	White population		Ethnic minorities		All cases	
	No of cases	Annual incidence/100 000	No of cases	Annual incidence/100 000	No of cases	Annual incidence/100 000
Inner city	46	13.8	26	132.8	72	20.4
Outer city	43	4.7	30	90.9	73	7.7
Whole city	89	7.1	56	106.5	145	11.2

ing of the possible reasons behind this increase in incidence, case finding and effective treatment are unlikely to reverse the trend. We therefore welcome the contribution by N Bhatti and colleagues for two reasons.¹ Firstly, they show that the increase in tuberculosis is not due to an improvement in the notification system but reflects a true increase in the disease. Secondly, they produce evidence challenging the suggestion that the increase in tuberculosis is due to imported cases among immigrants and refugees; they believe that it is more likely to be the result of changes in the socioeconomic conditions of the inner cities.

In Newcastle upon Tyne, from 1990 to 1994, 145 cases of previously undiagnosed tuberculosis in city residents were identified from the notification registers and laboratory and hospital records. The table shows the number of cases and the annual incidence by ethnic origin and by residence in the eight deprived wards of the inner city and elsewhere. The relative risk of tuberculosis for ethnic minorities living in the inner city compared with the outer city is 1.5 (95% confidence interval 0.9 to 2.5, $P=0.15$). For the white population the relative risk is 2.9 (1.9 to 4.4, $P<0.001$). The Mantel-Haenszel procedure combines the evidence from both subsets. When the confounding influence of ethnic origin is taken into account the weighted relative risk is 2.2 (1.6 to 3.0).

These figures show that in Newcastle there is a significant association between the incidence of tuberculosis and residence in deprived inner city wards, irrespective of ethnic origin. Although the incidence of tuberculosis in the ethnic minority community is 15 times that in the white population, the association with socioeconomic deprivation at ward level is much stronger in the white population.

Bhatti and colleagues conclude that a reversal in the increasing incidence of tuberculosis is unlikely without an improvement in income for some sectors of the population. Although we do not disagree with this opinion, the more practical response is to target measures to control tuberculosis at high risk populations. Until now such action has been limited to recent immigrants and close relatives of people with active disease. Should we consider screening programmes in deprived inner city areas?

MICHAEL LAVENDER
Senior registrar in public health medicine

NICOL M I BLACK
Consultant in communicable disease control

Public Health Laboratory,
Institute of Pathology,
Newcastle General Hospital,
Newcastle upon Tyne NE4 6BE

1 Bhatti N, Law MR, Morris JK, Halliday R, Moore-Gillon J. Increasing incidence of tuberculosis in England and Wales: a study of the likely causes. *BMJ* 1995;310:967-9. (15 April.)

Risk factors for diabetes in men

Risk factors are closely linked with socioeconomic status

EDITOR,—The association between risk factors and diabetes described by Eric B Rimm and colleagues¹ is unlikely to be simple, and both smoking and obesity are linked to socioeconomic status. Our studies on diabetic subjects in Glasgow²

and Middlesbrough³ have shown that low socioeconomic status is associated with a high prevalence of smoking and higher body mass indices. The increased smoking and obesity in low socioeconomic groups remain unexplained, although intrauterine, genetic, and psychological factors have been proposed. Ivan J Perry and colleagues include socioeconomic status in their study by including manual occupation as a variable, but this alone did not predict diabetes.⁴

We suggest that measures of socioeconomic status based on areas^{5,6} could be used, combined with measures of smoking, obesity, and physical activity. We are performing a study to investigate these factors. It may then be possible to identify high risk areas and populations in which screening for diabetes will be beneficial. Because of the suggestion that diabetes is undiagnosed in up to 1% of the population and the difficulties associated with screening, perhaps resources should be focused on areas of low socioeconomic status in an effort to uncover the hidden burden of diabetes.

VINCENT CONNOLLY

Senior registrar

WILLIAM KELLY

Consultant physician

Diabetes Care Centre,
Middlesbrough General Hospital,
Middlesbrough TS5 5AZ

- 1 Rimm EB, Chan J, Stampfer MJ, Colditz GA, Willett WC. Prospective study of cigarette smoking, alcohol use, and the risk of diabetes in men. *BMJ* 1995;310:555-9. (4 March.)
- 2 Connolly VM, Kesson E, Mitchell JMO, Kesson CM. Social deprivation, body mass index and HbA_{1c} in diabetic patients. *Diabetic Medicine* 1993;10(suppl):S18.
- 3 Kelly WF, Mahmood R, Kelly MJ, Turner S, Elliot K. Influence of social deprivation on illness in diabetic patients. *BMJ* 1993;307:115-6.
- 4 Perry JJ, Wannamethee SG, Walker MK, Thomson AG, Whincup PH, Shaper AG. Prospective study of risk factors for development of non-insulin dependent diabetes in middle aged British men. *BMJ* 1995;310:560-4. (4 March.)
- 5 Townsend P, Phillimore P, Beattie A. *Health and deprivation: inequality and the north*. London: Routledge, 1988:38-40.
- 6 Carstairs V, Morris R. *Deprivation and health in Scotland*. Aberdeen: University Press, 1991.

