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Linda J. Seifert

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Monitoring Employees for Genetic Alteration: Is State Regulation Essential?

In the past decade, the California Legislature has manifested a clear interest in the eradication of occupationally induced disease.¹ Despite this legislative resolve, reported incidents of occupationally induced diseases continue to increase.² One explanation for the continued increase in occupational disease is the introduction and manufacture

1. See CAL. LAB. CODE §6300. The Labor Code provides:

The California Safety and Health Act of 1973 is hereby enacted for the purpose of assuring safe and healthful working conditions for all California working men and women by authorizing the enforcement of effective standards, assisting and encouraging employers to maintain safe and healthful working conditions, and by providing for research, information, education, training, and enforcement in the field of occupational safety and health. *Id.*

The Hazardous Substances Information and Training Act provides for the development and dissemination of information about the contents and properties of specific hazardous substances for the purpose of reducing preventable health risks. *Id.* §6361. In addition, the California Legislature has enacted section 429.11 of the California Health & Safety Code that provides:

The State Department of Health Services shall maintain a program of occupational health and occupational disease prevention including but not limited to the following:

(a) Investigations into the causes of morbidity and mortality from work induced diseases.

(b) Development of recommendations for improved control of work-induced diseases.

(c) Maintenance of a thorough knowledge of the effects of industrial chemicals and work practices on the health of California workers.

(d) Provision of technical assistance in matters of occupational disease prevention and control to the Department of Industrial Relations and other governmental and non-governmental agencies, organizations, and private individuals.

(e) Collection and summarization of statistics describing the causes and prevalence of work induced diseases in California.

The functions provided for above are intended to implement within the department a continuing research and development capability which will reinforce and strengthen the administration of the Occupational Safety and Health Act, including the capability to recommend occupational health standards to the California Occupational Safety and Health Standards Board. *Id.*

2. Occupational disease and illness accounted for the loss of 850,000 workdays in 1981 nationwide. BUREAU OF LABOR STATISTICS, U.S. DEP'T OF LABOR, BUL. 2164, OCCUPATIONAL INJURIES IN THE UNITED STATES BY INDUSTRY 1981 at, 14 (1983). The most recent California illness and disease statistics provide that 44,414 reports of occupational disease were submitted to the Division of Labor Statistics in 1978, while 43,888 reports were submitted in 1977. DIV. OF LAB. STATISTICS AND RESEARCH, CAL. DEP'T OF INDUSTRIAL RELATIONS, OCCUPATIONAL DISEASE IN CAL. 1978, at 12 (1982) [hereinafter cited as 1978 DISEASE STATISTICS]; DIV. OF LAB. STATISTICS AND RESEARCH, CAL. DEP'T OF INDUSTRIAL RELATIONS, OCCUPATIONAL DISEASE IN CAL. 1977, at 10 (1981) [hereinafter cited as 1977 DISEASE STATISTICS]. Both California publications note that diseases with long latency periods are not well recognized as being work related and are less frequently reported as occupational illnesses. See 1978 DISEASE STATISTICS, *supra* note 2, at 2, and 1977 DISEASE STATISTICS, *supra* note 2, at 1.

of thousands of new chemicals since the end of World War II.³ For many years, researchers have suspected that some of these chemical agents are a cause of occupational diseases such as cancer, anemia, and serious birth defects in worker offspring.⁴ Only recently, however, has a direct connection between certain chemicals and disease been established.⁵ Research data demonstrate that exposures to certain chemicals can cause changes to a worker's chromosomal structure,⁶ and that as these chromosomes replicate and increase in number,⁷ the likelihood that an affected worker will contract cancer, anemia, or produce children with birth defects increases.⁸ Concomitant with the development of information about the link between chemical exposures and disease, scientists have devised medical tests⁹ which can be administered to workers to identify those who have an increased susceptibility¹⁰ to disease because of the genetic changes to cells.¹¹

Under existing statutes and case law,¹² an employer has no duty to conduct genetic tests to determine increased susceptibility to disease.¹³ Although a few employers voluntarily conduct genetic tests,¹⁴ more testing is essential if California is to succeed in reducing incidents of occupational disease. Due to a belief that testing will increase risks of liability,¹⁵ the number of voluntary programs will not likely increase. Without testing, however, workers will continue to be ignorant about an important element of their health status.

3. ASPEN SYSTEMS CORP., CENTER FOR COMPLIANCE INFORMATION, TOXIC SUBSTANCES CONTROL SOURCEBOOK 3 (1978). Since World War II ended, there has been dramatic development of synthetic organic chemicals. There are presently two million recognized chemical compounds, and over 30,000 chemical substances in commerce. *Id.* It is estimated that 1000 new chemicals are introduced in the marketplace each year. *Id.*

4. See *infra* notes 48-58 and accompanying text.

5. See *infra* notes 58-67 and accompanying text.

6. See *infra* notes 48-51 and accompanying text.

7. See *infra* notes 48-52 and accompanying text.

8. See *infra* note 58 and accompanying text.

9. This comment will discuss those tests that are referred to as the field of "cytogenetic testing." See generally CONGRESS OF THE UNITED STATES, OFFICE OF TECHNOLOGY ASSESSMENT, THE ROLE OF GENETIC TESTING IN THE PREVENTION OF OCCUPATIONAL DISEASE 67-75 (1983) (a thorough study by the Office of Technology Assessment of issues relating to genetic testing, with options for Congressional action presented) [hereinafter cited as *ROLE OF GENETIC TESTING*]. The more descriptive term, genetic monitoring, will be used in this comment in lieu of the more technical terminology.

10. In the medical and scientific community, the terms "hypersusceptible," "susceptible," "high risk," and "sensitive" can have different meanings. See *id.* at 27. These words and the term "increased risk" will be used interchangeably to describe a higher than average probability that disease will be contracted.

11. See *infra* notes 48-58 and accompanying text.

12. No statutes or case law address the question of genetic monitoring. See Goodrich, *Are Your Genes Right for Your Job?*, CAL. LAWYER, May, 1983 at 26. The view that federal OSHA required genetic testing has been abandoned. See *infra* note 28.

13. Goodrich, *supra* note 12, at 26.

14. See *infra* notes 89-95 and accompanying text.

15. See *infra* notes 121-23 and accompanying text.

Authority to adopt administrative regulations pertaining to the safety and health of the workplace is vested in the Occupational Safety and Health Standards Board.¹⁶ This comment recommends that the Board adopt administrative regulations¹⁷ that would provide for a program of mandatory administration of medical tests by certain employers¹⁸ to determine whether employees have experienced genetic alterations because of exposures in the workplace. Genetic tests should be made compulsory for those workers for whom occupational exposures present the dangers of contracting identifiable diseases such as cancer and anemia, or of producing serious birth defects in children.

Initially, this comment will describe the scientific data which demonstrate that the presently available technology can produce accurate results predictive of increased risk of disease.¹⁹ This comment will next examine the implications for employees if testing is not governmentally regulated.²⁰ Genetic testing is presently discretionary with employers, and few employers offer employees the opportunity to determine whether exposures in the workplace are affecting their health status.²¹ Finally, this comment will recommend that administrative regulations be adopted under the California Occupational Safety and Health Act (hereinafter referred to as Cal-OSHA)²² to mandate testing in those industries where employee exposures create a risk of contracting diseases that result from chromosomal alterations.²³ Pertinent statutory provisions and administrative regulations providing the foundation for the incorporation of a genetic testing program will be described.²⁴ In addition, the final section will recommend the inclusion of certain key provisions within the mandatory program.²⁵ First, however, the available scientific data must be reviewed to demonstrate that the testing methods are sufficiently perfected to permit regulation.

16. The Occupational Safety and Health Standards Board is under the direction of the Division of Occupational Safety and Health. See *infra* notes 176-89 and accompanying text.

17. See CAL. LAB. CODE §142.3(d). When appropriate, type and frequency of medical examinations or other tests can be required. They are to be completed at the employer's expense for the purpose of determining whether the employee's health has been adversely affected by exposures in the work environment. *Id.*

18. Identification of specific employers or industries that would be affected by any regulations adopted is beyond the scope of this comment. The effects of some chemical agents on chromosomes, however, is discussed. See *infra* notes 71-87 and accompanying text. This comment does not suggest that industries that generate exposure to these chemical agents would necessarily be affected by any regulations.

19. See *infra* notes 26-67 and accompanying text.

20. See *infra* notes 89-174 and accompanying text.

21. See *infra* notes 89-94 and accompanying text.

22. CAL. LAB. CODE §§6300-6708. The purpose of Cal-OSHA is to assure safe and healthful working conditions for all California working men and women. *Id.* §6300.

