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Employee Selection Base on Susceptibility to Occupational Illness

Mark A. Rothstein
West Virginia University

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EMPLOYEE SELECTION BASED ON SUSCEPTIBILITY TO OCCUPATIONAL ILLNESS*

Mark A. Rothstein**

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** Professor of Law, West Virginia University. B.A., University of Pittsburgh; J.D., Georgetown University. —Ed.

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INTRODUCTION

Some potential health consequences of exposure to toxic substances in the workplace have been recognized for centuries. The health effects of other, newer substances, however, are just beginning to be understood. Recent developments in occupational medicine have established causal links between various substances and specific diseases. Furthermore, epidemiological studies and sophisticated laboratory procedures have identified factors (such as age, sex, ethnicity, genetic factors, allergies, and smoking and drinking habits) which, in addition to past workplace exposures and present medical condition, indicate that an individual may be predisposed to specific occupational diseases.

The conclusiveness and predictive value of current medical evidence varies widely. Nevertheless, some employers have begun to use information about an individual's statistical predisposition to occupational disease in making employment decisions concerning hiring, firing, promotion, work assignment and other matters. Such policies, even where noninvidious and arguably essential, raise numerous and perplexing medical, legal, and ethical issues. Where employers use unreliable criteria, extensive screening unfairly denies employment opportunities to entire classes of people. Even where the evidence supports a finding of increased risk, medical screening by employers threatens to create two classes of workers, one containing disease-resistant employees, the other containing potentially productive but unemployable individuals who have genetic or other subclinical anomalies.

The gaps in our medical knowledge make it difficult to respond to this prospect. Our national labor policy faces two potentially inconsistent goals: making job opportunities available to those persons

capable of doing the work, while preventing job-related diseases. It is imperative that, in attempting to reconcile these policies, employers, workers, unions and governments work from a position of knowledge.

This Article attempts to compile the latest information available concerning this difficult problem. Part I reviews the scientific literature, explaining the biological basis of increased risk of occupational disease. Part II explores the efforts of various employers to incorporate this research into their personnel practices. Part III surveys the legal response to these practices. Employees may challenge medical screening on a variety of theories, most of which were not designed to deal with the problem of susceptibility to occupational disease. Not surprisingly, none of the approaches offers an entirely satisfactory response to the problem. This Article offers no clear answers. Indeed, scientific advances may soon render today's solutions inappropriate. Rather, the Article concludes with an effort to summarize the questions any future policy must answer.

I. THE BIOLOGICAL BASIS OF INCREASED RISK

Every human being is genetically unique. A compilation of about two dozen polymorphisms¹ of blood types, red cell enzymes, blood plasma proteins, and leukocyte histocompatibility types² demonstrates that any two persons, except for identical twins, will have only a one in three billion chance of having the same profile for even this short list of biochemical markers.³

A person's environment also plays an important role in the total

1. A polymorphism is the occurrence of several different forms within the same species. DORLAND'S ILLUSTRATED MEDICAL DICTIONARY 1234 (25th ed. 1974) [hereinafter cited as DORLAND'S].

2. Leukocyte is a generalized term for white blood cell. E. CALABRESE, POLLUTANTS AND HIGH RISK GROUPS 203 (1978). Histocompatibility is a state of immunologic similarity or identity of tissues between a donor and recipient to permit a successful transplantation. STEDMAN'S MEDICAL DICTIONARY 649 (4th unabr. Lawyer's ed. 1974) [hereinafter cited as STEDMAN'S].

3. Omenn & Motulsky, *Eco-Genetics: Variation in Susceptibility to Environmental Agents*, in GENETIC ISSUES IN PUBLIC HEALTH AND MEDICINE 84 (B. Cohen, A. Lilienfeld & P. Huang eds. 1978).

The term "eco-genetics" refers to studies of genetically determined differences among individuals in their susceptibility to physical, chemical, and biological agents in the environment. *Id.* at 83. Again, "environment" is broadly defined to include physical, chemical, infectious, atmospheric, and climatic agents, as well as food substances. Motulsky, *infra* note 4, at 376. This relatively new field deals with why harmful environmental agents affect only a certain proportion of the people exposed and why individuals differ in their adaptation to their environment. F. VOGEL & A. MOTULSKY, HUMAN GENETICS 259 (1979). The field of eco-genetics rests upon a central working hypothesis: that an individual's response to an environmental agent depends upon internal biochemical makeup. Motulsky, *infra* note 4. It is now well settled that all exposed individuals do not respond alike, nor do all these differences result

development of the individual. Genes provide the potential; the ultimate expression is greatly influenced by the environmental conditions in which they operate.⁴ Human individuality results from the potentialities of heredity working together with the possibilities of the environment.⁵

Human individuality is an important element in the etiology⁶ of disease. At one time, controversy existed about whether genetics or environment — “nature or nurture” — was more important.⁷ Today, however, it is widely recognized that both factors play an important role. Few, if any, diseases can be understood by reference to either genetic or environmental factors alone.⁸

Recent studies reveal a greater diversity among individuals than previously believed.⁹ The enormous amount of genetic variability in human populations creates many degrees of toxin-specific sensitivity.¹⁰ Each genotype¹¹ responds differently to environmental variations.¹² Disease results only under certain genotype-environmental combinations.¹³ Moreover, illness in an individual results from a

from different levels of exposure. Cooper, *Health Surveillance Programs in Industry*, 3 PATTY'S INDUSTRIAL HYGIENE AND TOXICOLOGY 595, 601 (1979).

The term “hypersusceptibility” is defined as “[i]nordinate response to an infective, chemical, or other agent.” STEDMAN'S, *supra* note 2, at 674. The term has not been used in this Article to avoid equating a hypersusceptible person with an ill or defective person. “Sensitive,” “predisposed,” and “high-risk” have been used instead. Sensitivity may result from a variety of factors, such as preexisting diseases, or personal habits combined with occupational exposure to create synergistic effects — *i.e.*, acting together to enhance the effect of another force or agent. DORLAND'S, *supra* note 1, at 1529. Sensitivity can also result from inborn errors of metabolism that interfere with detoxification of chemicals or augment their toxic effects. See Cooper, *supra*.

4. A. WINCHESTER, HUMAN GENETICS 165 (1975); Motulsky, *Ecogenetics: Genetic Variation in Susceptibility to Environmental Agents*, in *Human Genetics*, 1977 PROC. OF THE FIFTH INTL. CONG. OF HUMAN GENETICS 376, 377.

5. A. SCHEINFELD, HEREDITY IN HUMANS 4 (1972). See also note 8 *infra*.

6. Etiology is the study or theory of the factors that cause disease and the method of their introduction to the host. DORLAND'S, *supra* note 1, at 550.

7. *E.g.*, Harris, *Nature and Nurture*, 297 NEW ENG. J. MED. 399 (1977).

8. A. EMERY, HEREDITY, DISEASE AND MAN — GENETICS IN MEDICINE 112 (1968); I. POTTER, HEREDITY AND DISEASE 23 (1968); J. STANSBURY, J. WYNGARDEN & D. FREDRICKSON, THE METABOLIC BASIS OF INHERITED DISEASE 3 (4th ed. 1978) [hereinafter cited as J. STANSBURY]. “Environmental factors” has been given a rather broad definition to include everything from intra-uterine life to old age. It includes physical and social conditions, food, bacteria and viruses encountered, and medical care, both prophylactic and therapeutic. Harris, *supra* note 7, at 399.

9. L. CABALLE-SFORZA, ELEMENTS OF HUMAN GENETICS 52 (1973).

10. Velazquez, *The Genetic Concept of Disease*, 31 REVISTA DE INVESTIGACION CLINICA No. 1 (Enero-Marzo 1979).

11. Genotype refers to the genetic constitution of an individual, either with respect to gene combination at one specified locus or any specific combination of loci. STEDMAN'S, *supra* note 2, at 577.

12. Velazquez, *supra* note 10.

13. *Id.*

multitude of prior chance circumstances. Thus, causal circumstances differ from one individual to another, even when the manifestations of their illnesses are indistinguishable.¹⁴ Seemingly minor differences in diet or in physical or chemical environment determine the reaction of a person to a given microbial or genetic stimulus.¹⁵

As the list of factors known to be capable of inducing human disease lengthened, it became clear that a particular disease manifestation could have more than one causal antecedent.¹⁶ Furthermore, the human environment and gene pool constantly fluctuate.¹⁷ The dramatic increase in environmental pollutants will continue to increase the number of genetically susceptible targets.¹⁸ Thus, the concept of varied susceptibility is likely to take on even greater significance in the study of disease causation. The same principle of wide-ranging individual susceptibility to disease applies with equal force to occupational disease.¹⁹ Research has revealed a number of factors that contribute to susceptibility to occupational disease. Genetics, considered in Part A, plays a leading role. Part B examines several categories of nonoccupational environmental factors that also contribute to individual susceptibility. Finally, Part C examines the contribution of occupational factors to the etiology of these diseases.

A. Genetic-Based Increased Risk

1. Biochemical Genetic Factors

A number of inborn errors of metabolism and organ-specific genetic conditions have been associated with an increased risk of illness when the host is exposed to toxic substances or other environmental hazards in the workplace. The most widely recognized genetic conditions are discussed below.

14. MULTIPLE FACTORS IN THE CAUSATION OF ENVIRONMENTALLY INDUCED DISEASE 1 (D. Lee & P. Kotin eds. 1972).

15. *Id.* at 2.

16. *Id.* at 1.

17. *Id.* at 3.

18. Brewer, *Human Ecology, An Expanding Role for the Human Geneticist*, 23 AM. J. HUMAN GENETICS 92 (1971). This prediction is based on studies of genetic variability and pharmacogenetics, the study of the effects of genetic variation on human response to drugs. Motulsky, *supra* note 4, at 376.

19. An increasing number of diseases have been discovered to be occupationally related. For example, the Office of Technology Assessment estimates that 60 to 90 percent of all cancers are related to occupational and environmental exposure. OFFICE OF TECHNOLOGY ASSESSMENT, U.S. CONGRESS, TECHNOLOGIES FOR DETERMINING CANCER RISKS FROM THE ENVIRONMENT 3 (1981) [hereinafter cited as CANCER RISKS]. "Environment" is broadly defined along the lines set out in note 8 *supra*.

a. *Sickle cell.* Sickle cell anemia is an inherited blood disorder in which the red blood cells become crescent shaped.²⁰ Individuals with sickle cell anemia are genetically homozygous, having inherited sickle cell genes from both parents.²¹ The term sickle cell trait (or sickle gene carrier) refers to a heterozygous individual who has inherited one normal hemoglobin gene and one sickle cell gene.²² The occupational significance of sickle cell trait is subject to much debate in the scientific community.

At least forty-six clinical conditions have been associated with sickle cell trait.²³ The most relevant to the occupational setting are splenic infarctions in pressurized aircraft and sudden death during vigorous exercise at high altitudes. This led the armed forces to deny persons with sickle cell trait entry into flight and diving occupations because of the increased risk of deficient oxygenation of the blood.²⁴ Some scientists suggest that sickle cell trait should be considered when jobs involve arduous work in places with relatively limited oxygen, such as aircraft,²⁵ or the risk of accidental deoxygenation, such as mine rescue work.²⁶ Other scientists suggest that individuals with sickle cell trait may be more susceptible to the action of hemolytic agents. They recommend avoiding exposure to anemia producers (such as benzene, lead, and cadmium), methemoglobin formers (such as aromatic amino and nitro compounds), and blood enzyme tension reducers (such as carbon monoxide and cyanide).²⁷ At least one chemical company implemented this recommendation.²⁸

Many other scientists consider sickle cell trait a benign condition

20. Sickle cell anemia results in a clogging of the blood vessels and an impeding of the proper flow of oxygen to all parts of the body. U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, PROTOCOL FOR SICKLE CELL EDUCATION 17 (1976). The disease usually causes cardiovascular abnormalities and extreme fatigue. Lindsay, Meshel & Patterson, *Cardiovascular Manifestations of Sickle Cell Disease*, 133 ARCHIVES INTERNAL MED. 643 (1974). Consequently, persons suffering from sickle cell anemia are often overtly disabled and may have limited employment opportunities. *Id.*; Cooper, *Indicators of Susceptibility to Industrial Chemicals*, 15 J. OCCUP. MED. 355, 356 (1973).

21. Konetey-Ahula, *The Sickle Cell Diseases*, 133 ARCHIVES INTERNAL MED. 611 (1974).

22. *Id.* at 612.

23. Sears, *The Morbidity of Sickle-Cell Trait: Review of the Literature*, 64 AM. J. MED. 1021, 1030 (1978).

24. Uddin, Dickson & Brodine, *Screening of Military Recruits for Hemoglobin Variants*, 227 J. A.M.A. 1405 (1974). See Holden, *Air Force Challenged on Sickle Trait Policy*, 211 SCIENCE 257 (1981).

25. Reinhardt, *Chemical Hypersusceptibility*, 20 J. OCCUP. MED. 319, 320 (1978).

26. Lehman & Huntsman, *The Hemoglobinopathies*, in THE METABOLIC BASIS OF INHERITED DISEASE 1398, 1404 (3d ed. 1972).

27. Stokinger & Scheel, *Hypersusceptibility and Genetic Problems in Occupational Medicine — A Consensus Report*, 15 J. OCCUP. MED. 564, 572 (1973).

28. Reinhardt, *supra* note 25, at 320 (DuPont).

with minimal risk under most circumstances.²⁹ Furthermore, no studies or data exist to support the theory that individuals with sickle cell trait may be at increased risk from hemolytic chemicals.³⁰

b. *G-6-PD deficiency*. Glucose-6-phosphate dehydrogenase (G-6-PD) deficiency is a biochemical genetic condition involving red blood cells. G-6-PD is the first enzyme in the energy-generating process; a deficiency in this enzyme interferes with the oxidation of glucose.³¹

G-6-PD deficiency was recognized as early as 1926 during detailed study of a drug-sensitivity reaction to hemolytic antimalarial drugs.³² Dozens of industrial chemicals have chemical structures and toxicologic properties similar to those of the antimalarial drugs.³³ Theoretically, these chemicals can cause clinically significant hemolytic anemia in G-6-PD deficient workers.

Chemicals suspected of presenting risks to G-6-PD deficient workers include some common household and prescription drugs, several dye intermediates, aromatic nitro and amino compounds, arsine and related metal hydrides, and lead and its compounds.³⁴ Ozone,³⁵ copper,³⁶ and sodium nitrite³⁷ may also promote hemolytic anemia in G-6-PD deficient individuals. Despite *in vitro* and case studies, little epidemiologic evidence exists to prove that G-6-PD deficient individuals are more sensitive to industrial chemicals.³⁸

29. See Petrakis, *Sickle-Cell Disease*, 2 LANCET 1368, 1369 (1974). Several studies of athletes and military personnel support this view. See Lehman & Huntsman, *supra* note 26; Diggs & Flowers, *High School Athletes with Sickle-Cell Trait, (HbAS)*, 68 J. NATL. MED. ASSN. 492 (1976); Horberg & Uddin, *Sickle-Cell Trait and Glucose-6-Phosphate Dehydrogenase Deficiency: Effects on Health and Military Performance in Black Navy Enlistees*, 141 ARCHIVES INTERNAL MED. 1485 (1981); Murphy, *Sickle-Cell Hemoglobin (HbAS) in Black Football Players*, 225 J. A.M.A. 981 (1973).

30. See Stokinger & Scheel, *supra* note 27; see also Cooper, *supra* note 20; Omenn, *Predictive Identification of Hypersusceptible Individuals*, 24 J. OCCUP. MED. 369, 372 (1982).

31. E. CALABRESE, *supra* note 2, at 45 (1978); Omenn & Motulsky, *supra* note 3, at 85.

32. Cooper, *supra* note 20, at 355-56; Stokinger & Mountain, *Tests for Hypersusceptibility to Hemolytic Chemicals*, 6 ARCHIVES ENVTL. HEALTH 495 (1963).

33. E. CALABRESE, *supra* note 2; Stokinger & Mountain, *supra* note 32.

34. Stokinger & Scheel, *supra* note 27.

35. See Calabrese, Kajola & Carnow, *Ozone: A Possible Cause of Hemolytic Anemia in G-6-PD Deficient Individuals*, 2 J. TOXICOLOGY & ENVTL. HEALTH 709 (1977).

36. See Calabrese, Moore & Ho, *Low G-6-PD Activity in Human and Sheep Red Blood Cells and Susceptibility to Copper Induced Oxidative Damage*, 21 ENVTL. RESEARCH 366 (1980).

37. See Calabrese, Moore & Ho, *Low Erythrocyte G-6-PD Activity and Susceptibility to Nitrite-Induced Methemoglobin Formation*, 26 BULL. ENVTL. CONTAMINANT TOXICOLOGY 837 (1980).

38. Moreover, several factors complicate the compilation of this evidence. First, it is not known whether individuals will hyper-react following exposures below current OSHA levels or whether higher doses are required. Second, many other factors, such as preexisting organic disease, medications, viral and bacterial infections, and nutritional status, may interact with

c. *SAT deficiency*. Alpha₁-antitrypsin is a serum protein that protects the lung from proteolytic enzymes.³⁹ Research has demonstrated that individuals with an inherited deficiency of serum alpha₁-antitrypsin (SAT deficiency) are predisposed to alveolar destruction, even in the absence of chronic bronchitis, and to the development of pulmonary emphysema.⁴⁰

In homozygotes, SAT activity may be only ten to fifteen percent of normal;⁴¹ in heterozygotes SAT activity may be sixty percent of normal.⁴² Approximately eighty percent of homozygotes develop chronic obstructive pulmonary disease (COPD).⁴³ Only one individual in 4000 to 8000 displays the homozygous trait,⁴⁴ but there are an estimated seven million heterozygotes in the United States (about 3% of the population).⁴⁵

Heterozygotes run increased risk of COPD, especially if they smoke or work in dusty environments. Although there are conflicting studies,⁴⁶ most researchers believe that SAT deficiency increases the risk of COPD for individuals exposed to a variety of respiratory irritants.⁴⁷ Despite an "increased risk," however, ninety percent of SAT heterozygotes will not develop COPD.⁴⁸ Other factors are also important to the etiology of COPD.⁴⁹

environmental exposures to produce health effects in G-6-PD deficient individuals. These interactions may be additive or synergistic. Third, over 100 variant forms of G-6-PD deficiency have been identified and the reactions of these different subgroups to environmental factors varies greatly.

39. E. CALABRESE, *supra* note 2, at 55.

40. *Id.*

41. Cooper, *supra* note 20, at 356.

42. *Id.*

43. OFFICE OF TECHNOLOGY ASSESSMENT, U.S. CONGRESS, *THE ROLE OF GENETIC TESTING IN THE PREVENTION OF OCCUPATIONAL DISEASE* 93 (1983) [hereinafter cited as *GENETIC TESTING*].

44. *Id.*

45. *Id.*

46. See Lebowitz, Knudson, Morse & Arnet, *Closing Volumes and Flow Volume Abnormalities in Alpha₁ Antitrypsin Phenotype Groups in a Community Population*, 117 AM. REV. RESPIRATORY DISEASE 179 (1978).

47. See Evans & Bognocki, *Alpha₁ Antitrypsin Deficiency and Susceptibility to Lung Disease*, 29 ENVTL. HEALTH PERSPECTIVES 57 (1979); Mittman, *The PiMZ Phenotype: Is It A Significant Risk Factor for the Development of Chronic Obstructive Lung Disease?*, 118 AM. REV. RESPIRATORY DISEASE 649 (1978); see also Omenn & Motulsky, *supra* note 3, at 90.

48. Mittman, *supra* note 47. This suggests that screening programs for SAT heterozygotes would be unwarranted. See notes 77-78, 289-92 *infra* and accompanying text.

49. Mittman, *supra* note 47. Interestingly, and for as yet unexplained reasons, oral contraceptives have been shown to increase SAT levels. Laurrell & Eriksson, *The Electrophoretic Alpha₁ Antitrypsin Deficiency*, 15 SCANDINAVIAN J. CLINICAL LABORATORY INVESTIGATION 132 (1963).

Other less common diseases may increase an individual's sensitivity to various occupational environments. Acatalasemia and hypocatalasemia are red blood cell deficiencies which

2. HLA System

The human leukocyte antigen (HLA) system is a complex array of cellular surface proteins found on chromosome number six in every human cell.⁵⁰ Recent biomedical studies reveal that various HLA's display striking statistical associations with many human diseases.⁵¹ Essentially, white blood cells use the HLA system in identifying foreign substances in the body and alerting the body's immune system to destroy these foreign cells.⁵²

Although the precise relationship between HLA and disease has yet to be discovered, the ninety-two known HLA antigens serve as genetic markers for more than eighty diseases, and tens more are discovered every year.⁵³ Some of these diseases, such as hypersensitivity pneumonitis, bladder cancer, asbestosis, farmer's lung, silicosis, pneumoconiosis, and G-6-PD deficiency may be related to occupational exposures.⁵⁴ Consequently, HLA typing may take on increasing importance in identifying high-risk workers.⁵⁵ Even the most accurate HLA test, however, cannot effectively analyze asymptomatic populations.⁵⁶

B. Nonoccupational Environmental Factors

1. Increased Risk Based on Innate Characteristics

a. Age. The incidence of cancer increases with age.⁵⁷ Some ev-

can be aggravated by oxidizing agents. See E. CALABRESE, *supra* note 2, at 49. Persons with cystic fibrosis or cystic fibrosis trait may be predisposed to COPD from exposure to respiratory irritants such as ozone, sulphur dioxide, particulate sulphates, and heavy metals. *Id.* at 72. Wilson's disease, characterized by excess copper in the liver, brain, cornea, and kidney, is aggravated by additional exposure to copper. J. STANSBURY, *supra* note 8, at 1103. Leber's optic atrophy, a rare inherited eye disease, is affected by exposure to several neurotoxic agents in cigarette smoke and cyanide. E. CALABRESE, *supra* note 2, at 83.

50. See Carpenter, Raum, Glass & Schur, *Ordering of Genes for HLA Antigens and Complement Components on the Human 6th Chromosome*, in *HLA AND MALIGNANCY* (G. Murphy ed. 1977); Payne, *The HLA Complex: Genetics and Implications in the Immune Response*, in *HLA AND DISEASE* (J. Dausset & A. Svejgaard eds. 1977).

51. See W. BRAUN, *HLA AND DISEASE: A COMPREHENSIVE REVIEW* (1979).

52. Z. HARSANYI & R. HUTTON, *GENETIC PROPHECY* 59 (1981).

53. *Id.* at 58, 62-63; see W. BRAUN, *supra* note 51 (listing 186 disease associations).

54. See W. BRAUN, *supra* note 51, at 31, 80, 103-04, 127; Z. HARSANYI & R. HUTTON, *supra* note 52, at 64-67.

55. HLA and biochemical genetic markers are not mutually exclusive and, in fact, may be related. HLA is a cellular genetic marker; the inborn metabolic errors or biochemical genetic markers are one type of manifestation of a genetic anomaly. At least in the case of one such marker, G-6-PD deficiency, there is some evidence of a specific HLA association. W. BRAUN, *supra* note 51, at 127.

56. Khan & Khan, *Diagnostic Value of HLA-B27 Testing in Ankylosing Spondylitis and Reiter's Syndrome*, 96 *ANNALS INTERNAL MED.* 70 (1982).

57. P. TIMIRAS, *DEVELOPMENTAL PHYSIOLOGY AND AGING* 473 (1972).

idence suggests that from puberty onward the functioning of the body's cell-mediated immunity progressively deteriorates. Therefore, older workers with a degenerative cell-mediated immunologic capacity may be more sensitive to industrial carcinogens.⁵⁸ Some epidemiological studies reveal that workers exposed to carcinogens at a later age are more likely to develop cancer than younger workers exposed at the same levels for the same length of time.⁵⁹

Degenerative changes in other organ systems also may predispose older workers to harmful effects of toxic exposures. For example, after the age of fifty renal fluoride clearance decreases, meaning that higher fluoride levels are retained by the body. Thus, workers over fifty might be at increased risk from fluoride exposure.⁶⁰

b. *Race and ethnicity.* Race and ethnicity may affect susceptibility to illness in two ways. First, certain innate racial characteristics are possessed by substantially all members of the race. Second, certain genetic markers of susceptibility to illness may be more prominent in some racial or ethnic groups than in others.⁶¹

The most obvious racial difference is skin color. Dark skin more effectively prevents penetration of ultraviolet radiation.⁶² Therefore, the incidence of malignant melanoma is much higher among Caucasians than non-Caucasians.⁶³

Another racial difference involves lung capacity. The normal lung volumes (vital capacity and forced expiratory volume) for blacks are lower, relative to body size, than for whites.⁶⁴ This is because, generally speaking, blacks have smaller thoraxes relative to

58. See E. CALABRESE, *supra* note 2, at 165.

59. Doll, *Cancer and Aging: The Epidemiologic Evidence*, 5 ONCOLOGY 1970 — TENTH INTERNATIONAL CANCER CONGRESS 1-28 (1971); Case, Hooker & McDonald, *Tumors of the Urinary Bladder in Workmen Engaged in the Manufacture and Use of Certain Dyestuff Intermediates in the British Chemical Industry*, 11 BRIT. J. INDUS. MED 75 (1954). But see Hoover & Cole, *Temporal Aspects of Occupational Bladder Carcinogenesis*, 288 NEW ENG. J. MED. 1041 (1973); Kahn, *The Dorn Study of Smoking and Mortality Among U.S. Veterans: Report on Eight and One-Half Years of Observation*, 19 N.C.I. MONOG. 1 (1966). See generally Whittemore, *The Age Distribution of Human Cancer for Carcinogenic Exposures of Varying Intensity*, 106 AM. J. EPIDEMIOLOGY 418 (1977).

60. See E. CALABRESE, *supra* note 2, at 31.

61. Occupational illness rates for different racial and ethnic groups also may vary widely because of employment patterns, with certain groups being over-represented in hazardous industries. See generally Davis, *The Impact of Workplace Health and Safety on Black Workers: Assessment and Prognosis*, 31 LAB. L.J. 723 (1980); 11 O.S.H. REP. (BNA) 134-35 (1981).

62. E. CALABRESE, *supra* note 2, at 85.

63. Allison & Wong, *Skin Cancer: Some Ethnic Differences*, in ENVIRONMENTS OF MAN 69 (J. Bresler ed. 1968); E. CALABRESE, *supra* note 2, at 87; Crombie, *Racial Differences in Melanoma Incidence*, 40 BRIT. J. CANCER 185 (1979).

64. Stebbins, *A Survey of Respiratory Disease Among New York City Postal and Transit Workers*, 6 ENVTL. RESEARCH 147, 153 (1973); see Oscherwitz, Edlavitch, Baker & Jarboe,

total body weight. Among whites, individuals with low vital capacities have been found to have increased rates of cardiovascular disease.⁶⁵ Blacks, however, appear to have lower morbidity and mortality rates due to COPD, chronic bronchitis and emphysema.⁶⁶ Associations between lung volume and health status remain uncertain, but OSHA's cotton dust standard provides that, to account for thorax size differential, pulmonary function tests "for blacks shall be multiplied by 0.85 to adjust for ethnic differences."⁶⁷

Some genetic markers appear much more frequently in certain racial and ethnic groups than in others. Virtually all racial and ethnic groups are predisposed to some illness based on one or more genetic traits. Sickle cell anemia and sickle cell trait are found almost exclusively in persons from equatorial Africa, parts of India, the Middle East, and the Mediterranean.⁶⁸ Seven to thirteen percent of American blacks have sickle cell trait.⁶⁹ It is usually not found in other racial groups.⁷⁰

G-6-PD deficiency is a sex-linked trait, occurring homozygously only in males.⁷¹ G-6-PD deficiency is found primarily in blacks from Central Africa, populations around the Mediterranean, East Indians, some Orientals, Oceanians, and Filipinos.⁷² The condition affects over 100 million males worldwide.⁷³ Approximately 0.1 percent of white American males,⁷⁴ sixteen percent of black American males,⁷⁵ and perhaps sixty percent of Kurdish Jews⁷⁶ have G-6-PD deficiency.

SAT deficiency⁷⁷ is observed most frequently among persons

Differences in Pulmonary Functions in Various Racial Groups, 96 AM. J. EPIDEMIOLOGY 319 (1972).

65. PUBLIC HEALTH SERVICE, U.S. DEPT. OF HEALTH, EDUCATION, AND WELFARE, FRAMINGHAM HEART STUDY: HABITS AND CORONARY HEART DISEASE (1966).

66. Stebbins, *supra* note 64.

67. 29 C.F.R. § 1910.1043 (h)(3)(iii) (1982).

68. E. CALABRESE, *supra* note 2, at 43.

69. *Id.*

70. E. GARDNER, PRINCIPLES OF GENETICS 390 (1972).

71. Cooper, *supra* note 20, at 356.

72. Cooper, *supra* note 20, at 356; *see* note 487 *infra* and accompanying text. G-6-PD deficiency affects virtually all racial groups to some extent. J. STANSBURY, *supra* note 8, at 1375.

73. K. MUENSCH, THE GENETIC BASIS FOR HUMAN DISEASE 41 (1979).

74. Stokinger & Mountain, *supra* note 32; text at note 487 *infra*.

75. E. BEUTLER, HEMOLYTIC ANEMIA IN DISORDERS OF RED CELL METABOLISM 52 (1978); text at note 487 *infra*.

76. Stokinger & Mountain, *Progress in Detecting the Worker Hypersusceptible to Industrial Chemicals*, 9 J. OCCUP. MED. 537, 539 (1967).

77. *See* notes 39-49 *supra* and accompanying text.

with northern European ancestry. The following table illustrates the ethnic prevalences of this condition.

TABLE I⁷⁸

Group	Percentage of Subjects Affected	Number Tested
Irish	9.0	194
Russian and Central Europe	7.9	63
German	7.0	63
English	6.6	151
French and Belgian	4.7	64
Italian	0	53
Jewish	2.6	114
American Negro	1.4	70
Mexican-American	1.3	76
American Indian	0	37

Several other biochemical genetic conditions predominate in certain racial and ethnic groups. For example, NADH dehydrogenase deficiency, a red blood disorder, is most common in Alaskan Eskimos and Indians,⁷⁹ Navajo Indians,⁸⁰ and Puerto Ricans.⁸¹ Tyrosinemia and porphyria, two other blood disorders, have a high degree of prevalence among French Canadians⁸² and South Africans⁸³ respectively. Wilson's disease⁸⁴ most often affects Eastern European Jews and Sicilians.⁸⁵

c. Sex and reproduction.

(i) *Nonreproductive sex differences.* Aside from obvious external sexual characteristics, there are other biological differences between males and females. For example, males generally have greater iso-

78. E. CALABRESE, *supra* note 2, at 57 (citing Mittman & Lieberman, *Screening for Alpha₁-Antitrypsin Deficiency*, in GENETIC POLYMORPHISM AND THE DISEASES IN MAN 191 (1973)).

79. Scott & Hoskins, *Hereditary Methemoglobinemia in Alaskan Eskimos and Indians*, 13 BLOOD 795 (1958).

80. Balsam, Hardy & Scott, *Hereditary Methemoglobinemia Due to Diaphorase Deficiency in Navajo Indians*, 65 J. PEDIATRICS 928 (1964).

81. Hsieh & Joffe, *Electrophoretic and Functional Variants of NADH Methemoglobin Reductase in Hereditary Methemoglobinemia*, 50 J. CLINICAL INVESTIGATION 196 (1971); Schwartz, Parass, Ross, DiPillo & Rizek, *Unstable Variant of NADH Methemoglobin Reductase in Puerto Ricans with Hereditary Methemoglobinemia*, 51 J. CLINICAL INVESTIGATION 1594 (1972).

82. E. CALABRESE, *supra* note 2, at 66.

83. *Id.* at 190.

84. *See* note 49 *supra*.

85. E. CALABRESE, *supra* note 2, at 75.

metric muscle strength, especially upper limb strength,⁸⁶ and seem to tolerate heat better than women.⁸⁷ Epidemiological data collected on older workers show a tendency for female workers to suffer from chronic debilitating diseases while male workers suffer from more life-threatening diseases.⁸⁸

With respect to occupational hazards, the evidence does not establish sex-related sensitivities to particular toxic substances.⁸⁹ Such findings, however, are theoretically possible. Males face an increased risk of liver cancer, regardless of social, racial, occupational, cultural and geographical factors.⁹⁰ Similar findings exist for skin cancer and lung cancer.⁹¹ Although the physiological basis for these differences is not clear, it may involve metabolic and enzymatic actions in the detoxification of carcinogenic substances.

(ii) *Preconception hazards*. At birth, the female has an estimated 700,000 to 2,000,000 primary oocytes in her ovaries.⁹² By the beginning of puberty she has only 40,000. Of these, only about 400 oocytes will ever undergo development and be expelled during the ovulatory phase of the menstrual cycle.⁹³ The oocytes reaching maturity later in life have been dormant for forty years or more. During this dormant period they are exposed, either directly or indirectly, to various potentially harmful conditions, some of which may have a cumulative effect on the oocyte. Studies show a correlation between increased maternal age and the incidence of offspring with chromosomal abnormalities.⁹⁴

86. See W. GANONG, *REVIEW OF MEDICAL PHYSIOLOGY* 328 (8th ed. 1977); American Industrial Hygiene Association, *Guide to Manual Lifting*, 31 AM. INDUS. HYGIENE ASSN. J. 511 (1970); Chaffin, Herrin, Keyserling & Foulke, *Pre-employment Strength Testing: An Update Position*, 20 J. OCCUP. MED. 403 (1978).

87. Messite & Bond, *Occupational Health Considerations for Women at Work*, in DEVELOPMENTS IN OCCUPATIONAL MEDICINE 53 (C. Zenz ed. 1980).

88. V. HUNT, *WORK AND THE HEALTH OF WOMEN* 31 (1979).

89. See Messite & Bond, *supra* note 87, at 48-51 (reviewing literature on lead and benzene and concluding that there is inadequate evidence of sex-based susceptibility).

90. Ferguson, *Toxicological Problems Related to the Employment of Women*, in HEALTH OF WOMEN WHO WORK 41 (M. McKiever ed. 1965); Toh, *Physiological and Biochemical Reviews of Sex Differences and Carcinogenesis with Particular Reference to the Liver*, 18 ADVANCES IN CANCER RESEARCH 209 (1973).

91. Haenszel & Taeuber, *Lung Cancer Mortality as Related to Residence and Smoking Histories*, 32 J. NATL. CANCER INST. 803 (1968); Toh, *supra* note 90.

92. K. MOORE, *THE DEVELOPING HUMAN* 17 (3d ed. 1982).

93. *Id.*

94. J. LANGMAN, *MEDICAL EMBRYOLOGY* 9 (4th ed. 1981). Radiation exposures, for example, are known to have a cumulative effect, thereby increasing the frequency of germ cell mutation in older women. Strobino, Klein & Stein, *Chemical and Physical Exposure of Parents: Effects on Human Reproduction and Offspring*, 1 EARLY HUMAN DEVELOPMENT 371 (1978); see

By contrast, the male produces germ cells (sperm) from puberty onward. He produces a new supply of sperm every seventy-four days.⁹⁵ Although this continuous decontamination process eliminates the danger of cumulative exposure to the sperm itself, exposure to mutagens may cause permanent damage to the germinal epithelium, resulting in the perpetual production of genetically damaged sperm (mutagenesis) or other defects (*e.g.*, decreased motility, abnormal shape, reduced number). In addition, the rapid cell division during the process of sperm production (spermatogenesis) increases the risk of mutagenesis.⁹⁶ Male germ cells are very sensitive to the mutagenic effects of ionizing radiation.⁹⁷

Exposure of the male or female to mutagens prior to conception can result in congenital defects, developmental problems, and other mutations in the offspring.⁹⁸ Genetically abnormal fetuses are about 100 times more likely to be spontaneously aborted than normal fetuses.⁹⁹ In addition, because the offspring inherits the genetic defect itself, rather than merely the effects of the defect, it may pass on the genetic defect to future generations.¹⁰⁰

Finally, workplace exposure to toxic substances can cause diminished reproductive capacity through the loss of libido, impotence, infertility and sterility. For example, dibromochloropropane (DBCP) can cause sterility by lowering the sperm count.¹⁰¹ Other substances known to result in diminished reproductive capacity or gametotoxicity include lead¹⁰² and chloroprene.¹⁰³

Hunt, *The Reproductive System — Sensitivity Through the Life Cycle*, 3 ANNALS AM. CONF. GOVTL. INDUS. HYGIENISTS.

95. W. GANONG, *supra* note 86, at 325.

96. Conibear, *Women As a High Risk Population*, SOCIETY FOR OCCUPATIONAL AND ENVIRONMENTAL HEALTH: PROCEEDINGS OF CONFERENCE ON WOMEN AND THE WORKPLACE 168, 170 (1976). Mutagenesis is the alteration of the genetic material of a living cell.

97. Hunt, *Occupational Radiation Exposure of Women Workers*, 7 PREVENTIVE MED. 294, 304 (1978).

98. Strobino, Klein & Stein, *supra* note 94, at 388.

99. Kline, *Surveillance of Spontaneous Abortions*, 106 AM. J. EPIDEMIOLOGY 345 (1977); Manson, *Human and Laboratory Test Systems Available for Detection of Reproductive Failure*, 7 PREVENTIVE MED. 322, 326 (1978).

100. See WORLD HEALTH ORGANIZATION, HEALTH HAZARDS OF THE HUMAN ENVIRONMENT 214 (1972), *cited in* A. HRICKO & M. BRUNT, WORKING FOR YOUR LIFE: A WOMAN'S GUIDE TO JOB HEALTH HAZARDS B-5 (1976); *see also* Wagoner, Infante & Brown, *Genetic Effects Associated with Industrial Chemicals*, SOCIETY FOR OCCUPATIONAL AND ENVIRONMENTAL HEALTH: PROCEEDINGS OF CONFERENCE ON WOMEN AND THE WORKPLACE 100 (1976). Such effects, however, have been positively reported only in rodents. *See* Carter, Lyon & Phillips, *Genetic Hazard of Ionizing Radiation*, 182 NATURE 409 (1958).

101. Whorton, Krauss, Marshall & Milby, *Infertility in Male Pesticide Workers*, 2 LANCET 1259 (1977).

102. Preamble to OSHA Lead Standard, 43 Fed. Reg. 54,388-89 (1978); Thomas & Bro-

(iii) *Post-conception hazards*. While pregnancy represents a significant alteration in the hormonal and chemical profile of a woman, this altered state apparently does not enhance her susceptibility to environmental and occupational hazards.¹⁰⁴ Consequently, post-conception hazards should be analyzed in terms of their possible effects on the fetus.

During the period of gestation the fetus faces three types of hazards. First, embryofetotoxins affect the conceptus during all stages of gestation. They may induce death, structural malformations, metabolic or physiological dysfunction, growth retardation, or psychological and behavioral alteration.¹⁰⁵ Second, teratogens act on the dividing cells of the growing fetus, causing structural or functional defects, such as limb deformities or organic defects.¹⁰⁶ Third, transplacental carcinogens can cross the placenta and cause cancer in the fetus or child.¹⁰⁷

Prenatal human development involves three stages: 1) pre-differentiation stage, from fertilization to the end of the first week; 2) embryonic stage, from the second to the eighth week; and 3) fetal stage, from the ninth week until birth.¹⁰⁸ The stage of development is very important in determining the susceptibility of the embryo or fetus to *in utero* insults.¹⁰⁹

During the first week following fertilization, even before placental implantation, embryotoxic agents absorbed by the mother can reach the freely lying blastocyst very rapidly. The clearance rate from the blastocyst of maternally transmitted substances is very low.¹¹⁰

gan, *Some Actions of Lead on the Sperm and Upon the Male Reproductive System*, AM. J. INDUS. MED. (1982).

103. Infante, *Chloroprene: Adverse Effects on Reproduction*, PROCEEDINGS OF WORKSHOP ON METHODOLOGY FOR ASSESSING REPRODUCTIVE HAZARDS IN THE WORKPLACE 87, 89 (1980).

104. Messite & Bond, *Reproductive Toxicology and Occupational Exposure*, in DEVELOPMENTS IN OCCUPATIONAL MEDICINE 61 (C. Zenz ed. 1980).

105. Karrh, Carmody, Clyne, Gould, Portela-Cubria, Smith & Freifeld, *Guidance for the Evaluation, Risk Assessment and Control of Chemical Embryo-Fetotoxins*, 23 J. OCCUP. MED. 397 (1981).

106. Manson, *supra* note 99, at 325.

107. See Welch, Barnes, Robboy & Herbst, *Transplacental Carcinogenesis: Prenatal Diethylstilbestrol (DES) Exposure, Clear Cell Carcinoma and Related Anomalies of the Genital Tract in Young Females*, SOCIETY FOR OCCUPATIONAL AND ENVIRONMENTAL HEALTH: PROCEEDINGS OF CONFERENCE ON WOMEN AND THE WORKPLACE 47-50 (1976); see also notes 125-27 *infra*.

108. J. LANGMAN, *supra* note 94, at 115.

109. Wilson, *Experimental Studies on Congenital Malformations*, 10 J. CHRONIC DISEASE 111 (1959).

110. Lutwak-Mann, *Drugs and the Blastocyst*, in FETAL PHARMACOLOGY (L. Boreus ed. 1973), cited in Messite & Bond, *supra* note 104, at 61.

The embryonic stage is the time of greatest susceptibility to environmental influences.¹¹¹ This stage is also known as the time of organogenesis because most of the major organ systems are being formed. Each organ appears to be most susceptible during its early stages of differentiation.¹¹² Pregnancy cannot even be detected by conventional methods until well into the period of organogenesis.¹¹³ The fetal stage generally involves lower susceptibility than the embryonic stage, but still greater susceptibility than the adult or child.¹¹⁴ Those structures that continue to differentiate during the fetal stage, such as the cerebellum, cerebral cortex, and some urogenital structures, are most susceptible.¹¹⁵

Three additional points relating to post-conception hazards deserve mention. First, teratogens usually reach the fetus via maternal exposure and transmission through the placental membrane,¹¹⁶ although it is theoretically possible that paternal exposure to teratogens can be transmitted to the fetus during intercourse via semen absorbed through the vaginal mucosa.¹¹⁷ Second, the fetus is susceptible to embryofetotoxic and teratogenic substances at exposure levels well below those harmful to either parent.¹¹⁸ Third, numerous substances have reproductive effects. Many of them, like arsenic, asbestos, benzene, formaldehyde, lead, mercury and vinyl chloride, are common to numerous industries. Literally millions of workers are exposed.¹¹⁹ Only a small percentage of the chemicals used in Ameri-

111. J. LANGMAN, *supra* note 94, at 115.

112. Different organs are susceptible at different times. *Id.*

113. New techniques, however, can detect pregnancy as early as the ninth day. See Marshall, Hammond, Ross, Jacobson, Rayford & Odell, *Plasma and Urinary Chorionic Gonadotropin During Early Human Pregnancy*, 32 OBSTETRICS & GYNECOLOGY 760 (1968).

114. Messite & Bond, *supra* note 104, at 62.

115. Langman & Welch, *Excess Vitamin A and the Development of the Cerebral Cortex*, 131 J. COMP. NEUROLOGY 15 (1967); Webster, Shimada & Langman, *Effect of Fluorodeoxyuridine, Colcemid and Bromodeoxyuridine on Developing Neocortex of the Mouse*, 137 AM. J. ANATOMY 67 (1973).

116. See generally J. BOYD & W. HAMILTON, *THE HUMAN PLACENTA* (1970).

117. Manson & Simon, *Influence of Environmental Agents on Male Reproductive Failure*, WORK AND THE HEALTH OF WOMEN 171 (1979).

118. Matsumoto, Goyo & Takeuchi, *Fetal Minamata Disease: A Neuropathological Study of Two Cases of Intrauterine Intoxification By a Methylmercury Compound*, 24 J. NEUROPATHOLOGY & EXPERIMENTAL NEUROLOGY 563 (1965); Warshaw, *Employee Health Services for Women Workers*, 7 PREVENTIVE MED. 385, 387 (1978); see Preamble to OSHA Lead Standard, 43 Fed. Reg. 52,959-66 (1978).

