sampling error (probably the most important single cause of lack of correlation between histological and cytological findings). Negative results of smear tests in women with cervical intraepithelial neoplasia grade III have also been attributed to sampling error. We believe that the argument of progression and sampling error also applies to many cases of mild dyskaryosis in which biopsy specimens taken after some follow up period or at the time of the smear test show cervical intraepithelial neoplasia grade III.

K A HUSSEIN
D M PARHAM

Cytology Section,
Department of Pathology,
Dundee Royal Infirmary,
Dundee DD1 9ND

- 1 Hirshowitz L, Raffle AE, McKenzie EFD, Hughes AO. Long term follow up of women with borderline cervical smear test results: effects of age and viral infection on progression to high grade dyskaryosis. *BMJ* 1992;304:1209-12. (9 May.)
- 2 Parham DM, Wiredu EK, Hussein KA. Significance of borderline abnormality in cervical smears. *Cytopathology* (in press).
- 3 Soutter WP, Wisdom S, Brough AK, Monaghan JM. Should patients with mild atypia in cervical smears be referred for colposcopy? *Br J Obstet Gynaecol* 1986;93:70-4.
- 4 Davies GL, Hernandez E, Davies JL, Miazawa K. Atypical squamous cells in Papanicolaou smears. *Obstet Gynecol* 1987;69:43-6.
- 5 Nourmoff JS. Atypia in cervical cytology as a risk factor for intraepithelial neoplasia. *Am J Obstet Gynecol* 1987;156:628-31.

EDITOR.—Lynn Hirschowitz and colleagues conclude that in women with borderline results on cervical smear tests the risk of developing high grade dyskaryosis is increased.¹

Though it is important to look at the cytological implications of minor degrees of cell abnormality, the possibility of their wider implications may be numerically even more important to women and their partners. Those involved in women's health care are familiar with the fact that many women regard a negative smear test result as meaning that all is well in their reproductive tract but that a positive one is seen only in terms of precancer (or, sadly, incorrectly as cancer.)

Infections which may be detected in a cervical smear were mentioned. However, *Chlamydia trachomatis* and *Neisseria gonorrhoea* infections are not diagnosed with a cervical smear. Infections often coexist, so that treatment for those detected cytologically may not be appropriate.

In a study of the feasibility of screening for chlamydial infection at the time of the routine cervical smear we found that 13.5% of women with an adequate smear whose result was reported as other than negative were positive for chlamydia, compared with 3.9% of those with a normal cytological result. Rates of chlamydia infection in women with smears showing inflammatory changes or those showing dyskaryosis were not significant.² However, our rate of 27.8% of women with smear test results bordering on dyskaryosis is significant. We are looking at the smears of large numbers of women with chlamydial infection but not recognising the infection. As this infection has such important sequelae for women, their partners, and their children the clue offered by the abnormal and, perhaps, especially the borderline cervical cytological report should not be overlooked.

JENNIFER HOPWOOD

Family Planning and Well Woman Services,
Liverpool

- 1 Hirshowitz L, Raffle AE, Mackenzie EFD, Hughes AO. Long term follow up of women with borderline cervical cancer test results: effects of age and viral infection on progression to high grade dyskaryosis. *BMJ* 1992;304:1209-12. (9 May.)
- 2 Hopwood J, Mallinson H, Agnew E. Chlamydia screening—should it be offered as a routine? *British Journal of Family Planning* 1990;16:59-67.

EDITOR.—Lynn Hirschowitz and colleagues refer to the increasing incidence of women with minor cytological abnormalities and emphasise the

importance of close cytological surveillance of these high risk women.¹ We believe that this is particularly relevant to women who are, or have been, immunosuppressed. Immunosuppression is a high risk factor in the development of cervical intraepithelial neoplasia, being reported in patients with renal transplants receiving long term azathioprine and in patients with lupus erythematosus and sarcoidosis receiving long term steroids.² Female patients with Hodgkin's disease are at increased risk of developing cervical intraepithelial neoplasia.³ Patients with Hodgkin's disease also suffer from an increased incidence of viral infections, with a higher than normal proportion of these patients having human papillomavirus infections of the cervix.^{2,4} Women with human papillomavirus infection have a 15.6-fold increase in risk of developing cervical intraepithelial neoplasia grade III, which increases to 38.7-fold increase if they are under the age of 25.^{5,6}

