who take on the responsibility of arranging the day-release course for trainees which is part of their vocational training.

In the questionnaire doctors were asked about their ability to provide counselling on HIV and AIDS; their ease in discussing sex; and their attitudes toward taking on patients with or at high risk of HIV and AIDS. Overall knowledge of HIV and AIDS was assessed by the number of correct responses to 10 true–false questions. A 'don't know' response was also possible and scored zero. Thus, the maximum score for each doctor was 10 and the minimum zero. The issues covered included: HIV infection in babies; HIV transmission in breast milk; the rate of progression to AIDS following infection; risk of infection following needlestick injury; prevention of cross-infection in the surgery; nature of the HIV antibody test; and common presenting conditions in AIDS.

Trainees were asked about their personal experience of caring for patients with HIV and AIDS, their sources of information and how useful they found these. Trainees were also asked if they had had any undergraduate teaching about HIV and AIDS or a tutorial on the subject as part of their vocational training. All doctors were asked their age and sex, and trainees were asked how long they had spent in a training practice.

P Brown-Peterside, MSc, research assistant; B Sibbald, PhD, senior research scientist; and P Freeling, FRCGP, professor and head of department, Department of General Practice and Primary Care, St George's Hospital Medical School, London.
Submitted: 5 October 1990; accepted: 10 April 1991.

Data were analysed using *SPSSX* (statistical package for the social sciences). The significance of associations between trainees' knowledge, skills and attitudes and their demographic and training characteristics was assessed using the chi square statistic.

Where two or more factors were found to be significantly associated with an outcome variable, a multivariate logit analysis was carried out to assess the significance of each factor while controlling for the others. The findings are expressed as odds ratios — the proportion of subjects with the factor for whom the outcome was 'desirable' divided by the proportion of subjects without the factor for whom the outcome was 'desirable'. An odds ratio of 1.50, for example, means that subjects with a particular factor were 50% more likely than those without the factor to have a desirable outcome. Desirable outcomes were defined as: a knowledge score above five out of 10; willingness to accept intravenous drug misusers onto the list; finding it easy to discuss sex with homosexual male patients; and feeling able to counsel patients with HIV. The 95% confidence interval for each odds ratio is given. Where the confidence interval does not include 1.00, the finding is said to be significant at the 5% level.

The analysis further sought to assess the impact on trainees of the knowledge, skills and attitudes of their trainers. Trainers' and trainees' responses to identical questions were compared to see what proportion of pairs gave the same answer. The significance of the agreement between trainer–trainee pairs was assessed using Cohen's kappa.

Results

There were 986 general practitioner trainers in the seven health regions and together they had 924 trainees. Six hundred and sixteen trainers (62%) returned completed questionnaires, as did 538 trainees (58%). Response rates varied widely among regions for both trainers (range 51% to 81%) and trainees (range 37% to 77%), but in general, trainee response rates reflected those of their trainers.

Trainees ranged in age from 24 to 52 years with a mean age of 29 years. Two hundred and fifty trainees (46%) were men. Two hundred and seven were on a three year vocational training scheme, while 311 organized their own scheme. Trainees had completed a mean of 7.5 months (standard deviation (SD) 3.3 months) in a training practice at the time of the study. Training practices had on average 4.6 partners (SD 2.0 partners) and a list size of 9086 (SD 4468). Trainers ranged in age from 28 to 64 years with a mean age of 46 years. Five hundred and thirty three trainers (87%) were male.

All trainees had received some undergraduate teaching on HIV and AIDS. In addition, 376 (70%) had had a tutorial on HIV and AIDS as part of their vocational training and 298 (55%) had had personal experience of patients with HIV or AIDS.