119. See Clyne, *Fetotoxicity and the Fertile Female Employees*, in WOMEN, WORK AND HEALTH 202-03 (1980); Messite & Bond, *supra* note 104, at 64-69. Maternal alcoholism, Hanson, *Reproductive Hazards from Prenatal Alcohol Use: The Fetal Alcohol Syndrome*, 1980 PROCEEDINGS OF WORKSHOP ON METHODOLOGY FOR ASSESSING REPRODUCTIVE HAZARDS IN THE WORKPLACE 7, and cigarette smoking, Haas & Schottenfeld, *Risks to the Offspring From Parental Occupational Exposures*, 21 J. OCCUP. MED. 607, 608-09 (1979), frequently cause birth defects.

can industry have been tested for their reproductive effects.¹²⁰ Finally, the same substances are frequently mutagenic, teratogenic and carcinogenic.¹²¹

(iv) *Offspring risks based on parental exposures.* Most congenital deformities from parental exposures manifest themselves by the time of birth. Although *in utero* exposure to toxic agents may cause subsequent offspring disease, the current evidence is inadequate to support a broad hypothesis of such causal relationships.¹²² *In utero*, the mother's ability to detoxify certain agents protects the fetus. The infant may, however, be born with the agent in its tissues, and lose at birth the protection of the mother's enzymes or other metabolic mechanisms needed for detoxification. Therefore, a substance that does not harm the fetus *in utero* may well poison the infant.¹²³ Indeed, the effects of some fetotoxins may first appear years after birth.¹²⁴

The best documented example of the delayed effect of an *in utero* insult involves diethylstilbestrol (DES), a synthetic estrogen commonly used in the 1940s and 1950s to prevent spontaneous abortion. Female offspring (sixteen to twenty-two years of age) exposed to DES *in utero* have an increased incidence of carcinomas of the vagina and cervix,¹²⁵ as well as various reproductive dysfunctions.¹²⁶ Males exposed to DES *in utero* have an increased incidence of malformations of the testes and abnormal sperm.¹²⁷

Several recent studies have investigated the correlation between parental (usually paternal) occupation and early childhood death due to various neoplasms. These studies have focused on hydrocarbon-related occupations,¹²⁸ lead-related occupations,¹²⁹ and sol-

120. Manson, *supra* note 99, at 323.

121. Stellman, *The Effects of Toxic Agents on Reproduction*, OCCUP. HEALTH & SAFETY, Apr. 1979, at 36, 40.

122. See Hornstein, Crowe & Gruppo, *Adrenal Carcinoma in Child with History of Fetal Alcohol Syndrome*, 2 LANCET 1292 (1977).

123. Clyne, *supra* note 119, at 200.

124. Prenatal exposure to lead, for example, may cause learning disabilities when the child is several years old. *Id.*

125. Greenwald, Barlow, Nasca & Burnett, *Vaginal Cancer After Maternal Treatment With Synthetic Estrogens*, 285 NEW ENG. J. MED. 390 (1971); Herbst, Ulfelder & Posknaizer, *Adenocarcinoma of the Vagina*, 284 NEW ENG. J. MED. 878 (1971).

126. Berger & Goldstein, *Impaired Reproductive Performance in DES-Exposed Women*, 55 OBSTETRICS & GYNECOLOGY 25 (1980); Rosenfeld & Bronson, *Reproductive Problems in the DES-Exposed Female*, 55 OBSTETRICS & GYNECOLOGY 453 (1980).

127. Bill, Schumacher & Bibbo, *Pathological Semen and Anatomical Abnormalities of the Genital Tract in Human Male Subjects Exposed to Diethylstilbestrol in Utero*, 117 J. UROLOGY 477 (1977).

128. Compare Fabia & Thuy, *Occupation of Father At Time of Birth of Children Dying of*

vents used in the aircraft industry.¹³⁰ Despite some apparent correlations, the studies are inconclusive at best.¹³¹

d. *Familial*. Cancer and other diseases often display familial tendencies.¹³² The risk of the same neoplasm developing in a close relative of a cancer patient is about two¹³³ or three¹³⁴ times that for the general population. Some particular cancers, such as breast cancer and colorectal cancer, present even greater familial risk.¹³⁵ Although there is little data available on familial risk for specific occupational diseases, OSHA's health standards require family histories.¹³⁶

2. Behavior-Based Increased Risk

Many choices people make can affect their susceptibility to occupational disease. This subsection considers some of the most important sources of risk.

a. *Geography*. Geography has a direct bearing on the statistical likelihood of contracting disease. Malignant melanoma, caused by

Malignant Diseases, 28 BRIT. J. PREVENTIVE & SOCIAL MED. 98 (1974), with Hakulinen, Salonen & Teppo, *Cancer in the Offspring of Fathers in Hydrocarbon-Related Occupations*, 30 BRIT. J. PREVENTIVE & SOCIAL MED. 138 (1976), and Zack, Cannon & Loyd, *Cancer in Children of Parents Exposed to Hydrocarbon-Related Industries and Occupations*, 111 AM. J. EPIDEMIOLOGY 329 (1980).

129. Kantor, McCrea-Curnen & Meigs, *Occupations of Fathers of Patients with Wilms' Tumor*, 33 J. EPIDEMIOLOGY & COMMUN. HEALTH 253 (1979).

130. Peters, Preston-Martin & Yu, *Brain Tumors in Children and Occupational Exposure of Parents*, 213 SCIENCE 235 (1981).

131. Gold, Diener & Szklo, *Parental Occupations and Cancer in Children*, 24 J. OCCUP. MED. 578 (1982).

132. Anderson, *Familial Susceptibility*, in PERSONS AT HIGH RISK OF CANCER 39 (1975).

133. *Id.*

134. Fraumeni, *Clinical Patterns of Familial Cancer*, in GENETICS OF HUMAN CANCER 225 (J. Mulvihill, R. Miller, J. Fraumeni, Jr. eds. 1977).

135. *Id.*; see Mulvihill, *Congenital and Genetic Diseases*, in PERSONS AT HIGH RISK OF CANCER 25 (1975); King, Go, Elston, Lynch & Petrakis, *Allele Increasing Susceptibility to Human Breast Cancer May be Linked to Glutamate-Pyruvate Transaminase Locus*, 208 SCIENCE 406 (1980).

136. See note 270 *infra* and accompanying text. There are, however, some dangers in using a family history.

It does not take a sociologist to know that the parents of coke oven workers were probably not surgeons and corporate executives, but were probably coke oven workers or similar people themselves.

Family history, which do [*sic*] not take into account the exposures of the family, will lead us down another primrose path of dalliance towards selecting out workers on a prejudicial basis on their socio-economic status.

Genetic Screening and the Handling of High-Risk Groups in the Work Place: Hearings Before the Subcomm. on Investigations and Oversight of the House Comm. on Science and Technology, 97th Cong., 1st Sess. 39 (1981) (statement of Jeanne Stellman) [hereinafter cited as *Genetic Screening Hearings*].

ultraviolet radiation, increases with decreasing latitude (in North America) and increasing altitude.¹³⁷ Urban and industrialized areas, particularly near petrochemical, metal mining, smelting, or asbestos plants, have much higher rates of cancer.¹³⁸ These findings may result from air and water pollution as much as occupational exposures.¹³⁹ Therefore, at least theoretically, a new employee who grew up in New Jersey (the state with the highest cancer rate) would be more likely to develop bladder cancer than an employee who grew up in Kentucky or Utah.¹⁴⁰

b. *Diet.* The relationship between diet and the etiology of various diseases, particularly cancer, has received widespread attention. Altering dietary practices may reduce cancer by as much as thirty-five percent.¹⁴¹

There has been increased research recently on the associations between diet and occupational disease.¹⁴² We have long known that G-6-PD deficiency induces hemolytic anemia when people with the Mediterranean variant of the trait eat fava beans.¹⁴³ In addition, it has been theorized that workers exposed to vinyl chloride can protect themselves by eating onions, garlic, brussel sprouts, cabbage, broccoli, and turnips.¹⁴⁴ Undoubtedly, new discoveries and new the-

137. Hoover, Mason, McKay & Fraumeni, *Geographic Patterns of Cancer Mortality in the United States*, in PERSONS AT HIGH RISK OF CANCER 349-51 (1975) [hereinafter cited as *Geographic Patterns*]; Crombie, *Variation of Melanoma Incidence with Latitude in North America and Europe*, 40 BRIT. J. CANCER 774 (1979).

138. S. EPSTEIN, THE POLITICS OF CANCER 488 (1979).

139. *Id.*

140. *See id.*; *Geographic Patterns*, *supra* note 137, at 357. Could such a hypothesis lead an employer whose employees were exposed to benzidine or some other bladder cancer-causing substance to refuse to hire applicants who grew up in New Jersey? *See* Part II *infra*.

141. CANCER RISKS, *supra* note 19, at 77 (citing Doll & Peto, *The Causes of Cancer: Quantitative Estimates of Avoidable Risks of Cancer in United States Today*, 66 J. NATL. CANCER INST. 1191 (1981)). Cancer risk can be reduced by eliminating the consumption of food containing powerful carcinogens like aflatoxins, nitrosamines, and polycyclic aromatic hydrocarbons. Berg, *Diet*, in PERSONS AT HIGH RISK OF CANCER 202-07 (1975). Food dyes, chemical fertilizers and pesticides, artificial sweeteners, salt and other food additives also increase cancer risk. Although the data are less clear, some studies have found that persons with high fat, high cholesterol, low fiber diets seem more at risk of certain cancers; persons with diets containing fresh fruits and vegetables, vitamins, and nutrients seem less at risk of certain cancers. *See* CANCER RISKS, *supra* note 19, at 78-80; Graham & Mettlin, *Fiber and Other Constituents of Vegetables in Cancer Epidemiology*, in NUTRITION AND CANCER (1981); Kritchevsky & Klurfeld, *Fat and Cancer*, in NUTRITION AND CANCER (1981); MacLure & MacMahon, *An Epidemiologic Perspective of Environmental Carcinogenesis*, 2 EPIDEMIOLOGIC REV. 19, 23-26 (1980).

142. *See* E. CALABRESE, NUTRITION AND ENVIRONMENTAL HEALTH (1981); Petering, Murthy & Cerklewski, *Role of Nutrition in Heavy Metal Toxicity*, in BIOCHEMICAL EFFECTS OF ENVIRONMENTAL POLLUTANTS (1977).

143. *See* Z. HARSANYI & R. HUTTON, *supra* note 52, at 11-15.

144. Severo, *Federal Mandate for Gene Tests Disturbs U.S. Job Safety Official*, N.Y. Times,

ories are on the horizon.

c. *Tobacco*. Cigarette smoking is the largest single preventable cause of illness and premature death in the United States.¹⁴⁵ Smoking also has important effects on the health of workers exposed to toxic substances.¹⁴⁶ The National Institute for Occupational Safety and Health (NIOSH) has identified six mechanisms by which smoking interacts with occupational exposures.¹⁴⁷ First, certain toxic agents in the workplace, such as carbon monoxide and cadmium, are also present in tobacco or smoke, thereby increasing the exposures. Second, workplace chemicals may be pyrolyzed into more harmful agents: the temperature of a burning cigarette may reach 1,600 degrees Fahrenheit. Third, tobacco products serve as vectors by becoming contaminated with workplace agents, like lead and pesticides. This facilitates entry by inhalation, ingestion or skin absorption. Fourth, there may be additive effects from smoking and exposures to substances such as chlorine, cotton dust and coal dust. Fifth, the effects may be synergistic between smoking and asbestos, gold mine and rubber industry exposures. Sixth, smoking increases accident rates through loss of attention, preoccupation of the hand, irritation of the eyes, coughing, and fires.¹⁴⁸

Feb. 6, 1980, at A1, col. 1, A17 col. 1 (citing Dr. Herbert E. Stokinger). The reported literature involving cruciferous vegetables suggests that they may exert a protective effect against colon and possible other cancers by inducing aryl hydrocarbon hydroxylase activity in the intestinal epithelia. MacLure & MacMahon, *supra* note 141, at 24. Vinyl chloride, however, is mostly associated with angiosarcoma, a rare cancer of the liver.

145. PUBLIC HEALTH SERVICE, U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, *HEALTHY PEOPLE: THE SURGEON GENERAL'S REPORT ON HEALTH PROMOTION AND DISEASE PREVENTION* 121 (1979). An estimated 320,000 premature deaths each year are attributable to smoking, and ten million Americans suffer from debilitating illnesses caused by smoking. *Id.* at 122. The number of cigarettes smoked per day, the degree of inhalation, and the age at which the individual began smoking are important factors in the mortality rates of smokers. Hammond, *Tobacco*, in *PERSONS AT HIGH RISK OF CANCER* 134 (1975).

146. Risks associated with pipe and cigar smoking, as well as tobacco chewing and snuff, have also been noted, but are not nearly as great nor is their use as prevalent as cigarette smoking. See Hammond, *supra* note 145, at 131, 134-35. "Involuntary" smoking also creates hazards in the workplace to nonsmokers. See Kent & Cenci, *Smoking and the Workplace: Tobacco Smoke Health Hazards to the Involuntary Smoker*, 24 J. OCCUP. MED. 469 (1982).

147. Blackwell, French & Stein, *Adverse Health Effects of Smoking and the Occupational Environment*, 40 AM. INDUS. HYGIENE ASSN. J. A38 (1979), cited in Omenn, *Predictive Identification of Hypersusceptible Individuals*, 24 J. OCCUP. MED. 369, 373 (1982).

148. Several studies demonstrate the effects of cigarette smoking on asbestos workers. See, e.g., Pearle, *Smoking and Duration of Asbestos Exposure in the Production of Functional and Roentgenographic Abnormalities in Shipyard Workers*, 24 J. OCCUP. MED. 37 (1982); Weiss, Levin & Goodman, *Pleural Plaques and Cigarette Smoking in Asbestos Workers in Relation to Smoking and Type of Exposure*, 20 J. OCCUP. MED. 341 (1978). A study of the death rate from lung cancer, standardized for age, revealed that nonsmoking blue collar workers die at a rate of 11.3 per 100,000 man years, while blue collar smokers die at a rate of 122.6. For asbestos workers the rates are even more startling: 58.4 for nonsmokers, and 601.6 for smokers. I.

d. *Alcohol.* The consumption of alcoholic beverages causes cirrhosis and other diseases, perhaps including cancer.¹⁴⁹ There has been little research on the effects of alcohol consumption on persons with exposures to industrial toxins. One *in vitro* study, however, found that alcohol increased the carcinogenic effects of vinyl chloride vapors.¹⁵⁰ Other synergistic effects have been observed with alcohol and dimethyl formamide (DMF)¹⁵¹ and ethylene dibromide (EDB).¹⁵²

e. *Medical drugs and radiation.* A number of drugs have been associated with cancer and other diseases in humans.¹⁵³ The synthetic estrogen, diethylstilbestrol (DES), causes cancer in both the women who took DES and in their offspring about twenty years later.¹⁵⁴ Of the most widely taken drugs, oral contraceptives have been studied in the greatest detail. Although inconclusive, studies associate oral contraceptives with liver and breast cancer.¹⁵⁵ Little information exists on the effects of medical drugs on occupational exposures, but some of OSHA's carcinogen standards require that the examining physician inquire into whether the worker is taking steroids or cytotoxic agents.¹⁵⁶

There is increasing concern about the amount of unnecessary and unproductive use of medical and dental x-rays in the United States.¹⁵⁷ Ionizing radiation causes leukemia, birth defects, lung cancer, liver cancer, bone cancer, sterility and other severe health

SELIKOFF, DISABILITY COMPENSATION FOR ASBESTOS-ASSOCIATED DISEASE IN THE UNITED STATES 333, 335 (1982) (report to the U.S. Department of Labor).

Asbestosis and cancer of the lung, esophagus, larynx, buccal cavity, and pharynx are influenced by smoking. Pleural mesothelioma, peritoneal mesothelioma, and cancer of stomach, colon-rectum, and kidney are not influenced by smoking. I. SELIKOFF, *supra*, at 335.

149. See Vitale, Broitman & Gottlieb, *Alcohol and Carcinogenesis*, in NUTRITION AND CANCER: ETIOLOGY AND TREATMENT (1981). Most of the research suggests that alcohol increases cancer risk by acting as a cocarcinogen, enhancing the carcinogenic effect of other agents. Rothman, *Alcohol*, in PERSONS AT HIGH RISK OF CANCER 140 (1975). See CANCER RISKS, *supra* note 19, at 73-76. Cancer of the mouth, throat, esophagus, larynx, and liver have been associated with alcohol consumption. Rothman, *supra*, at 140-45. There is also some evidence of increased risk of cancer of the stomach, rectum, prostate, pancreas, large intestine, lung, kidney, bladder, and breast. *Id.*; CANCER RISKS, *supra* note 19, at 73-76.

150. 9 O.S.H. REP. (BNA) 998 (1980).

151. Lyle, *Case History: Alcohol Interaction with a Workplace Chemical*, 31 OCCUP. HEALTH 265 (1979).

152. Godard, *Alcohol and Occupation*, in ALCOHOL PROBLEMS IN EMPLOYMENT (1981).

153. See Hoover & Fraumeni, *Drugs*, in PERSONS AT HIGH RISK OF CANCER (1975).

154. CANCER RISKS, *supra* note 19, at 95.

155. *Id.* at 101.

156. See note 270 *infra* and accompanying text. Steroids and cytotoxic drugs have been shown to cause bladder and liver cancer. Hoover & Fraumeni, *supra* note 153, at 187.

157. CANCER RISKS, *supra* note 19, at 98-99; S. EPSTEIN, *supra* note 138, at 485-86.

problems.¹⁵⁸ Because radiation exposure is cumulative over one's lifetime, excessive nonoccupational irradiation could predispose individuals working with radiation to illness.¹⁵⁹

f. *Lifestyle*. A variety of miscellaneous lifestyle factors — including sleeping habits,¹⁶⁰ cosmetics,¹⁶¹ and food containers¹⁶² may also influence susceptibility to disease. For example, persons with G-6-PD deficiency may increase their risk by drinking chlorinated water, having copper plumbing¹⁶³ or living in urban areas with high levels of ozone.¹⁶⁴

An individual's psychological makeup may play an important part in the individual's ability to function in a particular job. For example, a person with acrophobia would be a poor steeplejack; a person with hydrophobia would be a poor sailor; a person with claustrophobia would be a poor coal miner. Other examples of individuals psychologically unsuited for a particular job are less obvious and more difficult to detect, but might be important in determining an increased risk of occupational illness. Some examples illustrate a few of the ways in which psychological and personality factors may be used in screening individuals for increased risk of occupational illness.

First, increasing evidence indicates that an individual's overall mental state of health may be an important factor in the development of diseases like coronary heart disease and cancer.¹⁶⁵ While there are no studies on the precise question of whether psychologically disturbed persons are more prone to occupationally-related diseases, such a finding is theoretically possible.

Second, the occupational environment generates many kinds of

158. Jablon, *Radiation*, in PERSONS AT HIGH RISK OF CANCER (1975).

159. A variety of job classifications, including radiation workers, uranium miners, and television tube makers, involve exposure to radiation. NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH, U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, OCCUPATIONAL DISEASES — A GUIDE TO THEIR RECOGNITION 471-72 (1977) [hereinafter cited as NIOSH GUIDE]. The OSHA standard for ionizing radiation appears at 29 C.F.R. § 1910.96 (1982).

160. See E. CALABRESE, *supra* note 2, at 26-30.

161. See MacLure & MacMahon, *supra* note 141, at 27-28.

162. See Klein, Namer & Harper, *Earthenware Containers as a Source of Fatal Lead Poisoning: Case Study and Public Health Consideration*, 283 NEW ENG. J. MED. 669 (1970); Kleinfeld, *Lead Intoxication From an Unexpected Source*, 24 J. OCCUP. MED. 146 (1982).

163. Z. HARSANYI & R. HUTTON, *supra* note 52, at 116.

164. E. CALABRESE, *supra* note 2, at 48-49.

165. See A. VANDER, NUTRITION, STRESS AND TOXIC CHEMICALS 195-252 (1981); Macek, *Of Mind and Morbidity: Can Stress and Grief Depress Immunity?*, 248 J. A.M.A. 405 (1982).

stresses.¹⁶⁶ Recent studies have focused on personality factors that would predispose individuals to diseases, such as coronary heart disease, when confronted with workplace stress.¹⁶⁷ Personality and behavioral patterns, therefore, might be used to keep high-risk persons out of stressful jobs.¹⁶⁸

Third, when wearing a respirator, some individuals exposed to stressful conditions in the workplace (including elevated carbon dioxide, heat and altitude) react in a panic-like manner known as hyperventilation syndrome.¹⁶⁹ The symptoms of hyperventilation syndrome range from breathlessness and trembling to convulsions.¹⁷⁰ The individual is in danger from the external environment as well as his or her own physiological reaction. Hyperventilation syndrome is associated with certain personality types detectable by various tests.¹⁷¹

3. Overall Health Factors and Increased Risk

An important factor in determining susceptibility to occupational illness is the individual's present state of health and general physical condition. This may involve inborn (*e.g.*, height, shape of spine) and acquired (*e.g.*, prior nonoccupational illness) conditions. As with other indices of susceptibility, the predictive value of each of the considerations varies greatly.

a. *Musculoskeletal.* An individual's musculoskeletal system has been used by industry in attempting to identify those asymptomatic individuals predisposed to back injuries from jobs requiring manual lifting and exertion. Little scientific evidence, however, supports the commonly used skeletal screening techniques.

Body weight and stature are two anthropometric¹⁷² attributes often used to predict an individual's risk of injury during manual

166. Poor working conditions, shift work and physical danger are among the factors leading to occupational stress. Davidson & Cooper, *A Model of Occupational Stress*, 23 J. OCCUP. MED. 564, 570 (1981); see La Dou, *Occupational Stress*, in DEVELOPMENTS IN OCCUPATIONAL MEDICINE 197 (C. Zenz ed. 1980).

167. See Chesney, Sevelius, Black, Ward, Swan & Rosenman, *Work Environment, Type A Behavior, and Coronary Heart Disease Risk Factors*, 23 J. OCCUP. MED. 551 (1981).

168. *Id.* at 555.

169. Morgan, *Psychological Problems Associated with the Wear of Industrial Respirators*, INTERNATIONAL RESPIRATOR RESEARCH WORKSHOP, at 27, 36 (Morgantown, West Virginia, Sept. 8-11, 1980).

170. *Id.* at 42.

171. *Id.* at 25-36.

172. Anthropometry is a field of anthropology dealing with the measurement of the human body to determine differences in classes of people and individuals. See NATIONAL SAFETY COUNCIL, FUNDAMENTALS OF INDUSTRIAL HYGIENE 1165-66 (2d ed. 1979).

labor. Despite a number of studies and theories, research does not support the notion that either fat or thin or tall or short people run a significantly higher risk of low-back injury.¹⁷³ "In brief, the selection of people for materials handling jobs based on their anthropometry is not well justified in terms of reducing low-back pain incidence rates."¹⁷⁴

Radiological screening, specifically the low-back x-ray, is the most prevalent form of skeletal analysis for susceptibility to future back injury. Although precise figures are unavailable, between 150,000 and 1.2 million preemployment low-back x-rays are given each year.¹⁷⁵ Despite widespread use, scientific literature has thoroughly discredited the low-back x-ray as a basis for employment screening.¹⁷⁶ The test is simply inaccurate; it screens out too many healthy people who will never suffer from back injury,¹⁷⁷ while failing to detect those presymptomatic persons actually at risk.¹⁷⁸ Moreover, the x-rays themselves are expensive¹⁷⁹ and present hazards from radiation exposure.¹⁸⁰

173. NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, WORK PRACTICES GUIDE FOR MANUAL LIFTING 18 (1981) [hereinafter cited as WORK PRACTICES GUIDE]; accord Quiet & Hadler, *Diagnosis and Treatment of Backache*, 8 SEMINARS IN ARTHRITIS & RHEUMATISM 261, 277 (1979) (no relationship between lower back pain and muscular build, lower limb form and function, scoliosis, lordosis, kyphosis, or lumbosacral angle).

174. WORK PRACTICES GUIDE, *supra* note 173, at 18.

175. Connors, *Summary*, in SUMMARY REPORT AND PROCEEDINGS OF THE CONFERENCE ON LOW BACK X-RAYS IN PRE-EMPLOYMENT PHYSICAL EXAMINATIONS (Tucson, Arizona, Jan. 11-14, 1973) [hereinafter cited as SUMMARY], cited in Rockey, Fantel & Omenn, *Discriminatory Aspects of Pre-Employment Screening: Low-Back X-ray Examinations in the Railroad Industry*, 5 AM. J. L. & MED. 197, 203 (1979).

176. See, e.g., Anderson, *Occupational Aspects of Low Back Pain*, 6 CLINICS IN RHEUMATIC DISEASES 17, 28-29 (1980); Gibson, Martin & Terry, *Incidence of Low Back Pain and Pre-Placement X-ray Screening*, 22 J. OCCUP. MED. 514 (1980); Quiet & Hadler, *supra* note 173, at 278-79; Rockey, Fantel & Omenn, *supra* note 175; Snook, Campanelli & Hart, *A Study of Three Preventive Approaches to Low Back Injury*, 20 J. OCCUP. MED. 478 (1978); WORK PRACTICES GUIDE, *supra* note 173, at 92-94.

177. Compare Ford, *Orthopedic Considerations*, in SUMMARY, *supra* note 175, at 33, 39-40 (Missouri Pacific Railroad rejected 40% of applicants on basis of x-rays), with Kosiak, Aurelius & Hartfiel, *The Low Back Problem*, 10 J. OCCUP. MED. 588 (1968) (29% of applicants disqualified on the basis of x-rays). See also Rockey, Fantel & Omenn, *supra* note 175, at 206.

178. See, e.g., Rowe, *Low Back Pain in Industry* 11 J. OCCUP. MED. 161 (1964) (only 10% of subjects subsequently developing back pain could have been identified at screening); Redfield, *The Low Back X-ray as a Pre-employment Screening Tool in the Forest Products Industry*, 13 J. OCCUP. MED. 219 (1971) (injury rate for workers screened to be at high risk actually was much lower than those screened to be at low risk). Indeed, the American Occupational Medical Association has concluded that "lumbar spine x-ray examinations should not be used as a screening procedure for back problems, but rather as a special diagnostic procedure available to the physician on appropriate indications for study." WORK PRACTICES GUIDE, *supra* note 173, at 93.

179. At an average of \$50, preemployment x-ray examinations cost between \$7.5 million and \$60 million per year. Connors, *supra* note 175.

180. Low-back x-rays present a substantial risk of gonadal irradiation. Gonadal shielding

Other forms of musculoskeletal analyses involve strength testing,¹⁸¹ aerobic capacity testing,¹⁸² and work-motion profiles.¹⁸³ Although these tests eventually may be validated, they still are considered experimental.¹⁸⁴

b. *Prior illness.* An individual's prior nonoccupational illness also may establish an increased risk of, or cause an earlier expression of, occupational disease following exposure to toxic substances or other workplace hazards. For example, individuals with a history of ischemic heart disease, such as angina pectoris and myocardial infarction, have an increased risk of serious cardiovascular illness when exposed to dinitrotoluene,¹⁸⁵ carbon dioxide,¹⁸⁶ methylene chloride,¹⁸⁷ nitroglycerine¹⁸⁸ and carbon disulphide.¹⁸⁹

Illnesses of other organ systems also may create additional workplace risk factors. A congenital hearing loss or the use of ototoxic drugs¹⁹⁰ makes an individual more susceptible to occupational noise exposure.¹⁹¹ A history of Raynaud's disease¹⁹² predisposes a worker

often is neglected for men and is difficult to accomplish for women. There is also the risk of fetal irradiation (which doubles the risk of childhood leukemia) during an early, unsuspected pregnancy. See Rockey, Fantel & Omenn, *supra* note 175, at 203-04.

181. See Hogan, *The State of the Art of Strength Testing*, in WOMEN, WORK AND HEALTH: CHALLENGES TO CORPORATE POLICY 75 (1980); NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, PREEMPLOYMENT STRENGTH TESTING (1977); WORK PRACTICES GUIDE, *supra* note 173, at 95-96.

182. See WORK PRACTICES GUIDE, *supra* note 173, at 96-98.

183. See Althouse, *Revealing a True Profile of Musculoskeletal Abilities*, OCCUP. HEALTH & SAFETY, May 1980, at 25.

184. See Hogan, *supra* note 181, at 92; WORK PRACTICES GUIDE, *supra* note 173, at 98.

185. Dinitrotoluene (DNT) can cause methemoglobinemia by decreasing the oxygen-carrying capacity of the blood. See NIOSH GUIDE, *supra* note 159, at 279.

186. Carbon dioxide intoxicification can lead to carboxy hemoglobinemia, a form of oxygen deficiency. NIOSH GUIDE, *supra* note 159, at 416.

187. Methylene chloride exposure can lead to carboxy hemoglobinemia, a form of oxygen deficiency. *Id.* at 210.

188. Dynamite workers with a history of coronary artery disease, when exposed to nitroglycerine have an increased risk of coronary artery spasm. See Hogstedt & Anderson, *A Cohort Study of Mortality Among Dynamite Workers*, 21 J. OCCUP. MED. 553 (1979); Hogstedt & Axelsson, *Nitroglycerine-Nitroglycol Exposure and the Mortality in Cardio-Cerebrovascular Diseases Among Dynamite Workers*, 19 J. OCCUP. MED. 675 (1977); Lund, Haggendal & Johnson, *Withdrawal Symptoms in Workers Exposed to Nitroglycerine*, 25 BRIT. J. INDUS. MED. 136 (1968).

189. Carbon disulphide increases the risk of cardiac death by accelerating the atherosclerotic process. See Hernberg, Partanen, Nordman & Sumari, *Coronary Heart Disease Among Workers Exposed to Carbon Disulphide*, 27 BRIT. J. INDUS. MED. 313 (1970); Tiller, Schilling & Morris, *Occupational Toxic Factor in Mortality from Coronary Heart Disease*, 4 BRIT. MED. J. 407 (1968); Tolonen, Hernberg, Nurminen & Tutola, *A Follow-up Study of Coronary Heart Disease in Viscose Rayon Workers Exposed to Carbon Disulphide*, 32 BRIT. J. INDUS. MED. 1 (1975).

190. Ototoxic means having a toxic action upon the ear. STEDMAN'S, *supra* note 2, at 1008.

191. See Sataloff, *Occupational Hearing Loss*, 15 J. OCCUP. MED. 360 (1973).

exposed to segmental vibration, such as a chain saw operator, to "white finger" syndrome.¹⁹³ A diabetic with a subclinical peripheral neuropathy would be sensitive to neurotoxic chemicals, such as tricresyl ortho-isomer (TOCP),¹⁹⁴ arsenic,¹⁹⁵ and lead.¹⁹⁶ Although relatively few studies exist on the combined effects of prior illness and toxic exposures, medical recommendations are frequently made on the assumption that the two risk factors have an additive effect.¹⁹⁷

c. *Clinical findings.* A physical examination cannot usually give an etiologic diagnosis of a medical condition, except for gross organ failure or dysfunction, such as yellow jaundice, an abdominal mass, or cyanosis. The exact etiology often requires confirmatory biochemical or microscopic analyses.¹⁹⁸ Dermatologic and musculoskeletal examinations, however, are exceptions to the general rule and are quite useful in assessing a medical condition.¹⁹⁹ Thus, individuals found to have eczema, psoriasis or neurodermatitis on physical assessment have lost some of their natural protective skin barrier.²⁰⁰ When exposed to irritant chemicals, such as solvents, acids and alkalis, their dermatitic response will frequently be more rapid and severe.²⁰¹

C. *Occupationally-Based Increased Risk*

1. *Toxic Exposures*

A worker's prior occupational exposures may significantly affect his or her sensitivity to further occupational exposures. Many forms of occupational cancer involve long latency periods — as long as

192. Raynaud's disease is a primary or idiopathic vascular disorder characterized by bilateral attacks of Raynaud's phenomenon. DORLAND'S, *supra* note 1, at 392.

193. See Okada, Yamashita, Nogano, Ikeda, Yachi & Shibata, *Studies on the Diagnosis and Pathogenesis of Raynaud's Phenomenon of Occupational Origin*, 28 BRIT. J. INDUS. MED. 353 (1971); Taylor, Pearson, Kell & Keighley, *Vibration Syndrome in Forestry Commission Chain Saw Operators*, 28 BRIT. J. INDUS. MED. 83 (1971); U.S. DEPT. OF HEALTH AND HUMAN SERVICES, VIBRATION WHITE FINGER DISEASE IN U.S. WORKERS USING PNEUMATIC CHIP-PING AND GRINDING HAND TOOLS, VOL. I: EPIDEMIOLOGY (NIOSH Tech. Rep. 1982).

194. See NIOSH GUIDE, *supra* note 159, at 304.

195. *Id.* at 325.

196. *Id.* at 363.

197. See NIOSH, U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE, A GUIDE TO THE WORK-RELATEDNESS OF DISEASE 13-17 (1977) [hereinafter cited as NIOSH WORK-RELATEDNESS].

198. See T. HARRISON, PRINCIPLES OF INTERNAL MEDICINE 4 (8th ed. 1977).

199. T. FITZPATRICK, DERMATOLOGY IN GENERAL MEDICINE 13 (1971).

200. *Id.* at 1061-69.

201. *Id.*

thirty-five years — before the disease is clinically evident.²⁰² Consequently, employers may consider an individual with previous toxic exposures a bad risk.

A prior exposure to a carcinogen also may combine with a later exposure (even to a different agent) to produce an effect that neither alone would have produced. For example, the incidence of leukemia among radiation-exposed survivors at Hiroshima and Nagasaki was greater among those exposed to benzene years after the radiation exposure.²⁰³

Simultaneous exposure to different toxic substances occurs in many industrial settings. The physiological effects of combined exposures may, in some instances, exceed the additive effects of the single agents alone.²⁰⁴ This synergistic relationship exists among several commonly occurring exposures. The relationship between smoking and asbestos has already been discussed.²⁰⁵ Ethanol combined with trichloroethylene enhances acute central nervous system effects and increases the likelihood of chronic liver disease and liver cancer.²⁰⁶ Sulfur dioxide and sodium chloride aerosol in a high humidity environment may produce increased pulmonary resistance in workers, although either component alone may not.²⁰⁷ In rare cases, an antagonistic reaction may occur in which the combined effect actually will be less severe than that observed with exposure to only one of the contaminants.²⁰⁸

2. Hypersensitivity

Hypersensitivity is a special condition of certain persons whose immune systems overreact to a foreign agent.²⁰⁹ For an agent to produce such a reaction, an individual must have been sensitized to the

202. See Bridbord, Wagner & Blejer, *Chemical Carcinogens*, in NIOSH GUIDE, *supra* note 159, at 443; Selikoff, *Cancer Risk of Asbestos Exposure*, in ORIGINS OF HUMAN CANCER 1765-84 (1977); PUBLIC HEALTH SERVICE, U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, ASBESTOS: AN INFORMATION RESOURCE 29 (1978); Greenberg & Lloyd-Davis, *Mesothelioma Register 1967-1968*, 31 BRIT. J. INDUS. MED. 91 (1974).

203. Ishimaru, Okada & Tomeiyasu, *Occupation Factors in the Epidemiology of Leukemia in Hiroshima and Nagasaki*, 93 AM. J. EPIDEMIOLOGY 157 (1971).

204. Cowles, *Medical Effects of Combined Industrial Exposure*, 21 J. OCCUP. MED. 413, 414 (1979); Freundt, *Mixed Exposures to Chemical Hazards*, OCCUP. HEALTH & SAFETY, Aug. 1982, at 10.

205. See note 148 *supra*.

206. Cowles, *supra* note 204.

207. McJilton, *Role of Relative Humidity in the Synergistic Effect of A Sulfur Dioxide-Aerosol Mixture in the Lung*, 182 SCIENCE 503 (1973).

208. See Buell, *Some Biochemical Aspects of Cadmium Toxicology*, 17 J. OCCUP. MED. 189 (1975).

209. DORLAND'S, *supra* note 1, at 635.

agent by a prior exposure. Therefore, the process of sensitization to industrial chemicals usually begins after the individual is employed and exposed to the work environment. A hypersensitive individual may suffer adverse reactions at exposure levels far below those which the average person tolerates without ill effect. Clinical symptoms resulting from a sensitivity reaction range from mild skin irritations to anaphylactic shock and even death. Many common industrial agents are potential sensitizers, including formaldehyde, cotton dust, nickel, and epoxy resins.²¹⁰

Skin reactions are a common occupational problem. Dermatitis accounts for one half of all reported cases of occupational disease.²¹¹ Perhaps twenty percent of occupational dermatitis results from hypersensitive reactions to allergenic materials.²¹² Hypersensitivity responses of the respiratory system, however, are of particular concern because these may threaten the worker's life.

Toluene diisocyanate (TDI) is one potentially serious respiratory sensitizer. TDI is a liquid used in the manufacture of polyurethane. An estimated 50,000 to 100,000 workers in the United States are exposed to TDI; as many as five percent of these develop adverse respiratory symptoms.²¹³ In some instances, a worker exposed to low levels of TDI for several weeks with minimal or no respiratory symptoms may suddenly develop an acute asthmatic attack. Once sensitized to TDI, any further exposure poses extreme danger; even an exposure well below the recommended standard can produce a severe asthmatic attack and may cause death. Although the acute effects may be reversible, continued exposure of affected workers can result in chronic broncho-pulmonary problems.²¹⁴

Scientists are trying to develop methods for detecting hypersensitivity to isocyanates before exposure, but the tests are still experimental.²¹⁵ Despite considerable controversy over the predictive

210. Baer, *The Most Common Contact Allergens*, 108 ARCHIVES OF DERMATOLOGY 74 (1973).

211. Adams, *High-Risk Dermatoses*, 23 J. OCCUP. MED. 829 (1981).

212. Birmingham, *Dermatoses*, in NIOSH GUIDE, *supra* note 159, at 81.

213. NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH, CRITERIA FOR A RECOMMENDED STANDARD — OCCUPATIONAL EXPOSURE TO TOLUENE DIISOCYANATE (1969). The following four patterns of respiratory response may occur: 1) chemical bronchitis; 2) an asthma-like condition occurring in sensitized workers at low exposure levels; 3) acute decrease in ventilatory capacity in one work shift; and 4) chronic decrease in pulmonary function in those with prolonged exposure. Schleuter, *Response of the Lung to Inhaled Antigens*, 57 AM. J. MED. 476 (1974).

214. NIOSH WORK-RELATEDNESS, *supra* note 197, at 60.

215. Karol, *Survey of Industrial Workers for Antibodies to Toluene Diisocyanate*, 23 J. OCCUP. MED. 741 (1981).

value of existing tests, some companies use immunologic screening to detect individuals hypersensitive to isocyanates.²¹⁶

3. *Cytogenetic and Noncytogenetic Monitoring*

Cytogenetics is the study of numerical and structural chromosome aberrations.²¹⁷ These aberrations may occur naturally or may be induced by exposure to environmental agents known as clastogens. In general, clastogenic agents are also mutagenic and carcinogenic. Indeed, certain specific chromosome aberrations have been linked to specific cancers. Thus, some scientists theorize that chromosomal aberrations are the cellular precursors of cancer. If so, cytogenetic monitoring of workers exposed to carcinogens may indicate increased risk.²¹⁸

Recent studies associate occupational exposures to several hazards and elevated frequencies of chromosome aberrations.²¹⁹ Nevertheless, the literature is often contradictory and the associations, even when found, are indirect. Today cytogenetics can, at best, establish relationships between chromosome aberrations and cancers for populations as a whole; no tests can predict individual risk of cancer.²²⁰ These limitations have led most experts to agree that cytogenetic monitoring is, for now, an experimental research tool that should not be used in setting exposure levels or in screening workers.²²¹

Unlike cytogenetic monitoring, which looks for damage to the gross structure of chromosomes (the cellular structures containing the genetic material DNA), noncytogenetic monitoring looks for damage to the actual molecular structure of DNA. The DNA damage is caused by mutagens and therefore the noncytogenetic monitoring attempts to detect the presence of mutagens or the DNA damage caused by mutagens.²²² Noncytogenetic techniques are also

216. See Stokinger & Scheel, *supra* note 27, at 571.

217. Dabney, *The Role of Human Genetic Monitoring in the Workplace*, 23 J. OCCUP. MED. 626 (1981).

218. See Killian & Picciano, *Cytogenetic Surveillance of Industrial Populations*, in CHEMICAL MUTAGENS: PRINCIPLES AND METHODS FOR THEIR DETECTION 321 (1976); Purchase, *Chromosomal Analysis of Exposed Populations: A Review of Industrial Problems*, in MUTAGEN-INDUCED CHROMOSOME DAMAGE IN MAN 258 (1978); see also Buffler & Aase, *Genetic Risks and Environmental Surveillance: Epidemiological Aspects of Monitoring Industrial Populations for Environmental Mutagens*, 24 J. OCCUP. MED. 305 (1982). See generally Harnaden, *Cytogenetics of Human Neoplasia*, in GENETICS OF HUMAN CANCER (1977).

219. Dabney, *supra* note 217, at 628-30 (ionizing radiation, arsenic, benzene, epichlorohydrin, cadmium/lead/zinc, organic solvents, ethylene oxide, and vinyl chloride).

220. GENETIC TESTING, *supra* note 43, at 74.

221. *Id.* at 74-75; Dabney, *supra* note 217, at 626, 630-31.

222. GENETIC TESTING, *supra* note 43, at 75.

still in the developmental stage.

II. MEDICAL SCREENING AND COMPANY PRACTICES

A. Company Medical Programs

Except as required by the Occupational Safety and Health Act (OSHA)²²³ or federal contract,²²⁴ employers have no duty to provide employees with medical services.²²⁵ In general, the extent to which employers provide these services depends upon the nature of the industry and the size of the employer. For example, 80.2% of employees in the primary metal industries receive periodic medical examinations, while only 5% of contract construction workers receive these examinations.²²⁶ Only 12.2% of employees working in small plants (8-249 workers) receive periodic medical examinations, but 65.4% of employees working in large plants (500 or more workers) receive such examinations.²²⁷

Occupational physicians generally agree about the components of a sound occupational health program.²²⁸ Most employer medical programs, however, are not directed and staffed by trained occupational physicians.²²⁹ Of the estimated 10,000 physicians in the United States practicing occupational medicine, only 800 are certi-

223. See Part II-B-4 *infra*.

224. See, e.g., Walsh-Healey Public Contracts Act, 41 U.S.C. §§ 35-45 (1976).

225. See, e.g., Fletcher v. Union Pac. R.R., 621 F.2d 902, 909 (9th Cir. 1980), *cert. denied*, 449 U.S. 1110 (1981); Lanni v. Wyer, 219 F.2d 701, 703 (2d Cir. 1955); Kloman v. Doctors Hosp., 76 A.2d 782, 784 (D.C. 1950); Dornak v. Lafayette Gen. Hosp., 368 So. 2d 1185, 1186 (La. App. 1979); Baur v. Mesta Mach. Co., 195 Pa. Super. 22, 32, 168 A.2d 591, 597, *rev'd. on other grounds*, 405 Pa. 617, 176 A.2d 684 (1961).

226. 3 U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, NATIONAL OCCUPATIONAL HAZARD SURVEY, (Survey Analysis and Supplemental Tables) 80-83 table II (1977) [hereinafter cited as NOHS].

227. *Id.*

228. According to the American Medical Association's statement, *Scope, Objectives and Functions of Occupational Health Programs*, industrial health care should:

1. Protect employees against health and safety hazards in their work situation.
2. Insofar as practical and feasible, protect the general environment of the community.
3. Facilitate the placement of workers according to their physical, mental and emotional capabilities in work which they can perform with an acceptable degree of efficiency and without endangering their own health and safety or that of others.
4. Assure adequate medical care and rehabilitation of the occupationally ill and injured.
5. Encourage and assist in measures for personal health maintenance, including the acquisition of a personal physician whenever possible.

Howe, *Organization and Operation of an Occupational Health Program*, 17 J. OCCUP. MED. 362, 362 (1975).