We reviewed the cervical smear results obtained over the past five years from 73 women (mean age 36) currently under review for lymphoma who had had, or were having, chemotherapy; 36 had had a cervical smear test performed for the first time more than two years after completion of the chemotherapy. Five (14%) of these 36 smears were abnormal: two showed severe dyskaryosis, two mild dyskaryosis, and one borderline nuclear abnormalities. Cytological features suggestive of infection with human papillomavirus were present in two smears. Despite the small numbers the percentage of women with dyskaryotic smears is much higher than expected. Thirty seven women had not had a cervical smear test after completing the chemotherapy.

There is no policy to encourage young women who are, or have been, taking immunosuppressive drugs to have cervical smears. Their review is generally left to their general practitioners, who on average recall these young women once every three years. The increased incidence of cytological abnormalities and the high number of unscreened women in our study prompt us to suggest that this needs to be reviewed. Only with adequate screening for these patients, who have already survived one malignancy, can a second preventable tumour be avoided.

MARCIA A RATCLIFFE

AUDREY A DAWSON

Department of Medicine and Haematology,
Aberdeen Royal Infirmary,
Aberdeen AB9 2ZB

GRAINNE FLANNELLY

Department of Obstetrics and Gynaecology,
Aberdeen Royal Infirmary

- 1 Hirshowitz L, Raffle AE, Mackenzie EFD, Hughes AO. Long term follow up of women with borderline cervical smear test results: effects of age and viral infection on progression to high grade dyskaryosis. *BMJ* 1992;304:1209-12. (9 May.)
- 2 Balachandran I, Galagan KS. Cervical carcinoma in situ associated with azathioprine therapy. *Acta Cytol* 1984;28:699-701.
- 3 Hughes RG, Colquhoun M, Eccles M, Alloub M, Parker AC, Norval M, et al. Cervical intraepithelial neoplasia in lymphoma patients: a cytological and colposcopic study. *Br J Cancer* 1989;59:594-9.
- 4 Morrison WL. Viral warts, herpes simplex and herpes zoster in patients with secondary immune deficiencies and neoplasms. *Br J Dermatol* 1975;92:625.
- 5 Kitchener HC. Commentary: does HPV cause cervical cancer? *Br J Obstet Gynecol* 1988;95:1089-91.
- 6 Mitchell H, Drake M, Medley G. Prospective evaluation of risk of cervical cancer after cytological evidence of human papilloma virus infection. *Lancet* 1986;i:573-5.

Tuberculosis contact tracing

EDITOR.—We read with interest the paper by S F Hussain and colleagues¹ and agree that non-adherence to contact tracing guidelines² may lead to unnecessary screening and follow up. We were concerned, however, by their suggestion that prolonged follow up seems to be unnecessary in districts with small immigrant populations. In a review of contact tracing procedures in Leeds we found that the late diagnosis of tuberculosis in non-

Asian contacts remains a significant problem.³ During 1983-7, 42 (8%) out of 555 cases of tuberculosis were diagnosed by contact tracing. Of the 42 cases diagnosed by contact procedures, eight (19%) were diagnosed six months after the initial visit to the contact clinic and four (10%) more than a year after the first visit. Although Leeds has a significant Asian population and 130 (25%) out of 513 index cases were of Asian origin, only five (12%) of the 42 cases diagnosed by contact procedures, and two out of the 12 diagnosed late, were of Asian origin. We believe that it would be inappropriate to reduce the duration of follow up of Heaf positive contacts of source cases with smear positive tuberculosis, who should be followed up for at least two years.