23. See *infra* notes 176-84 and accompanying text.

24. See *infra* notes 185-93 and accompanying text.

25. See *infra* notes 194-222 and accompanying text.

I. SCIENTIFIC DATA

Scientific data demonstrating that chromosomal alterations are a causal factor in diseases such as cancer and anemia and in the production of birth defects in offspring has been evolving for some time.²⁶ Two particular tests have emerged that industry can utilize to identify heightened susceptibility to disease. Although the administration and laboratory analysis for both these types of tests are the same,²⁷ the tests differ in purpose. These two types, genetic screening tests and genetic monitoring tests, are next described.

A. Genetic Screening and Genetic Monitoring

Genetic screening²⁸ is a form of genetic testing that is designed to identify persons susceptible to disease in certain work settings because of pre-existing or inherited genetic traits.²⁹ Screening is a one-time procedure usually performed in conjunction with a preemployment physical examination.³⁰ One of the key purposes of genetic screening is to prevent susceptible workers from entering a potentially hazardous workplace.³¹

26. See *ROLE OF GENETIC TESTING*, *supra* note 9, at 67-75.

27. Changes to chromosomes can be detected by analyzing blood under precise laboratory conditions. See *id.* at 57; Severo, *Genetic Tests by Industry Raise Questions on Rights of Workers*, N.Y. Times, Feb. 3, 1980, at A1, col. 1. Blood tests are frequently required in mandatory medical surveillance programs. See, e.g., CAL. ADMIN. CODE, tit. 8, R. 5216, App. B, VIII. Blood tests are required for lead exposure. *Id.* R. 5214(n)(2)(D), 5214(n)(3)(A)(4). A complete blood count is required as part of the periodic monitoring program for inorganic arsenic. *Id.* R. 5212(m)(B). Medical surveillance for dibromo-3-chloropropane should include tests for blood dyscrasias. *Id.* R. 5210(k)(1)(C)(1-5). Blood tests required for exposure to vinyl chloride. *Id.*

28. See *ROLE OF GENETIC TESTING*, *supra* note 9, at 89-105 (for a discussion of types of characteristics which can be identified by genetic screening). See generally McGarity and Schroeder, *Risk Oriented Employment Screening*, 59 TEX. L. REV. 999, 1010-12 (1981) (for a discussion of the types of genetic screens used in chemical industries). McGarity and Schroeder conclude that "courts should apply stricter scrutiny to employers' justifications for screens and examine possible alternatives to restrictive screens, such as more sensitive screens or capital expenditures to increase safety." *Id.* at 1003. Some believed, however, that at one time OSHA mandated genetic screening. Severo, *Federal Mandate for Gene Tests Disturbs U.S. Safety Official*, N.Y. Times, Feb. 6, 1980, at A1, col. 7. OSHA, however, stated that the purpose of the language of the regulation was to have physicians conducting medical screening examinations inquire into "family and occupational background, including genetic and environmental factors." Bingham, *Letter to the Editor*, N.Y. Times, Mar. 22, 1980, at A20, col. 5. One writer contends that genetic screening is per se unlawful unless two conditions are met: (1) the employer finds that it is not feasible to maintain a workplace safe and healthful for the hypersusceptible, and (2) the employer can show that a business necessity exists which justifies the exclusion. Note, *Genetic Testing in Employment: Employee Protection of Threat*, 15 SUFFOLK U.L. REV. 1187, 1189 (1981).

29. See *ROLE OF GENETIC TESTING*, *supra* note 9, at 23; see also McGarity and Schroeder, *supra* note 28, at 1010-12. Employers in the chemical industry have occasionally screened potential employees for evidence of genetic susceptibility to industrial diseases. *Id.*

30. See *ROLE OF GENETIC TESTING*, *supra* note 9, at 57.

31. *Id.* at 8.

Genetic monitoring, on the other hand, is genetic testing that will identify persons who experience genetic alterations because of exposures in the work environment.³² Monitoring entails the periodic testing of workers, initially to establish baseline information about chromosomal structure and subsequently to assess damage to the worker's deoxyribonucleic acid (DNA) or chromosomes from exposure to hazardous agents.³³ Of the two types of genetic testing, genetic monitoring is the type which is directly oriented toward the maintenance of employee health.

Although genetic screening programs would provide useful information about a potential employee's health status, a regulation compelling employers to conduct screening tests would probably not survive legal challenge.³⁴ Genetic screening programs tend to curtail employment opportunities for workers with certain ethnic and racial backgrounds because certain genetic aberrations are more common among these groups.³⁵ For example, a genetic screening program could be designed to identify victims of sickle cell condition,³⁶ which would single out a proportionately large number of black applicants.³⁷ A similar test that would identify a chromosomal aberration known as glucose-6-phosphate dehydrogenase (G-6-PD) deficiency³⁸ would single out males of black, Filipino, and Mediterranean Jewish³⁹ origin.⁴⁰ To prevent the discriminatory results that can occur in genetic screening programs due to differentiation along racial and ethnic lines, four

32. *Id.* at 67.

33. *Id.*

34. See *infra* notes 195-96 and accompanying text.

35. For instance, glucose-6-phosphate dehydrogenase deficiency will affect 16 percent of Black American males, 12-13 percent of Filipinos, and 11 percent of Mediterranean Jews. Only 0.1 percent of white American males are affected. See *ROLE OF GENETIC TESTING*, *supra* note 9, at 124.

36. Sickle cell conditions result from an abnormal hemoglobin molecule. Sickle cell anemia can cause a shortened life span and affects about 0.2 to 0.5 percent of American Blacks. Sickle cell trait causes only minimal health hazards and appears in about 8 percent of Black Americans. *ROLE OF GENETIC TESTING*, *supra* note 9, at 91. Sickle cell testing was performed by the DuPont Company from 1972 until 1981. Testing was started at the request of black employees. Severo, *Screening of Blacks by DuPont Sharpens Debate on Genetic Tests*, N.Y. Times, Feb. 4, 1980, at A1, col. 5. The testing was discontinued in 1981. Goodrich, *supra* note 12, at 27.

37. Severo, *supra* note 36, at A1, col. 5.

38. See *supra* note 35. When G-6-PD deficiencies develop, anemia results. Testing for G-6-PD was conducted by the DuPont Company from 1974 until 1981 when the tests were discontinued. See Goodrich, *supra* note 12, at 27. No data are available that identify companies that have or do now conduct G-6-PD screening, although industries interested in G-6-PD screening include manufacturers of dyes, metals, and drugs. *ROLE OF GENETIC TESTING*, *supra* note 9, at 90.

39. *ROLE OF GENETIC TESTING*, *supra* note 9, at 90.

40. Genetic screening programs can test for a wide range of heritable traits, most of which are not recognized or understood by the lay public. *Id.* at 89-99 (for a summary of the traits for which testing is available).

states have adopted laws that prohibit discrimination based on identification of genetic abnormalities from screening.⁴¹ Absent this type of proscriptive legislation, a worker identified as suffering genetic aberrations pursuant to a genetic screening program would probably still be able to wage a successful discrimination suit under Title VII of the Civil Rights Act of 1964.⁴² No case law addresses genetic screening programs directly. The United States Supreme Court,⁴³ however, has opined that a successful discrimination claim can be waged if a plaintiff can demonstrate that the "tests in question select applicants for hire or promotion in a racial pattern significantly different than the pool of applicants."⁴⁴ If the affected worker were able to identify a disparate impact,⁴⁵ no showing of discriminatory motive would be required.⁴⁶ Thus, although genetic screening arguably can safeguard the health of prospective employees, the screening nevertheless could discriminate against certain protected classes. Compelled screening programs should not be considered at this time.

41. FLA. STAT. ANN. §448.075; LA. REV. STAT. ANN. §1002; N.C. GEN. STAT. §95.28.1 (prohibiting employment discrimination based on a sickle cell anemia characteristic); N.J. REV. STAT. §10:5-12 (prohibiting discrimination against any person who carries atypical hereditary blood traits, specifying sickle cell, hemoglobin-C, Tay Sachs, thalassemia, and cystic fibrosis).

42. 42 U.S.C. §§2000e-17.

43. *Griggs v. Duke Power*, 401 U.S. 424, 436 (1971); *McDonnell Douglas Corp. v. Green*, 411 U.S. 792, 802 (1973); *Albermarle Paper Co. v. Moody*, 422 U.S. 405, 425 (1975).

44. 401 U.S. at 436.