229. The following table is based on data from the NOHS:

fied by the American Board of Preventive Medicine.²³⁰ Moreover, large industrial companies employ the majority of occupational physicians, while smaller businesses either hire part-time consultants, use nurses or clinics, or have no occupational medical program at all.²³¹

The lack of adequately trained occupational physicians can result in failure to diagnose, misdiagnosis, and the use of harmful medical techniques.²³² Untrained, inexperienced or part-time physicians may not adequately supervise medical screening programs. These physicians might overrely on laboratory screening procedures, which are easier and less time consuming than a thorough history and clinical evaluation. In addition, these physicians may not accurately evaluate the scientific limitations on the predictive value of screening procedures.

Even the most knowledgeable and dedicated occupational physicians may face ethical dilemmas caused by their conflicting loyalties.²³³ Economic concerns of employers, unfortunately, may outweigh the health concerns of the patient-employees.²³⁴ In the context of employee selection, management may pressure physicians to develop increasingly extensive medical screening techniques²³⁵

Table	Finding	Plants	Employees
4	Have a formally established health unit	4.0%	31.5%
5	Have a health unit with a physician in charge	1.2%	15.0%
8	Employ a physician full-time	0.7%	11.4%

NOHS, *supra* note 226, at 30, table VIIIA (Summary of NOHS Estimates).

230. Levy, *The Teaching of Occupational Health in American Medical Schools*, 44 J. MED. EDUC. 18, 21 (1980).

231. N. ASHFORD, CRISIS IN THE WORKPLACE 440 (1976); see Kehoe, *The American Physician in Occupational Medicine and Hygiene*, 27 ARCH. ENVTL. HEALTH 236 (1973).

232. Bingham, *What's Our Government Doing to Protect Our Health?*, in WORK AND HEALTH INSEPARABLE IN THE 80's 72 (U.S. Dept. of Health and Human Services 1980). See generally Keene, *The Credibility of Occupational Medicine*, 16 J. OCCUP. MED. 309 (1974).

233. See Bundy, *How Do We Assure that the Worker's Health is the Occupational Physician's Primary Concern?*, 18 J. OCCUP. MED. 671 (1976); Dinman, *The Loyalty of the Occupational Physician*, 54 BULL. N.Y. ACAD. MED. 729 (1978); *Whose "Agent" is the Occupational Physician?*, 30 ARCH. ENVTL. HEALTH 412 (1975).

234. Most industrial physicians identify strongly with management for sociological and financial reasons, and some may forget that the ethical guidelines for the medical profession are more restrictive than for businessmen. Failure to recognize and adhere to medical ethical standards can only downgrade those who so stray, and that may be part of the non-recognition problem that the occupational medicine specialty experiences today. Morton, *Are Medical Ethical Practices Sufficient in Industrial Medicine?*, 15 J. OCCUP. MED. 860 (1973); see Hilker, *If Hippocrates Were Alive*, 54 BULL. N.Y. ACAD. MED. 764 (1978).

235. See Roberts, *The Question of Ethical Standards in Occupational Medical Practice*, 14 J. OCCUP. MED. 632 (1972).

and to supply personnel departments with medical data for employment decisionmaking.²³⁶

B. Employer Medical Screening and Surveillance

1. Medical Questionnaires

Most employers regularly record health information about new employees.²³⁷ In certain industries, virtually all new employees have health information recorded by their employers.²³⁸ Employment applications rarely request detailed medical information, but frequently a physical examination is a condition of employment.²³⁹ Some application forms specifically ask for consent to a physical examination.²⁴⁰ Although some companies inform applicants and employees about the possible use of information supplied on the medical questionnaire, most employers do not.²⁴¹

Applicants fill out medical questionnaires at the time of, or in lieu of, a preemployment physical examination.²⁴² Some questionnaires are quite detailed.²⁴³ Most questionnaires contain checklists of medical conditions, including nervous conditions, drug and alcohol use, "women's problems," surgery, respiratory trouble, urinary trouble and hearing and vision problems.²⁴⁴

Even the most routine medical questionnaires ask about extremely personal matters, such as the medical history of family members, medication taken, hobbies, sleeping habits, workers'

236. See Collings, *Medical Confidentiality in the Work Environment*, 20 J. OCCUP. MED. 461 (1978). For a discussion of the legal issues raised by intracompany disclosure of medical records, see Part III-E *infra*.

237. In small plants (8 to 249 workers), 60.6% of employees have health information recorded, in medium-sized plants (250 to 500 workers), 82.0% of employees have health information recorded, and in large plants (over 500 workers) 97.9% of employees have health information recorded. NOHS, *supra* note 226, at 73, table 9.

238. *Id.* at 74.

239. REPORT OF THE PRIVACY PROTECTION STUDY COMMISSION, app. 3, at 11 (1977) [hereinafter cited as PRIVACY PROTECTION].

240. *Id.*

241. *Id.* at 40-41. Some employers have the applicant or employee sign a general waiver for the employer to use the information as it deems necessary. *Id.* at 12.

242. See Voelz & Spickard, *Preemployment Medical Evaluation by Questionnaire*, 14 J. OCCUP. MED. 18 (1972) (suggesting use of questionnaire in lieu of examination).

243. For example, Exxon Corporation has a twenty-five-page, 185-item questionnaire that applicants and employees are required to complete before submitting to a compulsory physical examination. PRIVACY PROTECTION, *supra* note 239, app. 3, at 12. See generally Symposium, *Medical Information Systems Roundtable*, 24 J. OCCUP. MED. 794 (1982).

244. PRIVACY PROTECTION, *supra* note 239, app. 3, at 12; see Voelz & Spickard, *supra* note 242, at 21-22.

compensation claims filed, insurance records and military records.²⁴⁵ A "community and home environmental profile" may ask questions about plumbing, rodents, and home repairs.²⁴⁶ Some employers ask about homosexuality, venereal disease, and fertility.²⁴⁷

2. *Preemployment/Preplacement Medical Exams*

The preemployment medical examination long has been a virtual institution in American industry.²⁴⁸ Widely used, its object "apparently was to select only physical and mental paragons"²⁴⁹ and to exclude individuals with medical, psychological or "other" problems.²⁵⁰ Today, these examinations are called preplacement examinations, ostensibly because employers refuse to hire only the most seriously disabled persons. The examination purportedly matches the employee with the most suitable job.²⁵¹

Preplacement medical examinations are widely used. The avowed purposes of the exams are (1) to protect the employee from assignment to a job which might be harmful; (2) to protect the employer from unfit workers; and (3) to correct remediable physical defects.²⁵² The examination also serves an essential function in health surveillance by providing an historical record of previous exposures, a composite of the employee's state of health before work, and a baseline for comparison with later health observations.²⁵³

245. PRIVACY PROTECTION, *supra* note 239, app. 3, at 12; see Finucane, *General Foods Medical and Environmental Health Systems (MEHS)*, 24 J. OCCUP. MED. 794 (1982).

246. ARIZONA CENTER FOR OCCUPATIONAL SAFETY AND HEALTH, *THE OCCUPATIONAL AND ENVIRONMENTAL HISTORY*, app. B. (1980).

247. For a discussion of the privacy law issues raised by medical questionnaires, see Part III-E *infra*.

248. Preemployment examinations, established by law in England as early as the first industrial revolution, received a major impetus in the United States around 1900 when the first workmen's compensation laws were passed. Schussler, Kaminer, Power & Pomper, *The Preplacement Examination*, 17 J. OCCUP. MED. 254 (1975) [hereinafter cited as *Preplacement Examination*].

249. W. SHEPARD, *THE ROLE OF THE PHYSICIAN IN INDUSTRY* 16 (1976).

250. Physicians were sometimes expected to find medical reasons for disqualifying "troublemakers" such as union sympathizers. *Id.* at 16-17.

251. *Id.* at 17. Although only 19.2% of employees in small plants (8-249 workers) are required to undergo a preplacement examination, 48.9% of employees in medium-sized plants (250-500 workers) and 83.3% of employees in large plants (over 500 workers) are required to undergo examination. NOHS, *supra* note 226, at 77, table 10 (number and percent of plants and employees in plants which require preplacement physical examinations of employees). Furthermore, in several industries, such as petroleum and coal products (93.5%), primary metal industries (92.4%), and transportation equipment (90.8%), preplacement medical examinations are even more prevalent. *Id.* at 78. Individuals who refuse to cooperate with the examination are rejected. See Campione, *The Pre-employment Examination: An Evaluation*, 41 INDUS. MED. 27, 29 (1972); notes 595-96 *infra* and accompanying text.

252. W. SHEPARD, *supra* note 249, at 17.

253. Cooper, *supra* note 3, at 596.

Procedures for conducting a preplacement examination vary, but many employers use a three-step process. First, the physician assesses the job requirements.²⁵⁴ Second, the individual applicant or employee gives a complete medical and work history²⁵⁵ and undergoes a physical examination²⁵⁶ and any laboratory or testing procedures.²⁵⁷ Third, the individual's medical profile is compared with the job requirements.²⁵⁸

3. Laboratory Testing Procedures

Many employers have ongoing medical surveillance programs that include laboratory testing procedures. Common procedures include blood tests, urine analyses, pulmonary function tests and chest x-rays. As with other aspects of employer-provided medical services, the frequency with which laboratory tests are performed depends on the size and nature of the company.²⁵⁹ Beyond these routine procedures, most companies are extremely reluctant to divulge what tests they perform and how they use the results, particularly with regard to such controversial tests as biochemical genetic screening. Nevertheless, some scientists urge that, in appropriate circumstances,²⁶⁰ ge-

254. This "job analysis" includes a review of the job description, the essential tasks performed, and the working environment in order to develop the job-related critical medical requirements. See Hogan & Bernacki, *Developing Job-Related Preplacement Medical Examinations*, 23 J. OCCUP. MED. 469 (1981).

255. This would either supplement or replace the questionnaires discussed in Part II-B-1 *supra*.

256. The physical examination is quite similar to an "annual checkup" given by a family physician. Among other things, it includes an examination of the eyes, ears, nose, throat, heart, lungs, reflexes, blood pressure, and other common procedures. See W. SHEPARD, *supra* note 249, at 22-27.

257. See Part II-B-3 *infra*.

258. See W. SHEPARD, *supra* note 249, at 19; *Preplacement Examination*, *supra* note 248, at 255-56. Some employers use more detailed work restriction codes, indicating specific employee restrictions. PRIVACY PROTECTION, *supra* note 239, app. 3, at 82.

259. 14.7% of all employees receive periodic blood tests, but they are given to 55.4% of employees in the primary metal industries and 51.4% of employees working in ordnance and accessories. NOHS, *supra* note 226, at 93-94, table 14 (number and percent of plants and employees in plants which provide periodic blood tests for employees). Urine tests are performed on 14.4% of all employees, but 46.7% of employees working with petroleum and coal products. *Id.* at 97-98, table 15 (number and percent of plants and employees in plants which provide periodic urine tests for employees). Pulmonary function tests are given to 13.5% of all employees, but 68.5% of employees in petroleum and coal products and 54.8% of employees in primary metal industries. *Id.* at 101-02, table 16 (number and percent of plants and employees in plants which provide periodic pulmonary function tests for employees). Chest x-rays are given to 24.9% of all employees, but 76.3% of employees in petroleum and coal products and 74.7% of employees in primary metal industries. *Id.* at 105-06, table 17 (number of plants and employees in plants which provide periodic chest x-rays for employees).

260. Genetic screening should be conducted when the screened-for genetic defect: (1) has a relatively high occurrence in the worker population; (2) concerns pollutants usually encountered in industry; (3) is compatible with an apparently normal life until industrial exposure

netic screening procedures should be used.²⁶¹

In 1982 the Office of Technology Assessment (OTA) conducted an anonymous survey of the "Fortune 500" companies, the fifty largest private utilities, and eleven major labor unions.²⁶² Of the 366 (65.2%) organizations responding, six (1.6%) then used biochemical or cytogenetic tests, seventeen (4.6%) had used the tests in the past twelve years and fifty-nine (16.1%) anticipated using or would possibly use the tests in the next five years.²⁶³ Sickle cell testing was most prevalent, followed by G-6-PD, alpha₁-antitrypsin deficiency, unspecified immune system markers and cytogenetic testing for chromosomal aberrations.²⁶⁴

Some consider the number of companies either using or expressing an interest in genetic screening "surprising,"²⁶⁵ but, if anything, the survey probably underreported the extent of industry activity in this area. The highly sensitive nature of the issue²⁶⁶ and the attempt of one trade association to discourage corporate participation in the study,²⁶⁷ suggest that genetic screening may be even more prevalent now than reported, and seems likely to increase in the future.²⁶⁸

4. OSHA-Mandated Medical Surveillance

OSHA's twenty-one health standards regulating toxic substances require a variety of medical procedures. In general, employers must conduct preplacement examinations, the physician must furnish employers with the physician's statement of suitability for employment in the regulated area, the employer must conduct periodic (usually annual) examinations, and in some instances the employer must conduct examinations at termination of employment. The failure to conduct these required medical examinations may lead to the issu-

occurs; and (4) can be detected by an inexpensive test which can be relatively simply applied to the screening of large numbers of people. Stokinger & Scheel, *supra* note 27.

261. Specifically, employers have been encouraged to screen for alpha₁-antitrypsin deficiency, G-6-PD deficiency, carbon disulfide sensitivity, reagenic antibodies to allergenic chemicals, and sickle cell trait. *Id.* at 572.

262. GENETIC TESTING, *supra* note 43, at 33.

263. *Id.* at 34.

264. *Id.* at 36.

265. See Severo, *59 Top U.S. Companies Plan Genetic Screening*, N.Y. Times, June 23, 1982, at A9, col. 4 (statement of Rep. Albert Gore, Jr., Chairman of the Subcommittee on Investigations and Oversight, House Committee on Science and Technology).

266. *Id.*

267. *Id.*

268. With the costs of some tests as low as two to five cents per test, E. CALABRESE, *supra* note 2, at 153 (sickle cell), and virtually no legal restraints, see Part III *infra*, companies might be tempted to experiment with these procedures. Other procedures, such as HLA typing, are more expensive. Z. HARSANYI & R. HUTTON, *supra* note 52, at 77.

ance of OSHA citations and penalties.²⁶⁹ Table II contains a summary of the specific requirements.

TABLE II
MEDICAL PROCEDURES REQUIRED BY OSHA

29 C.F.R. §	Substance	Primary Health Risks	Required Medical Procedures
1910.1001	Asbestos	1. Asbestosis 2. Mesothelioma 3. Lung disorders	1. Pulmonary function tests 2. Chest x-rays
1910.1003-.1016	13 Carcinogens ²⁷⁰	1. Bladder cancer 2. Bronchiogenic cancer 3. Lung cancer 4. Stomach cancer 5. Skin cancer 6. Liver cancer 7. Kidney cancer 8. Pulmonary edema 9. Central necrosis	1. Complete medical history, including genetic and environmental factors 2. Consideration of reduced immunological competence of employees, those undergoing treatment with steroids or cytotoxic agents, pregnancy and cigarette smoking
1910.1017	Vinyl Chloride	1. Angiosarcoma 2. Lung cancer	1. Complete physical exam 2. Liver studies
1910.1025	Inorganic lead	1. Central nervous system disorders	1. Complete medical history and exam 2. Detailed blood studies
1910.1029	Coke oven emissions	1. Lung cancer 2. Kidney cancer 3. Skin cancer	1. Complete history 2. Chest x-ray 3. Pulmonary function tests 4. Sputum cytology 5. Urine cytology
1910.1043	Cotton dust	1. Byssinosis	1. Complete medical history 2. Standardized respiratory questionnaire 3. Pulmonary function tests
1910.1044	DBCP ²⁷¹	1. Sterility	1. Complete medical and reproductive history 2. Examination of genito-urinary tract

269. *See, e.g.*, General Engr. & Machine Works, 9 O.S.H. Cas. (BNA) 1936, 1981 O.S.H. DEC. (CCH) ¶ 25,402 (1981); Research Cottrell, Inc., 9 O.S.H. Cas. (BNA) 1489, 1981 O.S.H. DEC. (CCH) ¶ 25,284 (1981).

270. 4-Nitrobiphenyl (§ 1910.1003); Alpha-Naphthylamine (§ 1910.1004); Methyl chloromethyl ether (§ 1910.1006); 3, 3'-Dichlorobenzidine (and its salts) (§ 1910-1007); bis-Chloromethyl ether (§ 1910.1008); beta-Naphthylamine (§ 1910.1009); Benzedine (§ 1910.1010); 4-Aminodiphenyl (§ 1910.1011); Ethyleneimine (§ 1910.1012); beta-Propiolactone (§ 1910.1013); 2-Acetylaminofluorene (§ 1910.1014); 4-Dimethylaminoazobenzene (§ 1910.1015); N-Nitrosodimethylamine (§ 1910.1016).

271. 1, 2-dibromo-3-chloropropane.

			3. Serum specimen for radioimmunoassay
1910.1045	Acrylonitrile	1. Asphyxia	1. Complete medical history and exam, with particular attention to peripheral and central nervous system, gastrointestinal system, skin, and thyroid 2. Chest x-ray 3. Fecal occult blood screening for all workers over 40 years age

5. Medical Records

As employers collect more medical information about applicants and employees, and as technology expands the capability to store, retrieve and disseminate the information, a variety of legal, ethical and practical problems arise.²⁷² Although employee medical records contain various kinds of information,²⁷³ they present a single question: What use may be made of the records?²⁷⁴

Ironically, employees often lack access to their medical records and are not informed about occupational health determinations.²⁷⁵ This is particularly disturbing in the context of employee screening for susceptibility to occupational illness. The primary value of these elaborate screening measures is their ability to inform workers of the risk. If informed, they may make a reasonable judgment about whether to accept such risks. Employers contend that employees are too unsophisticated to understand their own health measurements and records and that giving such data to an individual could cause stress.²⁷⁶

Employers often base personnel actions on medical records,²⁷⁷ and intracompany disclosure of medical records is widespread.²⁷⁸ Access to records may extend to third parties through one of the vast

272. For a discussion of legal issues related to recordkeeping, see Part III-E *infra*.

273. Occupational health records usually contain identification and demographic background, narrative, objective findings and measurements, opinions, judgments, and recommendations. See Warshaw, *Confidentiality Versus the Need to Know*, 18 J. OCCUP. MED. 534, 535 (1976).

274. See generally Karth, *The Confidentiality of Occupational Medical Data*, 21 J. OCCUP. MED. 157 (1979); McLean, *Management of Occupational Health Records*, 18 J. OCCUP. MED. 530 (1976).

275. See note 598 *infra*.

276. See A. FREEDMAN, *INDUSTRY RESPONSE TO HEALTH RISKS* 17 (1981); Roberts, *Mandatory v. Voluntary Medical Examinations in Industry*, 30 ARCH. ENVTL. HEALTH 205, 207 (1975). It is hard to imagine that such paternalism is justified and it takes only a little cynicism to theorize more self-serving reasons for such policies.

277. See Part II-C *infra*.

278. See Part III-E *infra*.

computerized networks dealing with private medical records.²⁷⁹ At the same time, fear of civil liability has discouraged employers from using available medical records to conduct mortality and morbidity studies that might help discover causal relationships between workplace exposure and occupational disease.²⁸⁰

C. *Scientific Limitations on Medical Screening*

Despite their widespread use, preemployment medical examinations can be grossly inaccurate in attempting to screen for high-risk workers.²⁸¹ Several studies confirm that employee selection procedures that do not use preemployment physical examinations are as accurate in identifying high-risk workers.²⁸² Nevertheless, employer practices are unlikely to change in the near future.²⁸³ Some specific OSHA standards mandate preplacement examinations. Moreover, insurers and management continue to urge physicians to screen out workers who are likely to become ill. Many occupational physicians, however, would probably agree that the assessment of risk to a given applicant or employee, even by the most experienced physician, is "no more than an educated guess."²⁸⁴

Laboratory testing procedures present similar problems. Because the results may have important consequences, the test being used

279. See Note, *Privacy in Personal Medical Information: A Diagnosis*, 33 U. FLA. L. REV. 394, 395 n.7 (1981); see also Boyer, *Computerized Medical Records and the Right to Privacy*, 25 BUFFALO L. REV. 37 (1975); Mironi, *The Confidentiality of Personnel Records: A Legal and Ethical View*, 25 LAB. L.J. 270 (1974); Reinert, *Federal Protection of Employment Record Privacy*, 18 HARV. J. ON LEGIS. 207 (1981). Some employers already have established procedures for exchanging medical surveillance records of workers known to have had prior exposures to hazardous substances. PRIVACY PROTECTION, *supra* note 239, app. 3, at 99. For a discussion of susceptibility based on prior occupational exposure, see Part I-C *infra*.

280. See Westin, *Dilemmas Facing Occupational Health Surveillance*, in *INDIVIDUAL RIGHTS IN THE CORPORATION* 200 (A. Westin & S. Salisbury eds. 1980).

281. "The routine physical examination itself has serious shortcomings even if supplemented to absurd lengths by mass-screening laboratory and x-ray procedures of little value and some potential hazard." Hanks, *The Physical Examination in Industry: A Critique*, 5 ARCH. ENVTL. HEALTH 365, 366 (1966). Hanks suggests that the bias of occupational physicians in favor of physical examinations relates more to their concern for job security than to valid medical reasons. *Id.* at 370.

282. See Rodman, *The Pre-employment Physical Examination*, 7 J. OCCUP. MED. 608 (1965); Schneider & McDonagh, *Experience Data on University Recruits Hired Without Pre-employment Examinations*, 13 J. OCCUP. MED. 363 (1971); Williamson, *Eighteen Years Experience Without Pre-Employment Examinations*, 13 J. OCCUP. MED. 465 (1971). See generally Leckey, *Preemployment Examinations — A Pointed Study*, 8 J. OCCUP. MED. 532 (1966); Michaels, *A Plea for Abandonment of the Complete History and Physical Examination*, 108 CAN. MED. ASSN. J. 299 (1973).

283. See Gibson, *Why the Preplacement Physical Isn't Out of Date*, 43 INTL. J. OCCUP. HEALTH & SAFETY 31 (1974).

284. Tabershaw, *How is the Acceptability of Risks to the Health of Workers to be Determined?*, 18 J. OCCUP. MED. 674, 675 (1976).

must be accurate. Considerable evidence indicates, however, that medical testing procedures are not nearly as accurate as they are commonly thought to be.

The starting point for analyzing the accuracy of a test is its sensitivity and specificity. The sensitivity of a test is a measure of the test's accuracy in correctly identifying persons with the tested-for condition. It is the percent of persons with the condition who have a positive test, or:

$\text{True Positives} / (\text{True Positives} + \text{False Negatives})$.

Therefore, if 100 persons have a condition and the test is able to identify ninety of them, the test would be 90% sensitive.

The specificity of a test is a measure of the test's accuracy in correctly identifying persons free of a condition. It is the percent of persons free of the condition who have a negative test, or:

$\text{True Negatives} / (\text{True Negatives} + \text{False Positives})$.

Therefore, if 100 persons are free of a condition and the test is able to identify eighty of them, the test would be 80% specific.

The predictive value (positive) of a test measures the likelihood that a positive test result indicates the presence of the condition. It is the percent of those persons with a positive test who really have the condition, or:

$\text{True Positives} / (\text{True Positives} + \text{False Positives})$.

Using the numbers given above — locating 90 persons with the condition, but falsely finding 20 people who do not — the test would have a predictive value of 81.8%.

One of the least accurate tests in widespread use is the low-back x-ray. The following table, representing the test results of 1000 hypothetical workers, is based on the assumption that low-back x-rays are 56% sensitive and 78% specific for detecting future low-back pain and that 60% of all workers will have low-back pain during their work life.

TABLE III²⁸⁵

	Will have low-back pain during lifetime	Will not have low- back pain during lifetime	Totals
Will have positive low-back x-ray exam	336 (true positives)	88 (false positives)	424
Will have negative low-back x-ray exam	264 (false negatives)	312 (true negatives)	576
Total	600	400	1000

The predictive value of a positive low-back x-ray in estimating future lost work time is $336 \div 424$, or 79%. Even with this reasonable predictive value, of the 424 persons denied jobs, 88 (21%) will never have low-back pain. Moreover, of all workers who have low-back pain, only half will lose time from work. Table IV reflects this fact.

TABLE IV

	Will have low-back pain and lose time from work	Will never lose time from work because of low- back pain	Totals
Will have positive low-back x-ray exam	168 (true positives)	256 (false positives)	424
Will have negative low-back x-ray exam	132 (false negatives)	444 (true negatives)	576
Total	300	700	1000

The predictive value of a positive low-back x-ray in estimating future lost work time is $168 \div 424$ or 40%. Thus, of the 424 persons denied jobs, 256 (60%) would not lose time from work. Table V adds the fact that only 5 to 20% of all workers who miss time from work will require disc surgery. The table uses the 5% estimate.

285. Tables 3-5 and the accompanying discussion of low-back x-rays have been taken from Rockey, Fantel & Omenn, *supra* note 175, at 208-10.

TABLE V

	Will have disc surgery	Will not have disc surgery	Totals
Will have positive low-back X-ray exam	8.4 (true positives)	416 (false positives)	424.4
Will have negative low-back x-ray exam	<u>6.6</u> (false negatives)	<u>569</u> (true negatives)	<u>575.6</u>
Total	15.0	985	1000

The predictive value of a positive x-ray in estimating surgery rates is $8.4 \div 424$ (2.9%). Of the 424 persons denied employment, 416 (98%) would never require back surgery!

Besides illustrating the inaccuracy of x-ray screening, the preceding tables demonstrate that predictive value depends heavily on the percentage of the entire population with the tested-for condition. This is known as prevalence.²⁸⁶ Even procedures with high degrees of sensitivity and specificity will have relatively low predictive values if the prevalence of the condition is low.

Tables VI and VII assume that a test is both 99% sensitive and 99% specific, higher than virtually any known medical tests.²⁸⁷

TABLE VI
DATA FOR CONDITION WITH 10% PREVALENCE

	1000 with condition	9000 without condition
positive	990	90
negative	<u>10</u>	<u>8,910</u>
Total	1,000	9,000

TABLE VII
DATA FOR CONDITION WITH 1% PREVALENCE

	100 with condition	9,900 without
positive	99	1
negative	<u>99</u>	<u>9,801</u>
Total	198	9,802

By merely changing the prevalence rate from 10% to 1%, the predictive value decreased from 92% ($990 \div 1080$) to 50% ($99 \div 198$).

286. R. Galen & S. Gambino, BEYOND NORMALITY: THE PREDICTIVE VALUE AND EFFICIENCY OF MEDICAL DIAGNOSES 11 (1975). The term "incidence" refers to the frequency of a condition occurring within a stated period of time. *Id.*

287. See *id.* at 12-13.

The preceding tables demonstrate the lack of scientific credence in mass screening of asymptomatic individuals to detect the presence of a trait or condition with a low prevalence rate. "Indiscriminate use of laboratory tests on subjects selected at random is doomed to failure if the prevalence of the disease is low."²⁸⁸ The following table lists some of the most commonly screened-for biochemical genetic markers and the prevalence rates in the highest risk groups.

TABLE VIII²⁸⁹

Condition	Prevalence	Highest-Risk Group in America
Sickle cell trait	7-13%	American blacks
G-6-PD deficiency	11%	American black males
Alpha ₁ -antitrypsin deficiency (heterozygotes)	4-9%	Persons of northern European Ancestry
Thalassemia	0.1-8%	Persons of Italian, Greek, and Syrian ancestry and blacks.

Even if it were lawful to do so,²⁹⁰ the screening of only the highest risk groups would still be inaccurate because of the low prevalence rates. Laboratory testing procedures are only valuable when a history or physical examination suggests the need for additional information.²⁹¹ Any employment decisions based on mass medical screening, therefore, are inherently suspect.²⁹²

D. *Personnel Actions as a Result of Medical Determinations*

Employment decisions based on medical assessments are often difficult to understand.²⁹³ Nevertheless, ample evidence indicates that employers refuse to hire applicants for such dubious reasons as

288. *Id.* at 18.

289. Table 8 is based on figures from E. CALABRESE, *supra* note 2, at 188-90.

290. *See* Part III *infra*.

291. R. GALEN & S. GAMBINO, *supra* note 286, at 18, 22; accord Ashenbourg, *Routine Chest X-Ray Examinations in Occupational Medicine*, 24 J. OCCUP. MED. 18, 19 (1982).

292. Another limitation on the usefulness of laboratory testing procedures generally is the problem of defining a "normal" test result. *See* R. GALEN & S. GAMBINO, *supra* note 286, at 2-6; Young, *How Does One Interpret a Marginally Abnormal Serum Chemistry Test?*, 24 J. OCCUP. MED. 104 (1982).

293. Although no systematic analysis has been made of how employee physical records affect employment decisions, the process has been characterized as a "black box" problem. An individual can find out what information was available and can know the outcome, but the individual may not know what decision processes produced the outcome. PRIVACY PROTECTION, *supra* note 239, at 226 (citing unpublished memorandum by Michael Baker).

obesity, color blindness, arthritis, hypertension, allergies and varicose veins.²⁹⁴ More substantial medical conditions reduce the chance of being hired still further. A 1974 poll of industrial physicians attempted to assess whether they would recommend hiring a hypothetical thirty-eight-year-old applicant with a history of myocardial infarction, angina, valvular disease, hypertension, diabetes, proteinuria, tuberculosis or psychiatric illness.²⁹⁵ The physicians seemed more concerned about possible liability for further injury or illness than about possible increased compensation rates or loss of work time.²⁹⁶ In addition, the nature of the illness outweighed the exertion required by the job.²⁹⁷ The study concluded that "even patients with mild illnesses, which may not increase their morbidity or mortality, are being denied work. The criteria used for determining employability appear, in some cases, to have little relation to modern medical judgment."²⁹⁸

As employers perform more medical procedures, they are more likely to produce abnormal findings.²⁹⁹ High unemployment in industrial jobs may reinforce increased screening because it allows an employer to disqualify "moderate" high-risk workers, knowing that it can fill its positions with theoretically lower risk workers.

Because employees working under a collective bargaining agreement often have "just cause" or "reasonableness" clauses in their contracts, arbitration decisions can provide information about medical reassignment and discharge for a class of employees with the most protection against unreasonable employer action. The arbitration cases generally confirm that employees have greater protection than applicants, but are still vulnerable to medical judgments. Arbitrators generally uphold the employer's prerogative to decide whether high-risk employees may remain on the job.³⁰⁰ Personnel

294. See 103 LAB. REL. REP. (BNA) 236 (1980) (discussing terms of conciliation agreement between Varo Semiconductor, Inc. and Labor Department under which 85 applicants were to receive \$225,000, and 32 applicants were placed on a preferential hiring list; action based on § 503 of Rehabilitation Act). See generally S. LUSTERMAN, *INDUSTRY ROLES IN HEALTH CARE* 31 (1974) (concluding that medical examinations are used in selection and placement).

295. Weinstock & Haft, *The Effect of Illness on Employment Opportunities*, 29 ARCH. ENVTL. HEALTH 79 (1974).

296. *Id.* at 81.

297. *Id.*

298. *Id.* at 83; see also Craft, Benecki & Shkop, *Who Hires the Seriously Handicapped?*, 19 INDUS. REL. 94 (1980) (study found that seriously handicapped workers are hired mostly by small, nonunion firms in the service industry).

299. See R. GALEN & S. GAMBINO, *supra* note 286, at 3 ("the more tests performed on a healthy subject the more likely is the discovery of an abnormal result").

300. See Joy Mfg. Co., 73 Lab. Arb. (BNA) 1269 (1980) (Abrams, Arb.) (dermatitis); Ormet Corp., 80-1 LAB. ARB. AWARDS (CCH) ¶ 8034 (1979) (Seinsheimer, Arb.) (dermatitis)

decisions based on unreliable medical evidence, however, will not stand.³⁰¹ Discharges usually are upheld only where no "safe" positions are available.³⁰²

Although most medical screening programs consist of several tests and procedures, some medical criteria lead to the automatic exclusion of the applicant.³⁰³ Employers are extremely reluctant to reveal these factors, especially regarding genetic screening techniques. Anecdotal reports are difficult to confirm.³⁰⁴

In two areas of medical screening, employer policies are well known. First, most railroads in the United States use low-back x-rays to screen out applicants believed to be susceptible to lumbosacral back injury.³⁰⁵ Despite the extremely low predictive value of low-back x-rays, the railroads consider the practice cost-effective; reducing only a few back injury claims can save the railroads thousands of dollars.³⁰⁶

Second, firms frequently remove fertile women from jobs involving possible exposure to teratogenic substances.³⁰⁷ This policy, although based on questionable assumptions, has been implemented by many of the nation's largest companies.³⁰⁸ As many as 100,000

note 574 *infra*, and accompanying text. *But see* Walworth County, 63 Lab. Arb. (BNA) 1203 (1974) (Moberly, Arb.) (obesity).

301. *See, e.g.*, Checker Taxi Co., 57 Lab. Arb. (BNA) 466 (1971) (Duff, Arb.); San Francisco Retailers Council, 57 Lab. Arb. (BNA) 482 (1971) (Wyckoff, Arb.).

302. *See, e.g.*, Pennsylvania Tire & Rubber Co., 59 Lab. Arb. (BNA) 1078 (1972) (Simon, Arb.) (plant cleaner with ulcers and back injury); Cominco American, Inc., 52 Lab. Arb. (BNA) 1152 (1969) (Belcher, Arb.) (miner with emphysema). Where there are safe positions an employee's ability to transfer is a matter of contract. *Compare* West Penn Power Co., 67 Lab. Arb. (BNA) 1085 (1976) (Blue, Arb.) (utility line worker with acrophobia entitled to transfer under contract), *with* Eaton Corp., 73 Lab. Arb. (BNA) 729 (1979) (Porter, Arb.) (junior inspector with dermatitis not entitled to transfer to another job).

303. *See* notes 295-98 *supra* and accompanying text.

304. One employer reportedly hires only men over the age of 50 for work where there is exposure to a potent carcinogen with a long latency period. By the time the cancer would manifest itself, the men would be dying of old age anyhow. *See also* Severo, *supra* note 144 (quoting Dr. John H. Weisburger, who suggested that hiring older people for carcinogenic exposures should be considered).

305. Rockey, Fantel & Omenn, *supra* note 175; *see* Gift, Harris, Gard, Alexander & Potchen, *Employment-Related Administrative Roentgenograms: Characteristics of Policy Formulation and Current Practice*, 25 J. OCCUP. MED. 34 (1983) (discussing nonmedical factors affecting use of x-rays).

306. Rockey, Fantel & Omenn, *supra* note 175, at 210-11. *See* Rowe, *Are Routine Spine Films on Workers in Industry Cost- or Risk-Benefit Effective?*, 24 J. OCCUP. MED. 41 (1982).

307. *See* notes 539-65 *infra* and accompanying text.

308. Some of the companies known to have such policies are Allied Chemical, American Cyanamid, B. F. Goodrich, Dow Chemical, DuPont, Firestone, General Motors, Goodyear, Gulf Oil, Monsanto, Olin, St. Joe's Minerals, and Sun Oil. Z. HARSANYI & R. HUTTON, *supra* note 52, at 118; Mereson, *Women Workers Are Sterilized or They Lose Their Jobs*, CIVIL LIBERTIES, July 1982, at 6; Williams, *Firing the Woman to Protect the Fetus: The Reconciliation of*

jobs already are closed to women.³⁰⁹

III. LEGAL ISSUES

Exclusionary policies based on screening criteria with low predictive values are certainly unfair. But what about exclusionary policies based on tests with presumably higher predictive values? Are they discriminatory? For example, scientific authorities and employers who defend sickle cell trait screening argue that the racial impacts are unfortunate, but incidental. It would be irresponsible, they assert, to permit employees with sickle trait to work in extreme environments. Therefore they maintain that exclusionary policies serve the best health interests of the employees and the best economic interests of the employer.³¹⁰ Opponents of these practices contend that exclusionary policies shift the focus from the work environment to the genes of the worker, and that they exclude only the traditional victims of discrimination based on race, sex, or national origin.³¹¹

In analyzing the legal issues raised by medical screening of employees, questions outnumber answers for two reasons: many sophisticated medical screening procedures are relatively new, and most existing labor laws were enacted to deal with quite different matters, such as unionization and employment discrimination. Consequently, existing laws must stretch to their outermost reaches, new theories of applicability must develop, or new legislation must be enacted.

A. *The Occupational Safety and Health Act*

Of all federal and state laws, the Occupational Safety and Health

Fetal Protection with Employment Opportunity Goals Under Title VII, 69 GEO. L.J. 641, 647-53 (1981).

309. See note 541 *infra*.

310. See generally Stokinger & Scheel, *supra* note 27; Stokinger, *Historic Aspects of Occupational Health Standards and the Sensitive Worker*, 3 ANNALS AM. CONF. GOVT. INDUS. HYGIENISTS 65 (1982).

311. See Severo, *Screening of Blacks by DuPont Sharpens Debate on Gene Tests*, N.Y. Times, Feb. 4, 1980, at A1, col. 5, A13, col. 1 (race); *Genetic Screening Hearings*, *supra* note 136, at 35-36 (testimony of Jeanne Stellman) (sex).

To view this debate from a slightly different perspective, consider the following hypothetical. XYZ Company, a large, multinational corporation headquartered in the United States, has an opening for the position of Director of International Operations, a high-paying and glamorous job requiring frequent worldwide travel. Many XYZ executives apply for the job. Some of the travel involves going to portions of Africa where malaria is rampant. Persons with sickle cell trait face a significantly *decreased* risk of contracting malaria. See Z. HARSANYI & R. HUTTON, *supra* note 52, at 149-53. Therefore, XYZ medical department recommends that employees *without* sickle cell trait be disqualified from the position. Such a policy would eliminate some of the black applicants, but all of the white applicants. What is XYZ Company likely to do?

Act (OSHA)³¹² most directly affects employer medical practices. The Act seeks to implement its purpose, "To assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources,"³¹³ among other ways:

(6) by exploring ways to discover diseases, establishing causal connections between diseases and work in environmental conditions, and conducting other research relating to health problems, in recognition of the fact that occupational health standards present problems often different from those involved in occupational safety;

(7) by providing medical criteria which will assure insofar as practicable that no employee will suffer diminished health, functional capacity, or life expectancy as a result of his work experience.³¹⁴

OSHA health standards place great reliance on medical examinations and include provisions for medical surveillance, medical removal protection and employee access to medical records. Nevertheless, OSHA fails to address two important considerations: first, the Labor Department has not developed criteria for defining, screening or protecting high-risk employees; second, the Act does not regulate how employers may use medical surveillance information.

1. *Protective Standards*

The American Conference of Governmental Industrial Hygienists (ACGIH) set 450 threshold limit values (TLVs),³¹⁵ which OSHA adopted in 1971 as established federal standards pursuant to section 6(a).³¹⁶ These TLVs did not attempt to deal with the problem of

312. 29 U.S.C. §§ 651-678 (1976 & Supp. V 1981). Under the Act all rulemaking and enforcement authority is vested in the Secretary of Labor (Secretary) and is administered by the Occupational Safety and Health Administration (OSHA), §§ 6-10, 29 U.S.C. §§ 655-659 (1976 & Supp. V 1981). The Act authorizes the Secretary to conduct inspections, § 8, 29 U.S.C. § 657 (1976 & Supp. V 1981), and to issue citations, § 9, 29 U.S.C. § 658 (1976), against employers found to be in violation of the Act's "general duty clause," § 5(a)(1), 29 U.S.C. § 654(a)(1) (1976), note 357 *infra*, or specific standards promulgated by the Secretary, § 5(a)(2), 29 U.S.C. § 654(a)(2) (1976). The employer or any employee may challenge a citation by filing a notice of contest within 15 working days. § 10, 29 U.S.C. § 659 (1976). The administrative adjudicatory function for contested enforcement proceedings is vested in the Occupational Safety and Health Review Commission, an independent agency composed of three presidentially-appointed commissioners. § 12, 29 U.S.C. § 661 (1976 & Supp. V 1981). Judicial review of OSHA rulemaking and Commission adjudication may be obtained in the United States Courts of Appeals, §§ 6(f), 11(a)-(b), 29 U.S.C. §§ 655(f), 660(a)-(b) (1976 & Supp. V 1981).

313. 29 U.S.C. § 651(b) (1976).

314. 29 U.S.C. § 651(6)-(7).

315. A threshold limit value (TLV) represents the maximum time-weighted average concentration to which a healthy worker may be exposed for a normal 40-hour week, up to eight hours a day, over a working lifetime (40-50 years) without becoming ill. N. TRUEFF, ENVIRONMENT AND HEALTH 221 (1980); see Steinberg, *ACGIH TLVs and the Sensitive Worker*, 3 ANNALS AM. CONF. GOVT. INDUS. HYGIENISTS, 77 (1982).

316. 29 U.S.C. § 655(a) (1976 & Supp. V 1981). Under § 6(a) of the Act the Secretary of Labor was initially authorized to adopt "established federal standards" and "national consen-

high-risk workers. Similarly, in setting permissible exposure limits (PELs)³¹⁷ under section 6(b),³¹⁸ OSHA made no special provisions for high-risk workers. Section 6(b)(5)³¹⁹ provides that, in promulgating standards regulating toxic substances or harmful physical agents, the Secretary must set standards to assure, to the extent feasible, that "no employee" will suffer material impairment of health, even if exposed for his or her entire working life.³²⁰ As documented earlier in this Article, however, all humans vary in their susceptibility to illness;³²¹ only zero exposure limits could protect *all* employees from the risk of occupational disease.³²² In *Industrial Union Department v. American Petroleum Institute*,³²³ the plurality opinion rejected OSHA's policy of setting the PEL for carcinogens at the lowest feasible level. Instead, the Secretary must determine that a standard is reasonably necessary or appropriate to remedy a significant risk of material health impairment.³²⁴ A PEL designed to safeguard rela-

sus standards" as the agency's own regulations governing workplace conditions. In doing so, the Secretary could bypass the lengthy rulemaking procedures of both § 6(b), 29 U.S.C. § 655(b) (1976 & Supp. V 1981) and the Administrative Procedure Act, 5 U.S.C. §§ 551-559 (1976 & Supp. V 1981). Section 3(9), 29 U.S.C. § 652(9) (1976), defines "national consensus standard" as "any occupational safety and health standard or modification thereof which (1) has been adopted and promulgated by a nationally recognized standards-producing organization under procedures whereby it can be determined by the Secretary that persons interested and affected by the scope of provisions of the standard have reached substantial agreement on its adoption, (2) was formulated in a manner which afforded an opportunity for diverse views to be considered and (3) has been designated as such a standard by the Secretary, after consultation with other appropriate Federal agencies." Section 3(10), 29 U.S.C. § 652(10) (1976), defines "established federal standard" as "any occupational safety and health standard established by any agency of the United States and presently in effect, or contained in any Act of Congress in force on December 29, 1970."

This special rulemaking authority, which expired after two years, was included in the Act to assure that workers would be protected as soon as possible after the statute's effective date. See Beliles, *OSHA Occupational Health Standards and the Sensitive Worker*, 3 ANNALS OF CONF. GOVT. INDUS. HYGIENISTS 71 (1982).

317. A permissible exposure limit (PEL) is an employee's permitted exposure to any material listed in Table Z-1, Z-2, or Z-3 of the OSHA standard on air contaminants, 29 C.F.R. § 1910.1000 (1981). NATIONAL SAFETY COUNCIL, FUNDAMENTALS OF INDUSTRIAL HYGIENE 1210 (2d ed. 1979). The OSHA Tables include ceiling values (exposure levels that should never be exceeded), eight-hour time-weighted averages, *see* note 315 *supra*, and acceptable maximum peak concentrations and maximum peak durations.

318. 29 U.S.C. § 655(b) (1976 & Supp. V 1981).

319. 29 U.S.C. § 655(b)(5).

320. 29 U.S.C. § 655(b)(5) (emphasis added). For judicial construction of §6(b)(5), *see* generally *American Textile Mfrs. Inst. v. Donovan*, 452 U.S. 490 (1981).

321. *See* Part I *supra*.

322. *See* Ames, *Identifying Environmental Chemicals Causing Mutagens and Cancer*, 204 SCIENCE 587 (1979).

323. 448 U.S. 607 (1980).

324. 448 U.S. at 635-37, 652-53. Based on this decision, OSHA is reconsidering its "generic carcinogen" standard.

tively few sensitive workers might be struck down as not being reasonably necessary or appropriate.