C TEALE

Seacroft Hospital,
Leeds LS14 6UH

D B CUNDALL

S B PEARSON

Leeds General Infirmary,
Leeds LS1 3EX

- 1 Hussain SF, Watura R, Cashman B, Campbell IA, Evans MR. Audit of tuberculosis contact tracing clinic. *BMJ* 1992;304:1213-5. (9 May.)
- 2 British Thoracic and Tuberculosis Association. A study of a standardised contact procedure for tuberculosis. *Tubercle* 1978;59:245-59.
- 3 Teale C, Cundall DB, Pearson SB. Time of development of tuberculosis in contacts. *Respir Med* 1991;85:475-7.

EDITOR.—The article by S F Hussain and colleagues implies that there may be "overkill" in contact tracing procedures in South Glamorgan.¹ Some of their arguments need further discussion.

(1) It is impossible to gauge how infectious a sputum smear positive index case is before contact tracing to determine how many contacts have been infected or have developed disease. (2) Infection (that is, tuberculin conversion) is a better guide to the infectivity of an index case than numbers who have developed disease at initial screening; the authors attach little importance to this in their discussion. (3) The authors discuss savings in terms of reducing contact clinic sessions. It is important that a rapid response for contact tracing is available in each district however infrequent cases of tuberculosis may be. It is therefore important that some provision for a regular clinic (preferably weekly) is maintained.

Our contact tracing clinic in Liverpool also provides screening for immigrants and a BCG service to travellers and other risk groups. The number of cases of tuberculosis have been increasing in England and Wales since 1987 for reasons which we do not fully understand. It is important not to drop our guard in the vital area of contact tracing as a provision for disease control.

P D O DAVIES

South Liverpool Chest Clinic,
Sefton General Hospital,
Liverpool L15 2HE

- 1 Hussain SF, Watura R, Cashman B, Campbell IA, Evans MR. Audit of a tuberculosis contact tracing clinic. *BMJ* 1992;304:1213-5. (9 May.)

Hazards of transmission of HIV during invasive procedures

EDITOR.—In his editorial on the hazards of transmission of HIV during invasive procedures¹ D J Jeffries fails to highlight two critical recommendations in the report by a working group of the Royal College of Pathologists.² The working group called for the urgent development of a policy on following up patients who may have been exposed to HIV through invasive procedures³ and for further research on three fronts: to correct deficiencies in the data relating to the frequency of and risk factors for occupational and patient

exposure to blood during invasive procedures; to evaluate interventions aimed at preventing blood contact; and to estimate the prevalence of HIV among health care workers who undertake invasive procedures.

The working group noted that "Few comprehensive surveys of patients surgically exposed to HIV-1 infected health care workers have been conducted." It documented the uptake of HIV testing by patients in such cases,^{3,4} which was highest, at 79% (130 patients), among 163 patients of an HIV infected dental student in Georgia⁵ but was only 22% (76 out of 339 patients) in the first episode in the United Kingdom.⁶ A published account of the second surveillance in the United Kingdom, of over 1000 patients in April last year, is overdue.⁷ We have argued that the success of any surveillance exercise should be judged by the level of voluntary HIV testing achieved in patients whose operation entailed a high risk of operator injury.¹

We find it surprising that both Jeffries's editorial and a brief report in the *BMJ* by Fiona Godlee² state that there have been no reported cases worldwide of a surgeon infecting a hospital patient with HIV; neither piece mentions the dental surgeon in Florida who apparently transmitted HIV to five patients.⁸ Though the mechanism of transmission is unclear in this case and may never be ascertained, the case should signal the need for further study rather than denial of its possible implications. Indeed, disparity between indirect estimates of the risk of transmission of hepatitis B virus from a surgeon positive for hepatitis B e antigen to a single patient during an invasive procedure and the observed transmission rates in outbreaks of hepatitis B virus associated with surgeons were described as thought provoking in the Royal College of Pathologists' report. Such discrepancies indicate that indirect estimates alone are an insufficient basis for reassuring patients about the risk of transmission of HIV. They must be supported by direct, rigorous surveillance data on tens of thousands of patients involved in such cases.

We commend the working group for the comprehensiveness and objectivity of its review and welcome its undertaking to update the report as appropriate.