45. The U.S. Supreme Court has recognized two types of employment discrimination claims under Title VII of the Civil Rights Act of 1964, 42 U.S.C. sections 2000e-17: disparate impact and disparate treatment. In *Griggs v. Duke Power*, 401 U.S. 424 (1971), the Court discussed the provisions of a disparate impact claim, holding that standardized tests that were not demonstrated to measure job capability and disqualified black applicants at a substantially higher rate than white applicants offended Title VII. *Id.* at 436. In *McDonnell Douglas Corp. v. Green*, 411 U.S. 792 (1973), the court stated that to establish a prima facie case of discrimination, the plaintiff must show that "tests in question select applicants for hire or promotion in a racial pattern significantly different from the pool of applicants." (citing *Griggs*). *Id.* at 802. If the employer shows that the tests administered are job related, the employee may still prevail if the employee shows that "other tests or selection devices without a similarly undesirable racial effect" would also satisfy the employer's "legitimate interest in efficient and trustworthy workmanship." *Id.* The Court in *Albermarle Paper Co. v. Moody*, 422 U.S. 405 (1975) reiterated the *Griggs* holdings and further stated that discriminatory motive need not be shown. *See also* *International Brotherhood of Teamsters v. United States*, 431 U.S. 324, 335 n.15 (1977). Disparate treatment claims require that a plaintiff show discriminatory motive. *See, e.g.,* *Brotherhood of Teamsters* at 335 n.15 (1977). Discriminatory motive claims occur when an employer acts less favorably to one group of persons than other groups because of race, color, religion, sex or national origin. 42 U.S.C. §§2000e-2(a)(1). If the plaintiff is successful in showing discriminatory motive and that a protected class is being treated differently, the burden shifts to the employer who may prevail if a nondiscriminatory business reason exists for the exclusion. *E.g., McDonnell Douglas* at 802-03 (1973). Based on the foregoing discussion, a worker identified as susceptible in a genetic monitoring program is unlikely to prevail under either a disparate impact or disparate treatment theory. Disparate impact cases appear to arise only in relationship to preemployment criteria, and thus would not be applicable to a genetic monitoring program. Disparate treatment would also not be applicable because monitoring results do not affect any protected class with greater frequency than any other group of people.

46. *See supra* note 45.

Conversely, discrimination actions are unlikely under a genetic monitoring program because no single racial or ethnic population experiences genetic alternations more frequently than does any other group.⁴⁷ In order to appreciate the need for a mandatory genetic monitoring program, a brief discussion of the mechanics and consequences of genetic alteration is required.

B. Scientific Background

A purpose of genetic monitoring in the workplace is to identify employees whose cells have become malignant.⁴⁸ Exposure to some toxic substances⁴⁹ and ionizing radiations⁵⁰ has been shown to cause initial changes in human cells either by altering the structure of the chromosomes or changing the number of chromosomes within a cell.⁵¹ The cells replicate, and malignancies can evolve as the number of altered cells increases.⁵² The likelihood of disease, therefore, is increased because fewer changes to a cell are required before disease results.

Some genetic damage is reversible. If the affected individual is removed from the site of the exposure, chromosomal damage sometimes can be prevented⁵³ because the natural repair mechanism of the body can eliminate the harm by healing the damaged chromosomes.⁵⁴ The affected person must be removed from the hazard-

47. See *Genetic Screening of Workers: Hearings Before the Subcommittee on Investigations and Oversight of the House Committee on Science and Technology*, 97th Cong. 2d Sess. 103 (1982) [hereinafter cited as *Hearings on Genetic Screening*] (testimony of Professor Mark Rothstein) (genetic monitoring tests do not differentiate along racial and ethnic lines.)

48. See *ROLE OF GENETIC TESTING*, *supra* note 9, at 46.

49. Mutagens and chromosomal aberrations have been identified as causal factors in cancer. About 90 percent of chemicals known to cause cancer in animals are known to cause mutations in humans. OFFICE OF TECHNOLOGY ASSESSMENT, U.S. CONGRESS, *TECHNOLOGIES FOR DETERMINING CANCER RISKS FROM THE ENVIRONMENT* (1981). Chemicals identified with genetic damage are many. Research, however, has identified exposures to arsenic, benzene, epichlorohydrin, ethylene oxide, vinyl chloride monomer, lead, cadmium, and zinc as causal factors in genetic damage. See *ROLE OF GENETIC TESTING*, *supra* note 9, at 71-74.

50. Ionizing radiation is defined by statute as "gamma rays and x-rays; alpha and beta particles, high speed electrons, neutrons, protons, and other nuclear particles; but not sound or radio waves, or visible, infrared, or ultraviolet light." CAL. HEALTH & SAFETY CODE §25805(b).

51. See *ROLE OF GENETIC TESTING*, *supra* note 9, at 46.

52. See Cairns, *The Cancer Problem*, *SCI. AM.*, Nov. 1975, at 64, 67.

53. The body possesses gene products that can prevent promotion of disease. They include genes for DNA repair, immune function and carcinogen metabolism. If DNA is repaired completely and genes are restored to their original status, no permanent damage will result. If mistakes are made in the repair process, mutations can cause the worker to become hypersusceptible. The body's immune system can also heal cell mutations. By recognizing them as "foreign," the body's immune system kills them. A person's carcinogenic metabolism may also activate complex enzymatic systems and permit a person to ward off disease. See *ROLE OF GENETIC TESTING*, *supra* note 9, at 53.

54. *Id.*

ous exposure before cells replicate to prevent damage and restore injured cells to a healthy condition.⁵⁵

Persons suffering from genetic aberrations will not necessarily contract disease as a result of the aberrations.⁵⁶ Although the reason for this phenomena is not understood, many researchers believe that persons experiencing genetic damage have a heightened susceptibility to disease.⁵⁷ These researchers maintain, however, that persons who do not themselves contract disease may still produce offspring with debilitating diseases or deformities.⁵⁸

The foregoing discussion demonstrates that chromosomal alterations may cause disease. If monitoring programs were implemented and genetic changes recognized before disease resulted, steps could be taken to prevent disease from actually occurring. Presently, statutory law enabling the administrative implementation of medical surveillance programs⁵⁹ does not enumerate criteria that must be satisfied before a regulation compelling any specific medical testing can be implemented. Other statutes and case law, however, pertaining to the development of standards for regulating toxic substances, offer some guidance.

C. Assessing Validity of a Genetic Monitoring Standard

California law provides for the development of standards for regulating toxic substances.⁶⁰ Factors to be considered in developing

55. Some toxic substances actually destroy cells which have the capability to repair chromosomal aberrations. These chemical carcinogens are immuno-suppressants attacking the body's immune functions, thereby inhibiting the body's ability to kill diseased cells. See *ROLE OF GENETIC TESTING*, *supra* note 9, at 53.

56. *Id.* at 59. "The proportion of workers likely to contract a disease depends not only on . . . variables . . . [of] . . . reliability, validity, frequency of the genotype . . . but on the relative risk for the disease imposed by the genetic trait of damage." *Id.*

57. See *infra* note 58.

58. Leaders in the field of occupational health disagree about whether a correlation exists between genetic damage and susceptibility to disease. See *Genetic Screening of Workers: Hearings Before the Subcomm. on Investigations and Oversight of the House Comm. on Science and Technology*, 97th Cong., 2d Sess. (1982). No agreement exists among scientists that tests furnish more than a biological endpoint, the significance of which is unknown at this time. *Id.* But see Killian, *Use of Human Biological Monitoring for Risk Assessment of Mutagenesis and Carcinogenic Effect*, in *I SAFE HANDLING OF CHEMICAL CARCINOGENS, MUTAGENS, TERATOGENS AND HIGHLY TOXIC SUBSTANCES* 247, 253-56 (D. Walters ed. 1980) (tests are predictive of cancer). Some suggestion has been made that industry will be reluctant to acknowledge test validity because of the potential liability. Severo, *Dispute Arises over Dow Studies on Genetic Damage in Workers*, N.Y. Times, Feb. 5, 1980 at A1, col. 1.

59. CAL. LAB. CODE. §142.3(d). see *supra* note 17.

60. *Id.* §6300 (Cal-OSHA provides for development and enforcement of effective standards. See also *id.* §6360. Chapter 2.5 of Cal-OSHA, the Hazardous Substance and Training Act, provides for collection and dissemination of information about hazardous substances in the workplace.

standards include attainment of the highest degree of health and safety protection for employees, latest scientific data, reasonableness of the standards, and experience gained.⁶¹ Using the same standards, a proposal to mandate genetic monitoring for certain industries would likely have to demonstrate that (1) attainment of the highest degree of safety and health is furthered, (2) the scientific data is sufficiently conclusive to accurately identify workers who are likely candidates for disease, and (3) the parameters of the monitoring program are neither too broad nor too narrow to encompass or exclude workers not likely to be affected.⁶²

Of these three criteria, only the second may pose a difficulty for the administrative agency promulgating regulations. Disagreement exists within the scientific community about whether the technology is sufficiently developed to predict disease susceptibility accurately.⁶³ Although no definitive statement has been made to establish that chromosomal alteration is predictive of a heightened sensitivity to debilitating diseases, many researchers have identified and reported a correlation.⁶⁴ Courts that have considered the validity of standards based on scientific data have recognized that definitive scientific data are only infrequently available and that conclusions among researchers about the meaning of any study differ more often than they agree.⁶⁵ Consequently, courts do not demand that agencies promulgating regulations based on scientific or medical data present conclusive results

61. *Id.* §144.6. Section 144.6 provides:

In promulgating standards dealing with toxic materials or harmful physical agents, the board shall adopt the standard which most adequately assures, to the extent feasible, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to a hazard regulated by such standard for the period of his working life. Development of standards under this section shall be based upon research, demonstrations, experiments, and such other information as may be appropriate. In addition to the attainment of highest degree of health and safety protection for the employee, other considerations shall be the latest available scientific data in the field, the reasonableness of the standards, and experience gained under this and other health and safety laws. Whenever practicable, the standards promulgated shall be expressed in terms of objective criteria and of the performance desired.