The Supreme Court's decision in *American Textile Manufacturers Institute, Inc. v. Donovan*³²⁵ presents a second potential stumbling block to an "absolute" standard. While rejecting the argument that "feasible" in section 6(b)(5) requires or permits cost-benefit analysis, the Court held that "feasible" includes both technological and economic considerations.³²⁶ A PEL designed to safeguard the health of relatively few sensitive workers might be struck down as economically infeasible.³²⁷

Despite the limitations on OSHA's authority, some OSHA health standards, such as those regulating arsenic,³²⁸ lead³²⁹ and acrylonitrile,³³⁰ offer protection for sensitive employees by requiring medical surveillance for all employees exposed to concentrations above the "action level."³³¹ If harmful effects are detected, personal protective equipment, administrative controls (such as shift rotation), medical removal or other measures may be taken.³³² Some other health standards, such as cotton dust³³³ and benzene,³³⁴ also have addressed, to some extent, the problems of sensitive workers.

At least one such standard has survived judicial scrutiny. In

325. 452 U.S. 490 (1981).

326. 452 U.S. at 506-22.

327. According to Assistant Secretary of Labor Thorne G. Auchter, every new standard must now meet four requirements: (1) it must be addressed to a hazard presenting a significant risk to workers; (2) it must be demonstrated that the standard will reduce the risk; (3) the standard must be technologically and economically feasible on an industry-wide basis; and (4) the standard must be the most efficient, or cost-effective, way to protect workers. See Shabecoff, *Safety Agency to Forgo "Cost-Benefit Analysis,"* N.Y. Times, July 13, 1981, at A11, col. 1.

328. 29 C.F.R. § 1910.1018 (1982).

329. 29 C.F.R. § 1910.1025 (1982).

330. 29 C.F.R. § 1910.1045 (1982).

331. An action level is an exposure level below the PEL that initiates an employer's legal requirement to conduct medical surveillance, environmental monitoring, or other measures. Failure to conduct required preplacement examinations may lead to citation. See General Engr. & Machine Works, 9 O.S.H. Cas. (BNA) 1936, 1981 O.S.H. Dec. (CCH) ¶ 25,402 (1981); Research Cottrell, Inc., 9 O.S.H. Cas. (BNA) 1489, 1981 O.S.H. Dec. (CCH) ¶ 25,284 (1981) (asbestos).

332. In *American Petroleum Institute*, the Supreme Court's plurality opinion supported the principle of action level medical screening, observing that it "could ensure that workers who were unusually susceptible . . . could be removed from exposure before they had suffered any permanent damage." 448 U.S. at 658.

333. See 29 C.F.R. § 1910.1043(h)(2)(iii) (1982) (adjusting pulmonary function scores for blacks because of "ethnic differences").

334. See *Industrial Union Dept., v. American Petroleum Inst.*, 448 U.S. 607, 700 (1980) (Marshall, J., dissenting) (standard designed to minimize effects of exposure for "susceptible individuals").

United Steelworkers of America v. Marshall,³³⁵ the lead industry argued that no feasible lead standard could protect fertile women and therefore that fertile women should be excluded from the workplace or "counseled out" on a case-by-case basis. The D.C. Circuit rejected this argument and held: (1) OSHA has statutory authority to protect the fetuses of lead-exposed working mothers; (2) lead also poses a severe threat to the reproductive capacity of male employees; and (3) OSHA proved that blood-lead levels contemplated by the standard could protect fertile women if supplemented by other provisions of the standard, such as medical removal protection.³³⁶

2. Employer Use of Medical Surveillance Information

In general, OSHA has not tried to regulate determinations by physicians of the medical fitness of employees.³³⁷ Moreover, OSHA provides little or no guidance to company medical personnel regarding fitness determinations and employment decisionmaking.³³⁸ From a purely medical standpoint, the identification of high-risk

335. 647 F.2d 1189 (D.C. Cir. 1980), *cert. denied*, 453 U.S. 913 (1981).

336. 647 F.2d at 1256-59 & n.96.

337. One notable exception concerns the "multiple physician review" procedure. In *Taylor Diving & Salvage Co. v. United States Dept. of Labor*, 599 F.2d 622 (5th Cir. 1979), the Fifth Circuit struck down the medical examination provision of the commercial diving standard. The standard required medical examination of employees who were to be exposed to hyperbaric conditions. An employee found unfit by the examining physician selected by the employer could seek a second opinion. If the first two physicians disagreed, a third physician, selected by the first two physicians, would resolve the issue. The employer bore all costs.

The Fifth Circuit, citing its decision in *API*, 581 F.2d 493 (5th Cir. 1978), *affd. sub nom. Industrial Union Dept. v. American Petroleum Inst.*, 448 U.S. 607 (1980), struck down the standard. "The employer has no control over the third doctor's fitness standards, so that the employer is prevented from setting higher standards for employees than the secondary examining doctors chose to set." 599 F.2d at 625. Thus, the court not only protected the employer's right to screen employees, but also precluded OSHA regulation of the screening procedures.

In *United Steelworkers v. Marshall*, 647 F.2d 1189 (D.C. Cir. 1980), *cert. denied*, 453 U.S. 913 (1981), the D.C. Circuit upheld the multiple physician review procedure of the lead standard. According to the court, the provision is authorized by § 6(b)(7)'s broad mandate to require examinations that can "most effectively determine" a threat to worker health. The decision may be limited to the lead standard. Because lead diseases are often difficult to diagnose, multiple physician review increases the chances of a correct diagnosis. In addition, company physicians frequently engage in the unsound and even harmful practice of prophylactic chelation to reduce the blood-lead levels of employees. The court distinguished *Taylor*, where employees could force the employer to retain employees considered unfit by its own physician and standards. In the lead standard, the multiple physician review procedure only prevented excess exposure of "leaded" employees in conjunction with the medical removal protection. The employer could still impose more stringent fitness standards. 647 F.2d at 1238-40 & n.76.

338. OSHA health standards require a wide range of medical histories, specific examinations and laboratory procedures for exposed employees. See notes 269-71 *supra* and accompanying text; see also OSHA Instruction CPL 2-2.30 (Nov. 14, 1980) (authorization for review of medical opinions). Nevertheless, OSHA has not published guidelines about what information obtained from a medical history is significant, what clinical symptoms are meaningful, or what test measurements indicate increased risk. OSHA standards simply require that these medical services be performed.

workers is extremely difficult. The most knowledgeable and experienced occupational physicians frequently differ in their judgments. Considering that only 11.4% of employees work in a plant with a full-time physician,³³⁹ the need for more concrete medical guidance is plain.

From a legal standpoint, OSHA's refusal to speak specifically to the question of medical screening leaves everyone in the dark. OSHA standards provide that in a preplacement examination the physician must consider a wide range of sensitive and controversial matters such as fertility, pregnancy, cigarette smoking, alcohol intake and genetic factors.³⁴⁰ The use of any of these factors may have serious legal consequences, yet OSHA provides medical, personnel or legal departments with no guidelines on how this information may or may not be used.

OSHA's only attempt to regulate the effects on employment of medical examinations involves medical removal protection (MRP) and rate retention (RR) of previously exposed employees. When a periodic medical examination reveals the adverse effects of exposure to the toxic substance, the employee is removed from further exposure until it is medically advisable for the employee to return. RR requires the maintenance of wage and benefit levels during the period of medical removal. Thus, MRP and RR attempt to protect employee health without reducing employee benefits, thereby shifting the economic burden to the employer and ultimately to the consumer.

MRP and RR provisions in OSHA health standards have become increasingly stringent. For example, the vinyl chloride standard provides for MRP, but not RR;³⁴¹ the asbestos standard provides for MRP if respirators are ineffective, but requires RR only if a position is available.³⁴² The lead standard contains the most sweeping MRP and RR provision.³⁴³ Employees whose blood-lead levels exceed the specified limit or who show symptoms of lead disease must be removed until the employees' blood-lead returns to an acceptable level and their general health is good. The employer may

339. 3 NOHS, *supra* note 226, at 30 (Survey Analysis and Supplemental Tables).

340. According to OSHA Instruction STD 1-23.4 (Aug. 22, 1980) the term "genetic factors" does not require genetic testing of any employee and does not require the exclusion of otherwise qualified employees from jobs on the basis of genetic testing.

341. 29 C.F.R. § 1910.1017(k)(5) (1982). *See generally* Society of Plastics Indus. v. OSHA, 509 F.2d 1301 (2d Cir. 1975).

342. 29 C.F.R. § 1910.1001(d)(2)(iv)(c) (1982). *See generally* Industrial Union Dept. v. Hodgson, 499 F.2d 467 (D.C. Cir. 1974).

343. *See* 29 C.F.R. § 1910.1025(k) (1982).

transfer employees to a non-lead plant, low-lead area of a plant, or may keep them in a high-lead area for a shorter work week. No matter how removed, employees retain their earnings rate, seniority and benefit levels for up to eighteen months. Upon return they must be restored to their original job status.

In *United Steelworkers of America v. Marshall*,³⁴⁴ the D.C. Circuit upheld the validity of the MRP and RR provision. The lead industry argued that Congress did not intend to mandate MRP and RR under OSHA because the Act is silent on this subject,³⁴⁵ while the Coal Mine Health and Safety Act of 1969 (CMHSA),³⁴⁶ passed the year before OSHA, contained an MRP provision. The court rejected this argument, noting that the CMHSA covered a single industry and was drafted with much greater specificity than OSHA.³⁴⁷ The industry next argued that the provision violated section 4(b)(4)'s prohibition on OSHA interference with workers' compensation. Although acknowledging the "seriousness" of this argument,³⁴⁸ the court noted the limited duration and scope of RR benefits,³⁴⁹ and indicated that fewer workers will benefit from this provision as the PEL is lowered.³⁵⁰ Finally, the court rejected the argument that MRP and RR violate the national labor policy of leaving all substantive provisions of labor-management relations to collective bargaining. Simply because earnings protection is a mandatory subject of bargaining and could be adopted through collective bargaining does not mean OSHA has no authority to mandate such a program.³⁵¹

In *American Textile Manufacturers Institute, Inc. v. Donovan*,³⁵² the Supreme Court struck down the MRP and RR provision of the cotton dust standard as promulgated and remanded it to the Secretary for further consideration. Although the Court did not decide whether OSHA has the statutory authority to promulgate *any* regu-

344. 647 F.2d 1189 (D.C. Cir. 1980), *cert. denied*, 453 U.S. 913 (1981).

345. 647 F.2d at 1232.

346. Pub. L. No. 91-173, 83 Stat. 742 (codified as amended at 30 U.S.C. §§ 801-960 (1976 & Supp. I 1977)).

347. 647 F.2d at 1232.

348. 647 F.2d at 1234-35; *see also* 647 F.2d at 1319-20 (MacKinnon, J., dissenting).

349. For example, there is no payment for medical expenses.

350. 647 F.2d at 1236.

351. 647 F.2d at 1236; *cf.* *Salazar v. Marathon Oil Co.*, 90 Lab. Cas. (CCH) ¶ 33,985 (S.D. Tex. 1980) (no violation of Equal Pay Act where employer paid long-time male employees at higher rates than female employees performing same job where male employees were medically removed with rate retention from prior job).

352. 452 U.S. 490 (1981).

lation containing MRP and RR,³⁵³ the Court held that OSHA failed to publish a statement of reasons³⁵⁴ explaining why the MRP and RR provisions were needed to protect worker health and safety.³⁵⁵

Besides OSHA standards, the Act's general duty clause, section 5(a)(1), may be used to protect high-risk workers. In *American Cyanamid Co.*,³⁵⁶ the Occupational Safety and Health Review Commission faced the question of whether the employer's policy, which excluded from certain employment all fertile women aged sixteen to fifty, constituted a "hazard" under section 5(a)(1) of OSHA.³⁵⁷ Five women employed in the lead pigments department submitted to surgical sterilization in order to retain their positions.³⁵⁸ A majority of the Commission held that "Congress did not intend the Act to apply

353. 452 U.S. at 537-38. In *United Steelworkers v. Marshall*, 647 F.2d 1189 (D.C. Cir. 1980), *cert. denied*, 453 U.S. 913 (1981), the D.C. Circuit held that "a program of earnings protection for removed workers lies within OSHA's statutory power." 647 F.2d at 1236-37. The court then held that MRP is a legitimate exercise of that power. 647 F.2d at 1237-38.

354. Section 6(e), 29 U.S.C. § 655(e) (1976), requires the Secretary of Labor to publish a statement of reasons in the Federal Register to explain the basis for, among other things, agency rulemaking activity.

355. 452 U.S. at 537-38. OSHA's reason for promulgating the MRP and RR provisions, which the Court termed "*post hoc* rationalization," 452 U.S. at 539, was that employees are reluctant to participate in medical surveillance programs or to disclose symptoms of disease if they fear being discharged or transferred to a lower-paying job. 452 U.S. at 539. The D.C. Circuit held that MRP under the lead standard was reasonable based on this consideration and that this rationale was sufficiently articulated in the statement of reasons. *United Steelworkers v. Marshall*, 647 F.2d 1189, 1237-38 (D.C. Cir. 1980), *cert. denied*, 453 U.S. 913 (1981); see Note, *The Validity of Medical Removal Protection in OSHA's Lead Standard*, 59 TEX. L. REV. 1461 (1981).

The case is mainly noted for its holding that § 6(b)(5), 29 U.S.C. § 655(b)(5) (1976), does not require or permit the Secretary to engage in cost-benefit analysis in promulgating standards dealing with toxic substances or harmful physical agents, but it would be a mistake to dismiss this aspect of the decision as merely the Court's response to a procedural blunder by the Secretary. According to the Court, "the Act in no way authorizes OSHA to repair general unfairness to employees that is unrelated to achievement of health and safety goals . . ." 452 U.S. at 540. Therefore, any wide-ranging attempt by OSHA to improve employment terms and opportunities for high-risk workers may fall outside OSHA's authority.

It is not clear whether the Court deliberately chose not to limit this statement to *occupational* "health and safety goals." Were this choice of words deliberate, it would have major implications for other types of OSHA cases. It is unlikely, however, that this dictum would be construed as authorizing OSHA to remedy employee safety and health problems that are not "directly" or "indirectly" related to their employment.

356. 9 O.S.H. Cas. (BNA) 1596, 1981 O.S.H. Dec. (CCH) ¶ 25,338 (1981), *petition for review filed*, No. 81-1687 (D.C. Cir. June 22, 1981).

357. Section 5(a)(1) (1976), provides:

Sec. 5(a) Each employer—

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.

See generally M. ROTHSTEIN, OCCUPATIONAL SAFETY AND HEALTH LAW ch. 6 (2d ed. 1983).

358. An employment discrimination case brought under Title VII of the Civil Rights Act of 1964, 42 U.S.C. § 2000e (1976), as amended by the 1978 Pregnancy Amendments, 42 U.S.C. § 2000e(k) (Supp. III 1979), is still pending. *Christman v. American Cyanamid Co.*, No. 80-0024 (N.D. W. Va., filed Jan. 30, 1980); see notes 539-65 *infra* and accompanying text.

to every conceivable aspect of employer-employee relations and that due to its unique characteristics this condition of employment is not a hazard within the meaning of the general duty clause."³⁵⁹ "Hazard" was defined to mean processes and materials which cause injury and disease by operating directly upon employees as they engage in work or work-related activities.³⁶⁰

Section 8(c)(3)³⁶¹ directs the Secretary to issue regulations requiring employers "to maintain accurate records of employee exposures to potentially toxic materials or harmful physical agents which are required to be monitored or measured under section 6." In 1980 OSHA promulgated its final rule granting employees a right of access to exposure and medical records. The primary purpose of this important regulation is "to enable workers to play a meaningful role in their own health management."³⁶² Although the access regulation is being challenged in court,³⁶³ and has also been criticized for, among other reasons, encroaching upon employee privacy, trade

359. 9 O.S.H. Cas. (BNA) at 1599, 1981 O.S.H. DEC. (CCH) at 31,430 (footnote omitted); *cf.* Union Carbide Corp., 1981 O.S.H. DEC. (CCH) ¶ 25,751 (1981) (ALJ) (affirming § 5(a)(1) violation based on employer's assigning a sensitized employee to an area with exposure to the sensitizing chemical).

360. In dissent, Commissioner Cottine charged that the sterilizations resulted from a condition of employment imposed by the employer, and therefore should be considered a hazard subject to the "general duty clause" — § 5(a)(1). Moreover, he cautioned that "the exclusion of fertile women from certain employment invites employers to exclude other highly susceptible groups from employment when the effect varies among the exposed classes of individuals." 9 O.S.H. Cas. (BNA) at 1605, 1981 O.S.H. DEC. (CCH) at 31,436.

361. 29 U.S.C. § 657(c)(3) (1976).

362. 45 Fed. Reg. 35,213 (1980) (codified at 29 C.F.R. § 1910.20 (1982)). Workers' "right to know" laws, requiring employers to inform employees of exposure to toxic and carcinogenic substances, have been enacted in at least nine states. *See* CAL. LAB. CODE § 6408 (Deering 1976); CONN. GEN. STAT. § 82-251 (effective July 1, 1983); ME. REV. STAT. ANN. tit. 26, §§ 1701-1707 (West Supp. 1982); MASS. ANN. LAWS ch. 149, §§ 142A-142B (Michie/Law. Co-op. 1976); MICH. COMP. LAWS ANN. § 408.1011(c) (West Supp. 1982); N.Y. LAB. LAW §§ 875-883 (Supp. 1982); WASH. REV. CODE § 49.17.220 (1981); W. VA. CODE § 21-3-18 (1981); WIS. STAT. ANN. §§ 101.58-101.599 (West Supp. 1982); *see also* West Virginia Mfrs. Assn. v. West Virginia, 542 F. Supp. 1247 (S.D. W. Va. 1982) (upholding constitutionality of West Virginia "right to know" law).

363. *See* Louisiana Chem. Assn. v. Bingham, 657 F.2d 777 (5th Cir. 1981). On July 13, 1982, OSHA proposed revisions of the access to exposure and medical records standard. 47 Fed. Reg. 30,420 (1982) (to be codified at 29 C.F.R. § 1910.20). The following six proposals would "relax" some of the requirements of the standard: 1) to be covered by the standard, an employee must have direct, rather than incidental, exposure to toxic substances; 2) exposure records would be defined to include only environmental and biological monitoring results and material safety data sheets, but not purchase orders or other records showing the identity of a substance; 3) the standard would apply only to 3,492 substances in the NIOSH Registry of Toxic Effects of Chemical Substances (RTECS) that meet certain toxicity standards, rather than all 39,000 substances in the RTECS; 4) medical records would have to be retained for the duration of employment plus five years, or for 30 years after the beginning of employment, whichever is longer, rather than duration of employment plus 30 years; 5) x-rays would be allowed to be stored on microfilm; and 6) employers would be permitted to seek monetary damages for breaches of trade secret confidentiality agreements.

secrets and corporate medical practice,³⁶⁴ one can see how a more far-reaching medical record standard could protect high-risk workers.

The present standard allows employees to see their medical records. Mere access, however, may not help some employees. For example, an employee's medical file may contain the diagnosis of a disease, such as epilepsy or heart disease, which subsequent examination by the employee's own physicians proves to be inaccurate. Nevertheless, the employee's medical file may contain only the initial erroneous diagnosis. Few legal safeguards prevent dissemination of employee medical files both within and without a company.³⁶⁵ Consequently, the employee may receive adverse treatment in insurance, employment opportunity, credit and other matters based on the contents of his or her medical file.

The obvious solution is to give employees the right to amend their files. The next step would be to prohibit employers from discriminating on the basis of erroneous information after it had been corrected.³⁶⁶ Finally, if an employer may not discriminate based on erroneous medical data, discrimination based on *unreliable* medical data could be prohibited.³⁶⁷ This would, however, be tantamount to permitting all employees to contest the reasonableness of any medically related company decision, raising complex scientific questions of expert opinion, laboratory procedures and diagnoses. A new procedural system would be needed to adjudicate these claims.³⁶⁸ Prac-

364. See Rose, *Conflicting Views on the Issue of Accessibility*, OCCUP. HEALTH & SAFETY, Jan. 1981, at 33; *Controversy in Medicine: Access to Employee Health Records*, 241 J. A.M.A. 777 (1979).

365. See notes 609-22 *infra* and accompanying text.

366. An antidiscrimination provision could be promulgated pursuant to § 11(c), 29 U.S.C. § 660(c) (1976), or it could be based solely on the "revised" theoretical access regulation. Unionized employees would probably be protected from wrongful discharge through the grievance arbitration process. See Wolkinson, *Arbitration and the Employment Rights of the Physically Disadvantaged*, 36 ARB. J., Mar. 1981 at 23; Part III-D *infra*. As of 1976, however, only 24.8% of nonagricultural employees were unionized. BUREAU OF THE CENSUS, U.S. DEPARTMENT OF COMMERCE, STATISTICAL ABSTRACT OF THE UNITED STATES 1979, at 427, and nonunionized employees can be, in almost all cases, terminated at will. See notes 645-59 *infra* and accompanying text.

367. See notes 176-78 *supra* and accompanying text.

368. A new procedural system would be needed to consider these claims. The Occupational Safety and Health Review Commission, already backlogged, see Rothstein, *OSHA After Ten Years: A Review and Some Proposed Reforms*, 34 VAND. L. REV. 71, 115-18 (1981), is not equipped to handle these cases. Any arbitration system would need to be part of a sweeping new program for protecting at-will employees from wrongful discharge. See generally Peck, *Unjust Discharges From Employment: A Necessary Change in the Law*, 40 OHIO ST. L.J. 1 (1979) (discussing need for legislation to protect "at-will" employees from unjust discharge); Summers, *Individual Protection Against Unjust Dismissal: Time for A Statute*, 62 VA. L. REV. 481 (1976) (discussing the feasibility of protecting employees from unjust disciplinary action through arbitration).

tical and political considerations suggest that new worker rights in this area are unlikely to be achieved via the access regulation.

The Act's antidiscrimination clause offers an alternative approach. Section 11(c)(1)³⁶⁹ provides, in pertinent part: "No person shall discharge or in any manner discriminate against any employee . . . because of the exercise of such employee on behalf of himself or others of any right afforded by this Act." Because this is the only "job security" section of the Act, it deserves attention as a possible means of protecting high-risk workers. This provision and OSHA's regulations implementing it³⁷⁰ have been broadly construed by the courts.³⁷¹ Moreover, section 11(c)(2)³⁷² authorizes the Secretary to bring an action on behalf of any discriminatee in United States district court to restrain violations of section 11(c)(1) and to obtain all appropriate relief, including reinstatement and back pay.³⁷³

OSHA regulations³⁷⁴ provide that disciplinary measures taken by an employer solely in response to an employee's refusal to comply with safety and health regulations is not considered discrimination in violation of section 11(c). An argument could be made that section 11(c) prohibits the discharge of an employee for violating the Act, when, in fact, the employee has not violated the Act. Similarly, this would prohibit the discharge of an employee when the employer erroneously claims that an employee's employment violates the Act.³⁷⁵ Because OSHA regulations define "employee" to include job applicants,³⁷⁶ applicants could argue that refusal to hire a high-risk worker in the erroneous belief that hiring that individual would violate the Act would violate section 11(c).

Even if OSHA wanted to extend its antidiscrimination protec-

369. 29 U.S.C. § 660(c)(1) (1976).

370. 29 C.F.R. Part 1977 (1982).

371. *See, e.g., Whirlpool Corp. v. Marshall*, 445 U.S. 1, 8-13 (1980) (upholding validity of 29 C.F.R. § 1977.12(b)(2) (1974), prohibiting discrimination against employee who walks off the job because of good faith belief that performing assigned work would involve a real danger of death or serious physical injury, where the employee was unable to obtain correction of the condition by the employer, and there was insufficient time to eliminate the danger through resort to regular statutory enforcement channels). *See generally* M. ROTHSTEIN, *supra* note 357, at § 208.

372. 29 U.S.C. § 660(c)(2) (1976).

373. Individuals may not proceed on their own, even if the Secretary refuses to bring an action on their behalf. *Taylor v. Brighton Corp.*, 616 F.2d 256, 263-64 (6th Cir. 1980).

374. 29 C.F.R. § 1977.22 (1982).

375. For example, an employee might be discharged because the employer erroneously considers the employee likely to manifest symptoms indicative of unlawfully high exposure levels. The employer action could even be taken after a periodic biological monitoring of the employee, as mandated by the OSHA standard, indicated an "abnormal" reading.

376. *See* 29 C.F.R. § 1977.5(b) (1982) ("For purposes of section 11(c), even an applicant for employment could be considered an employee.").

tions to the limit of its authority, such a strategy offers little hope. The agency is badly overworked³⁷⁷ and under-funded.³⁷⁸ Recent budget cuts at OSHA³⁷⁹ make it even less likely that new and complex antidiscrimination protections could be enforced.

3. NIOSH

The National Institute for Occupational Safety and Health (NIOSH), established by section 22 of the Act,³⁸⁰ acts as OSHA's "research arm." Based on its expertise and express statutory authority NIOSH could conduct extensive research on medical screening for susceptibility to occupational illness. NIOSH could analyze the scientific basis for determining the risk of exposure to individuals, certify approved screening procedures and develop criteria for evaluating test and examination results. NIOSH, however, has no enforcement authority. Measures to protect individuals from arbitrary or unfair treatment must eventually be developed by OSHA or other agencies.

The Occupational Safety and Health Act was enacted to protect American workers. Congress intended that in eliminating workplace hazards all factors be considered, including psychological factors,³⁸¹ motivational and behavioral factors,³⁸² and medical factors.³⁸³ OSHA's regulation of workplace hazards has almost totally overlooked the important role of occupational medical practices³⁸⁴ and, in particular, medical screening procedures.

Based on section 6(b)(7) and section 20(a)(5), OSHA and NIOSH have statutory authority to implement the following recommendations:

- (1) research and identify those substances likely to cause adverse reactions in sensitive employees;

377. In fiscal year 1980, OSHA received over 3,500 discrimination complaints, which were handled by a staff of only 59. During the same year, the case backlog grew from 1,559 to over 2,100. More importantly, 446 cases found to be meritorious could not be filed in district court because of inadequate resources. Rothstein, *supra* note 368, at 132-33.

378. *Id.* at 133.

379. See 11 O.S.H. REP. (BNA) 419-20 (1981) (detailing staff reductions).

380. 29 U.S.C. § 671 (1976).

381. § 2(b)(5), 29 U.S.C. § 651(b)(5) (1976); § 20(a)(1), 29 U.S.C. § 669(a)(1) (1976).

382. § 20(a)(4), 29 U.S.C. § 651(b)(6) (1976); § 20(a)(5), 29 U.S.C. § 669(a)(5) (1976).

383. § 2(b)(6), 29 U.S.C. § 651(b)(6) (1976); § 20(a)(5), 29 U.S.C. § 669(a)(5) (1976).

384. The lead standard's prohibition of prophylactic chelation, 29 C.F.R. § 1910.1025(j)(4) (1982), is a notable exception to OSHA's history of noninvolvement with regulating occupational medical practices. See generally *United Steelworkers v. Marshall*, 647 F.2d 1189, 1237 (D.C. Cir. 1980), *cert. denied*, 453 U.S. 913 (1981).

- (2) research and identify those individuals most likely to be sensitive to various substances found in the workplace;
- (3) research and certify those testing and screening procedures that have proven medical validity and confirmed predictive value;³⁸⁵
- (4) research and delineate the necessary guidelines for evaluating the results of approved testing and screening procedures;³⁸⁶
- (5) research and develop medical criteria for using testing and screening data in reaching overall medical conclusions, giving due consideration to the effects of all relevant information, including personal history, multiple factor interaction and synergistic effects;
- (6) investigate what protective policies, such as medical removal protection and rate retention, are reasonably necessary or appropriate to protect the safety and health of high-risk workers; and
- (7) develop detailed guidelines for the permissible personnel action that may be taken as a result of employee medical examinations.

Until OSHA and NIOSH take the initiative to regulate medical screening, employees must seek relief from discrimination under other statutes.

B. *The Rehabilitation Act and State Fair Employment Laws*

1. *Background*

The Rehabilitation Act of 1973³⁸⁷ was the first comprehensive federal effort to bring handicapped individuals within the mainstream of American life.³⁸⁸ The Act sought, among other things, to extend "the guarantee of equal opportunity" to the handicapped.³⁸⁹ Sections 503³⁹⁰ and 504³⁹¹ bear directly on the employment rights of the handicapped.³⁹²

385. Some degree of certification is already done. For example, under the lead standard all blood-level analyses must be conducted by a laboratory licensed or approved by the Centers for Disease Control. 29 C.F.R. § 1910.1025(j)(2)(c)(iii) (1982). NIOSH also has been involved in testing and certifying respirators. See 1 EMPL. S. & H. GUIDE (CCH) ¶ 1,046A (1981) (list of respirators approved by NIOSH and MSHA).

386. *Id.*

387. 29 U.S.C. §§ 701-796 (1976 & Supp. III 1979).

388. Most of the earlier laws were post-war acts to aid returning members of the armed services, such as the vocational Rehabilitation Acts, Pub. L. No. 66-236, 41 Stat. 735 (1920), the La Follette Barden Act, Pub. L. No. 78-113, 57 Stat. 374 (1943), the Vocational Rehabilitation Amendments of 1954, Pub. L. No. 83-565, 68 Stat. 652 (1954) (current version at 29 U.S.C. §§ 31-42 (1976)), and the Vietnam Era Veterans Readjustment Assistance Act of 1974, 38 U.S.C. § 2012 (1976). Other laws attempted to aid the needy handicapped by providing jobs considered to be suitable for the handicapped, as illustrated by the Randolph-Sheppard Act of 1936, 20 U.S.C. §§ 107-107f (1976), which licensed qualified blind persons to operate vending stands in government buildings.

389. 29 U.S.C. § 701 (Supp. III 1979).

390. 29 U.S.C. § 793 (1976).

391. 29 U.S.C. § 794 (1976).

392. § 501, 29 U.S.C. § 791 (1976), protects federal government employees against discrimination on the basis of handicap. See *Shirey v. Devine*, 670 F.2d 1188, 1204 (D.C. Cir. 1982); *Prewitt v. United States Postal Serv.*, 662 F.2d 292, 301-03 (5th Cir. 1981). In addition, largely

Section 503 provides that any contract in excess of \$2500 entered into with any federal department or agency shall contain a provision requiring that the contracting party take affirmative action to employ and promote qualified handicapped individuals.³⁹³ The term "handicapped individual" is defined as "any person who (A) has a physical or mental impairment which substantially limits one or more of such person's major life activities, (B) has a record of such an impairment, or (C) is regarded as having such an impairment."³⁹⁴ Based on this broad statutory definition, and on the definition contained in the implementing regulations,³⁹⁵ as many as forty million to sixty-eight

as a result of the federal initiative, 41 states and the District of Columbia have enacted laws prohibiting discrimination in employment on the basis of handicap. FLA. CONST. art. I, § 2; ALASKA STAT. § 18.80.220(a)(1) (1981); COLO. REV. STAT. § 24-34-801 (1982); CONN. GEN. STAT. §§ 1-1f, 46(a)-60 (1981); D.C. CODE ANN. § 6-1705 (1981); FLA. STAT. ANN. § 413.08(3) (1979); GA. CODE ANN. §§ 66-501 to -506 (Supp. 1982); HAWAII REV. STAT. §§ 378-1(7), 378-2, 378-9 (1976 & Supp. 1980); ILL. Human Rights Act, ILL. ANN. STAT. ch. 68, §§ 1-102(A), 1-103(I), 2-102 (Smith-Hurd Supp. 1981); IND. CODE §§ 22-9-11 to 22-9-13 (1980); IOWA CODE ANN. §§ 601A.2(11), .6(1) (1975); KAN. STAT. ANN. §§ 44-1002(j), 44-1009(a)(1) (1981); KY. REV. STAT. §§ 207.130(2), .150(1) (1982); LA. REV. STAT. ANN. §§ 46-2251 to -2256 (West 1982); ME. REV. STAT. ANN. tit. 5, §§ 4553.7-A, 4572 (West 1979); MD. ANN. CODE art. 49B, §§ 49B-15(g), 16 (1957 & Repl. vol. 1979); MASS. ANN. LAWS ch. 149, § 24K (Michie/Law. Co-op. 1976); MICH. COMP. LAWS §§ 37.1103, 37.1202 (1979); MINN. STAT. §§ 363.01(25), .03(2) (1980); MISS. CODE ANN. § 43-6-15 (1981); MONT. CODE ANN. §§ 49-1-102, 49-2-101(13), -101(16), 49-2-303 (1981); NEB. REV. STAT. §§ 48-1102(8), -1104, -1108(1) (1978); NEV. REV. STAT. §§ 613.330, .350(1), .350(2) (1979); N.H. REV. STAT. ANN. §§ 354-A:3(13), -A:8 (Supp. 1981); N.J. STAT. ANN. §§ 10:5-4.1, -5(q) (West Supp. 1981); N.M. STAT. ANN. §§ 28-10-9 to 28-10-12 (1978); N.Y. EXEC. LAW §§ 292(21), 296(1) (McKinney 1982); N.C. GEN. STAT. § 128-15.3 (1981); OHIO REV. CODE ANN. §§ 4112.01(13), .02(A) (Page 1980); OKLA. STAT. tit. 25, §§ 1301.4, 1302-10 (1981); OR. REV. STAT. §§ 659.400(2), .425 (1981); PA. STAT. ANN. tit. 43, §§ 954(p), 955 (Purdon Supp. 1981); R.I. GEN. LAWS §§ 28-5-6(H), 28-5-7 (1979); S.D. CODIFIED LAWS ANN. § 3-6A-15 (1980); TENN. CODE ANN. § 8-50-103 (1980); TEX. HUM. RES. CODE ANN. § 121.003 (Vernon 1980); UTAH CODE ANN. § 34.35-6 (Supp. 1981); VT. STAT. ANN. tit. 21, § 495 (Supp. 1982); VA. CODE § 40.1-28.7 (1981); WASH. REV. CODE § 49.60.180 (1981); W. VA. CODE § 5-11-2 (Michie Supp. 1982); WIS. STAT. §§ 111.32(5)(a), (f) (1979-1980).

Unlike the federal law, which only applies to federal contractors and recipients of federal funds, state laws prohibiting employment discrimination against the handicapped actually have a wider coverage and usually only exempt small employers. Therefore, state law is much more important in handicap cases than in other kinds of discrimination cases. *See generally* Leap, *State Regulation and Fair Employment of the Handicapped*, 5 EMPL. REL. L.J. 382 (1979-80).

393. 29 U.S.C. § 793(a) (1976). By regulation, any contractor holding a contract of \$50,000 or more and having 50 or more employees must file a written affirmative action program with the OFCCP within 120 days of commencement of the contract. 41 C.F.R. § 60-741.5 (1982). In addition, § 402 of the Vietnam Era Veterans Readjustment Assistance Act of 1974, 38 U.S.C. § 2012 (1976), provides that persons with federal contracts of \$10,000 or more must take affirmative action to hire qualified disabled veterans.

394. 29 U.S.C. § 706(6) (1976).

395. 41 C.F.R. § 60-741 & app. A (1982) further defines "handicapped individual" as follows:

APPENDIX A — GUIDELINES ON THE APPLICATION OF THE DEFINITION "HANDICAPPED INDIVIDUAL"

The Rehabilitation Act of 1973, as amended, defines a handicapped individual for the purposes of the program as any person who has a physical or mental impairment which

million handicapped persons are covered by the statute.³⁹⁶

Responsibility for enforcing section 503 is vested in the Office of Federal Contract Compliance Programs (OFCCP) in the Department of Labor.³⁹⁷ Individuals who believe they have been discriminated against may only pursue their administrative remedies through the OFCCP; most courts have held that section 503 creates no express or implied private right of action.³⁹⁸

Section 504 provides that no otherwise qualified handicapped individual shall, solely by reason of handicap, be excluded from the

substantially limits one or more of such person's major life activities, has a record of such impairment, or is regarded as having such an impairment.

"Life activities" may be considered to include communication, ambulation, selfcare, socialization, education, vocational training, employment, transportation, adapting to housing, etc. For the purpose of section 503 of the Act, primary attention is given to those life activities that affect employability.

The phrase "substantially limits" means the degree that the impairment affects employability. A handicapped individual who is likely to experience difficulty in securing, retaining or advancing in employment would be considered substantially limited.

"Has a record of such an impairment" means that an individual may be completely recovered from a previous physical or mental impairment. It is included because the attitude of employers, supervisors, and coworkers toward that previous impairment may result in an individual experiencing difficulty in securing, retaining, or advancing in employment. The mentally restored and those who, for example, have had heart attacks or cancer often experience such difficulty. Also, this part of the definition would include individuals who may have been erroneously classified and may experience discrimination based on this misclassification. This group may include persons such as those who have been misclassified as mentally retarded or mentally restored.

"Is regarded as having such an impairment" refers to those individuals who are perceived as having a handicap, whether an impairment exists or not, but who, because of attitudes or for any other reason, are regarded as handicapped by employers or supervisors who have an effect on the individual's securing, retaining or advancing in employment.

396. *Uncertainty in the Figures*, N.Y. Times, Feb. 13, 1977, § 4, at 8, col. 1, cited in Wolff, *Protecting the Disabled Minority: Rights and Remedies under Section 503 and 504 of the Rehabilitation Act of 1973*, 32 ST. LOUIS U. L.J. 25, 30 (1978).

397. 29 U.S.C. § 793(b) (1976); 41 C.F.R. § 60-1.2, § 60-741 (1982). See generally Lovell, *New Directions for OFCCP*, 32 LAB. L.J. 763 (1981).

398. All eight circuits that have considered the issue have held that the administrative remedies are exclusive. *Beam v. Sun Shipbuilding & Drylock Co.*, 679 F.2d 1077 (3d Cir. 1982); *Davis v. United Airlines, Inc.*, 622 F.2d 120 (2d Cir. 1981), cert. denied, 102 S. Ct. 2045 (1982); *Rogers v. Frito-Lay, Inc.*, 611 F.2d 1074 (5th Cir. 1979), cert. denied, 449 U.S. 888 (1980); *Hoopes v. Equifax, Inc.*, 611 F.2d 134 (6th Cir. 1979); *Simpson v. Reynolds Metals Co.*, 629 F.2d 1226 (7th Cir. 1980); *Simon v. St. Louis County*, 656 F.2d 316 (8th Cir. 1981); *Fisher v. City of Tucson*, 663 F.2d 861 (9th Cir. 1981), cert. denied, 103 S. Ct. 178 (1982); *Coleman v. Darden*, 595 F.2d 533 (10th Cir.), cert. denied, 444 U.S. 927 (1979). At least six district court cases, however, have held that there is an implied private right of action under § 503. *Davis v. Modine Mfg. Co.*, 526 F.Supp. 943 (D. Kan. 1981); *California Paralyzed Veterans Assn. v. FCC*, 496 F. Supp. 125 (C.D. Cal. 1980); *Clarke v. FELEC Servs., Inc.*, 489 F. Supp. 165 (D. Alaska 1980); *Hart v. Alameda County*, 485 F. Supp. 66 (N.D. Cal. 1980); *Chaplin v. Consolidated Edison Co.*, 483 F. Supp. 1165 (S.D.N.Y. 1979); *Drennon v. Philadelphia Gen. Hosp.*, 428 F. Supp. 809 (E.D. Pa. 1977); cf. *Manuel v. International Harvester Co.*, 23 Fair Empl. Prac. Cas. (BNA) 1477 (N.D. Ill. 1980) (no private right of action under § 503, but right to sue as third party beneficiary of employer's contract with the government which contained the § 503 affirmative action obligation). See generally Note, *Implying a Cause of Action Under Section 503 of the Rehabilitation Act of 1973*, 79 MICH. L. REV. 1093 (1981).

participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.³⁹⁹ Section 504, unlike section 503, applies to all federal programs, regardless of the amount of financial assistance received.⁴⁰⁰ Three million firms — about half the businesses in the country — may be covered by the Act.⁴⁰¹ Section 504 incorporates the same broad statutory definition of handicap as section 503,⁴⁰² further expanded by regulations implementing section 504.⁴⁰³ Other regulations,⁴⁰⁴ require that procedures for enforcement of section 504 by each federal agency must be the same as those used to implement Title VI of the Civil Rights Act of 1964.⁴⁰⁵

Although the Supreme Court has not yet specifically addressed the issue,⁴⁰⁶ many courts hold that section 504 impliedly confers a private right of action on behalf of otherwise qualified individuals

399. 29 U.S.C. § 794 (1976).

400. Under HEW's model regulations, recipients with fewer than 15 employees are exempt from some administrative responsibilities. 45 C.F.R. § 84.7-84.9 (1982).

401. "Hire the Handicapped": *Now More Than Just a Slogan*, St. Louis Post-Dispatch, May 15, 1977, at 6B, cited in Wolff, *supra* note 396, at 26 n.9.

402. See text at note 394 *supra*.

403. 41 C.F.R. § 104.3(j) (1982) provides:

(j) "Handicapped person." (1) "Handicapped person" means any person who (i) has a physical or mental impairment which substantially limits one or more major life activities, (ii) has a record of such an impairment, or (iii) is regarded as having such an impairment.

(2) As used in paragraph (j)(1) of this section, the phrase:

(i) "Physical or mental impairment" means (A) any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more of the following body systems: neurological; musculoskeletal; special sense organs; respiratory, including speech organs; cardiovascular; reproductive, digestive, genito-urinary; hemic and lymphatic; skin; and endocrine; or (B) any mental or psychological disorder, such as mental retardation, organic brain syndrome, emotional or mental illness, and specific learning disabilities.

(ii) "Major life activities" means functions such as caring for one's self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working.

(iii) "Has a record of such an impairment" means has a history of, or has been misclassified as having, a mental or physical impairment that substantially limits one or more major life activities.

(iv) "Is regarded as having an impairment" means (A) has a physical or mental impairment that does not substantially limit major life activities but that is treated by a recipient as constituting such a limitation; (B) has a physical or mental impairment that substantially limits major life activities only as a result of the attitudes of others toward such impairment; or (C) has none of the impairments defined in paragraph (j)(2)(i) of this section but is treated by a recipient as having such an impairment.

See also 45 C.F.R. § 85.31 (1982).

404. 45 C.F.R. § 84.61 (1982).

405. 42 U.S.C. § 2000d (1976) (prohibiting discrimination on the basis of race, color, or national origin in any program receiving federal financial assistance). The procedural regulations are codified at 34 C.F.R. §§ 100.6-100.10, 101.1-101.131 (1982).

406. See *University of Texas v. Camenisch*, 451 U.S. 390 (1981); *Southeastern Community College v. Davis*, 442 U.S. 397, 404 n.5 (1979).

injured by discriminatory practices of federal recipients.⁴⁰⁷ Further, grievants need not exhaust administrative remedies before bringing the private action.⁴⁰⁸ Some courts hold, however, that handicapped persons cannot bring private claims for employment discrimination under section 504 unless a primary objective of the federal financial assistance is to provide employment.⁴⁰⁹

Unlike section 503, which statutorily mandates affirmative action for the handicapped, section 504 only prohibits discrimination against otherwise qualified individuals. The guideline regulations implementing section 504 provide for some affirmative action requirements.⁴¹⁰ In *Southeastern Community College v. Davis*,⁴¹¹ however, the Supreme Court cast doubt on the extent to which affirmative action may be imposed.⁴¹²

407. *Pushkin v. Regents of Univ. of Colo.*, 658 F.2d 1372 (10th Cir. 1981); *Kling v. County of Los Angeles*, 633 F.2d 876 (9th Cir. 1980); *Baker v. Bell*, 630 F.2d 1046 (5th Cir. 1980); *Camenisch v. University of Texas*, 616 F.2d 127 (5th Cir. 1980), *vacated and remanded as moot*, 451 U.S. 390 (1981); *NAACP v. Medical Center, Inc.*, 599 F.2d 1247 (3d Cir. 1979); *Davis v. Southeastern Community College*, 574 F.2d 1158 (4th Cir. 1978), *revd. on other grounds*, 442 U.S. 397 (1979); *Leary v. Crapsey*, 566 F.2d 863 (2d Cir. 1977); *United Handicapped Fedn. v. Andre*, 558 F.2d 413 (8th Cir. 1977); *Kampmeier v. Nyquist*, 553 F.2d 296 (2d Cir. 1977); *Lloyd v. Regional Transp. Auth.*, 548 F.2d 1277 (7th Cir. 1977).