SHEILA M GORE
A GRAHAM BIRD

MRC Biostatistics Unit,
Cambridge CB2 2BW

- 1 Jeffries DJ. Doctors, patients, and HIV. *BMJ* 1992;304:1258-9. (16 May.)
- 2 Royal College of Pathologists. *HIV infection: hazards of transmission to patients and health care workers during invasive procedures*. London: Royal College of Pathologists, 1992.
- 3 Bird AG, Gore SM, Leigh Brown AJ, Carter DJ. Escape from collective denial: HIV transmission during surgery. *BMJ* 1991;303:351-2.
- 4 Gore SM, Bird AG. HIV survey offers reassurance. *Independent* 1992 May 5:18.
- 5 Comer RW, Myers DR, Steadman CD, Carter MJ, Rissing JP, Tedesco FJ. Management considerations for an HIV positive dental student. *J Dent Educ* 1991;55:187-91.
- 6 Porter JD, Cruickshank JG, Gentle PH, Robinson RG, Gill ON. Management of patients treated by surgeon with HIV infection. *Lancet* 1990;335:113-4.
- 7 Godlee F. British surgeon infected with HIV. *BMJ* 1992;304:1204. (9 May.)
- 8 Centers for Disease Control. Update: transmission of HIV infection during an invasive dental procedure in Florida. *MMWR* 1991;40:21-7.

EDITOR,—D J Jeffries presents some of the figures in his editorial in such a way that they are misleading.¹ "If zidovudine prevented" 10% of nosocomial transmission "there would be no question about its use." This statement seems so obviously true that it will doubtless be taken at face value and will lead to demands that zidovudine should be given to those who incur needlestick injuries. The missing figures in this equation should also, however, be considered.

The quoted risk of seroconversion after inocula-

tion injury is 1:275. It follows that if zidovudine prevented 10% of nosocomial transmissions 2750 courses would be needed for each success. Thus the risk-benefit ratio is 2750:1 rather than the 90%:10% implied. (In practice even more zidovudine would probably be given, as HIV negative donors might be regarded as high risk and "prophylaxis" taken anyway.)

I accept that to acquire HIV infection is a personal tragedy. But zidovudine is toxic; many patients have to stop taking it because of the consequent anaemia. Long term mutagenic or carcinogenic effects of zidovudine have not yet been excluded. To expose so many people to unknown risks when so few of them will benefit strays from the basic rule of medicine, which is "first, do no harm."

M SHEPPARD

Mayday Hospital,
Thornton Heath,
Surrey CR7 7YE

- 1 Jeffries DJ. Doctors, patients, and HIV. *BMJ* 1992;304:1259-60. (16 May.)

Life insurance and HIV tests

EDITOR,—At the end of last year a debate occurred in the *BMJ*'s letters column on whether people who have had a negative HIV test result are penalised when applying for life insurance.^{1,2} We recently met a representative of the Association of British Insurers and discussed this issue. We understand that questions on HIV testing on insurance application forms are often used as trigger questions. An affirmative answer to the question "Have you ever had an HIV/AIDS test?" is likely to lead to the insurers requesting further information, including information on the applicant's sexual orientation. Being identified as a gay man in this way is likely to lead to the insurance cover offered being more expensive and, rarely, to insurance cover being refused.

Recently Hulme *et al* reported that a leaflet clarifying the position of the Association of British Insurers was being used in a genitourinary clinic.³ The leaflet was quoted as stating that "People should be reassured that if they have an HIV antibody test and the result is negative they will face no difficulty in obtaining future life insurance because of having the test." Although strictly factually correct, this statement is misleading unless further qualified. Having an HIV test can be prejudicial to people applying for life insurance because it may lead to further questions that would not otherwise have been asked.

The statement of practice we were given by the representative of the Association of British Insurers says: "Having had a negative HIV test will not, of itself, prevent someone from obtaining life insurance or affect the cost, providing there are no adverse risk factors present. Consequently having a test for routine purposes such as giving blood, prenatal screening or employment creates no problem regarding life insurance."⁴ We believe that this statement with an explanation that further questions may be asked to identify adverse risk factors accurately describes the true situation to people considering whether to have an HIV test.