Japanese study confirms findings

EDITOR,—Eric B Rimm and colleagues' findings¹ are in line with those of a large cohort study conducted in Japan. The lifestyles of 265 118 adults aged 40 and over (122 261 men; 142 857 women) in six prefectures (Miyagi, Aichi, Osaka, Hyogo, Okayama, and Kagoshima) were studied. Household interviews were conducted by public health nurses in 1965, and the subjects were followed up for 17 years.² Diabetes mellitus was recorded in the death certificates of 1678 subjects (846 men, 832 women)—as the main cause of death in 946 (454 men and 492 women) and as a contributory cause of death in 732 (392 men and 340 women).

A significant dose-response relation was observed in men between the number of cigarettes smoked daily and the relative risk of diabetes, adjusted for age, the risk for non-smokers, and for those who smoked 1-9, 10-19, 20-29, 30-39, and >40 cigarettes daily being 1.00, 0.69, 1.16, 1.14, 1.81, and 2.70 respectively (χ^2 for trend=11.9, $P=0.0004$). A similar trend was observed in women, the relative risk adjusted for age in non-smokers and those who smoked 1-9, 10-19, and ≥ 20 cigarettes daily being 1.00, 1.03, 1.26, and

1.39 respectively. In men, diabetes mellitus was the fifth ranking disease related to smoking (except for cancer) in terms of risk for those smoking ≥ 40 cigarettes daily, after arterial embolism and thrombosis (relative risk 19.2), aortic aneurysm (relative risk 3.9), gastric ulcer (relative risk 3.6), and emphysema (relative risk 3.2).

These results are in line with those of other large cohort or cross sectional studies reported.^{3,5} There are also negative reports in the literature, but apparently most of these studies did not consider that the risk might vary with the number of cigarettes smoked. As shown above, a slightly lower risk of diabetes was found among light smokers in the Japanese study; this was probably due to the anti-obesity effect of light smoking, as shown by the national nutrition survey in Japan in 22 019 men in 1986-92: the proportion of men who were obese (≥ 40 mm subcutaneous fat) was 14.9%, 11.3%, 9.7%, 12.2%, 14.3%, and 17.1% in non-smokers and those who smoked 1-9, 10-19, 20-29, 30-39, and ≥ 40 cigarettes daily respectively.

Thus people should be strongly advised to stop smoking to prevent the occurrence as well as the progression of diabetes mellitus.

TEKESHI HIRAYAMA
Director

Institute of Preventive Oncology,
Institute for Health Aging,
Tokyo,
Japan

- 1 Rimm EB, Chan J, Stampfer MJ, Colditz GA, Willett W. Prospective study of cigarette smoking, alcohol use, and the risk of diabetes in men. *BMJ* 1995;310:555-9. (4 March.)
- 2 Hirayama T. Life-style and mortality. In: Wahrendorf J, ed. *Epidemiology and biostatistics*. Vol 6. Basle: Karger, 1990:6-17.
- 3 Feskens EJM, Kromhout D. Cardiovascular risk factors and the 25-year incidence of diabetes mellitus in middle-aged men. *Am J Epidemiol* 1989;130:1101-8.
- 4 Rimm EB, Manson JE, Stampfer MJ, Colditz GA, Willett WC, Rosner B. Cigarette smoking and the risk of diabetes in women. *Am J Public Health* 1993;83:211-4.
- 5 Todoroki I, Shinichi K, Kono S, Imanishi K. Lifestyle and glucose tolerance, a cross-sectional study of Japanese men. *Arch Epidemiol* 1994;4:363-8.

Breast feeding of adopted infants

EDITOR,—Tony Waterston gives advice on how to induce lactation when a woman wishes to breast feed a baby adopted from birth.¹ I am surprised that the only pharmacological method mentioned is stimulation of the let down reflex with oxytocin nasal spray. Although the exact method of inducing lactation in the study that Waterston quotes was not specified, at least 54% of the nursing mothers had to give supplementary feeds.² This may well be adequate in the industrialised world, where good hygiene and a good nutritional quality of artificial feeds are likely. For developing countries, however, successful lactation without the need for supplementation is crucial for the survival of the adopted infant. There, drugs that cause hyperprolactinaemia due to antidopaminergic effects, such as metoclopramide and phenothiazines, can be used to maximise the volume of milk produced.³

In Papua New Guinea the following method is advocated.⁴ If the woman is nulliparous or has never lactated the breast tissue is primed with ethinyloestradiol 50 μ g three times a day for one week or (more simply) depot medroxyprogesterone acetate 100 mg intramuscularly once. Women who have lactated in the past or already have some milk omit this phase and start immediately to take metoclopramide 10 mg four times a day or chlorpromazine 25 mg four times a day, or both. On the rare occasions that this does not produce satisfactory results within two weeks methyldopa 125 mg four times a day is added. Supplementary feeds are rarely given and not encouraged. Frequent suckling is advocated. During the interim period until lactation is adequate the child may be