The courts have based their decisions on three main reasons. First, they have applied the four factors of *Cort v. Ash*, 422 U.S. 66, 78 (1975), which are used as indicators of a congressional intent to make a remedy available to a special class of litigants. Second, language analogous to § 504 is found both in Title VI of the Civil Rights Act of 1964, 42 U.S.C. § 2000d (1976), and in Title IX of the Education Amendments Act of 1972, 20 U.S.C. § 1681 (1976). These sections have been held to create a private right of action. *See Cannon v. University of Chicago*, 441 U.S. 677, 694-703 (1979). Third, the Rehabilitation, Comprehensive Services, and Developmental Disabilities Amendments of 1978, Pub. L. No. 95-602, 92 Stat. 2955, added § 505, 29 U.S.C. § 794a (Supp. III 1979), which provides that in actions brought under § 504 the same remedies are available as in actions brought under Titles VI and VII of the Civil Rights Act of 1964. In addition, the prevailing party, other than the United States, may be awarded reasonable attorney fees. 29 U.S.C. § 794a(b) (Supp. III 1979).

408. *E.g.*, *Pushkin v. Regents of Univ. of Colo.*, 658 F.2d 1372, 1380-82 (10th Cir. 1981); *Swan v. Stoneman*, 635 F.2d 97 (2d Cir. 1980); *Kling v. County of Los Angeles*, 633 F.2d 876, 899 (9th Cir. 1980).

409. *Scanlon v. Atascadero State Hosp.*, 677 F.2d 1271 (9th Cir. 1982); *United States v. Cabrini Medical Center*, 639 F.2d 908 (2d Cir. 1981); *Trageser v. Libbie Rehab. Center*, 590 F.2d 87 (4th Cir. 1978), *cert. denied*, 442 U.S. 947 (1979); *Carmi v. Metropolitan St. Louis Sewer Dist.*, 620 F.2d 672 (8th Cir.), *cert. denied*, 449 U.S. 892 (1980); *Sabol v. Board of Educ.*, 510 F. Supp. 892 (D.N.J. 1981); *cf. North Haven Bd. of Educ. v. Bell*, 102 S. Ct. 1912, 1926-27 (1982) (termination of federal funding for violation of Title IX of Education Amendments of 1972 must be "program specific"). *Contra Jones v. Metropolitan Atlanta Rapid Transit Auth.*, 681 F.2d 1376 (11th Cir. 1982), *petition for cert. filed*, 51 U.S.L.W. 3535 (U.S. Jan. 11, 1983) (No. 82-1159). *See generally Note, Implied Rights of Action Under the Rehabilitation Act of 1973*, 68 GEO. L.J. 1229 (1980).

410. 45 C.F.R. § 84.12 (1982) (requiring "reasonable accommodation" to the limitations of the handicap).

411. 442 U.S. 397 (1979).

412. According to the Court, section 504 does not require a recipient to make "substantial modifications" to its programs in order to allow handicapped individuals to participate. 442 U.S. at 405. If the regulations attempt to do so "they would do more than clarify the meaning of 504 . . . they would constitute an unauthorized extension of the obligations imposed by the

2. *The High-Risk Employee*

a. *Medical examinations.* Regulations promulgated to implement section 504 prohibit employers receiving federal assistance from asking applicants if they are handicapped or asking about the nature and severity of a known handicap unless: (1) all applicants must submit to a preemployment physical; and (2) the examination reveals information relevant to the applicant's ability to perform job-related functions.⁴¹³ Under the section 503 regulations a federal contractor *may* require a preemployment medical examination of a handicapped applicant even if it does not require an examination of everyone.⁴¹⁴ Nevertheless, if the employer's job qualification requirements "tend to screen out qualified handicapped individuals, the requirements shall be related to the specific job or jobs for which the individual is being considered and shall be consistent with business necessity and the safe performance of the job."⁴¹⁵

At first glance, the section 504 regulation might appear to provide greater protection to the handicapped. This is not the case. An employer's decision to conduct a preemployment medical examination usually is based upon the nature of the enterprise.⁴¹⁶ Employers using medical examinations undoubtedly prefer to give them to all employees; the hazards that necessitate preemployment medical examinations often act upon medical conditions that are detectable only through a comprehensive examination. In addition, the regulation does not mandate that all medical examinations involve identical procedures.⁴¹⁷

statute." 442 U.S. at 410. The Court seemed to hold that an otherwise qualified handicapped person may not be discriminated against *because* of his or her handicap. Nevertheless, it adopted a definition of "otherwise qualified person" as one who is able to meet all of the program's requirements *in spite of* his or her handicap, rather than a person who is able to meet all of the program's requirements *apart from* his or her handicap. See 442 U.S. at 406. See generally Note, *Accommodating the Handicapped: Rehabilitating Section 504 After South-eastern*, 80 COLUM. L. REV. 171 (1980); Note, *Accommodating the Handicapped: The Meaning of Discrimination Under Section 504 of the Rehabilitation Act*, 55 N.Y.U. L. REV. 881 (1980); Note, *Protections for the Handicapped in Federally Financed Programs and Southeastern Community College v. Davis*, 54 S. CAL. L. REV. 1053 (1981). For a further discussion of reasonable accommodation, see notes 463-68 *infra* and accompanying text.

413. 28 C.F.R. § 41.55 (1982) incorporates the preemployment inquiry regulations of HHS, 45 C.F.R. § 84.14 (1982). See *Doe v. Syracuse School Dist.*, 508 F. Supp. 333 (N.D.N.Y. 1981) (asking applicant whether he had ever experienced a nervous breakdown violated 45 C.F.R. § 84.14).

414. 41 C.F.R. § 60-741.6 (1982).

415. 41 C.F.R. § 60-741.6(c)(2) (1982).

416. See note 251 *supra* and accompanying text.

417. Thus, nothing would preclude an employer from requiring all employees to submit to *some* medical examination, but requiring more complete examinations of handicapped applicants. See note 251 *supra* and accompanying text.

By contrast, the section 503 regulation provides additional substantive protections to handicapped applicants. Any procedure tending to screen out "qualified"⁴¹⁸ handicapped individuals must be "job-related" and "consistent with business necessity and the safe performance of the job."⁴¹⁹ The job-relatedness provision in the section 504 regulation requires only that the medical information be "relevant" to the applicant's ability to perform the job. The medical procedure need not have a high predictive value or be within accepted medical practice. The section 503 regulation, however, connects "job-relatedness" to the employment discrimination law concept of "business necessity." As defined by the Fourth Circuit in *Robinson v. Lorillard Corp.*:⁴²⁰

The test is whether there exists an overriding legitimate business purpose such that the practice is necessary to the safe and efficient operation of the business. Thus, the business purpose must be sufficiently compelling to override any [adverse] impact; the challenged practice must effectively carry out the business purpose it is alleged to serve; and there must be available no acceptable alternative policies or practices which would better accomplish the business purpose advanced, or accomplish it equally well with a lesser differential [adverse] impact.⁴²¹

Thus, under the section 503 regulation, the specific medical examination and screening procedures used must have: (1) a scientifically valid basis, (2) a high predictive value, and (3) must be the most accurate and least onerous alternative.

Despite the subtle differences between the section 503 and 504 regulations, both limit the use of baseless and discriminatory preemployment examinations. This protection, however, only applies to "handicapped" individuals.

b. *Are high-risk individuals "handicapped"?* The statute defines "handicapped individual" as any person who has a physical or mental impairment that substantially limits one or more of such person's major life activities, has a record of such impairment, or is regarded as having such an impairment.⁴²² High-risk individuals are not presently impaired, but they may become impaired in the future.

In *OFCCP v. E.E. Black, Ltd.*,⁴²³ the employer required a car-

418. For a further discussion of what constitutes a "qualified" or "otherwise qualified" applicant, see notes 430-70 *infra* and accompanying text.

419. See note 415 *supra*.

420. 444 F.2d 791 (4th Cir.), cert. dismissed under Rule 60, 404 U.S. 1006 (1971).

421. 444 F.2d at 798 (footnotes omitted). See generally Note, *Business Necessity under Title VII of the Civil Rights Act of 1964: A No-Alternative Approach*, 84 YALE L.J. 98 (1974).

422. See notes 394-95, 402-03 *supra* and accompanying text.

423. 19 Fair Empl. Prac. Cas. (BNA) 1624 (U.S. Dept. of Labor 1979).

penter's apprentice to submit to a preemployment medical examination, including a low-back x-ray, which revealed a lower back anomaly known as sacrolization of the transitional vertebra. Although medical professionals dispute its disabling long-term effects, the employer conceded that the condition did not effect the applicant's current capability to perform the duties of a carpenter's apprentice. Nevertheless, relying on its medical officer's conclusions, the company denied him employment. The apprentice filed a complaint with the OFCCP under section 503.

The Labor Department ruled that the company's use of preemployment medical examinations tended to disqualify handicapped applicants despite their current capability to perform the job. The Labor Department refused to limit "impairment," as used in the definitional section of the Act, to permanent disabilities such as blindness or deafness. Instead, the term impairment was held to include "any condition which diminishes, weakens, restricts or otherwise damages an individual's health or physical or mental activity"⁴²⁴ resulting in a current bar to employment that the individual is now capable of performing.

On judicial review, the United States District Court agreed with the Labor Department that the Rehabilitation Act's coverage was extensive, but held the Labor Department interpretation overly broad.⁴²⁵ According to the court, Section 706(7)(B) of Title 29 of the United States Code contains critical language that restricts the Act's coverage to handicapped individuals who are "substantially limited" in pursuit of a major life activity.⁴²⁶ Thus, to come within the purview of the Act an individual must have been rejected for a position for which he or she was qualified because of an impairment or perceived impairment that constitutes, for the individual, a substantial handicap to employment.⁴²⁷

Based on this definition, the court still concluded that the appli-

424. 19 Fair Empl. Prac. Cas. at 1631 (footnote omitted).

425. *E.E. Black, Ltd. v. Marshall*, 497 F. Supp. 1088, 1099 (D. Hawaii 1980). The court granted partial summary judgment to the Labor Department on two points: (1) the definition of "handicapped individual" contained in the Act and regulations is constitutional, and (2) the apprentice was a "qualified handicapped individual" under the Act and regulations. On all other issues, summary judgment was denied. 497 F. Supp. at 1104. In a subsequent decision, the case was remanded to the Department of Labor, *E.E. Black, Ltd. v. Donovan*, 26 Fair Empl. Prac. Cas. (BNA) 1183 (D. Hawaii 1981), and was settled in 1982.

426. 497 F. Supp. at 1099.

427. 497 F. Supp. at 1099. The court discussed several factors to be considered in determining whether an impairment substantially limits employability, including the number and types of jobs from which the individual is disqualified, the location or accessibility of similar opportunities, and the individual's own job expectations and training. 497 F. Supp. at 1100-01.

cant was protected by the Act. First, the applicant's back condition was found to be an impairment or, at least, was regarded as such by the employer.⁴²⁸ Second, the impairment constituted a substantial handicap to employment because the applicant would have been disqualified from all or substantially all apprenticeship programs in carpentry.⁴²⁹

c. *May increased risk be considered in employment decisions?* Even if high-risk individuals are handicapped, the Act only protects *otherwise qualified* handicapped individuals. The Labor Department's decision in *Black* conceded that employers could exclude handicapped individuals from jobs on the basis of legitimate job requirements, but held that preemployment medical examinations could explore only current capability to perform.⁴³⁰ The district court termed this interpretation "clearly contrary to law."⁴³¹ The court did not formulate a legal standard for *when* possible future injury warrants denying employment.

Two basic principles emerge from the *Black* case: (1) that a job requirement that screens out qualified handicapped individuals on the basis of possible future injury may be lawful;⁴³² (2) that the employer must justify the denial of employment,⁴³³ regardless of whether the issue is framed as whether the employee is "otherwise qualified," or whether the employer has made out a "business necessity" defense to the OFCCP's *prima facie* case.⁴³⁴

428. 497 F. Supp. at 1102.

429. 497 F. Supp. at 1102. The court rejected the employer's contention that Congress did not intend to protect job applicants denied employment based on risk of future injury. 497 F. Supp. at 1103.

430. 19 Fair Empl. Prac. Cas. (BNA) at 1634.

431. 497 F. Supp. at 1104. The court posed the situation where, if a particular person were given a job, he would have a 90% chance of suffering a heart attack within one month. "A job requirement that screened out such an individual would be consistent both with business necessity and the safe performance of the job. Yet, it could be argued that the individual had a current capacity to perform the job, and thus was a qualified handicapped individual." 497 F. Supp. at 1104.

432. This comports with cases decided under state handicap discrimination laws. *Chicago, N.W. R.R. v. Labor & Indus. Review Commn.*, 98 Wis. 2d 592, 608, 297 N.W.2d 819, 826 (1980). *But cf.* *Chrysler Outboard Corp. v. Department of Indus., Labor & Human Relations*, 14 Fair Empl. Prac. Cas. (BNA) 344 (Wis. Cir. Ct. 1976) (employer could not refuse to hire an individual suffering from acute lymphocytic leukemia because individual had present ability to perform job). For a further discussion of state law, see notes 455-61 *infra* and accompanying text.

433. *See* 497 F. Supp. at 1103.

434. State antidiscrimination law may become increasingly important in protecting the employment rights of high-risk individuals. A recent amendment to the New Jersey state employment discrimination law specifically prohibits employment discrimination based on an individual's "atypical hereditary cellular or blood trait." Act of June 22, 1981, ch. 185, 1981 N.J. Sess. Law Serv. 535, 538 (West) (codified at N.J. STAT. ANN. § 10:5-5(y) (West Supp.

d. *What must the employer show to justify a refusal to hire a high-risk individual?* In *Black*, the employer sought to avoid increased insurance or workers' compensation costs⁴³⁵ and to comply with its OSHA obligations.⁴³⁶ Certainly, employers could offer other economic reasons.⁴³⁷

The legality of the screening procedure, however, should not depend upon the employer's asserted motivation.⁴³⁸ Courts should focus on the necessity for the screening, the scientific validity of the procedure and the legitimacy of the resulting employment decision-making. To sustain a "business necessity" defense for using medical procedures which screen out qualified handicapped individuals the employer should be required to prove that:

- (1) The examination, test, or procedure upon which the employment decision was based is job-related.
- (2) The examination, test or procedure has a high predictive value and is the best test that is feasible to use.
- (3) The examination, test, or procedure indicates that the applicant has a strong likelihood of developing a serious injury or illness in the not-too-distant future and that the applicant's likelihood of injury or illness represents a significant variation from the general worker population.
- (4) The disqualification or other adverse personnel action was based on an individualized determination of fitness.
- (5) No reasonable accommodation will permit the handicapped individual to perform the necessary job functions.

1982)). This is defined to include sickle cell trait, hemoglobin C trait, thalassemia trait, tay-sachs trait, or cystic fibrosis trait. Thus, New Jersey has become the first jurisdiction to expressly proscribe the use of multiple forms of biochemical screening. Florida, Louisiana, and North Carolina prohibit discrimination in employment based on sickle cell trait. FLA. STAT. ANN. § 448.075 (West Supp. 1981); Act of July 22, 1982, Act No. 644, 1982 LA. REV. STAT. ANN. §§ 23:1001-1004 (West Supp. 1983); N.C. GEN. STAT. § 95-28.1 (1981).

435. 497 F. Supp. at 1095.

436. 497 F. Supp. at 1095.

437. Several reasons seem plausible. High-risk workers may have a higher turnover rate, facing the employer with increased costs of hiring and training. Absenteeism and sick leave may be higher for sensitive workers. The employer may face higher medical costs if more frequent biological monitoring or medical exams prove necessary for high-risk employees. The employers' contributions to medical insurance may increase. The potential for civil liability may deter some employers. See notes 661-697 *infra* and accompanying text. Finally, the employer might suffer a loss of goodwill. For example, a child born with birth defects caused by the parent's occupational exposure could generate substantial adverse publicity.

438. The Assistant Secretary of Labor in *Black* ruled that higher insurance or workers' compensation costs were irrelevant to the employability of the applicant. See 19 Fair Empl. Prac. Cas. (BNA) at 1635. Without addressing the cost issue *per se*, the district court held that an applicant's risk of future injury could be considered by the employer. 497 F. Supp. at 1103-04. Thus, although recognizing that the applicant's present and future ability to perform the job may be a relevant consideration, the court refused to consider the adverse economic consequences of failing to have a healthy, capable workforce.

(i) *Job-relatedness*. In *Albemarle Paper Co. v. Moody*,⁴³⁹ the Supreme Court, quoting the applicable regulation,⁴⁴⁰ held that "discriminatory tests are impermissible unless shown, by professionally acceptable methods, to be 'predictive of or significantly correlated with important elements of work behavior which comprise or are relevant to the job or jobs for which candidates are being evaluated.'" ⁴⁴¹

Although the job-relatedness criterion limits an employer's discretion in hiring decisions, some courts allow employers a great deal of latitude within which to operate. In *National Railroad Passenger Corp. (AMTRAK) v. Commonwealth*,⁴⁴² for example, the court found no violation where Amtrak denied employment to an applicant with a glass eye. The Pennsylvania Human Rights Commission had concluded that plaintiff could perform "all of the . . . tasks required of trackmen . . ."⁴⁴³ The court reversed the Commission, finding instead that, in one of the duties to which plaintiff could be assigned, his reduced field of vision might endanger his coworkers.⁴⁴⁴ Similarly, in *Strathie v. Department of Transportation*,⁴⁴⁵ the court virtually ignored evidence that drivers with hearing aids had substantially better safety records than people with normal hearing,⁴⁴⁶ because "a situation might arise in which [plaintiff's] handicap would prevent him from performing the position [of school bus driver] adequately."⁴⁴⁷

The job-relatedness criterion may retain some usefulness. For example, a respiratory examination which reveals that an individual suffers from asthma should not justify a refusal to hire the individual as a typist.⁴⁴⁸ Few cases, however, will be so simple. Thus, job-relatedness and traditional test validation analysis are of limited value

439. 422 U.S. 405 (1975).

440. 29 C.F.R. 1607 (1982).

441. 422 U.S. at 431 (quoting 29 C.F.R. § 1607.4(c)).

442. 452 A.2d 301 (Pa. Commw. Ct. 1982).

443. 452 A.2d at 305 (Williams, J., dissenting) (quoting the Commission findings).

444. 452 A.2d at 304.

445. 547 F. Supp. 1367 (E.D. Pa. 1982).

446. 547 F. Supp. at 1375.

447. 547 F. Supp. at 1382.

448. Cf. *Treadwell v. Alexander*, 28 Empl. Prac. Dec. (CCH) ¶ 32,560 (S.D. Ga. 1981) (no violation of § 501 to refuse to hire employee with heart and nervous conditions for "arduous" job of park technician); *High v. Power Flame Div., Inc.*, 29 Empl. Prac. Dec. (CCH) ¶ 32,866 (Kan. Dist. Ct. 1982) (no violation for employer to refuse to hire individual who had prior back injury and surgery for a strenuous job); *Boynton Cab. Co. v. Department of Indus., Labor & Human Relations*, 18 Fair Empl. Prac. Cas. (BNA) 841 (Wis. Ct. App. 1978) (employer did not discriminate by refusing to hire as a taxi driver an individual lacking a right hand and forearm).

in medical testing. Even in a relatively uncomplicated case such as *Black*, the key issues concerned the applicant's likelihood of having back problems and the validity of the x-rays given the applicant. Although not resolving the ultimate issue, the job-relatedness concept framed the issue in *Black*. The employer had to prove that an important part of the job required lifting heavy objects and that individuals with back problems would not be able to perform the job. Thus, to the extent that the x-rays sought to determine the condition of the applicant's back, the procedure was job-related.⁴⁴⁹

(ii) *Predictive value*. The statistical significance of a test's sensitivity, specificity, and predictive value⁴⁵⁰ and the limitations on the accuracy of a medical examination, test, or procedure have been explored. To justify such procedures, the employer must demonstrate their validity as scientifically accepted measures that accurately predict an applicant's present or future job-related functions. In addition, the employer must show that no other feasible medical procedure⁴⁵¹ could more accurately make such an assessment. Thus, in *Rogers v. Campbell Foundry Co.*,⁴⁵² a New Jersey court held that an employer could not refuse to hire an applicant whose chest x-ray showed a prominent hilar shadow on the lung. Credible medical evidence indicated that this condition resulted from a normal calcification process and would not predispose the applicant to silicosis or pneumoconiosis.

(iii) *Substantial risk of imminent harm*. This difficult determination includes five elements. First, the test or procedure must yield unequivocal results. An employer should have a difficult time screening out "borderline" high-risk workers. If the test results are unclear, retesting, reexamination and further medical consultation should be sought.

Second, the potential injury or illness must be substantial. An employer cannot screen out individuals whose only heightened risk involves sneezing, tearing, a mild rash or the like.⁴⁵³ Ironically, the Rehabilitation Act may not afford these individuals any protection because they are not "impaired" — substantially limited in pursuit

449. The Assistant Secretary of Labor found the "healthy back" requirement to be job-related. 19 Fair Empl. Prac. Cas. (BNA) at 1634.

450. See notes 285-88 *supra* and accompanying text.

451. Feasibility may involve time, expense or other factors.

452. 185 N.J. Super. 109, 447 A.2d 589 (App. Div. 1982).

453. Applicants should, however, be advised of such risks.

of a major life activity.⁴⁵⁴ Nevertheless, prudence suggests that the severity of any resultant injury or illness be considered in any screening program.

Third, an applicant must face a high probability of developing an injury or illness. This is known as absolute risk. For example, the overall population of healthy workers may contract a specific occupational disease at a rate of 1 in 10,000. Medical studies may show that individuals with a deficiency in a given enzyme have an incidence rate of 1 in 1,000. Although an individual with this enzyme deficiency faces a ten times greater risk of disease, an employer would not be justified in refusing to hire that individual because the absolute risk is so low.⁴⁵⁵

Fourth, the adverse effects on the health of the individual at risk must be manifested in the reasonably foreseeable future. Illnesses with long latency periods should be disregarded in medical screening, unless there is an overwhelming likelihood of the individual contracting an extremely serious disease, such as cancer.⁴⁵⁶ For example, an individual aged twenty-five should not be denied employment because of a heightened risk of developing arthritis at age sixty.

Fifth, the applicant's test result must represent a significant varia-

454. If an employer refuses to hire such individuals because of such trivial risks, the individuals may come under the statute because they are "regarded as having such an impairment" by the employer. 29 U.S.C. § 706(6)(c) (1976). *But see* notes 426-27 *supra* and accompanying text.

455. Several states apply this rule under their antidiscrimination laws. In Wisconsin employers must show a "reasonable probability" of future hazards. *Chicago & N.W. R.R. v. Labor & Indus. Review Commn.*, 98 Wis. 2d 592, 608, 297 N.W.2d 819, 826 (1980). The court offered no statistical definition of "reasonable probability", but found a 10-30% chance that a welder might have a epileptic seizure a mere possibility, and therefore held the employer's action illegal. 98 Wis. 2d at 609-10, 297 N.W.2d at 826-27; *see also* *Bucyrus-Erie Co. v. Department of Indus., Labor & Hum. Relations*, 90 Wis. 2d 408, 280 N.W.2d 142 (1979). *But see* *Lewis v. Rammele Engr., Inc.*, 314 N.W.2d 1 (Minn. 1981) (safety concerns justified employer's refusal to hire epileptic machinist).

In Oregon an employer must show a "high probability" of future risk. *Montgomery Ward & Co. v. Bureau of Labor*, 280 Or. 163, 570 P.2d 76 (1977). In *Montgomery Ward* the court held that a subendocardial infarction six years earlier followed by sporadic angina did not warrant refusing to hire the plaintiff as a heavy appliance salesperson. In California, a mere possibility of future risk — such as a congenital, but not disabling, back condition — did not justify an employer's discharge of a truck driver. *Sterling Transit Co. v. Fair Employment Practices Commn.*, 121 Cal. App. 3d 791, 175 Cal. Rptr. 548 (1981).

Where occupational exposure will aggravate a preexisting condition, employers' exclusionary practices fare somewhat better. *See, e.g.*, *Westinghouse Elec. Corp. v. State Div. of Human Rights*, 63 A.D.2d 170, 406 N.Y.S.2d 912 (1978). Also, where an employee's defect could endanger others, courts uphold exclusion, *see* *McGarity & Schroeder, Risk-oriented Employment Screening*, 59 TEX. L. REV. 999, 1038-49 (1981), especially in cases involving common carriers. *See, e.g.*, *Usery v. Tamiami Trail Tours, Inc.*, 531 F.2d 224 (5th Cir. 1976); *Strathie v. Department of Transportation*, 547 F. Supp. 1367 (E.D. Pa. 1982); *National R.R. Passenger Corp. (AMTRAK) v. Commonwealth*, 452 A.2d 301 (Pa. Commw. Ct. 1982).

456. The employer should *inform* the applicant of all risks, no matter how remote. The employer may not, however, make relatively distant health decisions for the applicant.

tion from the general population. This is known as "relative risk." This issue arose in *Bentivegna v. United States Department of Labor*.⁴⁵⁷ The City of Los Angeles employed "controlled" diabetics, but fired plaintiff because he could not demonstrate sufficiently low blood sugar levels. The City justified this policy on the ground that diabetics were more susceptible to injuries on the job. The City could not demonstrate, however, that uncontrolled diabetics were more susceptible to injury than controlled diabetics. The relative risk did not warrant the discriminatory policy.

(iv) *Individualized determinations.* The exclusion of entire groups of individuals with certain disabilities from job consideration may constitute illegal discrimination under handicap discrimination laws⁴⁵⁸ and the fourteenth amendment.⁴⁵⁹ This accords with the well-established principle of employment discrimination law that "[i]ndividual risks, like individual performances, may not be predicted by recourse to [proscribed] classifications"⁴⁶⁰ Thus, employers must evaluate each individual's fitness for the job.⁴⁶¹

457. 694 F.2d 619 (9th Cir. 1982).

458. See notes 387-412 *supra* and accompanying text.

459. Successful actions have been brought by handicapped individuals under 42 U.S.C. § 1983 (Supp. III 1979) against persons who, under color of state law, have acted to deny the handicapped plaintiffs equal protection and due process rights guaranteed under the fourteenth amendment. See, e.g., *Gurmankin v. Costanzo*, 556 F.2d 184 (3d Cir. 1977), *cert. denied*, 450 U.S. 923 (1981) (teacher's job denied due to applicant's blindness); *Hutchings v. Erie City & County Library Bd. of Directors*, 516 F. Supp. 1265 (W.D. Pa. 1981) (librarian suffering from dormant multiple sclerosis fired); *Duran v. City of Tampa*, 430 F. Supp. 75 (M.D. Fla. 1977) (applicant denied police employment due to history of epilepsy).

460. *City of Los Angeles Dept. of Water & Power v. Manhart*, 435 U.S. 702, 710 (1978) (invalidating, as violative of Title VII, retirement, disability, and death-benefit programs for employees predicated on sex-based mortality tables); see also *Dothard v. Rawlinson*, 433 U.S. 321 (1977) (minimum height and weight requirements for corrections officers constituted sex discrimination); *Houghton v. McDonnell Douglas Corp.*, 553 F.2d 561 (8th Cir.), *cert. denied*, 434 U.S. 966 (1977) (dismissal of 52-year-old test pilot judged unfit based on general population studies constituted age discrimination); *Rosenfeld v. Southern Pac. Co.*, 444 F.2d 1219 (9th Cir. 1971) (company's policy banning women from lifting heavy objects held to violate Title VII).

461. For example, in Connecticut a school for the blind could not automatically refuse to hire a teacher's aide with impaired vision. *Connecticut Inst. for the Blind v. Connecticut Commn. on Human Rights & Opportunities*, 176 Conn. 88, 405 A.2d 618 (1978). In Wisconsin, failure to meet vision standards for interstate trucking did not justify discharge of an intrastate trucker. *Frito-Lay, Inc. v. Wisconsin Labor & Indus. Review Commn.*, 95 Wis. 2d 395, 290 N.W.2d 551 (Ct. App. 1980) (employer failed to show that disability interfered with ability to perform job), *aff'd. by an equally divided court*, 101 Wis. 2d 169, 303 N.W.2d 668, *cert. denied*, 454 U.S. 884 (1981); *accord* *Coleman v. Casey County Bd. of Educ.*, 27 Empl. Prac. Dec. (CCH) ¶ 32,158 (W.D. Ky. 1980) (otherwise qualified person who had a leg amputated could not be denied job as a school bus driver); *Chicago, M., St. P. & P. R.R. v. Department of Indus., Labor & Human Relations*, 62 Wis. 2d 392, 215 N.W.2d 443 (1974) (asthmatic railroad employee unlawfully discharged); *Fraser Shipyards, Inc. v. Department of Indus., Labor & Human Relations*, 13 Fair Empl. Prac. Cas. (BNA) 1809 (Wis. Cir. Ct. 1976) (shipyard unlawfully refused to hire diabetic welder). In Colorado, hospitals may not exclude all epileptics

(v) *Reasonable accommodation.* Employers must accommodate the handicapped if doing so does not involve undue burdens.⁴⁶² The degree of accommodation required remains unsettled.⁴⁶³ In *Southeastern Community College v. Davis*,⁴⁶⁴ the Supreme Court held that section 504 did not require a recipient of federal funds to make major modifications of its program to accommodate the handicapped.⁴⁶⁵ Nevertheless, the Act prohibits "surmountable barrier" discrimination.⁴⁶⁶

The section 503 regulations require employers to make "reasonable accommodation," but the term is not otherwise defined.⁴⁶⁷ Reasonable accommodation probably includes making facilities accessible, restructuring jobs, modifying work schedules, acquiring or modifying equipment or devices, adjusting or modifying examinations appropriately, providing readers and interpreters, and other similar actions. With regard to safety hazards, the extent of necessary accommodation is unclear.⁴⁶⁸ Reasonable accommodation to health hazards may present even more complications. Accommodation may focus on administrative practices, such as shift rotation and other "administrative controls" that divide maximum exposure time, more frequent monitoring and medical surveillance, and the added use of personal protective equipment. Employers probably will not

from patient care positions. *Silverstein v. Sisters of Charity*, 43 Colo. App. 446, 614 P.2d 891 (1979). Illinois law forbids per se judgments about the mentally handicapped. *Chambers v. Illinois Fair Empl. Practices Commn.*, 96 Ill. App. 3d 884, 422 N.E.2d 130 (1981).

462. *Southeastern Community College v. Davis*, 442 U.S. 397, 412-13 (1979). The burden of proving that the physical criteria of the job are "job-related" rests with the employer. *Prewitt v. United States Postal Serv.*, 662 F.2d 292, 308 (5th Cir. 1981); see *Pushkin v. Regents of Univ. of Colo.*, 658 F.2d 1372, 1386-87 (10th Cir. 1981).

The employer has greater knowledge of the essentials of the job than does the handicapped applicant. The employer can look to its own experience, or, if that is not helpful, to that of other employers who have provided jobs to individuals with handicaps similar to those of the applicant in question. Furthermore, the employer may be able to obtain advice concerning possible accommodations from private and government sources. *Prewitt*, 662 F.2d at 308.

463. See Note, *Accommodating the Handicapped: The Meaning of Discrimination Under Section 504 of the Rehabilitation Act*, 55 N.Y.U. L. REV. 881, 881-82 (1980).

464. 442 U.S. 397 (1979).

465. See 442 U.S. at 410. A similar analysis applies to § 501 and § 503; see *Prewitt v. United States Postal Serv.*, 662 F.2d 292, 307-08 (5th Cir. 1981).

466. *Prewitt*, 662 F.2d at 307-08 & n.21.

467. See 41 C.F.R. § 60-741.6(d) (1982).

468. For example, if an otherwise qualified handicapped individual is not capable of lifting the 200-pound bags of cement used by the employer, will the employer be required to use 50-pound bags? Will the employer be required to designate an employee to perform all the required heavy lifting, while assigning the handicapped employee some less strenuous duties? Cf. *Holland v. Boeing Co.*, 18 Fair Empl. Prac. Cas. (BNA) 37 (Wash. 1978) (transferring employee with cerebral palsy to position requiring more manual dexterity was not reasonable accommodation).

be required to reduce exposure levels beneath OSHA PEL's to accommodate sensitive handicapped employees.

3. *Some Limits of the Law*

The Rehabilitation Act of 1973 and its state law analogs can help employees redress employment discrimination based upon increased risk of occupational illness. At least three factors, however, may prevent the Act from adequately remedying the situation. First, a myriad of unresolved legal issues relative to jurisdiction, coverage, private rights of action and administrative enforcement authority may impede plaintiffs. Second, "handicapped individual," "impaired" and "otherwise qualified" are not yet clearly defined.⁴⁶⁹ Ironically, because a handicapped individual must have an impairment that substantially limits one or more major life activities, the Rehabilitation Act may not prohibit the most arbitrary, illogical, and baseless forms of discrimination — that based on an individual's slight medical or genetic imperfection. This irony is understandable: the Rehabilitation Act is *not* a broad antidiscrimination law, nor was it intended to be. It was designed to prevent discrimination against the *severely* handicapped.⁴⁷⁰ Finally, the administrative agencies and courts may be unwilling or unable to wade through voluminous medical evidence to second-guess the decisions of company medical

469. In addition to the federal courts, state courts and agencies have identified a number of handicaps. See *Vickers v. Veterans Admin.*, 549 F. Supp. 85 (W.D. Wash. 1982) (hypersensitivity to tobacco smoke); *American Natl. Ins. Co. v. Fair Empl. & Housing Commn.*, 32 Cal. 3d 603, 651 P.2d 1151, 186 Cal. Rptr. 345 (1982) (high blood pressure); *Shelby Township Fire Dept. v. Shields*, 115 Mich. App. 98, 320 N.W.2d 306 (1982) (pseudofolliculitis barbae); *Goldsmith v. New York Psychoanalytic Inst.*, 73 A.D.2d 16, 426 N.Y.S.2d 561 (1980) (Hodgkins disease); *Dairy Equip. Co. v. Department of Indus., Labor & Human Relations*, 95 Wis. 2d 319, 290 N.W.2d 330 (1980) (one kidney); *Connecticut Gen. Life Ins. Co. v. Department of Indus., Labor & Human Relations*, 18 Fair Empl. Prac. Cas. (BNA) 1811 (Wis. Cir. Ct. 1976) (alcoholism); *Journal Co. v. Department of Indus., Labor & Human Relations*, 18 Fair Empl. Prac. Cas. (BNA) 1655 (Wis. Cir. Ct. 1976) (deviated septum); *J.C. Penney Co. v. Department of Indus., Labor & Human Relations*, 12 Fair Empl. Prac. Cas. (BNA) 1109 (Wis. Cir. Ct. 1976) (rheumatoid arthritis).

Some handicaps have *not* been protected under applicable laws: *Greene v. Union Pac. R.R.*, 548 F. Supp. 3 (W.D. Wash. 1981) (borderline hypertension and morbid obesity); *Lyons v. Heritage House Restaurants, Inc.*, 89 Ill. 2d 163, 432 N.E.2d 39, *cert. denied*, 444 U.S. 981 (1978) (transplanted kidney); *Burgess v. Joseph Schlitz Brewing Co.*, 298 N.C. 520, 259 S.E.2d 248 (1979) (glaucoma); *Philadelphia Elec. Co. v. Commonwealth*, — Pa. Commw. —, 448 A.2d 701 (1982) (obesity); *Providence Journal Co. v. Mason*, 116 R.I. 614, 359 A.2d 682 (1976) ("whiplash"). Moreover, some handicaps are specifically excluded from coverage by state statute. See, e.g., LA. REV. STAT. ANN. § 46:2253(2) (West 1982) (excluding from definition of "handicapped" chronic alcoholism, drug addiction, cosmetic disfigurement, or anatomical loss of body systems).

470. See S. REP. NO. 318, 93d Cong., 1st Sess. 97, *reprinted in* 1973 U.S. CODE CONG. & AD. NEWS 2076, 2092.

personnel.⁴⁷¹

Because of these obstacles, handicapped plaintiffs may be more successful in alleging violations of Title VII and other equal employment laws in instances where the discrimination has a disparate impact on another statutorily protected classification.⁴⁷²

C. Title VII of the Civil Rights Act of 1964⁴⁷³

Title VII of the Civil Rights Act of 1964, as amended,⁴⁷⁴ prohibits discrimination in the hiring, discharge, compensation, or other terms, conditions, or privileges of employment because of an individual's race, color, religion, sex, or national origin.⁴⁷⁵ The Act applies to employers, labor unions, and employment agencies.⁴⁷⁶ In an effort to encourage voluntary compliance with the Act, Congress required grievants to pursue administrative remedies before resorting to litigation.⁴⁷⁷

1. Disparate Impact

a. *Prima facie case.* Most employment discrimination based on a perceived predisposition to occupational illness involves "disparate impact" rather than "disparate treatment" discrimination.⁴⁷⁸ Em-

471. In *Black*, the district court conceded that it "had difficulty sifting through the medical evidence contained in the administrative record." 497 F. Supp. at 1104.

472. See Part III-C *infra*.

473. Because age may also affect susceptibility to occupational illness, see notes 57-60 *supra*, the Age Discrimination in Employment Act, 29 U.S.C. § 631(a) (Supp. II 1978) may protect some workers from some forms of medical testing discrimination. Because the legal analysis of claims of employment discrimination brought under the ADEA closely resembles that of claims brought under Title VII, the ADEA receives no independent consideration here. For a more thorough analysis of ADEA in this context, see M. ROTHSTEIN, MEDICAL SCREENING OF WORKERS § 10.6 (forthcoming 1983). On the relationship between ADEA and Title VII, see, e.g., *McCuen v. Home Ins. Co.*, 633 F.2d 1150 (5th Cir. 1981) (*prima facie* case and burden of proof as in Title VII cases); Note, *The Cost of Growing Old: Business Necessity and the Age Discrimination in Employment Act*, 88 YALE L.J. 565 (1979) (discussing statutory defenses).

474. 42 U.S.C. § 2000e (1976 & Supp. II 1978).

475. 42 U.S.C. § 2000e-2(a) (1976).

476. 42 U.S.C. § 2000e-2(a) to -2(c) (1976).

477. Aggrieved individuals must file a charge with the Equal Employment Opportunity Commission (EEOC) within 180 days of the alleged discriminatory act. 42 U.S.C. § 2000e-5(e). After a period of up to 180 days for investigation and conciliation by the EEOC, the charging party may file an action in district court. 42 U.S.C. § 2000e-5(f). In states with their own fair employment laws, the appropriate state agency must be given 60 days to resolve the complaint before procedures are begun with the EEOC. 42 U.S.C. § 2000e-5(e). Prevailing plaintiffs are entitled to back pay, reinstatement, other equitable relief, and attorney fees. 42 U.S.C. § 2000e-5(g), -5(k).

478. Disparate treatment occurs when, for example, an employer imposes burdens on blacks that it does not impose on whites. An employer who subjects all persons to the same medical test, and disqualifies all persons who fail to "pass" the test, *treats* all persons equally. If, however, more blacks than whites "fail" the test, see notes 61-85 *supra* and accompanying

ployers seem unlikely to refuse to hire or promote all members of one racial group because members of that group are considered prone to occupational illness. Employers are more likely to use neutral medical criteria or screening tests that have a disparate impact on a particular class of persons because of race, color, religion,⁴⁷⁹ or national origin.

In the landmark case of *Griggs v. Duke Power Co.*,⁴⁸⁰ the Supreme Court held that Title VII prohibits not only overt discrimination, but also practices that, although fair in form, discriminate in operation.⁴⁸¹ In *Albemarle Paper Co. v. Moody*,⁴⁸² the Court clarified *Griggs*, holding that a plaintiff establishes a prima facie case by showing that "the tests in question select applicants for hire or promotion in a racial pattern significantly different from that of the pool of applicants."⁴⁸³ Courts have not yet resolved how substantially or significantly different the comparative test results must be in order to support a finding of "disparate impact."⁴⁸⁴ According to the EEOC, "[a] selection rate for any race, sex or ethnic group which is less than four-fifths (4/5) (or eighty percent) of the rate for the group with the highest rate will generally be regarded . . . as evidence of adverse impact."⁴⁸⁵ Most Supreme Court and lower court decisions, however, have considered disparate impact on an *ad hoc* basis.⁴⁸⁶

Some genetic markers present clear cases of prima facie disparate

text, the test has a disparate impact on blacks. Disparate impact constitutes illegal discrimination unless the test is job-related or serves some necessary business purpose. See *International Bhd. of Teamsters v. United States*, 431 U.S. 324, 335 n.15 (1977) (discussing the difference between disparate treatment and disparate impact).

479. In this section, "religion" will be used in its ethnic sense rather than its theological sense. Religious beliefs, except as they may affect diet, dress, lifestyle and other behavioral factors, do not influence an individual's susceptibility to occupational illness. See, e.g., 1982 EEOC Dec. 82-1, EEOC DEC. (CCH) ¶ 6817 (1982) (employer's no beard rule and hard hat requirements did not constitute religious discrimination against Sikh employee where OSHA required the use of hard hats and respirators). In its ethnic sense, however, religion may correlate to genetic susceptibility. For example, Mediterranean Jews are much more likely to have a G-6-PD deficiency than either European Jews or Mediterranean non-Jews (e.g., Greeks). See notes 487-88 *infra* and accompanying text.

480. 401 U.S. 424 (1971).

481. 401 U.S. at 431.

482. 422 U.S. 405 (1975).

483. 422 U.S. at 425.

484. *Castenada v. Partida*, 430 U.S. 482, 496-97 n.17 (1977).

485. 29 C.F.R. § 1607.4 (1982). This formula of course is not binding on the courts. See *Guardians Assn. v. Civil Serv. Commn.*, 630 F.2d 79, 91 (2d Cir. 1980). See generally D. BALDUS & J. COLE, *STATISTICAL PROOF OF DISCRIMINATION* 330-42 (1980); Furnish, *A Path Through the Maze: Disparate Impact and Disparate Treatment Under Title VII of the Civil Rights Act of 1964 After Beazer and Burdine*, 23 B.C. L. REV. 419 (1982).

486. See, e.g., *New York City Transit Auth. v. Beazer*, 440 U.S. 568 (1979); *Dothard v. Rawlinson*, 433 U.S. 321 (1977); *Craig v. County of Los Angeles*, 626 F.2d 659 (9th Cir. 1980); *Chance v. Board of Examiners*, 458 F.2d 1167 (2d Cir. 1972).

impact discrimination. For example, one study of G-6-PD deficient individuals revealed the following population frequencies for this trait:⁴⁸⁷

Americans (white).....	0.1%
Americans (black males)	16%
British	0.1%
Chinese.....	2-5%
European Jews.....	1%
Filipinos.....	12-13%
Greek	1-2%
Indians (Asian)	0.3%
Mediterranean Jews	11%
Scandinavians	1-8%

These percentages demonstrate that the use of the G-6-PD screening would have a disparate impact on various groups based on race, sex and national origin. To illustrate, if 1000 British and 1000 Filipinos were screened, only one Briton but 120-130 Filipinos would appear G-6-PD deficient.⁴⁸⁸ For Title VII purposes, the use of G-6-PD would establish a *prima facie* case of discrimination. Other neutral employment criteria designed to screen out poor health risks also may have a disparate impact on the basis of race, color, religion, or national origin.

An employer could, of course, refuse to hire anyone with G-6-PD deficiency, but still hire Filipinos in proportion to their numbers in the relevant labor force.⁴⁸⁹ The absence of overall discrimination, however, does not help those individuals denied employment opportunities on the basis of a test with a discriminatory impact. Because Title VII protects every individual's right to employment opportunities, this "bottom line" result does not affect a plaintiff's *prima facie* case.⁴⁹⁰

b. *Business necessity and job-relatedness*. Once a plaintiff establishes disparate impact, the burden shifts to the employer to justify the practice.⁴⁹¹ In *Griggs*, the Supreme Court indicated that "[t]he touchstone [of employer defenses] is business necessity. If an em-

487. F. BEUTLER, *HEMOLYTIC ANEMIA IN DISORDERS OF RED CELL METABOLISM* (1978).

488. U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, *SPECIAL REPORT: SICKLE CELL DISEASE* (1976).

489. Because the policy would disqualify only 13% of Filipinos, a large number of Filipinos would remain eligible for employment. In the above example, unless the employer needed to hire well over 1700 people, it could take equal numbers of Britons and Filipinos.