Id.

62. The only parameters of a genetic monitoring program that will be the subject of this comment are those pertaining to removing the worker from the hazardous setting and guaranteeing wages during the removal period. In addition, provisions for data collection will be discussed. It is the opinion of this author that details such as which industries should be regulated and which workers within those industries should be tested is best left to the administrative agency promulgating regulations.

63. See *supra* note 58.

64. *Id.*

65. *United Steelworkers of America v. Marshall*, 647 F.2d 1189 (D.C. Cir. 1981); see also *Ethyl Corp. v. Environmental Protection Agency*, 541 F.2d 1 (D.C. Cir. 1976), *cert. denied* 426 U.S. 941 (1976).

to support a regulation.⁶⁶ Rather, the courts generally will uphold a regulation if the regulation is based upon "nonconclusive but suggestive" results of numerous studies.⁶⁷

As a result, even if data about whether genetic changes are predictive of the future likelihood of disease are inconclusive, that uncertainty generally does not prevent regulation. Once the promulgating agency has identified numerous studies that establish a correlation between genetic alteration and disease, the criterion requiring that the regulation further the goal of assuring health and safety is easily satisfied. Since one of the goals of a genetic monitoring program would be to identify susceptible workers and eliminate hazardous exposure, employee health and safety would be ensured.

Many agents, primarily ionizing radiation and certain toxic chemical substances, are thought to cause genetic alteration.⁶⁸ These agents have previously been identified as dangerous in other contexts,⁶⁹ and industries that generate exposures to them are already highly regulated.⁷⁰ Regulations to mandate genetic monitoring programs would probably affect these industries, at least initially. Consequently, a summary of the scientific information suggesting correlations between disease and ionizing radiation and certain toxic chemical substances follows.

D. Specific Agents Causing Genetic Alteration

Research to determine effects of chromosomal aberrations resulting from excessive exposure to ionizing radiation has been conducted.⁷¹ Uranium miners, plutonium processing facility workers, and nuclear power plant workers have all been subjects of studies which demonstrate that increases in chromosomal aberrations are associated

66. *United Steelworkers*, 647 F.2d at 1253; *Ethyl Corp.*, 541 F.2d at 37-38.

67. *United Steelworkers*, 647 F.2d at 1253; *Ethyl Corp.* 541 F.2d at 37-38.

68. See ROLE OF GENETIC TESTING, *supra* note 9, at 67-74.

69. CAL. ADMIN. CODE, tit. 8, R. 5207(c) provides that the "burning, welding or heating of cadmium produces poisonous vapor." *Id.* Vinyl chloride is an agent suspected to cause cancer. *Id.* R. 5210(1)(1-5). Exposures to inorganic arsenic may cause lung cancer or irritate skin. *Id.* R. 5214, App. A, II. Short term lead exposures can cause brain damage, seizures, coma and even death. *Id.* R. 5216, App. A, II, B(1). Chronic exposures may damage blood forming nervous, urinary and reproductive systems. *Id.* R. 5216, App. A, II B(2). Exposures to benzene may cause blood deficiencies, vertigo, nausea, leukemia and death. *Industrial Union v. American Petroleum Institute*, 448 U.S. 607, 617-20 (1980).

70. CAL. LAB. CODE §§6300-6708.

71. See *supra* note 50; see also ROLE OF GENETIC TESTING, *supra* note 9, at 71. Japanese survivors of World War II have been extensively monitored. Test results "clearly demonstrate a relationship between estimated radiation dose and certain cancers and between radiation dose and chromosomal aberrations." For individuals, however, elevated frequencies are not reliable indicators of cancer risk. *Id.*

with ionizing radiation exposure.⁷² Disease consequences of exposures to ionizing radiation have been recognized by California lawmakers.⁷³ The Legislature has declared that "the public interest requires that the people of the state be protected from excessive and improper exposures."⁷⁴ The Legislature has also recognized that "radioactive contamination of the environment may subject the people to unnecessary exposure to ionizing radiation unless it is properly controlled."⁷⁵ The State Department of Health Services has been empowered by statute to initiate and administer necessary programs of surveillance and control of activities leading to introducing radioactive materials into the environment.⁷⁶ Workers exposed to concentrations of ionizing radiation known or suspected to exceed a certain level can be required to undergo medical review.⁷⁷

Tests to determine the effects of exposure on genetic structure also have been conducted for the following chemicals: arsenic,⁷⁸ benzene,⁷⁹ epichlorohydrin,⁸⁰ ethylene oxide,⁸¹ vinyl chloride mon-

72. See *ROLE OF GENETIC TESTING*, *supra* note 9, at 71. Further research is necessary to determine whether current occupational standards pose dangers of increased frequency of aberrations. "From these studies, it is not clear if the chromosomal aberration endpoint is sensitive enough to detect chronic exposures within the current occupational standard of 5 rems per year." *Id.*

73. CAL. HEALTH & SAFETY CODE §25600 (programs for surveillance and control of ionizing radiation in the environment); *id.* §25660 (standards of education, training and experience for persons using x-rays).

74. *Id.* §25660.

75. *Id.* §25600.

76. *Id.*

77. See CAL. ADMIN. CODE, tit. 17, R. 30277, providing in part:

(a) Each user shall make provisions for a regular bio-assay program where indicated by and appropriate to the nature of potential exposure.

(b) In cases of known or suspected exposure excluding permissible values, the department may require any user to provide for medical examination and where indicated, treatment, by a qualified physician acceptable to the department.

Id.

78. *ROLE OF GENETIC TESTING*, *supra* note 9, at 71-72. Arsenic is a human carcinogen, and elevated numbers of genetic aberrations have been reported in individuals exposed to arsenic. Only one study has been conducted in an occupational setting and "is not sufficient to permit a decision on the suitability of cytogenetic endpoints for measuring exposures." *Id.* See also CAL. ADMIN. CODE, tit. 8, R. 5214 (administrative regulations pertaining to arsenic).

79. See *ROLE OF GENETIC TESTING*, *supra* note 9, at 72. Benzene is a human carcinogen. Exposures to dosages in excess of 40 parts per million (ppm) have been associated with chromosomal aberrations in humans. "Whether exposures . . . within the current occupational standard of 10 ppm induce chromosomal aberrations has yet to be determined." *Id.*

80. *Id.* Epichlorohydrin is not a human carcinogen, but is "mutagenic in micro-organisms, causes chromosomal aberrations in mouse bone marrow, and induces chromosomal aberrations in human lymphocytes in vitro." *Id.* One study indicates that occupational exposures are associated with genetic aberrations at "low level frequencies." *Id.* In another study on epichlorohydrin, a doubling of chromosome breakage rate was found for workers as compared with job applicants. Severo, *supra* note 58, at A1, col. 1.

81. *ROLE OF GENETIC TESTING*, *supra* note 9, at 72. Ethylene oxide has been shown to be associated with chromosomal aberrations. *Id.* In a study currently underway, "statistically significant increases in aberrations were seen for exposures ranging from 1-10 ppm." *Id.* The current occupational standard is 50 ppm, time weighted average. *Id.*

omer,⁸² lead,⁸³ cadmium,⁸⁴ and zinc.⁸⁵ Research demonstrates that exposures to these chemical agents may be associated with increased susceptibility to genetic alterations.⁸⁶ Occupational disease frequency and severity from exposure to many of these chemical agents has been recognized in the past, and exposed workers are presently required by administrative regulation to undergo extensive medical surveillance.⁸⁷

The scientific data demonstrate that test results generated from a genetic monitoring program can be indicative of an increased susceptibility to disease. Moreover, the data are sufficiently conclusive that regulations to mandate genetic monitoring could overcome a legal challenge. Before genetic monitoring is compelled, however, the administrative agency responsible for promulgating regulations must be convinced that the benefits which can be derived from regulating testing are significant and that the present method of maintaining employer discretion either to conduct or refrain from testing fails to protect workers.⁸⁸ To amplify the need for genetic monitoring in the workplace, this comment will next examine the implications for employees if testing is not governmentally regulated.