Knowledge

The proportion of doctors scoring above five out of 10 on the knowledge assessment was significantly higher among trainees (425, 79%) than trainers (411, 67%) ($P<0.01$). Both trainers and trainees were least knowledgeable about the importance of a positive HIV test in newborn children (196 trainers (32%) answered correctly versus 188 trainees (35%)); the transmission of HIV in breast milk (275 trainers (45%) versus 276 trainees (51%)); and the rate of progression from HIV to AIDS (296 trainers (48%) versus 283 trainees (53%)).

The factors associated with trainees' knowledge of HIV and AIDS were examined. The proportion of doctors scoring above five out of 10 on the knowledge assessment was significantly higher among trainees with personal experience of patients with HIV or AIDS (250 (84%)) than in those without such experience (175 (73%); $P<0.01$) and in those who had had a tutorial on HIV and AIDS (306 (82%) versus 116 (72%); $P<0.05$). The proportion of trainees scoring above five out of 10 on the knowledge assessment also varied significantly among regions ($P<0.05$) being highest in south east Scotland (57 (95%)) and lowest in Mersey (38 (70%)) and Yorkshire (68 (72%)). There were no significant differences among regions in trainees' responses to individual knowledge questions, with one exception. The proportion of trainees who knew that babies who are HIV positive at birth do not necessarily remain positive for life varied from 74% (42/57) in south east Scotland to 26% (14/53) in Mersey and 22% (21/94) in Yorkshire ($P<0.01$). The significance of the variation in overall knowledge is not explained solely by the variation in response to this one question — each of the 10 questions contributed in some measure to the overall difference. Trainees' demographic characteristics, their other sources of information on HIV and AIDS, and the number of months they had completed in a training practice were not significantly associated with differences in knowledge. Multivariate analysis showed that experience with patients with HIV or AIDS and tutorials each made a small, but significant, contribution to increased knowledge about HIV and AIDS; whereas the health region in which doctors were training had no significant independent effect (Table 1).

Table 1. Factors associated with increased knowledge of HIV and AIDS among trainees.

Trainee characteristic	Odds ratio for trainee scoring above five out of 10 on knowledge assessment (95% confidence interval[a])
Region	
North east Thames	1.33 (0.81 to 2.22)
West Scotland	1.23 (0.85 to 1.79)
North west Thames	1.22 (0.83 to 1.82)
South east Thames	1.08 (0.69 to 1.67)
South east Scotland	1.00 (0.54 to 1.22)
Yorkshire, Mersey	1.00 (Reference region)
HIV/AIDS tutorial	1.32 (1.17 to 1.69)
Experience with HIV positive patients	1.41 (1.08 to 1.61)

[a]Intervals which do not include 1.00 are statistically significant at the 5% level.

Attitudes

Trainers' and trainees' willingness to accept high risk patients onto their lists was examined. Significantly more trainees than trainers were willing to accept people with AIDS (472 (88%) versus 491 (80%); $P<0.01$); whereas significantly fewer trainees than trainers were willing to accept intravenous drug misusers (267 (50%) versus 384 (62%); $P<0.01$). No significant differences were found between trainers and trainees in their willingness to accept healthy HIV positive patients, prostitutes, homosexual or bisexual men, homosexual women or haemophiliacs. Of all patient groups, both trainees and trainers were least willing to accept intravenous drug misusers onto their lists.

The factors which might influence trainees' willingness to care for intravenous drug misusers were explored. Of the 538 trainees, 205 (38%) were uncertain whether or not they would accept drug misusers. Among those who expressed a definite view, willingness to accept drug misusers was significantly higher among men than women (137 (85%) versus 129 (75%); $P<0.05$) and among those aged under 30 years (194 (84%) versus 69 (73%); $P<0.05$).

Trainees who had found workshops on HIV and AIDS a useful source of information were more likely than others to accept drug misusers onto their lists (63 (64%) versus 193 (47%); $P<0.05$). In contrast, trainees who found the medical press a useful source of information were less likely than others to undertake the care of drug misusers (200 (47%) versus 67 (63%); $P<0.05$). There were no other significant associations between willingness to care for drug misusers and trainees' demographic or other characteristics, including experience of caring for patients with HIV or AIDS and number of months in a training practice. After multivariate analysis, only workshops on HIV and AIDS remained significantly associated with increased willingness to care for drug misusers (Table 2).