490. *Connecticut v. Teal*, 102 S. Ct. 2525, 2534 (1982); *see also City of Los Angeles Dept. of Water & Power v. Manhart*, 435 U.S. 702, 708 (1978).

491. *See Albemarle Paper Co. v. Moody*, 422 U.S. 405, 425 (1975); *Griggs v. Duke Power Co.*, 401 U.S. 424, 432 (1971).

ployment practice which operates to exclude Negroes cannot be shown to be related to job performance, the practice is prohibited."⁴⁹²

Two intertwined defenses emerged from *Griggs*: "business necessity" and "job-relatedness."⁴⁹³ "Business necessity" focuses on "whether there exists an overriding legitimate business purpose such that the practice is necessary to the safe and efficient operation of the business."⁴⁹⁴ Once the employer demonstrates that its employment practice is a business necessity, courts balance all the relevant factors to determine whether the necessity sufficiently outweighs the discrimination.⁴⁹⁵ "Job-relatedness" essentially involves a comparison of legitimate job requirements with the employer's method for determining fitness. The employer must demonstrate, "by professionally acceptable methods,"⁴⁹⁶ that the criterion used is "predictive of or significantly correlated with important elements of work behavior which comprise or are relevant to the job or jobs for which candidates are being evaluated."⁴⁹⁷ The plaintiff may rebut either defense

492. 401 U.S. at 431.

493. *Griggs* used the terms in the same sentence and did not differentiate between the two. Some subsequent decisions have attempted to distinguish the two defenses. "Job-relatedness" applies only to criteria used to determine whether an applicant or employee can perform the job. For example, the requirement of a high school diploma, *Griggs*, 401 U.S. 424, an employer's height and weight requirements, *Dothard v. Rawlinson*, 433 U.S. 321 (1977), and passing scores on standardized tests, *Washington v. Davis*, 426 U.S. 299 (1976), would be evaluated under "job-relatedness." "Business necessity" applies to other employment practices. For example, an employer would attempt to use business necessity to justify not hiring someone who has been convicted of a crime, *Green v. Missouri Pac. R.R.*, 523 F.2d 1290 (8th Cir. 1975), not hiring someone whose wages were subject to garnishment, *Wallace v. Debron Corp.*, 494 F.2d 674 (8th Cir. 1974), or using a seniority system that had a racially discriminatory impact. *International Bhd. of Teamsters v. United States*, 431 U.S. 324 (1977).

The distinction between the two defenses becomes virtually obscured in the context of genetic and biological screening. An employer's justification for using these procedures necessarily involves elements of both defenses. See, e.g., *Hayes v. Shelby Memorial Hosp.*, 546 F. Supp. 259 (N.D. Ala. 1982):

It is clear that the firing of a pregnant employee was not necessary to the safe and efficient provision of medical services by the hospital to its patients. The fact that the plaintiff was pregnant in no way undermined her ability to take x-rays of patients.

In other words, there was no business necessity because the requirement was not job-related.

494. *Robinson v. Lorillard Corp.*, 444 F.2d 791, 798 (4th Cir.), cert. dismissed, 404 U.S. 1006 (1971). See text accompanying note 421 *supra*. See generally Note, *Business Necessity Under Title VII of the Civil Rights Act of 1964: A No-Alternative Approach*, 84 YALE L.J. 98 (1974).

495. According to one court, *Woods v. Safeway Stores, Inc.*, 420 F. Supp. 35, 42 (E.D. Va. 1976), balancing involves a consideration of the nature of the business involved, the business practice at issue, and the degree of discriminatory impact. Where the job requires a high degree of skill and responsibility, however, the courts may be more likely to permit an employer to use narrow selection criteria. See, e.g., *Spurlock v. United Airlines, Inc.*, 475 F.2d 216, 219 (10th Cir. 1972).

496. *Albemarle*, 422 U.S. at 431.

497. *Albemarle*, 422 U.S. at 431 (quoting 29 C.F.R. § 1607.4(c)).

by demonstrating that "other tests or selection devices, without a similarly undesirable racial effect, would also serve the employer's legitimate interest in 'efficient and trustworthy workmanship.'" ⁴⁹⁸

Defendants rarely surmount these obstacles in medical screening cases. In *EEOC v. Trailways*, ⁴⁹⁹ for example, a black employee suffering from pseudo folliculitis barbae, a skin disorder resulting from ingrown hairs when the person is clean shaven, challenged his employer's "no beard" policy. The plaintiff made out a prima facie case by demonstrating that the disorder affects twenty-five percent of black males, but less than one percent of white males. The employer could not make out a business necessity defense. ⁵⁰⁰

In *Hayes v. Shelby Memorial Hospital*, ⁵⁰¹ the court seemed unpersuaded by the suggestion that business necessity included "the avoidance of possible future liability to the fetus. Such an unwarranted extension would shift the focus of the business necessity defense from a focus of concern for the safety of hospital patients to a focus of concern for hospital finances." ⁵⁰² In *Zuniga v. Kleberg County Hospital*, ⁵⁰³ the Fifth Circuit used different reasoning, ⁵⁰⁴ but nonetheless found that the availability of a less discriminatory alternative defeated the employer's business necessity defense. ⁵⁰⁵

Defendants can prevail. In *Smith v. Olin Chemical Corp.*, ⁵⁰⁶ the employer discharged plaintiff from his position of manual laborer after an x-ray revealed bone degeneration of the spine with a prognosis of possible further degeneration. The employee alleged that sickle cell anemia caused his condition and, therefore, the employer's policy had a disparate impact on blacks. The district court granted summary judgment for the defendant and the Fifth Circuit affirmed. Despite the disparate impact of the employer's policy, the court considered the manifest job-relatedness so apparent that it did not even require the employer to present a business necessity de-

498. 422 U.S. at 425.

499. 530 F. Supp. 54 (D. Colo. 1981).

500. *Accord*, *Shelby Township Fire Dept. v. Shields*, 98 Mich. App. 115, 320 N.W.2d 306 (1982) (no beard rule, as applied to plaintiff with pseudofolliculitis barbae, violates state handicap discrimination law). *But see* *EEOC v. Greyhound Lines*, 635 F.2d 188 (3d Cir. 1980); *Smith v. Delta Air Lines*, 486 F.2d 512 (5th Cir. 1973); *EEOC v. Sambo's Ga., Inc.*, 530 F. Supp. 86 (N.D. Ga. 1981) (neither case involved a medical condition).

501. 546 F. Supp. 259 (N.D. Ala. 1982).

502. 546 F. Supp. at 264.

503. 692 F.2d 986 (5th Cir. 1982).

504. 692 F.2d at 992 n.10.

505. 692 F.2d at 992-94. Because the *Hayes* court also found a less discriminatory alternative, 546 F. Supp. at 264, its discussion of business necessity technically was dictum.

506. 555 F.2d 1283 (5th Cir. 1977).

fense. In one EEOC decision,⁵⁰⁷ however, the employer's policy of rejecting all applicants on the basis of sickle cell anemia was held to violate Title VII.

The paucity of cases renders prediction about the success of defenses venturesome. Nonetheless, courts seem likely to require employers to prove the following: (1) there is a valid basis for excluding workers who are presently capable of performing the required work but who may become physically unable or impaired at some point in the future; (2) it is essential to the business that employees not suffer or be suffering from an occupational illness; (3) there is a high correlation between a specific genetic, cytogenetic, or biological trait and the individual's increased risk of disease; (4) the specific screening procedure used to determine the presence of the trait has a high predictive value; and (5) no other medical or employment procedure can achieve the desired goal with less of a discriminatory impact.

2. *Disparate Treatment*

a. *Prima facie case.* In the context of medical screening, disparate treatment most frequently affects women. A woman's actual or believed predisposition to occupational illness causes employers to react in several ways. Some employers may impose conditions on women that they do not impose on men. Second, an employer might conclude that women in general are more susceptible to occupational illness when exposed to certain toxic substances, such as lead and benzene. Third, an employer might believe that the combined effects of workplace exposure and another factor uniquely affecting a subclass of women, such as those women taking oral contraceptives, predisposes the subclass to occupational illness.⁵⁰⁸

The first model represents the "classic" stereotypical disparate treatment discrimination⁵⁰⁹ reasoning that Title VII seeks to prohibit. In *Wroblewski v. Lexington Gardens, Inc.*,⁵¹⁰ a medical questionnaire inquired into the urogenital health of women, but contained no similar inquiries of men.⁵¹¹ This difference — imposing a burden on women not imposed upon men — violated the state

507. EEOC Dec. No. 81-8, 2 EMPL. PRAC. GUIDE (CCH) ¶ 6764 (1980).

508. Cf. Z. HARSANYI & R. HUTTON, *supra* note 52, at 16 (women with blood type A who take oral contraceptives are five times more susceptible to blood clots).

509. See note 478 *supra*.

510. 188 Conn. 44, 448 A.2d 801 (1982).

511. The employer claimed that it elicited the information from men at a medical examination of a type which women found offensive. 188 Conn. at ___, 448 A.2d at 806. The record revealed, however, that the employer did not always insist upon such information from men. 188 Conn. at ___, 448 A.2d at 806.

employment discrimination law. Similarly, in *Rosenfeld v. Southern Pacific Co.*,⁵¹² the employer refused to consider a woman for a position because it believed the arduous nature of the work rendered women unsuited for the job. The Ninth Circuit affirmed the finding of a Title VII violation.⁵¹³

The second approach also involves disparate treatment, in that all women are excluded from employment, but differs in that the employer's decision may be based on *some* scientific evidence. In the occupational health area, definitive scientific conclusions often lag well behind the first available data. The danger is that employers may use scant data to justify sweeping exclusionary policies.⁵¹⁴

In *City of Los Angeles v. Manhart*,⁵¹⁵ the Supreme Court held that employers may not require female employees to make larger contributions to a pension fund than male employees. Even though, as a class, women live longer than men, not all of the women will live longer than all of the men in the class. Therefore, as applied to individuals (whose life span obviously cannot be calculated prospectively), the use of sex-based mortality tables violated Title VII.⁵¹⁶ Based on *Manhart*, sex-based studies of injury and illness rates⁵¹⁷ cannot justify disparate treatment.

The third illustration involves "sex plus" discrimination, in which "the employer does not discriminate against the class of men or women as a whole, but rather disparately treats a subclass of men or women."⁵¹⁸ Disparate treatment of a subclass of one sex can be unlawful sex discrimination.⁵¹⁹ Thus, "no marriage" rules for women but not men violate Title VII.⁵²⁰ These same principles would

512. 444 F.2d 1219 (9th Cir. 1971).

513. 444 F.2d at 1225.

514. There is "very little scientific data" which supports the lead and benzene example. Conibear, *Women as a High Risk Population*, SOCIETY FOR OCCUPATIONAL ENVIRONMENTAL HEALTH, 1976 PROCEEDINGS OF CONFERENCE ON WOMEN AND THE WORKPLACE 169; see note 89 *supra* and accompanying text.

515. 435 U.S. 702 (1978).

516. "The statute's focus on the individual is unambiguous. It precludes treatment of individuals as simply components of a racial, religious, sexual, or national class Even a true generalization about the class is an insufficient reason for disqualifying an individual to whom the generalization does not apply." 435 U.S. at 708.

517. See, e.g., Root & Daley, *Are Women Safer Workers? A New Look at the Data*, MONTHLY LAB. REV., Sept. 1980, at 3.

518. B. SCHLEI & P. GROSSMAN, EMPLOYMENT DISCRIMINATION LAW 403 (2d ed. 1983).

519. *Phillips v. Martin Marietta Corp.*, 400 U.S. 542 (1971) (per curiam).

520. See, e.g., *Sprogis v. United Air Lines*, 444 F.2d 1194 (7th Cir.), cert. denied, 404 U.S. 991 (1971); *Vuyanich v. Republic Natl. Bank*, 409 F. Supp. 1083 (N.D. Tex. 1976); cf. *Jacobs v. Martin Sweets Co.*, 550 F.2d 364 (6th Cir.), cert. denied, 431 U.S. 917 (1977) (demotion of unwed pregnant woman where male unwed father would not have been demoted held to violate Title VII).

apply to occupational safety and health related "sex plus" discrimination.⁵²¹

b. *Bona fide occupational qualification (BFOQ)*. Section 703(e) of Title VII⁵²² permits employers to differentiate in hiring on the basis of religion, sex or national origin "in those certain instances where religion, sex, or national origin is a bona fide occupational qualification reasonably necessary to the normal operation of that particular business or enterprise." Both EEOC's Interpretive Guidelines⁵²³ and judicial decisions⁵²⁴ make it clear that the defense is available only where members of one sex are unable to perform the duties essential to the job.⁵²⁵

In illustrations one and two, any asserted BFOQ defense would fail; neither class-based stereotypes⁵²⁶ nor membership in a "higher risk" class (even if proved)⁵²⁷ will justify the failure to hire all individuals within a protected class. Illustration three, however, raises more difficult problems because not all women are excluded from

521. The most common form of sex-plus discrimination involving health hazards is the policy of excluding pregnant or fertile women, although this may be considered facially neutral discrimination. See notes 529-65 *infra* and accompanying text.

522. 42 U.S.C. § 2000e-2(e) (1976).

523. 29 C.F.R. § 1604.2 (1982).

524. See, e.g., *Dothard v. Rawlinson*, 433 U.S. 321 (1977).

525. To sustain a BFOQ defense to a charge of sex discrimination, the employer must prove that it "had reasonable cause to believe, that is, a factual basis for believing, that all or substantially all women would be unable to perform safely and efficiently the duties of the job involved." *Weeks v. Southern Bell Tel. & Tel. Co.*, 408 F.2d 228, 235 (5th Cir. 1969).

This defense is difficult to sustain. There are two main theories about the amount of proof needed to sustain the defense. The majority opinion in *Phillips v. Martin Marietta Corp.*, 400 U.S. 542 (1971) (*per curiam*), adopted the Fifth Circuit's interpretation from *Weeks*. Justice Marshall, in his concurrence in *Phillips*, argued that the BFOQ defense is limited "to job situations that require specific physical characteristics necessarily possessed by only one sex." 400 U.S. at 545-46. The EEOC has followed Justice Marshall's position. See 29 C.F.R. § 1604.2(a) (1982). Under either theory, however, the defense is difficult to prove. See generally Sirota, *Sex Discrimination: Title VII and the Bona Fide Occupational Qualification*, 55 TEX. L. REV. 1025 (1977). The BFOQ defense has succeeded primarily when hiring a member of a particular sex was essential to maintaining security and order, to protect legitimate privacy interests, and because of the need for sex authenticity. See, e.g., *Dothard v. Rawlinson*, 433 U.S. 321, 332-37 (1977) (potential disruption of prison security justified exclusion of female guards from "contact" positions in maximum security prisons); *Brooks v. ACF Indus.*, 537 F. Supp. 1122 (S.D. W. Va. 1982) (upholding exclusion of women from job of male bathhouse janitor); *Fesel v. Masonic Home of Del., Inc.*, 447 F. Supp. 1346 (D. Del. 1978) (upholding exclusion of male nurse from small nursing home with female patients whose privacy would be infringed), *aff'd mem.*, 591 F.2d 1334 (3d Cir. 1979); *Button v. Rockefeller*, 76 Misc.2d 701, 351 N.Y.S.2d 488 (1973) (authenticity requirement justified hiring of only women for position of undercover policewoman). The EEOC's example of authenticity is actor or actress. See 29 C.F.R. § 1604.2(a)(2) (1982).

526. 29 C.F.R. § 1604.2(a)(1)(ii) (1982).

527. It is not clear whether the BFOQ defense applies where an individual is presently capable of performing the job, but may not be able to perform in the future. See Williams, *supra* note 308, at 681 & n.230.

hiring. Nevertheless, to maintain a BFOQ defense to sex-plus discrimination, the employer would probably need to prove the following: (1) there is a valid scientific basis for the conclusion; (2) because the sex differentiation must be *essential*,⁵²⁸ there must be no other available means (such as personal protective equipment, medical surveillance or administrative controls) to provide a safe work environment; and (3) the employer is in compliance with OSHA standards.

3. *Pregnancy and Fertility*

Pregnant women pose two related health concerns when exposed to toxic substances in the workplace: danger to the woman at a time of possibly increased susceptibility⁵²⁹ and danger to the fetus.⁵³⁰ Although pregnancy-related employment decisions invariably consider both concerns, the danger to the fetus has received primary attention.⁵³¹

In 1978 Title VII was amended to prohibit discrimination in employment based on pregnancy, childbirth or related medical conditions.⁵³² Thus, any treatment of pregnant women must accord with the treatment of other persons. Because an employee's heightened risk of illness justifies excluding an employee from the workplace, a pregnant woman could be excluded, but only by applying the same standards.⁵³³ Exclusions of pregnant women to protect *fetal* health

528. We begin with the proposition that the use of the word "necessary" in section 703(e) requires that we apply a business *necessity* test, not a business *convenience* test. That is to say, discrimination based on sex is valid only when the *essence* of the business operation would be undermined by not hiring members of one sex exclusively.

Diaz v. Pan Am. World Airways, Inc., 442 F.2d 385, 388 (5th Cir. 1971) (emphasis in original).

529. See note 104 *supra* and accompanying text.

530. See notes 105-21 *supra* and accompanying text.

531. There are two main reasons for employer interest in fetal health: (1) the moral obligation of the employer to protect the next generation from injury; and (2) the fear of civil liability. See Williams, *supra* note 308, at 644.

532. The amendment provides in pertinent part:

(k) The terms "because of sex" or "on the basis of sex" include, but are not limited to, because of or on the basis of pregnancy, childbirth, or related medical conditions; and women affected by pregnancy, childbirth, or related medical conditions shall be treated the same for all employment-related purposes, including receipt of benefits under fringe benefit programs, as other persons not so affected but similar in their ability or inability to work, and nothing in section 2000e-2(h) of this title shall be interpreted to permit otherwise.

Pub. L. No. 95-555, § 1, 92 Stat. 2076 (1978) (codified at 42 U.S.C. § 2000e(k) (Supp. II 1973)).

533. See Smith v. Olin Chem. Corp., 555 F.2d 1283 (5th Cir. 1977). Compare *Harris v. Pan Am. World Airways, Inc.*, 649 F.2d 670 (9th Cir. 1980), and *Levin v. Delta Air Lines, Inc.*, 29 Empl. Prac. Dec. (CCH) ¶ 32,905 (E.D. Tex. 1982) (passenger safety justifies exclusion of pregnant flight attendants), with *MacLennan v. American Airlines, Inc.*, 440 F. Supp. 466, 472 (E.D. Va. 1977) ("[T]he incantation of a safety rationale is not an abracadabra to which this Court must defer judgment.").

would seem to warrant a similar approach. Substantial scientific evidence that a pregnant woman is being exposed to a known teratogen, that continued exposure will present a substantial danger to the fetus, and that exposure levels of the mother cannot be reduced to acceptable levels through feasible means should enable an employer to exclude the woman from further exposure.

These requirements place significant burdens on employers. In *Hayes v. Shelby Memorial Hospital*,⁵³⁴ the employer fired a pregnant x-ray technician. Because the employer could have protected the fetus by the less discriminatory means of rearranging plaintiff's duties, the employer could not maintain a BFOQ or business necessity defense.⁵³⁵ In *Zuniga v. Kleberg County Hospital*,⁵³⁶ the employer failed to grant a pregnant x-ray technician a leave of absence.⁵³⁷ Both cases indicate how seriously courts take sex discrimination, even when faced with a serious threat to the fetus. Although Title VII does not explicitly require employers to provide alternative opportunities for pregnant employees, the failure to consider such less discriminatory measures undermines the employer's defenses.⁵³⁸

Provision of alternative opportunities may not solve the problem, however. Exposure to embryofetotoxins and teratogens poses grave health risks to the fetus throughout the term of the mother's pregnancy, including, and often especially, during the period of organogenesis, which occurs between the second and eighth week of gestation.⁵³⁹ Because most women do not become aware of their

534. 546 F. Supp. 259 (N.D. Ala. 1982).

535. 546 F. Supp. at 264; see notes 501-05 *supra* and accompanying text. The court suggested that a BFOQ defense does not apply because the issue of fetal health is unrelated to the woman's ability to perform the job, the only permissible use of the BFOQ defense. 546 F. Supp. at 263; cf. *Burwell v. Eastern Air Lines, Inc.*, 633 F.2d 361, 371 (4th Cir. 1980), *cert. denied*, 450 U.S. 965 (1981); *Furnish, Prenatal Exposure to Fetally Toxic Work Environments: The Dilemma of the Pregnancy Amendment to Title VII of the Civil Rights Act of 1964*, 66 *Iowa L. Rev.* 63, 92-101 (1980); see also *Williams, supra* note 308, at 681 & n.230. Furthermore, the business necessity defense does not apply to disparate impact discrimination. See note 478 *supra*. Business necessity is a judicially created defense and can be expanded by the judiciary where appropriate. Certainly, the vital public policy interests in fetal health and equal employment opportunity require a less rigid approach, although not a less demanding standard. See *Zuniga v. Kleberg County Hosp.*, 692 F.2d 986, 991-92 (5th Cir. 1982).

536. 692 F.2d 986 (5th Cir. 1982).

537. 692 F.2d at 988.

538. See *Fancher v. Nimmo*, 549 F. Supp. 1324 (E.D. Ark. 1982) (apparent Title VII violation by employer who removed pregnant woman employee exposed to radiation, to have her return to work under conditions differing from other employees returning to work after absences due to reasons other than pregnancy); see also *Nashville Gas Co. v. Satty*, 434 U.S. 136 (1977); *Meyer v. Brown & Root Constr. Co.*, 661 F.2d 369 (5th Cir. 1981) (reassigning pregnant employee to duties which would risk harm to herself and her fetus constituted constructive discharge).

539. See notes 110-15 *supra* and accompanying text.

pregnancy until well into this period of fetal development, the damage to the fetus may be done before the woman can be removed from exposure.

Many employers have attempted to resolve this problem by simply refusing to hire fertile women. Such exclusionary policies could affect as many as twenty million jobs in this country.⁵⁴⁰ As many as 100,000 jobs already are closed to women because they involve reproductive hazards.⁵⁴¹ Although few plaintiffs have challenged these policies,⁵⁴² the crucial, complex, and controversial nature of these issues has stirred debate in OSHA,⁵⁴³ EEOC⁵⁴⁴ and legal literature.⁵⁴⁵

Four arguments can be raised to challenge the validity and legality of exclusionary practices. First, what some employers euphemistically call a "fetal protection program" is, in reality, nothing more than a "liability prevention program." Employers genuinely interested in the health of the offspring would ban pregnant women from smoking at work and would counsel pregnant women on the need to avoid taking drugs, to limit alcohol intake, and to maintain proper diet, rest and prenatal medical care.⁵⁴⁶ Only where there is the possi-

540. Interpretive Guidelines on Employment Discrimination and Reproductive Hazards, 45 Fed. Reg. 7514, 7514 (proposed Feb. 1, 1980), *withdrawn*, 46 Fed. Reg. 3916 (1981).

541. Wash. Post, Nov. 3, 1979, § A, at 6, col. 5, *cited in* Williams, *supra* note 308, at 647 n.30.

542. *See* Doerr v. B.F. Goodrich Co., 484 F. Supp. 320 (N.D. Ohio 1980) (dismissed for failure to obtain right to sue letter from EEOC); Christman v. American Cyanamid Co., No. 80-0024 (N.D. W. Va. filed Jan. 30, 1980). Four other cases have been settled. *See* Williams, *supra* note 308, at 642 n.11.

543. *See* American Cyanamid Co., 9 O.S.H. Cas. (BNA) 1596, 1981 O.S.H. DEC. (CCH) ¶ 25,338 (1981), *petition for review filed*, No. 81-1687 (D.C. Cir. June 22, 1981) (vacating general duty clause citation issued because employer had policy of excluding women aged 16 to 50 who had not been surgically sterilized from working in lead pigments department); notes 356-60 *supra* and accompanying text.

544. On February 1, 1980, the Department of Labor and the EEOC published Proposed Interpretive Guidelines on Employment Discrimination and Reproductive Hazards, 45 Fed. Reg. 7514 (1980). Although withdrawn on January 13, 1981, 46 Fed. Reg. 3916 (1981), the Proposed Guidelines indicated that the exclusion of pregnant women might be acceptable, but not the exclusion of all women of childbearing capacity.

545. *See generally* Crowell & Copus, *Safety and Equality at Odds: OSHA and Title VII Clash Over Health Hazards in the Workplace*, 2 INDUS. REL. L.J. 567 (1978); Finneran, *Title VII and Restrictions on Employment of Fertile Women*, 31 LAB. L.J. 223 (1980); Furnish, *supra* note 535; Howard, *Hazardous Substances in the Workplace: Implications for the Employment Rights of Women*, 129 U. PA. L. REV. 798 (1981); Williams, *supra* note 308; Note, *Employment Rights of Women in the Toxic Workplace*, 65 CALIF. L. REV. 1113 (1977); Note, *Exclusionary Employment Practices in Hazardous Industries: Protection or Discrimination?*, 5 COLUM. J. ENVTL. L. 97 (1978); Note, *Birth Defects Caused by Parental Exposure to Workplace Hazards: the Interface of Title VII with OSHA and Tort Law*, 12 U. MICH. J.L. REF. 237 (1979).

546. *See* WOMEN'S RIGHTS PROJECT, AMERICAN CIVIL LIBERTIES UNION, COMMENT ON INTERPRETIVE GUIDELINES ON EMPLOYMENT DISCRIMINATION AND REPRODUCTIVE HAZARDS 18 (1980).

bility of employer liability, however, have any actions been taken. But this argument, undoubtedly true in some instances, has only a rhetorical value: the lack of genuine humanitarian motivation does not, in itself, establish that the practice is illegal.

Second, employers apply exclusionary practices selectively to women working in traditional male jobs. No employer has yet ordered that all female nurses of childbearing capacity be excluded from working in operating rooms, where there is exposure to anesthetic gases, which are teratogenic.⁵⁴⁷ This argument is also largely rhetorical. It may be accurate social commentary to say that many employers are eager to exclude women, except when they are needed, but this hardly supports any legal theories.

Third, it can be more forcefully argued that prohibiting *all* women of childbearing capacity is overinclusive. Employer practices generally do not consider the woman's age, marital status, sexual activity, contraception or the fertility of the woman's husband or partner. There is, in effect, a conclusive presumption that a woman biologically capable of conception may, in fact, become pregnant and carry the child to term.⁵⁴⁸

The most compelling legal argument is that excluding women of childbearing capacity is underinclusive. The same substances that pose teratogenic hazards usually are mutagenic as well, and pose serious health threats to the offspring of the male workers.⁵⁴⁹ Some substances actually pose greater danger to male reproductive systems than female reproductive systems.⁵⁵⁰ Nevertheless, only women have been excluded from employment.⁵⁵¹

547. See UNITED STEELWORKERS OF AMERICA, COMMENT ON INTERPRETIVE GUIDELINES ON EMPLOYMENT DISCRIMINATION AND REPRODUCTIVE HAZARDS 5 (1980) [hereinafter cited as UNITED STEELWORKERS COMMENT]; see also *Genetic Screening Hearings*, *supra* note 136, at 13-14 (testimony of Joan Bertin); *id.* at 34-36 (testimony of Jeanne Stellman); A. HRICKO & M. BRUNT, *supra* note 100, at ch. 10.

548. See *Genetic Screening Hearings*, *supra* note 136, at 32-33 (testimony of Jeanne Stellman); UNITED STEELWORKERS COMMENT, *supra* note 547, at 4; Letter to the Editor from Mary-Win O'Brien, 22 J. OCCUP. MED. 510 (1980). These policies also tend to exert economic coercion on fertile women to become sterilized in order to retain their jobs. See *Genetic Screenings Hearings*, *supra* note 136, at 7011 (testimony of Joan Bertin).

549. See note 121 *supra* and accompanying text.

550. See notes 97, 101-03 *supra* and accompanying text.

551. One would be tempted to ask why, in light of all the evidence establishing relationships between paternal exposures and birth defects, the employer would choose to implement a one-sex exclusionary policy. Aside from the theory that this is merely a blatant form of sex discrimination, see Petchesky, *Workers' Reproductive Hazards and the Politics of Protection: An Introduction*, 5 FEMINIST STUDIES 233 (1979), at least four possible reasons may be suggested. First, the employer may be ignorant of the scientific evidence and is proceeding under the stereotypical notion that birth defects are attributable only to maternal exposures. Second, perhaps the employer believes that only the employee-mother of a deformed child would associate the birth defect with the workplace exposure and would sue the employer or, if two

From a legal standpoint, reproductive policies of employers must be gender neutral. The burden of justifying any sex-specific practices rests on the employer. An employer seeking to exclude women of childbearing capacity should, at least, be required to prove: (1) that there is exposure to embryofetotoxic or teratogenic substances; and (2) that the substances do not pose reproductive hazards to male employees.⁵⁵²

Employers may face even heavier burdens. In *Wright v. Olin Corp.*,⁵⁵³ the Fourth Circuit scrutinized the employer's "fetal vulnerability" program.⁵⁵⁴ Technically, the court merely remanded the case for consideration of the employer's business necessity defense.⁵⁵⁵ The opinion, however, offers very specific guidance to the trial court concerning what factors to consider.

The employer must prove, as part of its affirmative defense, that exposure of women to the hazards of these jobs presents unique, significant dangers to fetuses.⁵⁵⁶ In addition, the employer must demonstrate that the program effectively prevents these dangers.⁵⁵⁷

similar suits were brought, the child of an exposed mother would be more likely to recover than the child of an exposed father. Third, an employer may reason that it cannot remove all of its employees from hazardous exposures and women are *more* at risk than men. Fourth, controls to reduce exposure to below spermatogenic effect levels may be technologically achievable, whereas controls to reduce exposures to below teratogenic and embryofetotoxic levels may not be achievable. See *Genetic Screening Hearings*, *supra* note 136, at 70 (testimony of Bruce Karrh).

552. For a discussion of other approaches to the problems, see *Furnish*, *supra* note 535, at 115-18; *Williams*, *supra* note 308, at 665-68.

553. 697 F.2d 1172 (4th Cir. 1982). The court refused to reach several issues of sex discrimination on jurisdictional grounds because the EEOC failed to make a finding of reasonable cause. 697 F.2d at 1176-78. *But cf.* Note, *Judicial Responses to the EEOC's Failure to Attempt Conciliation*, 81 MICH. L. REV. 433, 447-52 (1982) (suggesting that the conciliation requirement is not a jurisdictional prerequisite to suit by the EEOC). The court, however, properly exercised jurisdiction over the issues raised by the individual plaintiffs which encompassed the challenge to the fetal vulnerability program.

554. *Olin Corp.* classified jobs as either restricted, controlled or uncontrolled. Fertile women could not hold restricted jobs. Women could hold controlled jobs only after acknowledging the risk in writing. Pregnant women could hold such jobs only by permission, granted on a case-by-case basis. Women could freely hold uncontrolled positions. See 697 F.2d at 1182. The trial court analyzed this program under the disparate treatment paradigm, finding the discrimination justified by factors other than sex. *EEOC v. Olin Corp.*, 24 Fair Empl. Prac. Cas. (BNA) 1646, 1659 (W.D.N.C. 1980), *aff'd in part, vacated and remanded in part sub nom. Wright v. Olin Corp.*, 697 F.2d 1172 (4th Cir. 1982). Because plaintiffs failed to prove the program was a pretext for intentional sex discrimination, the trial court held for defendants. See 697 F.2d at 1186-87.

555. The Fourth Circuit treated the case under the disparate impact paradigm. 697 F.2d at 1186. Thus, the burden fell upon the employer to prove that the fetal vulnerability program served a necessary business purpose. 697 F.2d at 1187.

556. 697 F.2d at 1190. If the dangers are not unique to the exposure of women — *i.e.*, if exposing men to the conditions poses similar risks to fetuses — then *fetal* vulnerability cannot explain the discriminatory impact upon women.

557. 697 F.2d at 1190.

These contentions require objective scientific evidence, probably including expert testimony.⁵⁵⁸ Plaintiffs may, of course, refute the defense by demonstrating that less discriminatory alternatives could protect fetuses.⁵⁵⁹

Two troubling policy issues flow from this legal standard. First, requiring the employer to prove that a substance is teratogenic but not hazardous to the offspring of male employees in effect places the burden of medical uncertainty on the fetus.⁵⁶⁰ Second, without other coordinate efforts to improve reproductive health in the workplace, prohibiting the exclusion of women merely equalizes, or arguably widens, the risks.⁵⁶¹

New efforts are needed to minimize the dangers of reproductive hazards in the workplace, efforts that include a larger role for the affected employees. The following recommendations move six steps closer to that goal:⁵⁶²

- (1) all employees subject to possible reproductive hazards must be informed in writing of the specific substances involved;
- (2) employers must advise employees in writing of the possible short-term and long-term effects of exposure and provide them with available literature on the substances and the nature of the hazards;
- (3) no employer may condition employment on the employee being sterilized;
- (4) employers must make pregnancy and fertility testing available;
- (5) medical removal protection must be provided for employees attempting to become parents, especially pregnant employees;⁵⁶³ and
- (6) employers must make ongoing efforts to reduce exposure levels through improved control technologies, substitution of substances and better personal protective equipment.⁵⁶⁴

558. 697 F.2d at 1190. A good faith belief that dangers exist does not establish business necessity, but the employer need not await scientific consensus before acting. 697 F.2d at 1190-91. "It suffices to show that within [the scientific] community there is so considerable a body of opinion that significant risk exists . . . that an informed employer could not responsibly fail to act on the assumption that this opinion might be the accurate one." 697 F.2d at 1191.

559. Unless the showing establishes that the employer overreacted to a degree that indicates intentional discrimination, the employees' remedy will be measured by the alternative policy rather than the employment conditions available for men. 697 F.2d at 1192.

560. *Cf. Industrial Union Dept. v. American Petroleum Inst.*, 448 U.S. 607, 690 (1980) (Marshall, J., dissenting) (plurality's holding in "benzene case" placed the burden of medical uncertainty on the worker).

561. See Howard, *supra* note 545, at 835-36.

562. Few of these recommendations involve Title VII, per se, but are included in the Title VII section for purposes of continuity. The most likely federal statutory basis for implementing these recommendations is OSHA.

563. See Appendix C to OSHA Lead Standard, 29 C.F.R. § 1910.1025 (1982) (recommending medical removal of employees attempting to parent a child).

564. Even these recommendations cannot totally eliminate the possibility that a woman

The Connecticut Reproductive Hazards Act⁵⁶⁵ is the first state law to address many of these issues. Among other things, it requires employers to notify employees working with reproductive hazards, prohibits conditioning employment on sterilization and requires employers to make reasonable efforts to transfer a pregnant employee to a temporary job and to take other reasonable measures to protect the reproductive health of employees.

4. *Employee Refusals To Take Medical Tests*

Title VII may provide an applicant or employee with the right to refuse to take medical tests. Section 704(a)⁵⁶⁶ provides that an employer may not retaliate against an employee or applicant "because he has opposed any practice made an unlawful employment practice by this title" Most of the cases brought under this section involve alleged employer retaliation after the filing of a charge with the EEOC.⁵⁶⁷ Nevertheless, some cases involve employee "opposition" to illegal practices of the employer.⁵⁶⁸

No court has ever decided whether section 704(a) protects an employee who refuses to submit to a test that he or she believes is discriminatory. The one case in which the issue arose was decided on

would become pregnant and not discover she was pregnant until after some teratogenic effect had occurred. Certainly, OSHA cannot be expected to provide adequate protection for the fetus. See *Furnish*, *supra* note 535, at 70-74. Although it is extremely unpleasant to couch the issue in such Draconian terms, the question may become whether society is willing to accept some risks of deformed children from maternal exposure to teratogens as the price for equal employment opportunities for hundreds of thousands of women. Society has been willing to accept the risks of mutagenesis from male exposures, which may be even worse because the effects of mutagenesis may carry well beyond a single generation. Society has been willing to accept the risks of teratogenesis from other maternal exposures such as cigarette smoking, alcohol, and drugs. Indeed, the federal government has recently limited eligibility for its prenatal nutrition program. See 7 C.F.R. § 246 (1982); 46 Fed. Reg. 31,035 (1981). Finally, society has been willing to *subsidize* the tobacco industry, while cigarette smoking causes 200,000 excess deaths a year, and is willing to accept 20,000 excess deaths from auto accidents each year because restraint systems are thought to be too expensive. See Dinman, *Occupation Health and the Reality of Risk — An Eternal Dilemma of Tragic Choices*, 22 J. OCCUP. MED. 153 (1980); Sapolsky, *The Political Obstacles to the Control of Cigarette Smoking in the United States*, 5 J. HEALTH POL. POLY. & L. 277 (1980).

565. CONN. GEN. STAT. ANN. § 46a-60(a)(7) to (a)(10) (West Supp. 1982).

566. 42 U.S.C. § 2000e-3(a) (1976).

567. See, e.g., *Pettway v. American Cast Iron Pipe Co.*, 411 F.2d 998 (5th Cir. 1969).

568. See, e.g., *Armstrong v. Index Journal Co.*, 647 F.2d 441 (4th Cir. 1981) (opposition to a discriminatory job assignment); *Tidwell v. American Oil Co.*, 332 F. Supp. 424 (D. Utah 1971) (refusal to alter minority applicant's test scores to deny applicant employment). When an employee's opposition takes the form of disruptive activity, the courts will balance the competing interests of protecting persons who oppose discrimination with the employer's right to control its personnel. See *Hochstadt v. Worcester Found. for Experimental Biology, Inc.*, 545 F.2d 222 (5th Cir. 1976).

other grounds.⁵⁶⁹ An employee, however, need not be correct in believing that a practice (or test) is discriminatory; a good faith belief suffices.⁵⁷⁰ Based on these considerations an applicant or employee might validly refuse to submit to medical testing. If so, any retaliation by the employer would violate Title VII.

D. *National Labor Relations Act and Collective Bargaining*

The National Labor Relations Act (NLRA)⁵⁷¹ is another statute that may affect a company's medical practices. Workplace safety and health issues are mandatory subjects of good faith bargaining,⁵⁷² and health and safety provisions have been included in collective bargaining agreements for many years.⁵⁷³ Moreover, such contracts often include arbitration clauses for resolving all employment disputes. Although arbitration typically has upheld employment decisions based on occupational health risks,⁵⁷⁴ unilateral changes in work rules have been deemed violative of the collective bargaining agreement.⁵⁷⁵ Conceivably, collective bargaining could result in lim-

569. *Munoz v. International Alliance of Theatrical Stage Employees*, 563 F.2d 205 (5th Cir. 1977) (written examination).

570. *See, e.g., Payne v. McLemore's Wholesale & Retail Stores*, 654 F.2d 1130 (5th Cir. 1981), *cert. denied*, 455 U.S. 1000 (1982); *Moneiro v. Poole Silver Co.*, 615 F.2d 4 (1st Cir. 1980).

571. 29 U.S.C. §§ 151-168 (1976).

572. *NLRB v. Gulf Power Co.*, 384 F.2d 822 (5th Cir. 1967); *San Isabel Elec. Servs., Inc.*, 225 N.L.R.B. 1073 (1976). Sections 8(a)(5), 8(b)(3), and 8(d) of the NLRA, 29 U.S.C. § 158(a)(5), (b)(3), (d) (1976), taken together, require the employer and union to bargain in good faith with respect to wages, hours, and other terms and conditions of employment. *NLRB v. Wooster Div. of Borg-Warner Corp.*, 356 U.S. 342, 348-49 (1958).

573. *See A. FREEDMAN, INDUSTRY RESPONSE TO HEALTH RISK 46-50 (1981)*. According to one study, 82% of union contracts contained occupational safety and health clauses. BUREAU OF NATIONAL AFFAIRS, *BASIC PATTERNS IN UNION CONTRACTS* 107 (9th ed. 1979). The subjects most often covered were safety equipment, first aid, medical examinations, accident investigation, employee obligations, hazardous work, and safety committees. *Id.*

574. *See F. ELKOURI & E. ELKOURI, HOW ARBITRATION WORKS 677 (3d ed. 1973); Wolkinson, Arbitration and the Employment Rights of the Physically Disadvantaged*, 36 *ARB. J.*, Mar. 1981, at 23, 24. In *Olin Corp.*, 73 *Lab. Arb. (BNA)* 291 (1979) (Knudson, Arb.), the arbitrator upheld a company policy that excluded from job classifications where there was exposure to lead all female employees capable of child bearing. *See also Stauffer Chem. Co.*, 70 *Lab. Arb. (BNA)* 1276 (1982) (Bailey, Arb.) (pregnant employee who took sick leave to avoid toxic exposure entitled to sickness and accident benefits); *Schmeller Aluminum Foundry Co.*, 78-1 *Lab. Arb. Awards (CCH)* ¶ 8183 (1978) (Dyke, Arb.) (upholding intermittent transfers, at same basic pay rate, to reduce employee's exposure to silicosis hazard).

575. *In Johns Manville Sales Corp. v. International Assn. of Machinists*, 621 F.2d 756 (5th Cir. 1980), the employer adopted a work rule prohibiting smoking in the plant because of the increased health risks that smoking poses to employees working with asbestos. The arbitrator upheld a union charge that the new rule amounted to a unilateral change in working conditions without bargaining with the union. The company challenged the arbitrator's decision as contrary to public policy, but the Fifth Circuit affirmed the district court's refusal to set aside the arbitration ruling. According to the court, the arbitration decision did not contravene public policy: "If smoking in such plants should be prohibited even at the cost of employee discharge, there are governmental agencies with authority to promulgate such a rule with the

itations on medical examinations⁵⁷⁶ (including an individual's right to refuse to be subjected to medical evaluation),⁵⁷⁷ changes in employee selection procedures based on susceptibility to occupational illness, and improvements in workplace hazard detection and abatement.⁵⁷⁸

These possibilities are unlikely to result in widespread employee protection for several reasons. First, only twenty percent of American workers belong to unions.⁵⁷⁹ Second, employee selection is a prerogative prized by management and tangential to the union's primary mission of representing those employees already hired.⁵⁸⁰

force of law." 621 F.2d at 759-60. The employer could not introduce such a rule in the middle of a contract's term without bargaining with the union.

576. Currently, union influence generally affects only the conditions under which examinations will be conducted. *See* OCCUPATIONAL HEALTH PROGRAM, U.S. DEPARTMENT OF LABOR, WORKPLACE HEALTH AND SAFETY: A GUIDE TO COLLECTIVE BARGAINING 24-26 (1980) [hereinafter cited as GUIDE TO COLLECTIVE BARGAINING]; *see also* Perkel & Frumin, *Collective Bargaining: Another Approach to Job Safety and Health*, in PROTECTING PEOPLE AT WORK 247-59 (1980).

577. The following provision has been suggested, but there is no evidence that it has ever been included.

If an employee refuses any medical examination or biological monitoring process, the employer shall inform the employee of the possible health consequences involved. In no circumstances shall an employee be required to sign a release statement or any language purporting to release the employer from any liability under any law as a result of refusal to take the medical examinations or refusal to be involved in any biological monitoring activity. The employee should not be disciplined in any way.

GUIDE TO COLLECTIVE BARGAINING, *supra* note 576, at 26.

A concerted refusal to undergo medical examination done in good faith and that was neither disruptive nor "disloyal" would probably be considered protected activity under § 8(a)(1), of the NLRA, 29 U.S.C. § 158(a)(1) (1976). *Cf.* NLRB v. Local 1229, IBEW (Jefferson Standard Broadcasting Co.), 346 U.S. 464 (1953) (employees' distribution of defamatory handbills was sufficient disloyalty to constitute "cause" for dismissal despite fact that handbills were designed to put economic pressure on employer during labor dispute). By refusing to comply with a lawful condition of employment, however, the employees would be refusing to perform work because of a dispute about working conditions. Therefore, their legal status would be that of economic strikers who may not be discharged for union activities, but who can be permanently replaced. *See* NLRB v. MacKay Radio & Tel. Co., 304 U.S. 333 (1938).