II. EMPLOYERS' LEGAL RIGHTS ABSENT A GENETIC MONITORING MANDATE

Currently, little is known about the extent of genetic monitoring

82. *Id.* at 73. Vinyl chloride monomer is a human carcinogen, and increases in chromosomal aberrations are "well documented" for relatively high levels of exposures. *Id.* The aberrations disappear over days or weeks. *Id.* No detectable aberrations are evident when exposure is less than 5 ppm. CAL. ADMIN. CODE, tit. 8, R. 5210(c)(1-3). The current California occupational standard provides that exposure shall not exceed 1 ppm averaged over any 8 hour period. *Id.*

83. ROLE OF GENETIC TESTING, *supra* note 9, at 72. Lead, cadmium and zinc exposures occur together in occupational settings. Studies about the effects these substances have on chromosomes are inconsistent, with some finding increased frequencies of aberrations. *Id.* See also CAL. ADMIN. CODE, tit. 8, R. 5216.

84. See ROLE OF GENETIC TESTING, *supra* note 9, at 72; see also CAL. ADMIN. CODE, tit. 8, R. 5207.

85. See ROLE OF GENETIC TESTING, *supra* note 9, at 72.

86. See *supra* notes 78-85.

87. Medical surveillance for employees exposed to vinyl chloride includes medical history, and blood tests. CAL. ADMIN. CODE, tit. 8, R. 5210(k)(1)(A-B). Tests are to be repeated every six months for employees exposed to vinyl chloride ten years or longer, and annually for all other employees. *Id.* R. 5210(k)(2)(A-B). Medical surveillance for employees exposed to inorganic arsenic include comprehensive medical history, physical examination, chest x-rays, blood count, urinalysis, and sputum cytology test. *Id.* R. 5214(n)(2)(A-E). Tests are to be repeated annually for employees under 45 years of age who have had less than ten years exposure, and semi-annually for employees who are either over 45 years of age or have had more than ten years of exposure. *Id.* R. 5214(n)(3)(A-B). Extensive regulations provide for medical examinations for employees exposed to lead. See *id.* R. 5216(j)(1-4).

88. See *supra* notes 65-68 and accompanying text.

being conducted in the workplace.⁸⁹ A study⁹⁰ commissioned by the United States Office of Technology Assistance⁹¹ in 1982 to determine the extent of genetic testing⁹² in industry suggests that only a minimal amount of testing is presently being performed. Of those responding to the survey, only slightly more than one percent answered that they were presently conducting genetic tests, and slightly more than four percent indicated that tests have been used in the past.⁹³ More than sixteen percent, however, responded that they would probably use tests in the next five years.⁹⁴ The results of the survey suggest that although little testing is being performed now, a significant increase in genetic testing can be anticipated.⁹⁵

In the absence of any formalized mandate requiring that certain employers conduct genetic monitoring, employers presently have the option to include or exclude genetic monitoring in any medical surveillance program. If industries that pose dangers to workers would (1) elect to incorporate genetic testing into their medical surveillance programs, (2) disclose to employees that the testing is to be undertaken, and (3) develop a program to remove employees suffering genetic damage from the dangerous environment, few problems would emerge within a voluntary program. Conversely, if (1) industry opted not to perform testing, or (2) implemented an inadequate program, an employee could be adversely affected if the employee were ter-

89. Goodrich, *supra* note 12, at 27 (names of companies using genetic screening unknown); Severo, *supra* note 27, at A1, col. 1 (extent of genetic screening remains a matter of speculation); ROLE OF GENETIC TESTING, *supra* note 9, at 33 (conflicting accounts of extent of testing and use of results); *Hearings on Genetic Screening*, *supra* note 47, at 103 (widely believed that many employers use genetic screening or monitoring testing methods).

90. The 561 groups surveyed included the 500 largest United States industries, chief executive officers of the 50 largest private utility companies, and the presidents of 11 major unions. Three hundred sixty-six of those sent questionnaires submitted responses. See ROLE OF GENETIC TESTING, *supra* note 9, at 175.

91. The study was conducted between February and June, 1982, by the National Opinion Research Center, a non-profit survey corporation affiliated with the University of Chicago. *Id.* See also *id.* at 175-213 for details regarding design, methodology, and a draft report of the survey results.

92. The questionnaire did not initially differentiate between genetic screening and genetic monitoring, inquiring only if genetic testing was performed. In a later question, information was collected about the types of testing conducted. *Id.* at 35. Table 4 provides information on the "frequency of current, past and/or future use of genetic testing by type" and lists 17 companies as admitting to giving genetic screening tests and eight companies are listed as acknowledging that they conduct genetic monitoring program. *Id.*

93. *Id.* at 35. Table 3 provides the distribution of organizations by type, indicating current, past, and/or future use of genetic testing. Of the 366 respondents, 1.6 percent indicated that testing was presently being performed and 4.6 percent acknowledged that testing had been performed in the past. *Id.*

94. *Id.* The number of respondents indicating that they would probably test in the future was 16.1 percent. *Id.*

95. *Id.*

minated, transferred to a lower paying position, or suffered serious health impairment. A program would be inadequate if it either failed to include provisions for disclosure to employees that testing was being performed or did not establish provisions for removal.

A. *Consequences if Testing is Not Performed*

In the absence of a governmental mandate for genetic testing, employers are not likely to implement voluntary genetic testing programs because of a fear of increased costs and increased risks of liability.⁹⁶ By failing to implement voluntary programs, employers will preclude many injured employees from obtaining recovery under workers' compensation statutes. Under workers' compensation statutes, an employee who contracts disease must establish a causal relationship between the work environment and the disease before recovery is available.⁹⁷ Cancer susceptibility due to chromosomal changes can be identified through a genetic monitoring program.⁹⁸ With limited exceptions,⁹⁹ workers' compensation¹⁰⁰ is the exclusive remedy under California law¹⁰¹ for an employee who suffers occupationally induced disease.¹⁰² As a consequence, employers who fail to provide genetic monitoring programs may prevent an employee's recovery authorized by law.

If testing is not performed, a worker who contracts cancer will be faced with the almost insurmountable task of establishing a causal connection between the occupation and the cancer.¹⁰³ Demonstration of the requisite causal relationship is extremely difficult because of

96. See Note, *Occupationally Induced Cancer Susceptibility: Regulating the Risk*, 96 HARV. L. REV. 697, 701-05 (1983). The author maintains that genetic monitoring should be compelled and recommends a federal scheme for medical removal and screening.

97. 2 W. HANNA, CAL. LAW OF EMPLOYEE INJURIES AND WORKMEN'S COMPENSATION §11.02[1] (2nd Ed. 1983); See *Walter v. Industrial Accident Commission*, 209 Cal. 635, 638 P. 627, 628 (1930). Decedent's widow was denied coverage under workers' compensation statutes. Widow was unable to establish causal connection between the disease which caused the death and the injury which resulted from the accident.

98. See *supra* note 58 and accompanying text.

99. CAL. LAB. CODE §3602(b) (exceptions to exclusive remedy provisions of workers' compensation law.)

100. *Id.* §§3200-6208.

101. *Id.* §3602.

102. *Id.* §3208. Disease arising from employment is an injury within workers' compensation statutes. The California Supreme Court has determined that the inclusion of disease within the term injury is authorized by the California Constitution. *Pacific Indemnity Co. v. Industrial Accident Commission*, 215 Cal. 461, 462-64, 11 P.2d 1, 2-3 (1932).

103. W. HANNA, *supra* note 97, at §11.03[5][h]; see also *San Francisco v. Industrial Accident Commission*, 183 Cal. 273, 275-83, 191 P. 26, 27-30 (1920) (discussion of causal connection between illness and employment); *Engels Copper Mining Co. v. Industrial Accident Commission*, 183 Cal. 714, 715, 192 P. 845, 846 (1920).

the long latency period of cancer.¹⁰⁴ If this relationship is not established, the worker will be denied benefits.¹⁰⁵ Whether the disease results from the employment is a question of fact,¹⁰⁶ and no presumption arises that disease occurring in the course of employment arose out of the employment.¹⁰⁷ For a worker to recover, that worker must show that the disease was proximately caused by the hazardous conditions of the employment.¹⁰⁸ Thus, a worker who does not have the benefit of a genetic monitoring program could also suffer the detrimental effect of not recovering under workers' compensation even though workplace exposures would be the cause of the harm.

Recovery under workers' compensation for occupationally induced cancer is rare because no data are available to demonstrate that disease is an outcome of employment, and traditionally, little is known about the causes of cancer.¹⁰⁹ If employers were compelled to conduct genetic monitoring tests, medical evidence of increased susceptibility to disease would be available to diseased workers.¹¹⁰ This medical evidence then could be used to support a claim that cancer was occupationally induced.¹¹¹ In addition, the Legislature may respond favorably to an effort by workers to secure the passage of legislation that would ease the worker's burden of proof in workers' compensation proceedings to recover for occupationally induced cancer. Since medical data showing a claimant's chromosomal structure would be available, a statute providing for a rebuttable presumption that cancer which developed during employment was occupationally induced could be enacted.¹¹²

Female employees in particular can be negatively affected by an employer's decision not to monitor genetically. Under court decisions,¹¹³

104. See W. HANNA, *supra* note 97, at §11.03[5][h].

105. *Id.*

106. *Engles Copper*, 183 Cal. at 715, 192 P. at 846.