Skills

Discussing sex. Doctors' ease in discussing sex with patients was examined. Trainees were significantly less likely than trainers to say they always found it easy to discuss sex with homosexual men (62 (12%) versus 130 (21%); $P<0.01$), heterosexual men (134 (25%) versus 270 (44%); $P<0.01$), homosexual women (61 (11%) versus 106 (17%); $P<0.01$) and heterosexual women (198 (37%) versus 265 (43%); $P<0.05$). In both groups the greatest difficulty was experienced in discussing sex with homosexual patients.

The factors influencing trainees' ease in discussing sex with homosexual men were examined. Male trainees were more likely than female trainees to say they always found it easy to discuss sex (38 (15%) versus 24 (9%); $P<0.05$). Interestingly, trainees who thought the medical press was a useful source of information about HIV and AIDS were less likely than others to be always at ease in discussing sex (7 (7%) versus 55 (13%); $P<0.05$). No significant associations were found with other aspects of trainees' background and training, including previous experience of patients with HIV or AIDS and number of months spent in a training practice. Multivariate analysis showed that the medical press and doctors' sex both made a small, but non-significant, contribution to trainees' willingness to discuss sex with homosexual men (Table 3).

Table 2. Factors associated with trainees' willingness to care for intravenous drug misusers.

Trainee characteristic	Odds ratio for trainee accepting drug misusers onto the practice list (95% confidence interval[a])
Sources HIV/AIDS information	
Medical press useful	0.74 (0.60 to 0.93)
HIV/AIDS workshops useful	1.32 (1.09 to 1.60)
Demographic characteristics	
Age <30 years	1.11 (0.90 to 1.33)
Male sex	1.02 (0.85 to 1.22)

[a]Intervals which do not include 1.00 are statistically significant at the 5% level.

Table 3. Factors associated with trainees' ease in discussing sex with homosexual men.

Trainee characteristic	Odds ratio for trainee finding it easy to discuss sex with homosexual men (95% confidence interval[a])
Medical press useful	0.76 (0.58 to 1.00)
Male sex	1.20 (1.02 to 1.35)

[a]Intervals which do not include 1.00 are statistically significant at the 5% level.

Counselling. Significantly fewer trainees than trainers were confident in their ability to offer counselling on HIV and AIDS (198 (37%) versus 388 (63%); $P<0.01$). Among those who lacked confidence in counselling, the reasons given were lack of experience (trainees 314 (93%), trainers 197 (90%)), lack of knowledge (trainees 132 (39%), trainers 83 (38%)) and lack of skill (trainees 7 (2%), trainers 4 (2%)).

This low level of confidence was not always reflected when the counselling of specific groups of patients was addressed. Of 535 trainees who expressed a view, 530 (99%) felt able to advise patients on the avoidance of HIV infection, 471 (88%) felt able to counsel the 'worried well', and 375 (70%) felt able to counsel patients wanting an HIV test. Only 214 (40%) trainees felt able to counsel patients found to be HIV positive. Trainers were significantly more confident than trainees in counselling the 'worried well' (589 (96%); $P<0.01$), patients wanting an HIV test (576 (94%); $P<0.01$), and patients found to be HIV positive (417 (68%); $P<0.01$). For both trainers and trainees, however, counselling patients found to be HIV positive proved the most difficult.