578. Some typical items in collective bargaining agreements provide for employee safety and health training, labor-management safety and health committees, increased environmental monitoring, the right of employees to refuse hazardous work, and protections against retaliation for employees who engage in safety and health activities. *See* GUIDE TO COLLECTIVE BARGAINING, *supra* note 576.

579. In 1980, of a total labor force of 106,500,000, there were 21,784,000 union members. BUREAU OF THE CENSUS, U.S. DEPARTMENT OF COMMERCE, STATISTICAL ABSTRACT OF THE UNITED STATES: 1980, at 394 (total labor force); *id.* at 429 (union membership).

580. Applicants for employment frequently are not union members or, if they are, they are not presently within the bargaining unit. Therefore, employee selection is not likely to be viewed as an important concern by union negotiators. But applicants are considered "employees" under the NLRA, *Phelps Dodge Corp. v. NLRB*, 313 U.S. 177 (1941), and employee selection therefore would be a mandatory subject of bargaining. *Cf.* *Allied Chem. Workers v. Pittsburgh Plate Glass Co.*, 404 U.S. 157 (1971) (retirees are not employees and therefore the benefits of retirees are not a mandatory subject of bargaining). Nevertheless, unions are much more likely to use their economic leverage on issues directly affecting present unit employees. This fact is important to the employability of applicants whose increased risk is based on prior

Third, neither employees⁵⁸¹ nor management⁵⁸² have shown much interest in collective bargaining on safety and health matters. In a time of high unemployment, unions are likely to give priority to demands for wages, hours, and job security over demands for safer conditions or fairer hiring practices. Given the NLRA's focus on labor-management relations rather than occupational health risks, collective bargaining will probably play only a limited role in the evolution of standards governing the employment of susceptible individuals.⁵⁸³

E. Privacy Issues

Many employers require applicants and employees to complete detailed medical questionnaires as a condition of their employment.⁵⁸⁴ Applicants and employees who refuse to complete the questionnaires often may be discharged or not hired;⁵⁸⁵ individuals who falsify the questionnaires are not hired, or are discharged upon discovery of falsification.⁵⁸⁶

Employers undertaking to screen out high-risk individuals may be tempted to expand the range of "medical" questions. Thus, employers might theorize that a complete picture of an individual's nonoccupational environmental influences only emerges from detailed information about an individual's diet, hobbies, sexual activity, smoking, drinking and lifestyle.⁵⁸⁷ Extensive inquiries of this sort

exposure at another workplace. See notes 202-08 *supra* and accompanying text.

581. According to a 1977 study at the University of Michigan, "a little more safety and health" ranked well behind other job improvements, such as increased retirement benefits, more medical insurance, more paid vacation, shorter workweek, greater chance for promotion, and greater job security, as employment conditions for which workers would be willing to forego a 10% pay raise. Frenkel, Priest & Ashford, *Occupational Safety and Health: A Report on Worker Perceptions*, 103 MONTHLY LAB. REV., Sept. 1980, at 11, 12. Moreover, occupational safety and health programs supported directly by unions have been minimal, with "small staffs and low funding" the norm. HEALTH RESEARCH GROUP, SURVEY OF OCCUPATIONAL HEALTH EFFORTS OF FIFTEEN MAJOR LABOR UNIONS (1976).

582. "Generally speaking, union efforts at the bargaining table to impose more stringent controls over safety and health have been beaten back as cost conscious companies continue to guard zealously their 'managerial prerogatives' over these subject areas against erosion from any source." Cohen, *The Occupational Safety and Health Act: A Labor Lawyer's Overview*, 33 OHIO ST. L.J. 788, 789 (1972).

583. For a more extensive discussion of occupational health issues under the NLRA, see M. ROTHSTEIN, *supra* note 473, ch. 11 (forthcoming 1983).

584. See notes 237-47 *supra* and accompanying text.

585. See note 239 *supra* and accompanying text.

586. See, e.g., *Interpace Corp.*, 54 Lab. Arb. (BNA) 534 (1970) (Myers, Arb.); *PPG Indus.*, 53 Lab. Arb. (BNA) 597 (1969) (Diff, Arb.).

587. From a scientific standpoint, this information may be of only marginal value, at best. See notes 141-84 *supra* and accompanying text. Nevertheless, this fact does not necessarily mean that such information will not be sought, obtained, used, disseminated, and retained.

may needlessly intrude into the privacy of employees.⁵⁸⁸

Constitutional and administrative constraints limit the amount of information public sector employers can demand,⁵⁸⁹ but private sector employees have few, if any, rights in this area. In *Cort v. Bristol Myers Co.*,⁵⁹⁰ the court ruled that employees could not assert unlawful invasion of privacy after their employer fired them for refusing to complete an intrusive medical questionnaire.⁵⁹¹ Because "plaintiffs declined to provide any information they regarded as confidential or personal, [t]he defendant's attempted invasion of privacy, if it was one, failed."⁵⁹²

If courts remain reluctant to protect privacy interests in this area, statutory remedies may be necessary. In 1976, Maryland enacted the first law that limits the permissible scope of employer inquiry.⁵⁹³ The statute provides for injunctive relief and damages.⁵⁹⁴ There are no reported cases, however, involving the law.

The most intrusive employer medical procedure is the requirement that all applicants or employees submit to a medical examination. The increasing use of occupational medical screening creates a growing likelihood that applicants or employees would refuse to take such examinations on religious, ethical, medical, privacy or other grounds. Yet there is no constitutional or common law right to

588. See generally *INDIVIDUAL RIGHTS IN THE CORPORATION*, part V (A. Westin & S. Salisbury eds. 1980).

589. See *Shelton v. Tucker*, 364 U.S. 479 (1960) (school teachers need not disclose organizations to which they belong); *Shuman v. Philadelphia*, 470 F. Supp. 449, 461 (E.D. Pa. 1979) (inquiry into policy officer's private sexual activities violated right of privacy); *American Fed. of Govt. Employees v. Schlesinger*, 443 F. Supp. 431 (D.D.C. 1978) (employees need not disclose associations of themselves and members of their family); see also Memorandum of Alan K. Campbell, Director of Office of Personnel Management (May 12, 1980) (advising federal agencies not to inquire about conduct of applicants and employees that is unrelated to the job, based on Civil Service Reform Act of 1978, 5 U.S.C. § 2302(b)(10) (Supp. II 1978)); *cf. Doe v. General Servs. Admin.*, 544 F. Supp. 530 (D. Md. 1982).

590. 385 Mass. 300, 431 N.E.2d 908 (1982).

591. A pharmaceutical company required three long-time sales employees to complete a "biographical summary," which sought information about business experience, education, family, home ownership, physical data, activities, and aims. In the medical history section, they were asked about serious illnesses, operations, accidents, nervous disorders, smoking and drinking habits, off-the-job problems, principal worries, medication being taken, age and health of parents, and other questions. The employees considered this information personal and irrelevant and either refused to answer these questions or did so in a flippant manner. The employees were discharged, ostensibly for poor performance. The employees then brought actions for unlawful invasion of privacy and wrongful discharge. With respect to the invasion of privacy claim, the court ruled that because they did not complete the questionnaires, there was no invasion of privacy.

592. 385 Mass. at ___, 431 N.E.2d at 910.

593. MD. ANN. CODE art. 100, § 95A. (Michie repl. vol. 1979).

594. MD. ANN. CODE art. 100, § 95A(e).

refuse an examination or test.⁵⁹⁵ Unless the test procedure violates a specific statute, regulation, or collective bargaining agreement, the employee must submit or suffer the consequences.⁵⁹⁶

The employer's medical records raise different concerns. While OSHA requires that employees (but not job applicants) be given access to their medical records, if they request, with the exception of seven health standards,⁵⁹⁷ it does not establish an affirmative duty to disclose the results of medical examinations to employees. The OSHA access regulation may cause companies to reassess their policies, but generally employees still are not informed of the results of medical examinations and tests.⁵⁹⁸

The possibility of civil liability presents the main legal obstacle to withholding medical information. A company and the physician may be liable for breaching the duty to inform the applicant or worker of any illness, occupational or nonoccupational, that medical personnel detected or should have detected.⁵⁹⁹ This principle should apply to all types of medical procedures, including biochemical genetic screening and cytogenetic monitoring.

Employees often are not informed about other health risks. Em-

595. In *Garguil v. Tompkins*, 525 F. Supp. 795 (N.D.N.Y. 1981), a female school teacher was dismissed for insubordination and incompetency after refusing to take a medical exam following an extended leave of absence. The teacher asserted that being examined by the school board's male physician "violated her sense of privacy and was anathema to her private creed." In upholding her dismissal, the district court held that there was no constitutional right to refuse a medical examination because the physician was male. *See also Welshhoh v. Sivy Steel Corp.*, 93 Lab. Cas. (CCH) (8th Cir. 1982) (upholding discharge under collective bargaining agreement where employee refused to have annual chest x-ray because of fear that radiation exposure is hazardous); *Williams Pipe Line Co.*, 82-1 Lab. Arb. Awards (CCH) ¶ 8227 (1982) (Moore, Arb.) (upholding discharge of employee who refused medical exam).

596. OSHA's coke oven emissions standard contains a requirement that the employer must inform any employee who refuses a required medical examination of the possible health consequences and must obtain a signed statement from the employee indicating that the employee understands the risks involved in such a refusal. 29 C.F.R. § 1910.1029(j)(1)(iii) (1982). It is not clear, however, whether this provision would prevent the employer from disciplining an employee who refused a medical examination.

597. Vinyl chloride, 29 C.F.R. § 1910.1017(k)(4); inorganic arsenic, 29 C.F.R. § 1910.1018(n)(6)(D); lead, 29 C.F.R. § 1910.1025(j)(3)(v); coke oven emissions, 29 C.F.R. § 1910.1029(j)(5)(iii); cotton dust, 29 C.F.R. § 1910.1043(h)(5)(i); DBCP, 29 C.F.R. § 1910.1044(m)(5)(i); acrylonitrile, 29 C.F.R. § 1910.1045(n)(6)(iii) (1982).

598. "OSHA concludes on the basis of the record and its own experience that denial of direct, unrestricted access to exposure and medical information is commonplace, if not the universal practice of industry." OSHA Access to Employee Exposure and Medical Records Standard, 45 Fed. Reg. 35,225 (1980). For a summary of testimony of occupational physicians on this issue, see *id.* at 35,223-24. *See also* A. FREEDMAN, *INDUSTRY RESPONSE TO HEALTH RISK* 17-21 (1981) (citing study of Linowes that 83% of "Fortune 500" companies responding to a survey denied workers access to their medical records).

599. *See* note 690 *infra*; *see also* MASS. ANN. LAWS ch. 149, § 19A (Michie Law. Co-op. 1976) (when employer requires employee to take examination, employee must be furnished with a copy of the medical report).

employers have a common law duty to apprise employees of latent dangers, including the health hazards associated with toxic chemicals.⁶⁰⁰ In reality, however, employers rarely inform employees about the identities, properties and health risks of the toxic materials with which they work.⁶⁰¹

Statutory requirements supplement this common law duty. OSHA once proposed a sweeping Hazards Identification Standard,⁶⁰² but has replaced this with a more flexible, less extensive Hazard Communication Standard proposal.⁶⁰³ At least nine states have enacted "workers' right to know" laws.⁶⁰⁴ These statutes typically require the employer to post notices or other information regarding the identity and health hazards of substances in the workplace.⁶⁰⁵

As of 1980 employees have a right to see their medical records pursuant to OSHA's Access to Employee Exposure and Medical Records Standard.⁶⁰⁶ This comprehensive regulation⁶⁰⁷ was promul-

600. See note 667 *infra*. A company may also be liable in tort for failing to disclose that employees are working with a hazardous product (e.g., asbestos). See note 697 *infra* and accompanying text. Physicians may be liable for failing to disclose the health risks of specific employment. See Halligan, *The Standard of Disclosure by Physicians to Patients: Competing Models of Informed Consent*, 41 LA. L. REV. 9, 25-35 (1980) (discussing tort action for deceit).

601. See generally Note, *Occupational Health Risks and the Worker's Right to Know*, 90 YALE L.J. 1792 (1981).

602. OSHA, Proposed Hazards Identification Standard, 46 Fed. Reg. 4412-53 (1981), *withdrawn*, 46 Fed. Reg. 12,020 (1981).

603. 47 Fed. Reg. 12,092 (1982).

604. CAL. LAB. CODE § 6408 (Deering 1976); CONN. GEN. STAT. § 31-40c (1981); ME. REV. STAT. ANN. tit. 26, §§ 1701-1707 (West Supp. 1982); MICH. COMP. LAWS § 408.1011 (1979) (MICH. STAT. ANN. § 17.50 (11)(c) (Callaghan Cum. Supp. 1981-82)); N.Y. LAB. LAW art. 28, §§ 875-883 (McKinney Supp. 1982); Or. Gen. Occup. Health Regs. 22-015 (1981); WASH. REV. CODE § 49.17.220(3) (1981); W. VA. CODE § 21-3-18 (1981); 1981 Wis. Legis. Serv. ch. 364, at 1822 (West); see also LA. REV. STAT. ANN. tit. 23, § 1126 (West Supp. 1981) (right of access to exposure records only).

605. The California statute, for example, provides:

All employers shall provide information in the following ways, as prescribed by authorized regulations:

(a) Posting of information regarding protections and obligations of employees under occupational safety and health laws.

(b) Posting prominently each citation issued under Section 6317, or a copy or copies thereof, at or near each place a violation referred to in the notice of violation occurred.

(c) The opportunity for employees or their representatives to observe monitoring or measuring of employee exposure to hazards conducted pursuant to standards promulgated under Section 142.3.

(d) Allow access by employees or their representatives to accurate records of employee exposures to potentially toxic materials or harmful physical agents.

(e) Notification of any employee who has been or is being exposed to toxic materials or harmful physical agents in concentrations or at levels exceeding those prescribed by an applicable standard, order, or special order, and informing any employee so exposed of corrective action being taken.

CAL. LAB. CODE § 6408 (Deering 1976).

606. 45 Fed. Reg. 35,212-303 (1980), *codified at* 29 C.F.R. § 1910.20 (1982).

gated to facilitate worker participation in personal health management, worker discovery of, and efforts to control, occupational health hazards, physician ability to diagnose and treat occupational disease, and employee awareness and improved work practices.⁶⁰⁸

Employers have even freer access to medical information regarding their employees. The Code of Ethics for Physicians Providing Occupational Medical Services provides that "employers are entitled to counsel about the medical fitness of an individual in relation to work but are not entitled to diagnoses or details of a specific nature."⁶⁰⁹ In practice, however, management has much more extensive access to employee medical records.⁶¹⁰ Unfortunately, there are few legal restrictions on such disclosures. As a practical matter, the employee may never know of such disclosures. In addition, as a condition of employment, employees often sign blanket waivers authorizing the company to use medical and personnel records as it deems necessary. Moreover, liability for wrongful disclosure stems from a breach of the physician's duty of confidentiality. Many courts hold, however, that there is no physician-patient relationship where the company provides the physician.⁶¹¹

607. For a detailed description of the provisions of the standard, see notes 361-62 *supra* and accompanying text.

608. 45 Fed. Reg. at 35,219-22. Besides OSHA's Access Standard, which only applies to toxic substances, there are few legal requirements that employers give employees the right of access to their medical records. In some states workers have a specific right of access to their medical records, usually as part of a broader right to review their entire personnel record. The only other source of an access right is through a collective bargaining agreement.

609. Physicians should treat as confidential whatever is learned about individuals served, releasing information only when required by law or by overriding public health considerations, or to other physicians at the request of the individual according to traditional medical ethical practice; and should recognize that employers are entitled to counsel about the medical fitness of individuals in relation to work, but are not entitled to diagnoses or details of a specific nature.

AMERICAN OCCUPATIONAL MEDICAL ASSOCIATION CODE OF ETHICAL CONDUCT, Principle 7 (1976).

610. 45 Fed. Reg. at 35,242-43. See generally *The Privacy Commission Recommendations on Employee Access* in *INDIVIDUAL RIGHTS IN THE CORPORATION* (A. Westin & S. Salisbury eds. 1980); Annas, *Legal Aspects of Confidentiality in the Occupational Setting*, 18 J. OCCUP. MED. 537 (1976); Reinhart, *Federal Protection of Employment Record Privacy*, 18 HARV. J. ON LEGIS. 207 (1981); *Controversy in Medicine: Access to Employee Health Record*, 241 J. A.M.A. 777 (1979).

611. It has been asserted that because "workers have little genuine expectation of true confidentiality as to employment medical records," 45 Fed. Reg. at 35,242, there is an implied waiver of confidentiality by the employee's consenting to the examination. Nevertheless, consent to medical examination is often a condition of employment and carries with it none of the usual elements of voluntariness on the patient's part. Moreover, the employees are not usually informed about the limited scope of examinations or the lack of the traditional confidentiality that patients expect from members of the medical profession. *Lotspeich v. Chance Vought Aircraft*, 369 S.W.2d 705, 710 (Tex. Civ. App. 1963). The "significant abuses of employee medical records," 45 Fed. Reg. at 35,243, are related to a wider problem of the occupational physician's conflicting loyalties. It has been suggested that if occupational physicians would adhere to professional standards and prohibit the dissemination of specific information to non-

Common law actions for company disclosure of medical information to third parties also must overcome the defense that there is no physician-patient relationship between an applicant or employee and the company doctor.⁶¹² Several state and federal statutes, however, provide a variety of limited protections against disclosure. The Privacy Act of 1974⁶¹³ controls federal government maintenance of information. The Act affords individuals the rights to see and to correct their files, and prohibits nonconsensual disclosure to third parties. The Fair Credit Reporting Act⁶¹⁴ provides that if an applicant or employee is rejected on the basis of a credit report, the individual has a right to be informed of the report.⁶¹⁵

Two-thirds of the states have statutorily created a physician-patient testimonial privilege.⁶¹⁶ Also, state medical licensing statutes may provide the basis for a judicially implied cause of action.⁶¹⁷ The most extensive state regulation of medical information, however, is California's Confidentiality of Medical Information Act.⁶¹⁸ Under this law, an individual whose records have been disclosed may recover compensatory damages, punitive damages up to \$3,000,

medical personnel, this would alleviate the conflict of interest problem. See Collings, *Medical Confidentiality in the Work Environment*, 20 J. OCCUP. MED. 461 (1978); Roberts, *The Question of Ethical Standards in Occupational Medical Practice*, 14 J. OCCUP. MED. 632 (1972); Tabershaw, *Whose "Agent" Is the Occupational Physician?*, 30 ARCH. ENVTL. HEALTH 412 (1975). The essence of the problem, however, is not the distribution of specific, raw medical data, such as test results, x-rays, and clinical findings; it is the physician's loyalty to pass along to management bottom line medical judgments. In the nonoccupational setting, the physician accumulates the medical evidence, informs the patient of the possible courses of action, and often makes a recommendation. The ultimate decision, however, rests with the patient. In the occupational setting, by contrast, once the medical evidence has been obtained the patient may be informed of the results and possible courses of action, but rarely will the patient have the option of deciding employability, work loads, and the like. These decisions are made by the physician or by management acting on the physician's recommendations. See generally Bundy, *How Do We Assure That the Worker's Health Is the Occupational Physician's Primary Concern?*, 18 J. OCCUP. MED. 671 (1976); Dinman, *The Loyalty of the Occupational Physician*, 54 BULL. N.Y. ACAD. MED. 729 (1978).

612. See *Quarles v. Sutherland*, 389 S.W.2d 249 (Tenn. 1965). But cf. *Hammonds v. Aetna Cas. & Surety Co.*, 243 F. Supp. 793 (N.D. Ohio 1965) (patient has cause of action against party that induced a physician to divulge confidential information under false pretenses). See also *Drake v. Covington County Bd. of Educ.*, 371 F. Supp. 974 (M.D. Ala. 1974) (invasion of privacy for employee's personal physician to divulge to her employer that she was pregnant).

613. 5 U.S.C. § 552a (1976); see Note, *Liability Waiting to Strike: Violation of an Employee's Privacy Through Disclosure of Records*, 14 LOY. L.A. L. REV. 385 (1981) (discussing proposed legislation to extend the Privacy Act of 1974 to the private sector).

614. 15 U.S.C. §§ 1681a-1681t (1976).

615. See Comment, *Employee Privacy Rights: A Proposal*, 47 FORDHAM L. REV. 155, 164 (1978).

616. See generally Note, *Privacy in Personal Medical Information: A Diagnosis*, 33 U. FLA. L. REV. 394 (1981).

617. See, e.g., *Doe v. Roe*, 93 Misc. 2d 201, 400 N.Y.S.2d 668 (Sup. Ct. 1977).

618. CAL. CIV. CODE § 56 (Deering Supp. 1982).

attorney fees up to \$1,000 and costs of litigation.⁶¹⁹ Violations are also punishable as misdemeanors.⁶²⁰

Employers must produce employee medical records for the government. Although employers have been permitted to assert the privacy interests of their employees, this defense has not defeated government-sought subpoenas for employee medical records.⁶²¹ The Access to Exposure and Medical Records Standard gives OSHA the right to obtain employee medical records, but limits the disclosure of this information and provides safeguards to ensure confidentiality.⁶²²

F. *Workers' Compensation*

Employers exclude high-risk individuals from the workforce because these individuals are believed to be more likely to suffer from an occupational injury or illness, resulting in the employer's expense. One obvious source of increased costs is workers' compensation insurance rates. If high-risk employees are not entitled to workers' compensation when they suffer from the condition to which they were predisposed, this source of costs disappears.⁶²³

Most courts refuse to deny a claimant compensation because of a preexisting allergy, weakness, disease or susceptibility.⁶²⁴ Nevertheless, compensation depends upon medical evidence that the worker's

619. CAL. CIV. CODE § 56.35.

620. CAL. CIV. CODE § 56.36.

621. See M. ROTHSTEIN, *supra* note 357, at § 54. See generally Comment, *OSHA Records and Privacy: Competing Interests in the Workplace*, 27 AM. U. L. REV. 953 (1978).

The courts have held that employee privacy interests and the interest of the National Institute for Occupational Safety and Health (NIOSH), see note 380 *supra* and accompanying text, are not mutually exclusive, *General Motors Corp. v. Director of NIOSH*, 636 F.2d 163, 166 (6th Cir. 1980), *cert. denied*, 454 U.S. 877 (1981), and that, with "proper security administration," the records should be accessible with minimal incursions on employee privacy. See *United States v. Westinghouse Elec. Corp.*, 638 F.2d 570 (3d Cir. 1980) (conditioning disclosure of personally-identifiable records on employees being provided with notice and an opportunity to object to disclosure of specific information).

The Occupational Safety and Health Review Commission has adopted a similar position with respect to discovery of medical records in the course of an adjudicatory proceeding. *West Point Pepperell, Inc.*, 9 O.S.H. Cas. (BNA) 1784, 1981 O.S.H. DEC. (CCH) ¶ 25,356 (1981).

622. See notes 361-62 *supra* and accompanying text.

623. If workers' compensation is the employee's exclusive remedy, see text following note 665 *infra*, the employer may suffer little detriment from hiring sensitive workers. If, however, removing predisposed workers from the workers' compensation act eliminates this bar to other causes of action, see notes 666-68 *infra* and accompanying text, employers may be worse off than before. Workers' compensation claims generally are limited by statute; jury awards are not.

624. 1B A. LARSON, *THE LAW OF WORKMEN'S COMPENSATION* §§ 41.62, 41.63 (1982 & Supp.) (and cases cited therein); see, e.g., *Newport News Shipbuilding & Dry Dock Co. v. Fishel*, 649 F.2d 327 (4th Cir. 1982) (Longshoremen's and Harbor Workers' Compensation Act); *Peoria Motors, Inc. v. Industrial Commn.*, ___ Ill. 2d ___, 422 N.E.2d 144 (1982).

condition was caused by workplace exposures.⁶²⁵ In a minority of jurisdictions occupational diseases are not compensable if the claimant's individual allergy contributed to the result.⁶²⁶

When the increased risk arises from nonoccupational factors such as diet, smoking, and drinking,⁶²⁷ the same rules apply. Generally, claimants are entitled to full compensation if they suffer from an occupational illness that arose from their employment and the disease is not an "ordinary disease of life."⁶²⁸ In cases involving claimants whose cigarette smoking contributed to their occupational illness, some courts have awarded full compensation,⁶²⁹ while others have apportioned the claimant's award.⁶³⁰ Compensation has been denied entirely where the illness was found to be related solely to nonoccupational factors.⁶³¹ Federal compensation acts use a similar approach. In *General Dynamics Corp. v. Sacchetti*,⁶³² an asbestos worker smoked moderately until ten years before his death. The widow was entitled to death benefits under the Longshoremen's and Harbor Workers' Compensation Act (LHWCA).⁶³³ The Second Circuit held that although prior smoking may have increased the risk of fibrotic changes from asbestos exposure, it was not a "prior permanent partial disability" that would limit liability under section 8(f) of the LHWCA.⁶³⁴

Prior occupational exposures to toxic substances cause courts more difficulty. The willingness of employers to hire individuals with prior occupational exposures may depend on how the workers' compensation law of a particular state provides for the compensation of individuals with "successive disabilities." Some states apply the

625. See, e.g., *Thompson v. State Accident Ins. Fund Corp.*, 51 Or. App. 395, 625 P.2d 1348 (1980).

626. See 1 A. LARSON, *supra* note 624, § 41.61.

627. See Part I-B-2 *supra*.

628. See 1B A. LARSON, *supra* note 624, §§ 41.32, 41.33.

629. See, e.g., *Pullman Kellogg v. Worker's Comp. Appeals Bd.*, 26 Cal. 3d 450, 605 P.2d 422, 161 Cal. Rptr. 783 (1980); *McAllister v. Workmen's Comp. Appeals Bd.*, 69 Cal. 2d 408, 445 P.2d 313, 71 Cal. Rptr. 697 (1968).

630. See, e.g., *Morrison v. Burlington Indus.*, 304 N.C. 1, 282 S.E.2d 458 (1981) (smoking and cotton dust).

631. *Marion v. American Smelting & Refining Co.*, 192 Neb. 457, 222 N.W.2d 366 (1974) (gout and hypertension caused by alcohol consumption rather than lead exposure); *Clark v. Burlington Indus.*, 49 N.C. App. 269, 271 S.E.2d 101 (1980) (respiratory illness caused by smoking rather than byssinosis).

632. 681 F.2d 37 (1st Cir. 1982).

633. 33 U.S.C. §§ 901-945 (1976).

634. 681 F.2d at 40; cf. Note, *Deducting the Cost of Smoking Cessation Programs under Internal Revenue Code Section 213*, 81 MICH. L. REV. 237 (1982) (IRS applies similar distinction between existing illnesses and increased risk).

full responsibility rule, which imposes liability for the entire resulting disability on the present employer.⁶³⁵ This rule has been criticized for placing an unfair burden on the last employer.⁶³⁶ Faced with this rule, employers are unwilling to hire any employees thought to be impaired or predisposed to illness for fear that they will be liable for any successive injuries.⁶³⁷

Another approach, apportionment statutes, divides the compensation liability between the present employer and another party.⁶³⁸ The "other party" may be a prior employer or its compensation carrier, a second injury fund, or the employee, if the final disability resulted from a prior personal disability.⁶³⁹ Generally, "disability" does not include a prior nondisabling defect, disease or latent condition.⁶⁴⁰ Several cases hold that a preexisting asymptomatic back will not lead to the apportionment of compensation for a subsequent work-related back injury.⁶⁴¹ This same reasoning would appear to apply to all types of increased risks.

Under the third approach, the second injury fund, the present employer is liable for the amount of disability attributable to the present employment, and the fund pays the difference to compensate the employee fully.⁶⁴² Many of the state special injury funds restrict their applicability to instances where the employer knew of the prior injury,⁶⁴³ or require that the prior injury was "disabling" or "permanent," the disability involved the loss of a member or eye, or the second injury added to or had some causal relationship with the prior disability.⁶⁴⁴

G. Common Law Actions

Common law actions — primarily tort actions — may affect the

635. See 2 A. LARSON, *supra* note 624, § 59.10.

636. Under this rule, the last employer must make full compensation for an employee's injury or illness even when the employer is only partially responsible. See *id.* § 59.00.

637. See *id.* § 59.31(a).

638. See *id.* §§ 59.00, 59.20.

639. *Id.* § 59.20.

640. *Id.* § 59.22.

641. See, e.g., *Brammer v. Worker's Comp. Appeals Bd.*, 108 Cal. App. 3d 806, 166 Cal. Rptr. 769 (1980); *Dade County School Bd. v. Walker*, 379 So. 2d 1026 (Fla. Dist. Ct. App. 1980); *Bolton v. Catalytic Constr. Co.*, 309 So. 2d 167 (Miss. 1975).

642. 2 A. LARSON, *supra* note 624, § 59.31(a).

643. *Id.* § 59.33(b). Because the policy of these laws is to encourage the hiring of handicapped workers, if the prior injury were not known, the policy of the act would not apply because the employee would not have been disadvantaged in seeking employment. *Id.* at 10-467. This rule, however, encourages employers to engage in increased medical screening of applicants.

644. *Id.* § 59.31-32.

employment rights of high risk individuals in two ways. First, some actions may permit recovery for an employer's adverse personnel action because of the individual's biochemical, genetic or medical condition. Second, damage actions alleging that occupational exposure caused an injury or illness may succeed.

At common law, absent a statutory prohibition, an employer had virtually unfettered control in selecting its employees. The employer could hire or refuse to hire any person for any reason or no reason at all.⁶⁴⁵ Once hired, the employee could be fired "at will" for any reason or no reason at all.⁶⁴⁶ These rights included the right to fire or refuse to hire an individual because the employer believed that the individual was physically incapable of performing the job.⁶⁴⁷ For example, in *Bruffett v. Warner Communications, Inc.*,⁶⁴⁸ the court held that Pennsylvania's employment-at-will doctrine permitted an employer to discharge a diabetic employee on the basis of a negative medical report.⁶⁴⁹ Although the Pennsylvania Human Relations Act⁶⁵⁰ arguably prohibited the employer's conduct,⁶⁵¹ the court refused to create a common law cause of action in addition to the statutory remedy.⁶⁵²

In recent years the "at will" doctrine has been eroded considerably. Numerous commentators applaud this development and argue for an even more unequivocal repudiation of the rule.⁶⁵³ Although

645. See *Adair v. United States*, 208 U.S. 161, 172-75 (1908) (union membership); see also *Coppage v. Kansas*, 236 U.S. 1, 13-14 (1915) (union membership; employer's "liberty of contract" a constitutional right).

646. *Odell v. Humble Oil & Ref. Co.*, 201 F.2d 123, 128 (10th Cir.), cert. denied, 345 U.S. 941 (1953); *Hinrichs v. Tranquillaire Hosp.*, 352 So. 2d 1130 (Ala. 1977); *Forrer v. Sears, Roebuck & Co.*, 36 Wis. 2d 388, 153 N.W.2d 587 (1967). For a discussion of the current viability of the employment-at-will doctrine, see *The Individual in the Workplace: The At-Will Issue*, 16 U. MICH. J.L. REF. (forthcoming 1983).

647. See *Dillon v. Great Atl. & Pac. Tea Co.*, 43 Md. App. 161, 163-64, 403 A.2d 406, 407-08 (Ct. Spec. App. 1979); see also W. VA. CODE § 21-3-17 (1981) (employer may not require payment of fees for medical examination as a condition of employment); *Pearson v. Youngstown Sheet & Tube Co.*, 332 F.2d 439, 441 (7th Cir. 1964).

648. 692 F.2d 910 (3d Cir. 1982).

649. The report did not seem as negative as the court apparently assumed. See 692 F.2d at 913.

650. PA. STAT. ANN. tit. 43, §§ 951-963 (Purdon 1964 & Supp. 1982).

651. The act prohibits discrimination against the handicapped. PA. STAT. ANN. tit. 43, § 953 (Supp. 1982).

652. As a federal court sitting in diversity, the Third Circuit was somewhat reluctant to create new law for Pennsylvania. See 697 F.2d at 918.

653. See generally *Blades, Employment At Will v. Individual Freedom: On Limiting the Abusive Exercise of Employer Power*, 67 COLUM. L. REV. 1404 (1967); *Peck, Unjust Discharges From Employment: A Necessary Change in the Law*, 40 OHIO ST. L.J. 1 (1979); *Summers, Individual Protection Against Unjust Dismissal: Time for a Statute*, 62 VA. L. REV. 481 (1976); *Note, Protecting At Will Employees Against Wrongful Discharge: The Duty To Terminate Only in Good Faith*, 93 HARV. L. REV. 1816 (1980).

some courts rely on contract theories,⁶⁵⁴ more courts recognize the existence of a tort action for wrongful discharge.⁶⁵⁵ These cases are grounded on a new "public policy exception" to the "at will" doctrine.⁶⁵⁶ The exception applies to a variety of situations where the employer retaliates against employees in bad faith or for reprehensible reasons.⁶⁵⁷

The decline of the "at will" doctrine is extremely important to nonunion, private sector workers in the United States, for the only other limits on their employers' decisionmaking are the federal, state and local employment discrimination laws, which proscribe discrimination based on specific class membership. Removing an employer's ability to terminate an employee "at will," however, only offers protection against abusive or groundless discharges. In effect, it puts employees on the same legal footing as if they were employed for a fixed term. At common law, an employer may lawfully terminate an employment contract for good cause, such as physical inability to continue performance. This applies both to a present inability to perform⁶⁵⁸ and a physical predisposition to injury.⁶⁵⁹ The issue of

654. *See, e.g.,* *Fortune v. National Cash Register Co.*, 373 Mass. 96, 364 N.E.2d 1251 (1977); *Monge v. Beebe Rubber Co.*, 114 N.H. 130, 316 A.2d 549 (1974).

655. *See, e.g.,* *Nees v. Hocks*, 272 Or. 210, 536 P.2d 512 (1975); *Harless v. First Natl. Bank*, 246 S.E.2d 270 (W. Va. 1978).

656. Some states, by statute, prohibit retaliation after reporting safety and health violations of state or federal law. *See, e.g.,* CONN. GEN. STAT. ANN. tit. 31, § 379 (West Supp. 1981); LA. STAT. ANN. tit. 30, § 1074.1 (West Supp. 1981). A minority of courts has used the theory that wrongful discharge amounts to the intentional infliction of emotional distress. *See, e.g.,* *Alcorn v. Anbro Engr., Inc.*, 2 Cal. 3d 493, 498-99, 468 P.2d 216, 218, 86 Cal. Rptr. 88, 90 (1970); *Agis v. Howard Johnson Co.*, 371 Mass. 140, 355 N.E.2d 315 (1976).

657. These reasons include retaliation for: filing a worker's compensation claim, *Frampton v. Central Ind. Gas. Co.*, 260 Ind. 249, 297 N.E.2d 425 (1973); *Svento v. Kroger Co.*, 69 Mich. App. 644, 245 N.W.2d 151 (1976); *Brown v. Transcon Lines*, 284 Or. 597, 588 P.2d 1087 (1978), serving on jury duty, *Reuther v. Fowler & Williams, Inc.*, 255 Pa. Super. 28, 386 A.2d 119 (1978), failure to give false testimony at a legislative hearing, *Petermann v. Teamsters Local 396*, 174 Cal. App. 2d 184, 344 P.2d 25 (1959), refusal to alter pollution control reports, *Trombetta v. Detroit, T. & I. R.R.*, 81 Mich. App. 489, 265 N.W.2d 385 (1978), attempting to obtain the employer's compliance with consumer credit laws, *Harless v. First Natl. Bank*, 246 S.E.2d 270 (W. Va. 1978), refusal to continue participation in anticompetitive scheme, *Perry v. Hartz Mountain Corp.*, 537 F. Supp. 1387 (S.D. Ind. 1982), spurning a supervisor's sexual advances, *Monge v. Beebe Rubber Co.*, 114 N.H. 130, 316 A.2d 549 (1974), and refusal to violate medical ethics in drug testing, *Pierce v. Ortho Pharmaceutical Corp.*, 164 N.J. Super. 335, 399 A.2d 1023 (App. Div. 1979). An employee's compliance with OSHA also gives rise to a cause of action for wrongful discharge under the public policy exception. *Cloutier v. Great Atl. & Pac. Tea Co.*, 121 N.H. 915, 923, 436 A.2d 1140, 1144-45 (1981). *Compare* *Cancellier v. Federated Dept. Stores*, 672 F.2d 1312, 1318 (9th Cir. 1982) (age discrimination supports tort action for breach of implied covenant of good faith and fair dealing), *with* *Bruffett v. Warner Communications, Inc.*, 534 F. Supp. 375 (E.D. Pa. 1982) (handicap discrimination does not support tort action for wrongful discharge), *aff'd.*, 692 F.2d 910 (3d Cir. 1982). *See generally* Murg & Scharman, *Employment at Will: Do Exceptions Overwhelm the Rule?*, 23 B.C. L. REV. 329 (1982); Note, *Defining Public Policy Torts in At-Will Dismissal*, 34 STAN. L. REV. 153 (1981).

658. *See* *Munhollon v. Pennsylvania R.R.*, 180 F. Supp. 669, 673-74 (N.D. Ohio 1960);

"good cause" therefore requires analyses of "job-relatedness," "predictability" and other concepts discussed earlier in the context of Title VII and the Rehabilitation Act. Consequently, sensitive employees may find themselves inadequately protected even after the demise of the at-will doctrine.

It should be emphasized that the previous discussion only addresses the issue of wrongful discharge. The good cause standard does not apply to employer hiring decisions or promotion, transfer, work assignment, or other related matters.

Another theory upon which an action might be brought involves an action against a physician for negligence where the wrongful diagnosis of a job applicant resulted in the denial of employment. In *Armstrong v. Morgan*,⁶⁶⁰ an employee was required to have a physical examination upon being promoted. The physician's report indicated that the employee was in very poor health and, as a result, the employee lost his job. According to the Texas Court of Civil Appeals, a negligence action against the physician stated a valid claim.⁶⁶¹ This theory might allow a number of other possible actions, such as actions against laboratories that negligently performed screening tests, actions against the manufacturers of testing equipment and actions against prior employers or other entities that negligently supplied inaccurate information about the health of the individual.

Such a cause of action is not universally recognized. In *Williams v. St. Joe Minerals Corp.*,⁶⁶² plaintiff sued the company physician for negligently diagnosing a nonexistent hernia condition, thus preventing plaintiff from being reinstated by the employer. Because plaintiff had not pursued the grievance procedure in the collective bargaining agreement, which covered such disputes, the court granted summary judgment to defendant.⁶⁶³ The court implied that plaintiff could have resorted to the courts had he unsuccessfully pursued arbitration first.⁶⁶⁴ The scope of review in such a case, however, might be so

Citizens Home Ins. Co. v. Glisson, 191 Va. 582, 585-90, 61 S.E.2d 859, 861-62 (1950); *cf.* *Pearson v. Youngstown Sheet & Tube Co.*, 332 F.2d 439 (7th Cir. 1964).

659. *Cameron v. J.C. Lawrence Leather Co.*, 47 Tenn. App. 671, 342 S.W.2d 65 (1960).

660. 545 S.W.2d 45 (Tex. Civ. App. 1977).

661. "Dr. Morgan owed Appellant Armstrong a duty not to injure him physically or otherwise. If Dr. Morgan negligently performed the examination and as a result gave an inaccurate report of the state of appellant's health, and appellant was injured as a proximate result thereof, actionable negligence would be shown." *Armstrong*, 545 S.W.2d at 47 (citation omitted). *But see* *Beadling v. Sirota*, 41 N.J. 555, 197 A.2d 8157 (1964) (rejecting similar theory).

662. 639 S.W.2d 193 (Mo. App. 1982).

663. 639 S.W.2d at 195-96.

664. 639 S.W.2d at 195.

limited as to preclude any substantive ruling on the malpractice claim.⁶⁶⁵

Where employees sustain work-related injuries or illnesses their primary vehicle for redress is through workers' compensation. Although recourse to the compensation system is, theoretically, the "exclusive remedy," recent cases have recognized several exceptions. Compensation is the exclusive remedy, for example, only if the employer is covered by the state workers' compensation law. The state workers' compensation statutes vary in their coverage; some classes of employees are not subject to state law.⁶⁶⁶ In these situations, the employees may pursue common law remedies.⁶⁶⁷ In an action based on common law negligence, however, the common law defenses of contributory (or comparative) negligence, assumption of risk, and the fellow servant rule usually would be available to employers.⁶⁶⁸

The "exclusive remedy" rule generally applies only to actions for damages. Employees may seek injunctive and declaratory relief. In *Shimp v. New Jersey Bell Telephone Co.*,⁶⁶⁹ an employee who was allergic to cigarette smoke sought an injunction requiring the employer to prohibit smoking in general working areas. The court held that the New Jersey Workmen's Compensation Act did not bar the action for an injunction, and that the plaintiff had a common law right to a healthful work environment.⁶⁷⁰ The court ordered the employer to restrict smoking to non-work areas.⁶⁷¹

In a minority of jurisdictions, employees may sue the employer if the employer has breached a duty independent of those imposed on

665. See *United Steelworkers v. Enterprise Wheel & Car Corp.*, 363 U.S. 595 (1960). Other obstacles to suing a physician are discussed at notes 679-82 *infra*.

666. Some commonly excluded classifications are agricultural employees, domestic servants, railroad workers, and employees of small employers or charitable organizations.

667. See W. PROSSER, *HANDBOOK OF THE LAW OF TORTS* § 80, at 526 (4th ed. 1971).

668. See *id.* at 526-30.

669. 145 N.J. Super. 516, 368 A.2d 408 (Ch. Div. 1976).

670. *Cf. Smith v. Western Elec. Co.*, 643 S.W.2d 10 (Mo. App. 1982) (OSHA did not preempt sensitive employee's action for injunction to obtain smoke-free workplace; employee need not await severe and permanent injuries before suing).

671. Although *Shimp* involved a sensitive employee, it may not hold great promise for sensitive or high-risk employees generally. Even under similar facts, other courts may not adopt the reasoning of this single case. In *Federal Employees for Non-Smokers' Rights v. United States*, 446 F. Supp. 181 (D.D.C. 1978), *aff'd.*, 598 F.2d 310 (D.C. Cir.), *cert. denied*, 444 U.S. 926 (1979), a virtually identical case brought by federal employees was dismissed. *But see Smith v. Western Elec. Co.*, 643 S.W.2d 10 (Mo. App. 1982); *Hentzel v. Singer Co.*, 3 EMPL. S. & H. GUIDE (CCH) ¶ 26,354 (Cal. Ct. App. Dec. 20, 1982). Furthermore, *Shimp* involved a hazard, cigarette smoking, that OSHA does not regulate. If a specific OSHA standard already exists, the action might be preempted by federal law. Finally, the hazard in *Shimp* did not result from a work process and could be remedied rather easily. The courts may not be inclined to issue broad injunctions requiring the reduction of exposures in the workplace to the level where the most sensitive individual is risk free.

it by virtue of being an employer.⁶⁷² In these situations the employer is said to be acting in a "dual capacity." Dual capacity liability arises in two main torts: products liability, and medical malpractice. Although the dual capacity doctrine has been asserted more frequently in recent cases, it is still not widely accepted.⁶⁷³

In a small minority of jurisdictions, an injured employee may maintain an action against his or her employer based on injuries or illnesses caused by a product manufactured by the employer if the product was manufactured for sale to the public.⁶⁷⁴ For example, in *Bell v. Industrial Vangas, Inc.*,⁶⁷⁵ a route salesman was severely injured in a fire which occurred as he was delivering a flammable gas to a customer. The injured employee brought an action against his employer on a theory of strict products liability. The Supreme Court of California held that, based on the dual capacity doctrine, the state workers' compensation law did not preclude the action.

An employee's ability to maintain a medical malpractice action against the company, the physician, or both depends on two considerations: the employment status of the physician and the intended beneficiary of the medical services provided. In general, if the physician is an employee of the company, the statutory coemployee immunity will apply.⁶⁷⁶ This means that the physician will not be liable for medical malpractice.⁶⁷⁷ Whether a physician who is an independent contractor may be sued depends on the nature of the services provided.⁶⁷⁸ Where the service is for the benefit of the employee, a physician-patient relationship exists and the physician may be sued. Where the only benefit is for the employer, however, no

672. 2A A. LARSON, *supra* note 624, § 72.81.

