leads to the consequence that it is wrong to rectify or even to seek to prevent the incidence of disabling conditions. Thus, even if an “identity claim” is accepted to the effect that disabling traits can be identity constituting, and thus are not analogous to flu and other illnesses, the wrongness of prenatal screening need not follow; or so it has been argued here.

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Accepted for publication 11 April 2003

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Pre-employment genetic screening

The complete analysis of the human genome raises the possibility of extensive use of genetic screening to assess future health risks for individuals. One application might be pre-employment screening. Such screening might have benefits and disadvantages for potential employees, employers, and society. For job applicants screening might reveal a genetic susceptibility to the health hazards of the job; the job may be avoided or special health precautions may be taken. Potential disadvantages of screening include inconvenience, anxiety, the uncovering of private information, refusal or loading of insurance, and reduced employment prospects. For employers the advantages of screening could include reduction in costs from employee ill-health, lower insurance costs, and the possibility of targeting of safety measures. The disadvantages could include the costs of screening, workforce unrest, the costs of turning down and replacing job applicants, and, in some countries, the possibility of legal suit for employment discrimination. For society screening might be beneficial by reducing occupational ill-health or disadvantageous by adding to costs. Genetic screening affects not only potential employees but also their families. Various national and international bodies have made recommendations about pre-employment genetic screening, mostly to the effect that genetic screening should not be a requirement unless it is clearly needed to assess safety or susceptibility to harm but that it may be offered when it might clearly benefit potential employees.

Quantification of the potential advantages and disadvantages of proposed screening programmes might help employers to decide whether to introduce screening and job applicants to decide whether to participate. Four measures are described in this paper: number needed to screen (NTS), number needed to exclude (NTE), expected incidence in those excluded (Iexc), and preventable fraction (PF). NTS is the number of job applicants who must be screened to prevent one having the given adverse outcome. NTE the number who must be turned down to prevent one case, Iexc the expected incidence of the adverse outcome in those turned down because of screening had they been accepted, and PF the proportion of adverse outcomes that could be prevented by the screening programme. The use of these measures is illustrated using data from a study of atopy and specific sensitisation to fungal amylase in bakers and algebraic formulae are given for the calculation of each of the measures when relative risk, the prevalence of the prognostic indicator (genotype in the case of genetic screening), and the overall cumulative incidence of the adverse outcome under consideration are known. Screening for a rare genotype would be associated with a low PF and high NTS and would most likely be considered not worthwhile. Similarly an uncommon adverse outcome would imply high values for NTS and NTE. The formulae could be enlarged to take account of financial and health costs for employees, employers, and society as a whole.

This paper describes statistical indices that might be useful in evaluating the potential costs and benefits of pre-employment genetic screening programmes. Such indices might help in reaching decisions about the ethical acceptability of individual programmes.