The factors which influenced trainees' ability to counsel HIV positive patients were explored. Older trainees (aged 30 years or more) were more confident in their ability to counsel than were younger trainees (69 (50%) versus 139 (36%); $P<0.05$). In addition, confidence was significantly higher among those who had found lectures a useful source of information about HIV and AIDS (152 (45%) versus 60 (31%); $P<0.01$), those who had found workshops on HIV and AIDS useful (56 (55%) versus 148 (36%); $P<0.01$), and those who had found medical journals useful (192 (42%) versus 20 (29%); $P<0.05$). Trainees' region, sex, their year of qualification, and the months they had completed in a training practice were not significantly associated with counselling skill. Multivariate analysis showed that only age and finding workshops on HIV and AIDS useful were significantly associated with increased confidence in counselling ability (Table 4).

Agreement between trainer–trainee pairs

Questionnaire information was obtained from a total of 380 trainer–trainee pairs. No statistically significant associations were found between individual trainers and their trainees in terms of doctors' knowledge, attitudes and skills regarding HIV and AIDS. Table 5 summarizes the proportion of trainer–trainee pairs in which there was agreement between the trainer and his or her trainee in their questionnaire responses. Agreement was least good for knowledge about HIV and AIDS (32% in agreement) and best for attitudes, as indicated by doctors' willingness to accept drug misusers onto the list (48% in agreement). Levels of agreement on the skills of discussing sex and counselling were only slightly below that for attitudes.

These findings did not change appreciably when adjustment was made for the length of time spent by the trainee in the training practice. Table 5 shows the agreement between trainer–trainee pairs for the third of trainees who had spent the least time in practice as compared with the third of trainees who had spent the longest time in practice. The findings show that, in general, the level of agreement between trainer–trainee pairs increased only slightly as the trainees' length of time in training increased.

Discussion

In this study, trainees' principal difficulties were a lack of knowledge about some aspects of HIV and AIDS, a marked antipathy to caring for intravenous drug misusers, a reluctance to discuss sex with patients, and hesitancy in counselling patients with HIV infection. These are the same areas which give cause for concern among general practitioners generally.[1-10] The

Table 4. Factors associated with trainees' confidence in counselling HIV positive patients.

Trainee characteristic	Odds ratio for trainee feeling able to counsel an HIV positive patient (95% confidence interval[a])
Sources HIV/AIDS information	
HIV/AIDS workshops useful	1.29 (1.05 to 1.59)
HIV/AIDS lectures useful	1.21 (0.98 to 1.49)
Medical press useful	0.84 (0.34 to 1.12)
Age 30+ years	1.24 (1.03 to 1.49)

[a]Intervals which do not include 1.00 are statistically significant at the 5% level.

Table 5. Agreement in knowledge, attitudes and skills between trainers and trainees controlling for trainees' length of time in training.

	% of trainer–trainee pairs in agreement		
		Time spent in training practice	
	All trainees ($n=380$)	<6 months ($n=139$)	10+ months ($n=104$)
Knowledge score	*32*	*30*	*33*
Acceptance of drug misusers onto list	*48*	*43*	*46*
Skills			
Find discussing sex with homosexual men easy	*46*	*42*	*48*
Able to counsel HIV positive patients	*40*	*39*	*42*

[a]n = total number of trainer–trainee pairs.

question is how might we encourage a more desirable response to HIV and AIDS among future general practitioners?

Trainees were least knowledgeable about the outcome for babies who are HIV antibody positive at birth and about the risk of transmission of HIV in breast milk. This is not surprising given that HIV and AIDS in babies is at present poorly understood, but suggests that trainees need to be kept better informed of recent advances in knowledge. Overall knowledge was higher in trainees who had previous experience of patients with HIV or AIDS and had had a tutorial on HIV and AIDS as part of vocational training. It is inevitable that those who train in regions with a high prevalence of HIV and AIDS will have more opportunity to gain experience in the care of these patients. For example, our findings suggested that trainees' knowledge of HIV in babies was highest in Scotland where the prevalence of HIV in heterosexuals is high. Regions with a low prevalence may find it impossible or impractical to ensure that all trainees have personal experience of patients with HIV or AIDS. However, it is possible to ensure that all trainees receive formal tuition on HIV and AIDS as part of their vocational training, and we recommend this as a means of updating knowledge.