673. *See, e.g.*, *Kohr v. Raybestos-Manhattan, Inc.*, 522 F. Supp. 1070 (E.D. Pa. 1981); *Billy v. Consolidated Mach. Tool Corp.*, 51 N.Y.2d 152, 412 N.E.2d 934, 432 N.Y.S.2d 879 (1980); *Cohn v. Spinks Indus.*, 602 S.W.2d 102 (Tex. Civ. App. 1980). *See generally* Note, *Dual Capacity Doctrine: Third-Party Liability of Employer-Manufacturer in Products Liability Litigation*, 12 IND. L. REV. 553 (1979).

674. *See Douglas v. E. & J. Gallo Winery*, 69 Cal. App. 3d 103, 137 Cal. Rptr. 797 (1977); *Mercer v. Uniroyal, Inc.*, 49 Ohio App. 2d 279, 361 N.E.2d 492 (1976).

675. 30 Cal. 3d 268, 637 P.2d 266, 179 Cal. Rptr. 30 (1981).

676. *See, e.g.*, *Proctor v. Ford Motor Co.*, 36 Ohio St. 3, 302 N.W.2d 580 (1973); *Jones v. Bouza*, 7 Mich. App. 561, 152 N.W.2d 393 (1967), *aff'd.*, 381 Mich. 299, 160 N.W.2d 881 (1968). *But cf. McDaniel v. Sage*, — Ind. App. —, 419 N.E.2d 1322 (1981) (action against company nurse for negligent injection *not* barred by workers' compensation).

677. In the few states that do not grant immunity to coemployees, however, the physician could be sued. *See, e.g.*, *Grantham v. Denke*, 359 So. 2d 785 (Ala. 1978); *Halenar v. Superior Court*, 109 Ariz. 27, 504 P.2d 928 (1972).

678. The distinction between company physicians and independent contractors may be fading. *See Ross v. Shubert*, 388 N.E.2d 623 (Ind. Ct. App. 1979) (company physician held to be independent contractor).

action may lie.⁶⁷⁹

Employer liability for malpractice may be based on vicarious liability for its physician-employee⁶⁸⁰ or the breach of an independent duty because of negligent practices and procedures used by the company medical department.⁶⁸¹ Under either theory, courts must determine for whose benefit the examination or treatment was performed. If performed for the employer's benefit, there is no physician-patient relationship and thus either no duty is owed to the employee⁶⁸² or a lessened duty is owed.⁶⁸³ If performed for the employee's benefit, then a duty exists.⁶⁸⁴ Even without a physician-patient relationship, however, liability may be based on the "good Samaritan" rules adopted by many states.⁶⁸⁵

The foregoing discussion indicates the confusion, inconsistency and lack of logic surrounding actions based on malpractice by company physicians. There is no justification, for example, for the artificial distinctions founded on the status of the physician and the purpose of the medical care.⁶⁸⁶ Against this backdrop, the dual capacity doctrine complicates matters even further.

In the leading case of *Duprey v. Shane*,⁶⁸⁷ a nurse employed by a chiropractor was injured in the course of her employment and then was negligently treated by her chiropractor-employer. The Califor-

679. For example, in *Rogers v. Horvath*, 65 Mich. App. 644, 237 N.W.2d 595 (1975), the employer hired a physician to examine the plaintiff to determine whether the employee's petition for a continuation of workers' compensation benefits had merit. The court held that because the examination was not performed for the purpose of diagnosis or treatment, no physician-patient relationship existed and the special duty of a doctor to the patient did not arise. *Accord* *Keene v. Wiggins*, 69 Cal. App. 3d 308, 138 Cal. Rptr. 3 (1977).

680. *See, e.g.*, *Betesh v. United States*, 400 F. Supp. 238 (D.D.C. 1974); *Wojcik v. Aluminum Co. of Am.*, 18 Misc. 2d 740, 183 N.Y.S.2d 351 (Sup. Ct. 1959).

681. *See, e.g.*, *James v. United States*, 483 F. Supp. 581 (N.D. Cal. 1980); *Coffee v. McDonnell-Douglas Corp.*, 8 Cal. 3d 551, 503 P.2d 1366, 105 Cal. Rptr. 358 (1972). *See generally* *Blum, Corporate Liability for In-house Medical Malpractice*, 22 St. Louis U. L.J. 433 (1978).

682. *See, e.g.*, *Riste v. General Elec. Co.*, 47 Wash. 2d 680, 289 P.2d 338 (1955).

683. *See* *Battistella v. Society of the N.Y. Hosp.*, 9 A.D.2d 75, 191 N.Y.S.2d 626 (1959) (dictum).

684. *See* *Betesh v. United States*, 400 F. Supp. 238, 246-47 (D.D.C. 1974).

685. This means that even though there was no duty to provide medical services, having voluntarily chosen to do so, the employer assumed a legal duty to act with reasonable care. *See* *Union Carbide & Carbon Corp. v. Stapleton*, 237 F.2d 229, 232-33 (6th Cir. 1956).

686. In fact, many occupational physicians have various "hybrid" employment relationships and most medical services rendered in the workplace are performed for the benefit of both the employer and the employee. Therefore, to determine if there is a physician-patient relationship other factors also need to be considered, including whether there is an ongoing medical relationship between the parties or merely a single examination, what the reasonable expectations of the physician and patient as to the nature of the examination are, whether any diagnosis or treatment is contemplated by the examination, and the nature of the employee's consent to the examination.

687. 39 Cal. 2d 781, 249 P.2d 8 (1952).

nia Supreme Court held that the plaintiff could maintain a cause of action because the defendant-employer's negligent treatment occurred when the employer was acting in his second capacity, as a chiropractor. Some jurisdictions have construed *Duprey* to be limited to situations where the employer's negligence aggravated a compensable injury or illness, the employer was not required to render medical treatment, or the injury or illness for which treatment was initially sought was noncompensable under workers' compensation.⁶⁸⁸

An important extension of *Duprey* involves the failure of the company physician to detect or to inform the employee of illness after an examination performed for the employer's benefit. In *Bednarski v. General Motors Corp.*,⁶⁸⁹ the court permitted a wrongful death action based on the company doctor's failure to diagnose or to inform the plaintiff's decedent that he had lung cancer, despite performing a series of physical examinations and x-rays for the employer's benefit. Only if the injury was noncompensable, however, could the plaintiff recover.⁶⁹⁰

An employer might also be held liable for negligently failing to discover an employee's propensity to contract a compensable, work-related illness, thereby permitting the employee to be exposed to conditions that bring about the disease.⁶⁹¹ In such a case, however, the plaintiff would be required to prove that a reasonably prudent company doctor exercising ordinary skill and judgment would have detected the employee's likelihood of contracting an occupational disease. It is unlikely, at least at the present time, that an employer would be liable where the employee's predisposition was slight or could only be detected through sophisticated biochemical or cytogenetic procedures.

In almost all jurisdictions an exception to the exclusive remedy rule is recognized for intentional torts.⁶⁹² In *Mandolidas v. Elkins*

688. See, e.g., *McCormick v. Caterpillar Tractor Co.*, 85 Ill. 2d 352, 423 N.E.2d 876 (1981). See generally Note, *The Malpractice Liability of Company Physicians*, 53 IND. L.J. 585 (1978).

689. 88 Mich. App. 482, 276 N.W.2d 624 (1979); accord *Hoover v. Williamson*, 236 Md. 250, 203 A.2d 861 (1964) (silicosis).

690. Many of these failure-to-diagnose-or-inform cases are based on illnesses unrelated to work that were allegedly detectable during preemployment examinations. See, e.g., *Betesh v. United States*, 400 F. Supp. 238 (D.D.C. 1974) (Hodgkins disease); *Wojcik v. Aluminum Co. of Am.*, 18 Misc. 2d 740, 183 N.Y.S.2d 351 (Sup. Ct. 1959) (tuberculosis).

691. See *Brown v. Scullin Steel Co.*, 364 Mo. 225, 260 S.W.2d 513 (1953); *Riste v. General Elec. Co.*, 47 Wash. 2d 680, 289 P.2d 338 (1955).

692. See *Austin v. Johns-Manville Sales Corp.*, 508 F. Supp. 313 (D. Me. 1981), and authorities cited therein. Where an employer knowingly exposes employees to known hazards, the factual question of how substantially certain the result was may determine whether the employer's act was intentional or merely negligent. See W. PROSSER, *supra* note 667, at 31-32.

Industries, Inc.,⁶⁹³ the West Virginia Supreme Court of Appeals greatly expanded the rule and held an employer liable for employee injuries resulting from the employer's willful, wanton or reckless misconduct.⁶⁹⁴

A more substantial body of law exists to allow recovery for injury or illness caused by the fraud or deceit of the employer. For example, if employers fraudulently conceal from employees the fact that they suffer from lung cancer⁶⁹⁵ or silicosis,⁶⁹⁶ the employees may bring damage actions for injuries caused by the aggravation of their initial condition. Fraudulent concealment of information about hazardous working conditions may also permit an injured employee to recover.⁶⁹⁷

The "exclusive remedy" provisions of workers' compensation laws⁶⁹⁸ only apply to actions brought by injured employees against *their* employer. Virtually all jurisdictions permit "third party ac-

Where known susceptible employees are concerned, illness is, arguably, more substantially certain to occur.

693. 246 S.E.2d 907 (W. Va. 1978); *accord* *Blankenship v. Cincinnati Milacron Chem. Inc.*, 69 Ohio St. 2d 608, 433 N.E.2d 572 (1982); *see also* *Wade v. Johnson Controls, Inc.*, 693 F.2d 19 (2d Cir. 1982) (Vermont law applied).

694. *But see* *Jacobsen v. Southeast Distrib., Inc.*, 413 So. 2d 995 (La. App. 1982) (failure of employee's supervisor to supply requested safety equipment is *not* an intentional tort).

695. *Johns-Manville Prods. Corp. v. Superior Court*, 27 Cal. 3d 465, 612 P.2d 948, 165 Cal. Rptr. 858 (1980).

696. *Delamotte v. Unitcast Div. of Midland Ross Corp.*, 64 Ohio App. 2d 159, 411 N.E.2d 814 (1978).

697. *See In re Johns-Manville Asbestosis Cases*, 511 F. Supp. 1229 (N.D. Ill. 1981).

698. Employees have attempted to bring private actions for damages based on OSHA. Section 4(b)(4) of OSHA, 29 U.S.C. § 635(b)(4) (1976), would appear to preclude such actions. Nonetheless, plaintiffs assert that an implied right of action exists under the statute and the federal common law. Courts unanimously reject both theories. *Jeter v. St. Regis Paper Co.*, 507 F.2d 973 (5th Cir. 1975); *Byrd v. Fieldcrest Mills*, 496 F.2d 1323 (4th Cir. 1974) (per curiam); *Russell v. Bartley*, 494 F.2d 334 (6th Cir. 1974) (per curiam).

Even though OSHA does not *create* any private rights of action, OSHA violations and standards may be relevant to actions with a valid common law or statutory basis. The admissibility of either OSHA violations or standards depends on state law. The results have varied. The Supreme Court of Alabama held admissible evidence that the defendant had been cited by OSHA. *Industrial Tile, Inc. v. Stewart*, 388 So. 2d 171 (Ala. 1980), *cert. denied*, 449 U.S. 1081 (1981). More often the plaintiff or defendant will seek to introduce the OSHA regulation to establish the applicable standard of care. A majority of jurisdictions deciding the issue have held that OSHA standards are admissible and relevant in establishing the standard of care. *See, e.g.*, *Jordan v. Kelly-Springfield Tire & Rubber Co.*, 624 F.2d 674 (5th Cir. 1980) (per curiam) (defendant introduced evidence of compliance with OSHA standard); *Ceco Corp. v. Maloney*, 404 A.2d 935 (D.C. 1979) (plaintiff permitted to introduce OSHA standards). A minority view is that failure to conform to the OSHA standard is negligence per se. *See, e.g.*, *Koll v. Manatt's Transp. Co.*, 253 N.W.2d 265 (Iowa 1977). Other jurisdictions have held, on the other extreme, that OSHA standards are inadmissible, either by statute, *see* *Spencer v. G.A. MacDonald Constr. Co.*, 63 Cal. App. 3d 836, 134 Cal. Rptr. 78 (1978), or by case law. *See, e.g.*, *Arvas v. Feather's Jewelers*, 92 N.M. 89, 582 P.2d 1302 (1978). *See generally* M. ROTHSTEIN, *supra* note 357, § 511.

tions" against other employers and individuals.⁶⁹⁹ Individuals or entities, by contract or voluntarily, can assume duties that would not otherwise exist. For example, in *Caldwell v. Bechtel, Inc.*,⁷⁰⁰ an employee who contracted silicosis while working on a subway tunnel brought an action against the consulting engineering firm, which had a contractual obligation to provide safety engineering services. The D.C. Circuit held that the contractual authority created a special relationship between the worker and the firm, breach of which gave rise to an action for damages.⁷⁰¹

Liability may also flow from the "good Samaritan" rule which permits recovery against one who voluntarily assumes a duty and then breaches that duty.⁷⁰² In *Heinrich v. Goodyear Tire & Rubber Co.*,⁷⁰³ an employee of Kelly-Springfield Tire Co., a wholly-owned subsidiary of Goodyear, contracted an unspecified occupational disease. The employee and his wife then brought an action against Goodyear alleging, among other things, that Goodyear undertook to provide Kelly with health and safety information and services and that Goodyear's failure to do so resulted in the employee's disease.⁷⁰⁴

In about half of the jurisdictions to consider the issue,⁷⁰⁵ the employer's workers' compensation insurer may be liable to an injured employee if the insurer undertakes to conduct a safety and health

699. Some examples of these kinds of actions are those brought: (1) against coemployers; (2) by employees of subcontractors against general contractors; (3) by employees of general contractors against subcontractors; (4) against coemployees; and (5) against property owners. See generally F. BARON, HANDLING OCCUPATIONAL DISEASE CASES ch. 5 (1981); M. ROTHSTEIN, *supra* note 357, § 506.

700. 631 F.2d 989 (D.C. Cir. 1980).

701. 631 F.2d at 1001-03. See generally Sweet, *Site Architects and Construction Workers: Brothers and Keepers or Strangers?* 28 EMORY L.J. 291 (1979).

702. § 324A. Liability to Third Person for Negligent Performance of Undertaking.

One who undertakes, gratuitously or for consideration, to render services to another which he should recognize as necessary for the protection of a third person or his things, is subject to liability to the third person for physical harm resulting from his failure to exercise reasonable care to protect his undertaking, if

(a) his failure to exercise reasonable care increases the risk of such harm, or
(b) he has undertaken to perform a duty owed by the other to the third person, or
(c) the harm is suffered because of reliance of the other or the third person upon the undertaking.

RESTATEMENT (SECOND) OF TORTS § 324A (1965).

703. 532 F. Supp. 1348 (D. Md. 1982).

704. Although acknowledging that an action could be based on § 324A, the court held that the plaintiffs failed to allege that Goodyear completely assumed this duty, as required by § 324A(b). 532 F. Supp. at 1355.

705. See, e.g., *Kohr v. Johns-Manville Corp.*, 534 F. Supp. 256 (E.D. Pa. 1982); *Beasley v. MacDonald Engg. Co.*, 287 Ala. 189, 249 So. 2d 844 (1971); *Corson v. Liberty Mut. Ins. Co.*, 110 N.H. 210, 265 A.2d 315 (1970) (per curiam) (permitting action). *Contra* *Matthews v. Liberty Mut. Ins. Co.*, 354 Mass. 470, 238 N.E.2d 348 (1968); *Smith v. Allendale Mut. Ins. Co.*, 410 Mich. 685, 303 N.W.2d 702 (1981).

inspection and negligently fails to discover hazards.⁷⁰⁶ It may be difficult, however, to prove that the defendant's breach of duty proximately caused the plaintiff's injury.⁷⁰⁷ A similar theory has been used in actions brought against the state and federal governments for negligence in conducting OSHA or state OSHA inspections.⁷⁰⁸

The fastest growing area of third-party litigation is products liability. The employee alleges that an injury or illness was caused by a product manufactured by the defendant and distributed or supplied to the employer.⁷⁰⁹ In the leading case of *Borel v. Fibreboard Paper Products Corp.*,⁷¹⁰ an industrial insulation worker who had contracted asbestosis and mesothelioma sued the manufacturers of the insulation materials. The Fifth Circuit held that the defendants breached their duty to warn of the foreseeable dangers associated with handling asbestos.

Most products liability actions have been brought against manufacturers of products used in the work or production process. The same theory could be used for actions against the manufacturers of safety or even medical equipment. For example, in *Porter v. American Optical Corp.*,⁷¹¹ a successful products liability action was brought against the manufacturer of a defectively designed respirator and filter apparatus. The plaintiff's decedent, an employee in a gypsum plant, had contracted asbestosis while using the defective respirator.

Reproductive hazards pose a great potential for tort liability. Where an employee is exposed to gametotoxins and sterilization results, the injury to the employee probably would be considered, for liability purposes, as any other occupational illness. The unique le-

706. RESTATEMENT (SECOND) OF TORTS § 324A (1965).

707. See *Glover v. Silent Hoist & Crane Co.*, 471 F. Supp. 457 (N.D. Ala. 1979). Cf. D.C. CODE ANN. § 36-304(c) (1981) (immunizing compensation carrier from liability for negligent voluntary inspection).

708. In actions against the state, and in actions against the federal government under the Federal Tort Claims Act, 28 U.S.C. § 1346 (1976), the plaintiff must prove four elements: (1) the cause of action must allege the breach of a duty recognized by state law; (2) there must have been a breach of the duty; (3) the breach must be the proximate cause of the plaintiff's injury; and (4) the governmental defendant must not be exempt from suit under state law or the discretionary function exception of the Federal Tort Claims Act. See *Blessing v. United States*, 447 F. Supp. 1160 (E.D. Pa. 1978) (Federal Tort Claims Act); *Wallace v. State*, 557 P.2d 1120 (Alaska 1976) (state law).

709. By contrast, in "dual capacity" products liability actions the allegedly defective product is manufactured by the injured employee's own employer. See notes 674-75 *supra* and accompanying text.

710. 493 F.2d 1076 (5th Cir. 1973), *cert. denied*, 419 U.S. 869 (1974). See generally Comment, *Asbestos Litigation: The Dust Has Yet to Settle*, 7 FORDHAM URB. L.J. 55 (1978).

711. 641 F.2d 1128 (5th Cir.), *cert. denied*, 454 U.S. 1109 (1981).

gal issues surround the injury to or death of offspring of an exposed parent.

At common law, no cause of action was recognized for negligently inflicted prenatal injuries.⁷¹² Beginning in 1946,⁷¹³ the earlier view was overruled. By 1967 every jurisdiction in the United States adopted the position that if a child is born alive, it may maintain an action for prenatal injuries, and if the child dies of prenatal injuries after birth, an action will lie for wrongful death.⁷¹⁴

The jurisdictions are very closely divided on the question of whether a cause of action will lie for prenatal injuries where the child is stillborn. A slight majority of jurisdictions recognize such actions,⁷¹⁵ but a substantial minority disagree.⁷¹⁶ Of those jurisdictions permitting recovery, virtually all of them require that the child be "viable" at the time of the injury.⁷¹⁷

712. *Dietrich v. Inhabitants of Northhampton*, 138 Mass. 14, 15 (1884) (Holmes, J.). See generally Gordon, *The Unborn Plaintiff*, 63 MICH. L. REV. 579 (1965); Note, *The Impact of Medical Knowledge on the Law Relating to Prenatal Injuries*, 110 U. PA. L. REV. 554 (1962).

713. See *Bonrest v. Kotz*, 65 F. Supp. 138 (D.D.C. 1946).

714. W. PROSSER, *supra* note 667, at 336-37.

715. *Simmons v. Howard Univ.*, 323 F. Supp. 529 (D.D.C. 1971); *Eich v. Gulf Shores*, 293 Ala. 95, 300 So. 2d 354 (1974); *Hatala v. Markiewicz*, 26 Conn. Supp. 358, 224 A.2d 406 (1966); *Worgan v. Greggo & Ferrara, Inc.*, 50 Del. 258, 128 A.2d 557 (1956); *Porter v. Lassiter*, 91 Ga. App. 712, 87 S.E.2d 100 (1955); *Volk v. Baldazo*, 651 P.2d 11 (Idaho 1982); *Green v. Smith*, 71 Ill. 2d 501, 377 N.E.2d 37 (1978); *Britt v. Sears*, 150 Ind. App. 487, 277 N.E.2d 20 (1971); *Halve v. Manion*, 189 Kan. 143, 368 P.2d 1 (1962); *Rice v. Rizk*, 453 S.W.2d 732 (Ky. 1970); *Wascom v. American Indem. Corp.*, 383 So. 2d 1037 (La. App.), *cert. granted*, 383 So. 2d 256 (La. 1980); *State ex rel. Oldham v. Sherman*, 234 Md. 179, 198 A.2d 71 (1964); *Mone v. Greyhound Lines, Inc.*, 368 Mass. 354, 331 N.E.2d 916 (1975); *O'Neill v. Morse*, 385 Mich. 130, 188 N.W.2d 785 (1971); *Pehrson v. Kistner*, 301 Minn. 299, 222 N.W.2d 334 (1974); *Rainey v. Horn*, 221 Miss. 269, 72 So. 2d 434 (1954); *White v. Yup*, 85 Nev. 527, 458 P.2d 617 (1969); *Poliquin v. MacDonald*, 101 N.H. 104, 135 A.2d 249 (1957); *Stidam v. Ashmore*, 109 Ohio App. 431, 167 N.E.2d 106 (1959); *Evans v. Olson*, 550 P.2d 924 (Okla. 1974); *Presley v. Newport Hosp.*, 117 R.I. 177, 365 A.2d 748 (1976); *Fowler v. Woodward*, 244 S.C. 608, 138 S.E.2d 42 (1964); *Moen v. Hanson*, 85 Wash. 2d 597, 537 P.2d 266 (1975); *Baldwin v. Butcher*, 155 W. Va. 431, 184 S.E.2d 428 (1971); *Kwaterski v. State Farm Mut. Auto. Ins. Co.*, 34 Wis. 2d 14, 148 N.W.2d 107 (1967).

716. *Mace v. Jung*, 210 F. Supp. 706 (D. Alaska 1962); *Kilmer v. Hicks*, 22 Ariz. App. 552, 529 P.2d 706 (1974); *Justus v. Atchinson*, 19 Cal. 3d 564, 565 P.2d 122, 139 Cal. Rptr. 97 (1977); *Duncan v. Flynn*, 358 So. 2d 178 (Fla. 1978); *McKillip v. Zimmerman*, 191 N.W.2d 706 (Iowa 1971); *State ex rel. Hardin v. Sanders*, 538 S.W.2d 336 (Mo. 1976); *Drabbels v. Skelly Oil Co.*, 155 Neb. 17, 50 N.W.2d 229 (1951); *Graf v. Tagger*, 43 N.J. 303, 204 A.2d 140 (1964); *Endresz v. Friedberg*, 24 N.Y.2d 478, 248 N.E.2d 901, 301 N.Y.S.2d 65 (1969); *Gay v. Thompson*, 266 N.C. 394, 146 S.E.2d 425 (1966); *Marko v. Philadelphia Transp. Co.*, 420 Pa. 124, 216 A.2d 502 (1966); *Durrentt v. Owens*, 212 Tenn. 614, 371 S.W.2d 433 (1963); *Laurence v. Craven Tire Co.*, 210 Va. 138, 169 S.E.2d 440 (1969).

717. But see *Porter v. Lassiter*, 91 Ga. App. 712, 87 S.E.2d 100 (1955) ("quick" child, even if nonviable); *Presley v. Newport Hosp.*, 117 R.I. 177, 365 A.2d 748 (1976) (viability irrelevant). All of the other jurisdictions permitting recovery require viability. Morrison, *Torts Involving the Unborn—A Limited Cosmology*, 31 BAYLOR L. REV. 131, 151 (1979); Robertson, *Toward Rational Boundaries of Tort Liability for Injury to the Unborn: Prenatal Injuries, Preconception Injuries and Wrongful Life*, 1978 DUKE L.J. 1401, 1418.

"Viable" has been defined as that stage of development, usually after the second trimester,

Where the child is born alive, it must be determined whether the harm to the child resulted from preconception exposure of the mother or father or post-conception exposure of the mother. Post-conception harms are actionable, regardless of whether the child was viable at the time of injury, so long as the child is born alive.⁷¹⁸ Where the injury to the child results from preconception parental exposures, however, the law is less clear. In the leading case of *Ren-slow v. Mennonite Hospital*,⁷¹⁹ the mother was thirteen years old when she received a transfusion of incompatible blood. Although the hospital knew of the error, it never informed her. Eight years later, when the woman had a baby, the child was born with brain damage and other defects caused by prenatal damage to her hemolytic process. The Supreme Court of Illinois held that the child had a cause of action against the hospital for injuries resulting from the negligent transfusion.⁷²⁰ Although there are no reported cases involving preconception exposure to toxic substances in the workplace, it is quite possible that such actions might be brought in the future.⁷²¹

Applying the general principles of recovery for prenatal injuries to the occupational setting raises a number of legal and factual issues.⁷²² First, the right to maintain an action for wrongful death or for birth defects may depend on whether the fetus was viable at the

when the child could survive if separated from the mother. This position was originally expressed in *Allaire v. St. Luke's Hosp.*, 184 Ill. 359, 56 N.E. 638 (1900) (Boggs, J., dissenting). The concept of "viability" has been relied upon by the Supreme Court in ruling on the constitutionality of abortion. See *Roe v. Wade*, 410 U.S. 113, 160-65 (1973).

718. See *Sylvia v. Gobeille*, 101 R.I. 76, 220 A.2d 222 (1976), and cases cited therein. There is, however, some authority to the contrary. See *Evans v. Olson*, 550 P.2d 924, 926 n.1 (Okla. 1976).

719. 67 Ill. 2d 348, 367 N.E.2d 1250 (1977).

720. Other courts have permitted recovery for preconception injuries arising from a physician's negligence in performing a Caesarean section on the mother several years before the child's birth, and based on products liability where birth control pills altered the mother's chromosomal structure and the women gave birth to twins with Down's syndrome. *Bergstreser v. Mitchell*, 577 F.2d 22 (9th Cir. 1978); *Jorgensen v. Meade Johnson Labs., Inc.*, 483 F.2d 237 (10th Cir. 1973).

721. See *Dillon v. S.S. Kresge Co.*, 35 Mich. App. 603, 192 N.W.2d 661 (1971) (complaint alleging prenatal injury when mother was exposed to and contracted rubella due to employer's negligence stated a cause of action against employer); cf. *Monaco v. United States*, 661 F.2d 129 (9th Cir. 1981) (action brought under Federal Tort Claims Act by daughter of army officer exposed to radiation, alleging that father's exposure had mutagenic effects that caused her to be born with birth defects, including permanent brain damage; action barred by *Feres* doctrine, which immunized United States for injuries to members of armed services, *Feres v. United States*, 340 U.S. 135 (1950)), cert. denied, 102 S. Ct. 2269 (1982); *In re "Agent Orange" Prod. Liab. Litig.*, 506 F. Supp. 762, 781 (E.D.N.Y. 1980) (actions brought by children who suffered genetic and somatic injuries because of parental exposure to agent orange; actions barred by *Feres* doctrine).

722. See generally Note, *Birth Defects Caused by Parental Exposure to Workplace Hazards: The Interface of Title VII with OSHA and Tort Law*, 12 U. MICH. J.L. REF. 237, 253-58 (1979).

time of the injury. Because most fetal injuries caused by toxic substances occur during the early stages of pregnancy,⁷²³ this may bar recovery. Second, in an action based on negligence, the court must accept the theory that a duty is owed to a child even before conception.⁷²⁴ Furthermore, it is not clear what effect compliance with an OSHA standard would have on such an action.⁷²⁵ Under a strict liability theory, the plaintiff would have to prove that the activity (use of toxic substance) was "abnormally dangerous" or "ultra-hazardous."⁷²⁶

A third set of issues surrounds the burden of proof. The frequent lack of medical evidence regarding birth defects may make it difficult to prove that workplace exposure caused the injuries. It may also be difficult to prove that the injuries occurred after conception because many toxic substances are both mutagenic and teratogenic.⁷²⁷

Finally, the employer may assert defenses. A parent's contributory negligence cannot be imputed to the child,⁷²⁸ nor can the child be said to have assumed the risk.⁷²⁹ The employer's best argument would be that the parent's negligence was a superseding cause of the injury, thereby relieving the employer of liability.⁷³⁰ Closely related to this is the notion that responsibility had shifted from the employer to the parent.⁷³¹ The raising of defenses relating to proximate cause

723. See notes 110-15 *supra* and accompanying text.

724. See *Renslow v. Mennonite Hosp.*, 67 Ill. 2d 348, 357-59, 367 N.E.2d 1250, 1254-56 (1977).

725. Although it has been held that OSHA has the statutory authority to protect the health of fetuses, see *United Steelworkers v. Marshall*, 647 F.2d 1189, 1256 n.96 (D.C. Cir. 1980), *cert. denied*, 453 U.S. 913 (1981), few standards were intended to or are capable of adequately protecting fetuses.

726. See W. PROSSER, *supra* note 667, at 505-16. One possible theory of liability is suggested by *Hughson v. St. Francis Hosp.*, 92 A.D.2d 131, 459 N.Y.S.2d 814 (1983), in which the court held that the defendant's failure to inform a mother of the risks, hazards and alternatives of obstetric care gives rise to an action by the child for lack of informed consent. Therefore, it could be argued that if an employer does not advise a pregnant employee of the risks associated with continued exposure, then an action would lie for the child. The issue of what happens if the mother continues to work in the face of a warning is discussed below. See notes 728-32 *infra*.

727. See note 121 *supra* and accompanying text.

728. See W. PROSSER, *supra* note 667, at 490.

729. See *id.* at 447-48; see also Note, *Recovery for Prenatal Injuries: The Right of a Child Against Its Mother*, 10 SUFFOLK U. L. REV. 582 (1976).

730. See *Cowden v. Bear Country, Inc.* 382 F. Supp. 1321, 1327 (D.S.D. 1974). This argument, however, will not succeed where the intervening cause was foreseeable. RESTATEMENT (SECOND) OF TORTS § 447 (1965).

731. RESTATEMENT (SECOND) OF TORTS § 452(2) comment f (1965), lists five factors used in determining whether responsibility has shifted:

- (1) degree of danger and magnitude of the risk of harm;
- (2) character and position of the third person who is to take responsibility;

invariably requires an inquiry into public policy,⁷³² which, in this area, has yet to be spelled out.

CONCLUSION: IN SEARCH OF PUBLIC POLICY

Medical science is still at the beginning stages in attempting to understand the concept of varied susceptibility to occupational disease. It is small wonder, then, that for the most part the law has failed to react to this phenomenon. Nevertheless, there is a strong potential that new scientific discoveries could be made with a rapidity that would bring a variety of societal problems in their wake with which we are not prepared to deal.⁷³³ The evidence of current employer practices indicates that the time is already at hand for formulating responsive legal and social policy in this area.

When an individual's present physical condition, even with reasonable accommodation, precludes the performance of an essential job function it is neither illegal nor unfair for the individual to be denied that particular job. High-risk persons, however, are generally healthy and asymptomatic and currently able to perform the job. If they are to be denied employment on some rational basis, it must be because of an unacceptable risk of future illness. The first question, of course, is unacceptable to whom? The law has limited employer prerogatives in employee selection and has even imposed additional costs, such as professional test validation, when it considered important societal interests at stake. Under what circumstances should the law prevent an employer from denying employment to a person considered to be "at risk"? What are the societal costs of permitting the affected individual to decide whether to accept the risk? On the basis of what information should such decisions be made?

To begin addressing any of the preceding questions it is essential to define the risk.⁷³⁴ In any given employment setting risk will depend on several factors, including the following: First, who is at risk?

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- (3) the third person's knowledge of the danger and the likelihood that he or she will or will not exercise proper care;
 - (4) the third party's relation to the plaintiff or to the defendant; and
 - (5) the lapse of time and other considerations.

732. "What we do mean by the word 'proximate' is that, because of convenience, of public policy, of a rough sense of justice, the law arbitrarily declines to trace a series of events beyond a certain point. This is not logic. It is practical politics." *Palsgraf v. Long Island R.R.*, 248 N.Y. 339, 352, 162 N.E. 99, 103 (1928) (Andrews, J., dissenting).

733. "Research is progressing at a breathtaking pace; [genetic] markers found in the laboratory just months ago are already being introduced into clinical practice." Z. HARSANYI & R. HUTTON, *supra* note 52, at 29.

734. See Murray, *Warning: Screening Workers for Genetic Risk*, 13 HASTINGS CENTER REP. No. 2, at 5 (1983).

In some situations coworkers or the public could be endangered by the sudden onset of illness. In other situations the offspring of exposed workers may be at risk. Second, what is the nature of the risk? The severity of the occupational hazard must be considered. Third, what is the degree of risk? "High risk" is a term often used to refer to persons belonging to a large category whose relative risk is only slightly higher than that of another population.

Quantifying the risk is important, but it does not resolve the question of the acceptability of the risk.⁷³⁵ If the competing societal values are healthy workers and equal employment opportunity, before there can be a balancing of these interests there must be some confidence that the process of selecting healthy workers is accurate and that the health of the workers will be maintained during their employment. Therefore, even if the risk to sensitive individuals can be established, the methods of identifying sensitive individuals must be accurate.

The predictive values of screening tests vary greatly. Tests could have low predictive values because the tests are inaccurate in measuring the existence of a particular trait or invalid because there is little correlation between the presence of the trait and the incidence of occupational illness. If the use of a test with a low predictive value results in the adverse treatment of an applicant or employee the result is certainly unfair in the normative sense. The question is whether this unfairness should be remedied by the law.

Unfortunately, unfairness has never been the *sine qua non* for the law to intervene in the employment relationship. Undoubtedly, there are those who would argue that there is nothing inherently or sufficiently outrageous about unfair medical screening to warrant a further intrusion into employer prerogatives. After all, discrimination based on factors such as appearance, political affiliation, or sexual preference are not prohibited in private employment. Under what circumstances, then, should unfair medical screening be remedied and how?

Ironically, where test procedures have a high predictive value the societal problems become even more complex. While the employer's justifications for exclusion are more soundly based, the potential adverse consequences of such screening are also more troubling. It is foreseeable that the potential workforce could be screened into two classes of individuals. One group would contain disease-resistant persons. The other group would contain asymptomatic persons who

735. See generally W. LOWRANCE, *OF ACCEPTABLE RISK* (1976).

are unemployable in certain industries because of an atypical hereditary trait, chromosomal anomaly, or epidemiologically derived higher risk of occupational illness. If discrimination based on high predictive value testing is prohibited, should this apply to all high-risk individuals, or should it be limited to persons whose increased risk is hereditary or innate rather than based on individually controllable criteria such as diet, tobacco usage, or prior exposures?⁷³⁶

By all indications, science will soon have the ability to perform increasingly sophisticated screening tests and the implications for society will also increase.

Soon we may find ourselves caught in an ever-tightening spiral: finding markers for more subtle problems, discovering larger numbers of susceptible workers, labeling more and different types of environments as hazardous. It is not inconceivable that, through screening, industry will become the modern counterpart of Diogenes as it searches for a perfect worker.⁷³⁷

Screening programs are also self-perpetuating in at least two other ways. First, because of the hereditary basis of many types of increased risk, future generations of the same families, races, and ethnic groups could be screened out. Second, because of the healthy worker effect,⁷³⁸ studies of workers exposed to toxic substances could produce artificially low morbidity rates. Based on this compounded data, threshold limit values could be set at levels where only resistant workers will be able to work without adverse effects. This, in turn, could lead to even more screening. Such developments would confirm the widely expressed fear that screening programs place the burden of cleaning up the workplace on the worker rather than on the companies.⁷³⁹

A wide range of larger ethical and societal questions are inherent in any effort to address the legal problems raised by employer screening for susceptibility to occupational illness. For example,

736. See generally Underwood, *Law and the Crystal Ball: Predicting Behavior with Statistical Inference and Individualized Judgment*, 88 YALE L.J. 1408 (1979).

737. Z. HARSANYI & R. HUTTON, *supra* note 52, at 117-18.

738. One of the prerequisites for being employable is a relatively good state of health. The more physically demanding the job the higher the health requirements. Those who are not fit will not be hired, and those already employed will not remain so once their health deteriorates below a certain level. This selective process, enforced by preemployment examinations, periodic checkups and other activities of occupational health services, results in lower death rates than in the general population for occupationally active groups — provided that no life-shortening hazards occur in the work environment. It has become commonplace to call this phenomenon the “healthy worker” effect. Hernberg, *Epidemiology in Occupational Health*, in DEVELOPMENTS IN OCCUPATIONAL MEDICINE 34 (C. Zenz ed. 1980). With more screening this effect will be heightened to be an “extra-healthy” worker effect.

739. See Severo, *supra* note 265; Severo, *supra* note 144, at A1, col. 1.

what is society's obligation to persons born with lesser "natural endowment"⁷⁴⁰ and what are the societal costs of screening out high-risk workers? Indeed, some potential adverse consequences of screening programs go well beyond the workplace.⁷⁴¹

Not all screening programs, however, are objectionable. A properly administered program of screening individuals for increased risk of disease may be quite beneficial to society in disease prevention, reproductive planning, and other areas.⁷⁴² In the workplace setting, screening techniques could be helpful in identifying individuals in need of increased protection and in the early detection of occupational disease. The dangers are that companies will base their policies on scant or inconclusive data and that procedures will be used indiscriminately and with harsh consequences for at-risk populations.

Many of the numerous questions raised in this Article cannot be resolved at the present time. The following two questions, however, are the most important and must be addressed. First, should the law regulate employer practices that screen workers for increased risk of occupational illness? Second, how can the law act to prohibit discrimination based on increased risk and still encourage the salutary aspects of workplace screening and monitoring programs?

The legal brief supporting an affirmative answer to the first question already has been written in the public policy pronouncements of existing laws and judicial decisions. OSHA mandates that workplaces be made safe and healthful so that "no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard . . . for the period of his working life."⁷⁴³ Congress intended that employers have the final responsibility for ensuring employee safety and health by elimi-

740. See J. RAWLS, A THEORY OF JUSTICE 100-04 (1971); see also Schneiderman, *Standard Setting: Implications of Sensitivity, and a Search for an Ethical Base*, 3 ANNALS AM. CONF. GOVTL. INDUS. HYGIENISTS 133 (1982).

741. Evidence of stigmatization in the United States is seen in job discrimination, in proposals to limit admission to the armed forces to noncarriers, and in increases in insurance premiums. Nine of twelve insurance companies in one sample charged higher rates for individuals with sickle trait even though mortality curves for such individuals do not differ significantly from blacks without the trait.

NATIONAL ACADEMY OF SCIENCES, GENETIC SCREENING 126 (1975) (footnotes omitted) [hereinafter cited as NAS GENETIC SCREENING]. See generally Damme, *Controlling Genetic Disease Through Law*, 15 U.C.D. L. REV. 801 (1982); Waltz & Thigpen, *Genetic Screening and Counseling: The Legal and Ethical Issues*, 68 NW. U. L. REV. 696 (1973).

742. See, e.g., National Sickle Cell Anemia, Cooley's Anemia, Tay-Sachs and Genetic Diseases Act, 42 U.S.C. §§ 300b to 300b-6 (1976 & Supp. V 1981); NAS GENETIC SCREENING, *supra* note 741, at 225-72; Z. HARSANYI & R. HUTTON, *supra* note 52, at 121.

743. 29 U.S.C. § 655(b)(5) (1976) (emphasis added).

nating workplace hazards, not by eliminating high-risk workers.⁷⁴⁴

Title VII and the Rehabilitation Act also support the view that discrimination based on susceptibility to occupational illness should be prohibited. It is well settled that employment practices may not be based on stereotypes or presumptions; there must be an individualized determination of present ability to perform the job.⁷⁴⁵ Even accurate class-based statistics cannot justify individual discrimination.⁷⁴⁶ In addition, sensitive workers have long been held to be entitled to benefits under state workers' compensation laws.⁷⁴⁷

Perhaps the most compelling reason for prohibiting employment discrimination based on susceptibility to occupational illness is that susceptibility is often "an immutable characteristic determined solely by the accident of birth."⁷⁴⁸ The law has traditionally viewed with disfavor any differentiation in treatment based on immutable characteristics like race, sex, alienage, and legitimacy. Therefore, a person's genetic or environmentally-induced predisposition to occupational illness, which does not affect "present ability" to perform the job, should not be permitted to result automatically in an adverse employment decision.⁷⁴⁹

While there has been much discussion of the relative predictive values of screening procedures, as a legal matter predictive value may be irrelevant. Low predictive value tests should be illegal because of their unfairness. High predictive value tests could be illegal on public policy grounds.⁷⁵⁰ In any event, it is clear that present legal protections are woefully inadequate and that new legislation is necessary to clarify existing laws and to delineate new responses to the novel issues raised by screening for high-risk workers.⁷⁵¹

744. "Final responsibility for compliance with the requirements of this Act remains with the employer." S. REP. NO. 1282, 91st Cong., 2d Sess. 11, *reprinted in* 1970 U.S. CODE CONG. & AD. NEWS 5177, 5187.

745. *See* *Rosenfeld v. Southern Pac. Co.*, 444 F.2d 1219, 1225 (9th Cir. 1971).

746. *See* *City of Los Angeles Dept. of Water & Power v. Manhart*, 435 U.S. 702, 708 (1978).

747. *See* notes 624-26 *supra* and accompanying text.

748. *Frontiero v. Richardson*, 411 U.S. 677, 686 (1973).

749. "Present ability" to perform the job, while appealing in its simplicity, may not be the most appropriate standard for determining the employment rights of high-risk individuals. A person suffering from hemophilia may have the present ability to perform the job of meat cutter, but the societal benefits of providing equal employment opportunities may be more than offset by the societal costs in the not unlikely event that the employee sustains a cut.

750. "Tests," of course, refers to mass screening programs and not individually-based diagnoses. The legality of using high predictive value tests may be related to "risk" and other factors discussed earlier. Tests having a disparate racial or ethnic effect are likely to be the first legislative targets, regardless of their predictive values.

751. Although the specifics of new legislation to protect high-risk individuals is beyond the scope of this Article, any new enactment should have two components. First, it must provide a

Regarding the second question, how to accommodate nondiscrimination with the positive aspects of screening, the answer lies in greater public participation in the development, evaluation, and application of screening procedures. The rights of the persons being screened must be given the highest priority.⁷⁵² Specifically, high-risk individuals should be informed about their predisposition to illness from workplace exposures, should be given the opportunity to make informed choices about their own health management, and should be given every possible protection if they decide to work in the face of known risks.⁷⁵³

Variation in individual susceptibility to occupational illness is a biological fact of life. New developments in medical science to identify and quantify these differences must be approached with caution and the findings must be used within the context of a well-reasoned legal framework. Law and policy must be formulated that will further the goal of equal employment opportunity without sacrificing worker health.

mechanism for rulemaking to evaluate the state of the art in medical screening and to promulgate necessary regulations. OSHA could be amended to provide these additional protections. Second, it must contain substantive rights and procedural means to enforce nondiscrimination. Title VII could be amended to prohibit employment discrimination against high-risk workers.

752. See NAS GENETIC SCREENING, *supra* note 741, at 225-71.

753. It is not clear, of course, what the legal consequences would be if the worker assumed a known workplace risk. See, e.g., *Borel v. Fibreboard Paper Prods. Corp.*, 493 F.2d 1076, 1096-100 (5th Cir. 1973), *cert. denied*, 419 U.S. 869 (1974) (assumption of risk defense available in products liability action based on exposure to asbestos); *Williams v. E.I. Du Pont De Nemours & Co.*, 235 S.C. 497, 112 S.E.2d 485 (1960) (contributory negligence defense available where employee, despite physician's advice, continued work and aggravated his ulcer).