NIGEL UNWIN

North Manchester Health Authority,
Manchester M13 0FW

IAN JEFFERY

Central Manchester Community Drugs Team,
Manchester M15 6FG

PAUL NETHERCOTT

Manchester AIDS Forum,
HIV/AIDS Unit,
PO Box 362,
Manchester M60 2JB

HUGH POLEHAMPTON

Manchester City Council,
PO Box 362,
Manchester M60 2JB

- 1 Correspondence. Counselling patients before an HIV test. *BMJ* 1991;303:1133-4.
- 2 Bor R, Miller R, Johnson M. Counselling patients before an HIV test. *BMJ* 1991;303:1478.
- 3 Hulme N, Smith S, Barton S. Insurance and HIV antibody testing. *Lancet* 1992;339:682-3.
- 4 Association of British Insurers. *Underwriting life insurance for AIDS and HIV*. London: ABI, 1991.

Sex biased language

EDITOR,—Mary Verdult argues forcefully against attempts to reduce sex biased use of the English language and concludes, "The notion that tinkering with the language is going to change people's attitudes is fallacious."¹ This assertion is not supported by the evidence. Studies that have used various methods have shown consistently that when terms such as "he," "his," and "man" are used in what is intended as a gender neutral sense, people more commonly think of male referents than they do when explicitly neutral alternatives such as "they" or "him or her" are used.^{2,6} Not only is this a potential source of confusion³ but the use of androcentric language in written information may modify the reader's subsequent behaviour in the light of that information.⁷

I have two daughters. Already one of them is limited in her choice of games at school by the irrelevance of her biological sex. Unfortunately, both children are likely to encounter further examples of sexist discrimination in many aspects of their lives. Although sex biased language may never be a proximate cause of discriminatory behaviour, the evidence suggests that androcentric language is a factor in maintaining sexist attitudes and that use of explicitly gender neutral language can reduce discrimination on the grounds of sex.

TIM USHERWOOD

Department of General Practice,
Medical School,
University of Sheffield,
Sheffield S10 2RX

- 1 Verdult M. Sex bias in the *BMJ*. *BMJ* 1992;304:1250. (9 May.)
- 2 Moulton J, Robinson GM, Elias C. Sex bias in language use. "Neutral" pronouns that aren't. *Am Psychol* 1978;33:1032-7.
- 3 Schau CG, Scott KP. Impact of gender characteristics of instructional materials: an integration of the research literature. *Journal of Educational Psychology* 1984;76:183-93.
- 4 Wilson E, Ng SH. Sex bias in visual images evoked by generics: a New Zealand study. *Sex Roles* 1988;18:159-68.
- 5 Khosroshahi F. Penguins don't care, but women do: a social identity analysis of a Whorfian problem. *Language and Society* 1989;18:505-25.
- 6 Gastil J. Generic pronouns and sexist language: the oxymoronic character of masculine generics. *Sex Roles* 1990;23:629-43.
- 7 Briere J, Lanktree C. Sex-role related effects of sex bias in language. *Sex Roles* 1983;9:625-32.

Minimising psychosocial disabilities of multiple sclerosis

EDITOR,—H E Webb is, regrettably, correct when he outlines the lack of efficacy of the recognised medical treatments for multiple sclerosis.¹ He also outlines methods of managing symptoms and remedial treatments to maximise independence. In this otherwise comprehensive review, however, no mention is made of the need for psychological and social support.

Doctors are in a unique position to minimise the additional suffering that results from the psychosocial disabilities of multiple sclerosis. The initial distress and anger that follow the diagnosis may be minimised by good communication.^{2,3} A sympathetic doctor who understands the illness can encourage patients to plan realistically for an uncertain future while giving hope and helping them to maintain a fighting spirit. Sympathetic counselling can help patients with deteriorating disease to cope with threats to their ability to continue to work, be a good parent,⁴ remain personally independent, and preserve their dignity and self respect. Visits by both the patient and his