107. *Hartford Accident and Indemnity Co. v. Industrial Accident Commission*, 140 Cal. App. 482, 486, 35 P.2d 366, 368 (1934).

108. CAL. LAB. CODE §3212.1. In the case of publicly employed firefighters, a rebuttable presumption exists that cancer that develops during active service is industrially caused. *Id.* A firefighter must demonstrate that there was exposure to a known carcinogen and that the carcinogen was reasonably linked to the disease. *Id.*

109. See W. HANNA, *supra* note 97, at §11.03[5][h].

110. CAL. CIV. CODE, §§56-56.37. (Confidentiality of Medical Information Act.)

111. *Id.* §56.20(c)(2). That section provides for the disclosure of pertinent parts of the employee's medical information retained by the employer "which is relevant in a lawsuit arbitration, grievance, or other claim or challenge to which the employer and employee are parties and in which the patient has placed in issue his or her medical history, mental or physical condition, or treatment." *Id.*

112. See *supra* note 108. Provisions protecting workers exposed to toxic substances in the workplace could be enacted similar to the provisions protecting firefighters. *Id.*

113. Title VII lawsuits brought by women employees have not yielded positive rulings for women. See LOWN, *Women Workers Bring 'Fetal Vulnerability' Suits*, L.A. Daily J., Jan. 24, 1983, at A3, col. 1.

employers have the prerogative to prohibit women of childbearing age from working in certain toxic work places,¹¹⁴ even though the genetic structure of the male is also affected by exposure to identical agents.¹¹⁵ Courts have accepted employer arguments that liability to a child born with birth defects or cancer justifies the exclusion.¹¹⁶ If women of childbearing age were routinely monitored for chromosomal changes, the need to exclude them totally from the workplace may diminish.¹¹⁷

Although voluntary implementation of genetic monitoring is preferable to no monitoring at all, problems for employees are not eradicated by voluntary programs. Unless a testing program is performed with full disclosure to employees and provides a comprehensive scheme for the removal of the worker and salary retention following discovery that a worker has contracted genetic damage, employees are not sufficiently protected. To illustrate the potential dangers of voluntary programs, which fail to provide for full disclosure or lack provisions for removal, the avenues for recourse available to an employee harmed as a result of a voluntary program are next presented.

B. Worker Recourse When Testing is Performed

Even if an employer elects to conduct testing, no assurance exists

114. See generally Comment, *Employment Rights of Women in the Toxic Workplace*, 65 CALIF. L. REV. 1113, 1113-14 (1977) (outright exclusion of women based on assumption that exposures in the toxic workplace threaten reproductive health of women more than men not supportable); Note, *Exclusionary Employment Practices in Hazardous Industries: Protection or Discrimination*, 5 COLUM. J. ENVT'L. L. 97, 98-102 (1978) (goal of providing safe and healthful working conditions conflicts with goal of providing equal employment opportunities, and before women are excluded from the workplace, employer must show that workplace cannot be made safe and that no other alternative exists). See also *Genetic Screening and the Handling of High Risk Groups in the Workplace: Hearings Before the House of Representatives Committee on Science and Technology, Subcomm. on Investigation and Oversight*, 97th Cong., 2d Sess. 173-219 (1981) (Testimony of Joan Bertin, Esq., Women's Rights Project, ACLU) (hereinafter cited as *Bertin Testimony*) (100,000 jobs closed to women because of exclusionary practices); Severo, *Should Firms Screen the Workplace or the Worker?*, N.Y. Times, Sept. 28, 1980, at E22, col. 1 (changing the worker, i.e. excluding women, rather than making the workplace safe for all, discriminatory); Bayer, *Banning Women from the Workplace*, L.A. Times, Nov. 25, 1982, at II 7, col. 3 (American Cyanamid, DuPont, General Motors, B.F. Goodrich, Allied Chemical, Monsanto, Gulf Oil, and Union Carbide are among companies that have exclusionary practices against women).

115. *Bertin Testimony*, *supra* note 114, at 189, 191 (lead exposure affects male and female reproductive system; spermatogonia sensitive to low-level ionizing radiation; carbon disulfide and vinyl chloride damage sperm cells; dibromo-chloropropane causes male sterility); see also *United Steelworkers of America v. Marshall*, 647 F.2d 1189, 1256-57 (D.C. Cir. 1981) (occupational lead exposures harm men as well as women according to OSHA); *supra* note 114.

116. See *supra* notes 47-57 and accompanying text.

117. See Comment, *Employment Rights of Women in the Toxic Workplace*, *supra* note 114, at 137-39.

that the testing will be performed for the benefit of the employee. For instance, tests could be performed without worker knowledge.¹¹⁸ Workers could suffer genetic alterations and remain uninformed of the changes to their genetic structure.¹¹⁹ Without disclosure, employers unwilling to assume the financial obligations that might arise if workers identified as susceptible were informed of alterations to their genetic structure would not be confronted by workers' compensation claims.¹²⁰

Another danger of a voluntary program is that no assurance exists that test results will be properly utilized.¹²¹ If employers do not perceive a threat of liability because of the potential for future development of cancer, a tendency to underutilize tests and retain endangered workers in the workplace could result.¹²² Alternatively, employers who fear liability might overutilize tests and exclude large numbers of workers from the workplace.¹²³

Workers subjected to an employer's arbitrary utilization of testing pursuant to a voluntary program may seek recovery from an employer if disease is contracted or termination is a consequence of test results. In the absence of a statutory mandate for genetic monitoring, a worker could only seek redress for harm under an existing statute or the common law. As will be demonstrated first, common law remedies are effectively closed to an injured employee.

Common Law

At common law, every employer owed three duties to employees:

118. See Severo, *The Genetic Barrier: Job Benefit or Job Bias?*, N.Y. Times, Feb. 3-6, 1980, at A1, col. 1. The four-part series has been identified as the catalyst for much of the interest that has surrounded genetic testing. Goodrich, *supra* note 12, at 27. The Severo articles spurred states to adopt legislation prohibiting discrimination based on genetic screening results, and was "significant" impetus for congressional hearings, and survey. See also Severo, *supra* note 27, at A36, col. 1. Severo reported that a Dow Chemical Company geneticist wanted to inform workers of test results, but Dow refused contending that "data were hard to evaluate and it would not have been responsible to alarm workers by citing data that might be inaccurate." Severo, *supra* note 58, at B10, col. 1. Another Dow Chemical geneticist wanted Dow to adopt a company policy providing that genetically damaged workers be transferred and notified. *Id.* No policy was formulated. *Id.*

119. See *supra* note 118.

120. Severo, *supra* note 58, at A1, col. 1. A former Dow consultant stated, "[F]rom a moral and legal standpoint, industry should be held . . . liable for having the procedures and not using them to protect workers." Severo, *supra* note 27, at A1, col. 1. A former Dow geneticist said, "[W]hen we found people who have . . . [experienced genetic alternations] . . . we should not just move them out and replace them with fresh workers. We should go in and clean up the workplace so that anybody can work there." *Id.*

121. Note, *Occupationally Induced Cancer Susceptibility: Regulating the Risk*, 96 HARV. L. REV. 697, 701-05 (1983). The author maintains that genetic monitoring should be compelled and recommends that a federal scheme for medical screening and removal be devised. *Id.*

122. *Id.*

123. *Id.* at 703.

first, to provide suitable tools to perform job functions; second, to use care in selection of co-employees; and finally, to provide a reasonably safe place to perform job tasks.¹²⁴ A breach of any of these duties gave rise to a cause of action by an employee.¹²⁵ These common-law obligations were modified by workers' compensation statutes¹²⁶ which are now the exclusive remedy¹²⁷ for job related injuries.¹²⁸ Today, a common-law right of action against an employer arises only if a specifically enumerated exception to the exclusive remedy provision of the workers' compensation statute can be invoked.¹²⁹

One recognized exception, fraudulent concealment by an employer of a job related injury when that concealment results in aggravation of the injury,¹³⁰ may be available if the employer failed to advise the worker of the condition.¹³¹ Under this exception, the employer may be held liable for the employee's injuries if an employee could show that (1) genetic monitoring had been performed, (2) tests utilized were predictive of disease susceptibility, (3) the employee's test results were indicative of increased susceptibility, (4) the employee was not informed about his condition, and (5) disease was contracted as a result of continued exposure.¹³² Although an employee participating in a genetic monitoring program could conceivably overcome this burden, the likelihood is minimal. The fraudulent concealment exception was recognized by the California Supreme Court in *Johns-Manville Products Corp. v. Contra Costa Superior Court*.¹³³ In *Johns-Manville*, the plaintiff sued his employer in tort after he developed asbestos-related illnesses that were established to have been caused by the employment.¹³⁴ The plaintiff alleged that the employer fraudulently concealed the fact that plaintiff was suffering from disease from him, from the physicians retained to treat him, and from the state to whom the employer was obligated to report incidents of occupationally induced disease.¹³⁵ In addition, the court noted that the

124. *Donnelly v. San Francisco Bridge Co.*, 117 Cal. 417, 423, 49 P. 559, 561 (1897).