Antipathy to caring for drug misusers is a more difficult problem to resolve. Half the trainees in this study would not accept an intravenous drug misuser onto their list. This reluctance is somewhat understandable given the difficulties that patients with intravenous drug problems pose. However, restricting the spread of HIV and AIDS in these patients may be the key to preventing widespread transmission of HIV so our future general practitioners must be willing to be involved in the care of these difficult patients.

Our results showed that trainees who attended a workshop on HIV and AIDS and found it useful were more willing than others to accept drug misusers. This does not necessarily mean that workshops change attitudes, since the trainees who elected to attend may have had favourable attitudes from the outset. Nevertheless, our own experience in running workshops has been that small group activity is an effective means of promoting favourable attitudes to HIV and AIDS among primary health care staff including general practitioners.[11] We would therefore recommend that trainees attend a suitable workshop on HIV and AIDS in the course of their vocational training.

Trainees were markedly less confident than trainers in the consultation skills needed in the care and prevention of HIV and AIDS. Sixty per cent of trainees felt unable to counsel patients with HIV infection and at least this proportion reported difficulty discussing sex with patients of whatever sex or sexual orientation. This is of wider concern since the provision of health education and health care for patients at risk of or with HIV or AIDS is a good exemplar of the kinds of skills which form the core of general practice.

Lack of experience was cited by more than 90% of trainees as the reason for their uncertainty about counselling; whereas lack of skill was cited by only 2%. It is likely therefore that trainees have the appropriate skills, but are uncertain how to deploy them in this context; the problem may resolve with increasing age and experience. Our findings showed that older trainees (aged 30 years or more) and those who had attended workshops on HIV and AIDS were more confident than others in their counselling ability. It may be that an appropriately constructed workshop can show trainees how to apply their existing skills to the management of patients with HIV or AIDS.

Doctors' willingness to discuss sex with homosexual male patients showed no significant associations with training or experience, but was weakly related to the doctors' sex and source of information on HIV and AIDS. As in previous studies, male doctors were more comfortable than females in discussing sex with patients.[7,8] In addition, trainees who did not think the medical press was a useful source of information about HIV and AIDS found discussions about sex easier. The reason for this latter finding is unclear, but could be explained if doctors with a liberal attitude to sex eschewed the somewhat conservative medical press.

Vocational training should ensure that future general practitioners are prepared to deal with HIV and AIDS, and the example set by trainers is an intrinsic part of this preparation. It was therefore disappointing to find that the knowledge, skills and attitudes of trainees were not significantly associated with those of their trainers. Previous work has shown that the improvement in trainees' knowledge and skill over the course of training is significantly correlated with the trainers' levels of knowledge and skill.[12] In other words the teachers' influence on the performance of learners is independent of the learners' level of ability at the outset. As we did not measure changes in trainees' performance, we cannot say to what extent this holds true for HIV and AIDS. If the hypothesis is correct, we would expect to find that the longer the time trainees had spent in a training practice, the greater would be their knowledge, skills and attitudes; and the more closely they would resemble their trainer. Our findings did not support this hypothesis. No significant associations were found between the time spent in a training practice and trainees' knowledge, skills or attitudes. Moreover

the level of agreement within trainer–trainee pairs increased only slightly as trainees' length of time in training increased.

It may be that the differences between trainers and trainees as a group obscured any similarity between individual trainers and their trainees. Certainly the findings showed that trainees were more knowledgeable about HIV and AIDS and more willing to care for patients with AIDS; whereas trainers were more willing to care for drug misusers, more at ease in discussing sex and more confident in counselling patients. It is plausible that these differences were great enough to outweigh the influence of trainers' performance on that of their trainees. The lack of agreement between trainer–trainee pairs about HIV and AIDS, therefore, may not reflect agreement in other aspects of knowledge, skills or attitudes.

Our response rates of 58% among trainees and 62% among trainers are similar to those of other general practitioner surveys. Of 10 recently published surveys[1-10] on general practitioners' response to HIV and AIDS, seven[2-6,8,10] had response rates of 50–67%. A low response rate always introduces the possibility of non-responder bias. However, the nature and prevalence of the knowledge, skills and attitudes reported here are comparable with those uncovered in surveys with a high response rate.[1,7,9] We therefore have no reason to believe that our findings are not representative. The results are encouraging in suggesting that new general practitioners will be more knowledgeable about HIV and AIDS and more willing to undertake the care of patients with AIDS than are the doctors currently in post. Nevertheless there is a need to improve teaching and training about HIV and AIDS in vocational training.

On the basis of our findings we would recommend that general practitioner trainees receive a tutorial on HIV and AIDS in order to update their knowledge, and attend a suitable workshop to challenge unfavourable attitudes and improve confidence in counselling skills. Teaching and training about HIV and AIDS must compete with many other issues which might legitimately be addressed in vocational training. However, we believe that there is much to be gained from the inclusion of HIV and AIDS since they draw upon many attitudes and skills which form the core of general practice. Doctors' lack of confidence in their ability to counsel HIV-positive patients is particularly regrettable given that counselling is a generic skill fundamental to much of the work of general practice. Similarly, a reluctance to discuss sex with patients must raise doubts about preparation for a much wider range of discussions with patients. A carefully planned, educational programme would do much to improve the care of patients with HIV and AIDS, and the rewards for doing so may extend far beyond this condition to encompass the whole of general practice.

References

1. Anderson P, Mayon-White R. General practitioners and management of infection with HIV. *BMJ* 1988; **296:** 535-537.
2. Boyd JS, Kerr S, Maw S, *et al.* Knowledge of HIV infection and AIDS, and attitudes to testing and counselling among general practitioners in Northern Ireland. *Br J Gen Pract* 1990; **40:** 158-160.
3. Boyton R, Scambler G. Survey of general practitioners' attitudes to AIDS in the north west Thames and East Anglian regions. *BMJ* 1988; **296:** 538-540.
4. Health Care Research Unit. *Report 36: a national study of HIV infection, AIDS and general practice.* Newcastle: University of Newcastle upon Tyne School of Health Care Sciences, 1989.
5. King MB. London general practitioners' involvement with HIV infection. *J R Coll Gen Pract* 1989; **39:** 280-283.
6. Milne R, Keen S. Are general practitioners ready to prevent the spread of HIV? *BMJ* 1988 **296:** 533-535.
7. Naji S, Russell I, Foy C, *et al.* HIV infection and Scottish general practice. *J R Coll Gen Pract* 1989; **39:** 284-288.
8. Rhodes T, Gallagher M, Foy C, *et al.* Prevention in practice: obstacles and opportunities. *AIDS Care* 1989; **1:** 257-267.
9. Shapiro JA. General practitioners' attitudes towards AIDS and their perceived information needs. *BMJ* 1989; **298:** 1563-1566.
10. Sibbald B, Freeling P. AIDS and the future general practitioner. *J R Coll Gen Pract* 1988; **38:** 500-502.
11. AIDS and primary care steering group. *HIV/AIDS education and training for primary health care staff.* London: Health Education Authority, 1990.
12. Freeman J, Roberts J, Metcalfe D, Hillier V. *The influence of trainers on trainees in general practice. Occasional paper 21.* London: Royal College of General Practitioners, 1982.

Acknowledgements

We thank the Department of Health for their financial support of this work. We are also grateful to the regional postgraduate advisers in general practice, course organizers/associate advisers, trainers and trainees whose kind cooperation made this study possible.

Address for correspondence

Dr B Sibbald, Department of General Practice and Primary Care, St George's Hospital Medical School, Cranmer Terrace, London SW17 0RE.