125. CAL. LAB. CODE §3602.

126. *Id.*

127. *Id.*

128. *Id.*

129. *Id.* §3602(b). See generally *Review of Selected 1982 California Legislation*, 14 PAC. L.J. 763-65 (1983) (exceptions to the exclusive remedy provision).

130. *Johns-Manville Prod. Corp. v. Contra Costa Superior Court*, 27 Cal. 3d 465, 476, 612 P.2d 948, 956, 165 Cal. Rptr. 858, 866 (1980); CAL. LAB. CODE §3602(b)(2).

131. CAL. LAB. CODE §3602.

132. See *ROLE OF GENETIC TESTING*, *supra* note 9, at 114.

133. 27 Cal. 3d 465, 612 P.2d 948, 165 Cal. Rptr. 858 (1980).

134. *Id.* at 469, 612 P.2d at 950, 165 Cal. Rptr. at 860.

135. *Id.* at 477, 612 P.2d at 955, 165 Cal. Rptr. at 865.

employer was aware of the health dangers of asbestos exposure, failed to provide the employee with adequate safety equipment, and did not operate its facility consistent with state and federal regulations.¹³⁶ Finding that the plaintiff had stated a cause of action for fraudulent concealment, the court distinguished between negligent and intentional acts of the employer,¹³⁷ affirming that the negligent acts of an employer may not provide for an action at law against the employer.¹³⁸ Although results of genetic monitoring programs are recognized by some scientists as indicative of disease susceptibility,¹³⁹ a court probably would not construe the employer's failure to advise the employee of test results as intentional if the employer were engaged in a voluntary program. Absent recognition by the Legislature that genetic monitoring programs can reduce incidence of disease, a court would find the employer's conduct to be only negligent, and thereby preclude plaintiff recovery in an action for fraudulent concealment.

Although California law specifically limits exceptions to the exclusive remedy provisions to those enumerated by statute,¹⁴⁰ an employee could also recommend creation of a judicial exception by arguing that damages be awarded for willful and intentional acts of the employer if the worker were not removed from the site of the dangerous exposure. Other states have responded favorably to proof demonstrating that the employer's willful and intentional act caused the worker harm.¹⁴¹ This approach, however, is not likely to receive a favorable response in a California court. The California Legislature has enacted statutes providing that an employee may collect an additional fifty percent above the applicable workers' compensation benefits if the injury results from the serious and willful misconduct of the employer.¹⁴² In *Johns-Manville*,¹⁴³ the plaintiff also sought to recover in an action at law for the "intentional" acts of the employer to conceal information about his disease.¹⁴⁴ The California Supreme Court held that the statutory fifty percent additional benefit was the ex-

136. *Id.* at 469, 612 P.2d at 950, 165 Cal. Rptr. at 860.

137. *Id.* at 477, 612 P.2d at 955, 165 Cal. Rptr. at 865.

138. *Id.*

139. See *infra* notes 63-65 and accompanying text.

140. CAL. LAB. CODE §3602.

141. *Mandolidas v. Elkins Indus., Inc.*, 246 S.E.2d 907, 914 (W. Va. 1978). The West Virginia Supreme Court held that an employer could be held liable in tort for willful, wanton, or reckless misconduct. *Id.*

142. CAL. LAB. CODE §4553. See generally *Review of Selected 1982 California Legislation*, 14 PAC. L.J. 768.

143. 27 Cal. 3d 465, 612 P.2d 948, 165 Cal. Rptr. 858 (1980); see *supra* notes 133-38 and accompanying text (for discussion of other aspects of the case).

144. *Johns-Manville*, 27 Cal. 3d at 470, 612 P.2d at 951, 165 Cal. Rptr. at 861.

clusive remedy available to the plaintiff for the employer's "intentional" acts.¹⁴⁵ The court concluded that the statutory provisions were intended to penalize the "intentional" acts,¹⁴⁶ even though the statute utilized "serious and willful" terminology.¹⁴⁷ An action at law by a California employee for an employer's willful and intentional misconduct, therefore, would probably fail.

While technically the common law is a mechanism by which an injured worker could recover, the foregoing has demonstrated that in practicality, the common law is not a viable solution for the long-term problems generated by optional genetic monitoring programs. By limiting the exceptions to workers' compensation to only those specifically enumerated, the Legislature has limited the ability of the judiciary to create new exceptions to workers' compensation. Other statutory provisions,¹⁴⁸ such as the California Fair Employment and Housing Act or collective bargaining statutes, however, arguably may offer solutions to the injured worker.

California Fair Employment and Housing Act

The California Fair Employment and Housing Act,¹⁴⁹ which prohibits job discrimination on specified grounds such as race¹⁵⁰ and handicap,¹⁵¹ is one statutory provision that may provide grounds for redress to a worker terminated because of genetic structure. An employee's claim based on allegations of racial discrimination, however, probably would not succeed if termination resulted from genetic monitoring test results. Since chromosomal aberrations do not appear to differentiate along racial lines,¹⁵² the employee would be unable to show discriminatory intent, a necessary element for recovery.¹⁵³ A discrimination claim, thus, would be applicable to genetic screening programs only.¹⁵⁴

145. *Id.* at 474-75, 612 P.2d at 954, 165 Cal. Rptr. at 863-64.

146. *Id.* at 474, 612 P.2d at 953, 165 Cal. Rptr. at 863.

147. *Id.* at 471, 612 P.2d at 951, 165 Cal. Rptr. at 861.

148. Since this comment recommends that California institute a genetic monitoring program, the focus of the following discussion will be on applicable California statutory provisions. See *infra* notes 149-73, and accompanying text. Pertinent federal statutes will be identified but not discussed.

149. CAL. GOV'T CODE §§12900-12996; see also 29 U.S.C. §§701-94. The Rehabilitation Act of 1973 applies only to federal contractors and recipients of federal funds, and prohibits discrimination based on handicap. *Id.* See ROLE OF GENETIC TESTING, *supra* note 9, at 126 (for a general discussion of its applicability to a genetic testing program).

150. CAL. GOV'T CODE §§12921, 12940.

151. *Id.*

152. See *supra* note 47 and accompanying text.

153. See *supra* note 44.

154. See *supra* notes 42-47 and accompanying text.

The handicap provisions¹⁵⁵ of the Act, however, may offer a remedy to the terminated worker as a result of a genetic monitoring program. No specific determination has been made that an aberrant genetic structure constitutes a handicap. The California Supreme Court, however, broadly interpreted the term "handicap"¹⁵⁶ in *American National Ins. Co. v. Fair Employment & Housing Comm'n.*¹⁵⁷ In *American National Ins.*, the court ruled that high blood pressure constituted a handicap.¹⁵⁸ In discussing the provision of the Act providing that an employer may not discriminate based on any "health impairment related or associated with a diagnosis of cancer for which a person has been rehabilitated or cured,"¹⁵⁹ the court left open the question of whether that definition implied that an "unrehabilitated cancer patient is never physically handicapped."¹⁶⁰

Although a diagnosis of damaged chromosomes does not mean that a worker will contract cancer, the worker should be removed from the site of the exposure.¹⁶¹ Thus, if the court were to define handicap as the "loss or limitation of opportunities to take part in the normal life of the community on an equal level with others,"¹⁶² genetic damage could constitute a handicap and provide a basis for recovery to an injured worker. In the face of the persuasive dissent of Justice Mosk,¹⁶³ however, little assurance exists that the court would conclude that an aberrant genetic structure would constitute a handicap. Justice Mosk argued that the majority's "sweeping definition violates a number of canons of statutory construction"¹⁶⁴ and "more important, [the opinion] ignores the legislative intent apparent from viewing the statute as a whole and in the light of the rest of the legislation of which it is an integral and inseparable part."¹⁶⁵ While a worker possibly could obtain redress for injuries under the California Fair Employment and Housing Act, the worker's reliance on the court to interpret aberrant genetic structure as a handicap would be misplaced. Collective bargaining statutes are another avenue of potential recovery for an injured or terminated worker, but only if a genetic monitoring

155. CAL. GOV'T CODE §§12921, 12940.

156. *American National Ins. Co. v. Fair Employment & Housing Comm'n.*, 32 Cal. 3d 603, 610, 651 P.2d 1151, 1155, 186 Cal. Rptr. 345, 350 (1982).

157. *Id.* at 610, 651 P.2d at 1155, 186 Cal. Rptr. at 350.

158. *Id.*

159. *Id.*; CAL. GOV'T CODE §12926(f).

160. 32 Cal. 3d at 610, 651 P.2d at 1155, 186 Cal. Rptr. at 350.

161. See *supra* notes 53-55 and accompanying text.

162. 32 Cal. 3d at 609 n.5, 651 P.2d at 1155 n.5, 186 Cal. Rptr. at 349 n.5.

163. *Id.* at 611, 651 P.2d at 1156, 186 Cal. Rptr. at 350 (Mosk, J., dissenting).

164. *Id.* at 612, 651 P.2d at 1157, 186 Cal. Rptr. at 351 (Mosk, J., dissenting).

165. *Id.*

program is part of a bargaining agreement between the employer and employees.

Collective Bargaining Statutes

A worker terminated because of genetic structure may also have an action against the employer based on the provisions of a collective bargaining agreement that has been negotiated between workers and the employer. Under the California collective bargaining statutes,¹⁶⁶ employers and employees may bargain for rights and duties that exceed boundaries of statutory provisions.¹⁶⁷ Areas subject to collective bargaining include worker safety and health.¹⁶⁸ For instance, employees could negotiate to require that an employer provide a genetic monitoring program and remove the worker from the hazardous environment if an increased susceptibility to disease is identified. Even though statutory law may not require that the employer grant these considerations for the employee, the provisions, if agreed upon, would be enforced by a court as part of the collective bargaining agreement.¹⁶⁹ Thus, if an employee could demonstrate that (1) termination resulted because test results suggested an increased susceptibility to disease and (2) the employer's action was inconsistent with the provisions of the collective bargaining agreement, the employee would have statutory recourse to regain prior employment status.

Generally, disputes based on collective bargaining provisions are resolved through arbitration.¹⁷⁰ When the physical disability of the employee results in termination, the worker usually will be reinstated pursuant to an arbitration decision unless the disability poses a serious risk of injury to the disabled worker or other workers, or prevents the worker from performing job functions.¹⁷¹ While collective bargaining may appear to be a positive mechanism for the implementation of a genetic monitoring program without the interference of government, employees probably would not consider a genetic monitoring program a high priority¹⁷² because employees tend to focus their

166. CAL. LAB. CODE §1126; see also 29 U.S.C. §§151-168 (National Labor Relations Act). See generally *ROLE OF GENETIC TESTING*, *supra* note 9, at 131-33 (for a discussion of implications of collective bargaining agreements on genetic monitoring programs). Only about 20 percent of workers are unionized, however, and thereby are able to utilize collective bargaining. See *Hearings on Genetic Screening*, *supra* note 47, at 104.

167. CAL. LAB. CODE §1126.

168. See *ROLE OF GENETIC TESTING*, *supra* note 9, at 131.

169. CAL. LAB. CODE §1126.

170. See *ROLE OF GENETIC TESTING*, *supra* note 9, at 133.

171. Wolkinson, *Arbitration and Employment Rights of the Physically Disadvantaged*, 36 *ARBITRATION J.*, 23-24 (June, 1981).

172. See H. DAVEY, M. BOGNANNO, D. EDELSTEIN, *CONTEMPORARY COLLECTIVE BARGAIN-*

bargaining efforts on wages and job security.¹⁷³

The foregoing discussion demonstrates that a voluntary program cannot adequately address the interests of employees. An alternative is the implementation of a mandatory genetic monitoring program. Cal-OSHA was enacted to assure the elimination of hazards in the workplace.¹⁷⁴ That body of law, therefore, is the likely source from which a compelled program would emanate. The pertinent provisions of Cal-OSHA that suggest administrative regulations could be promulgated to implement a compelled monitoring program will next be described. The need to include removal and wage guarantee provisions within a compelled program will also be discussed.

III. REGULATION TO MANDATE GENETIC MONITORING: A PROPOSAL

A mandated genetic monitoring program must encompass four critical provisions if the program is to offer protection for workers. Present mandatory medical surveillance programs are only mandatory in one sense: the employer must provide them. The employee, however, is not required to participate in medical surveillance programs.¹⁷⁵ If a genetic monitoring program is to be enacted, the program must offer the worker incentives to assure that workers will participate. Consequently, a mandatory genetic monitoring program should include: (1) a requirement that employers fully disclose information about testing being performed and the results of the tests; (2) procedures for removal of the worker from the site of hazardous exposure when test results identify disease susceptibility; (3) a system assuring salary, and seniority retention during the removal period; and (4) a requirement that statistical data compiled from the test results be submitted to an appropriate governmental agency. The appropriate agency to promulgate the regulations is the Occupational Safety and Health Standards Board.

ING 6 (1982). Collective bargaining covers two major subject areas: (1) *price of labor* including wages, pension and life insurance programs, and vacations, and (2) *a system of industrial jurisprudence* including policies and procedures governing on the job relations. *Id.* at 6.

173. See U.S. DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS, CHARACTERISTICS OF MAJOR COLLECTIVE BARGAINING AGREEMENTS, JANUARY 1, 1980 at 38, 59, 78, 96, 101, 111 (Bull. 2095, 1981). Publications describe current trends in collective bargaining. *Id.* at 1. Bargaining agreements tend to include provisions for wages, *id.* at 38, hours and overtime, *id.* at 59, paid and unpaid leave, *id.* at 78, seniority, *id.* at 96, job security, *id.* at 101, grievance settlement, *id.* at 111. By its absence, this author has concluded that provisions pertaining to medical surveillance do not have a high priority in collective bargaining.

174. CAL. LAB. CODE §6300; see Comment, *The California Occupational Safety and Health Act of 1973*, 9 LOY. L.A.L. REV. 905, 919-37 (for a general overview of Cal-OSHA); see also 29 U.S.C. §§651-78 (OSHA). OSHA was enacted to "assure so far as possible every working man and women in the nation safe and healthful working conditions." *Id.* §651.

175. See *infra* notes 195-96 and accompanying text.

A. The California Occupational Safety and Health Act

Cal-OSHA¹⁷⁶ was initially adopted to assure "safe and healthful working conditions" for all California residents. Statutes other than Cal-OSHA also reflect the intention of the Legislature to reduce occupational¹⁷⁷ and genetic disease;¹⁷⁸ however, the provisions of Cal-OSHA are the most comprehensive of the legislative enactments expressing an intention to improve the safety and health of workers.¹⁷⁹ The California Supreme Court¹⁸⁰ has ruled that the Act is to be interpreted liberally for the purpose of achieving a safe working environment.¹⁸¹ The Division of Occupational Safety and Health,¹⁸² within the Department of Industrial Relations,¹⁸³ is the agency vested with the authority to enforce and administer the provisions of the Act requiring a safe working environment and protection of employee health and safety.¹⁸⁴

To implement the general statutory purpose of Cal-OSHA, the Occupational Safety and Health Standards Board¹⁸⁵ is empowered to propose regulations that will safeguard employee health and safety.¹⁸⁶ The authority of the Board extends to the enactment of medical surveillance programs,¹⁸⁷ which the Board has required for some exposures.¹⁸⁸ If medical examinations are required by the Board,

176. CAL. LAB. CODE §6300.

177. CAL. HEALTH & SAFETY CODE §429.11; see *supra* note 1, for specific provisions of the statute.

178. CAL. HEALTH & SAFETY CODE §309. The state policy of California is to make "every effort to detect, as early as possible, preventable, heritable disorders leading to mental retardation or physical defects." *Id.*

179. Federal OSHA rules are not applicable in California because the state has adopted its own standards. 29 U.S.C. §667. The state may also adopt standards more stringent than those mandated by the federal program. *Skyline Homes, Inc. v. Occupational Safety and Health Appeals Board*, 120 Cal. App. 3d 663, 671, 174 Cal. Rptr. 665, 670 (1981).

180. *Bendix Forest Prod. Corp. v. Division of Occupational Safety and Health*, 25 Cal. 3d 465, 600 P.2d 1339, 158 Cal. Rptr. 882 (1979).

181. *Id.* at 470, 600 P.2d at 1342, 158 Cal. Rptr. at 885.

182. CAL. LAB. CODE §6302(d) (definition of division).

183. *Id.* §6302(b) (definition of department).

184. *Id.* §6307.

185. See *id.* §142.4 (procedures to be followed in adopting regulations).

186. *Id.* §6308(a), (c). The division can also "require the performance of any other act which the protection of the health and safety of employees in employments and places of employment reasonably demands." *Id.* §6308(c). See also *id.* §142.2. Occupational Safety and Health Standards Board authorized to propose and promulgate new or revised orders or standards or other items concerning safety and health.

187. *Id.* §142.3(d).

188. CAL. ADMIN. CODE, tit. 8, R. 5208(j)(1-2) (asbestos); *id.* R. 5210(k)(1-4) (vinyl chloride); *id.* R. 5212(m)(1-6) (dibromo-3-chloropropane); *id.* R. 5213(n)(1-6) (acrylonitrile); *id.* R. 5214(n)(1-5) (arsenic); *id.* R. 5216(j)(1-3) (lead); see also *Hearings on Genetic Screening*, *supra* note 47, at 104. Periodic medical examinations are given to 33.71 percent of all employees. *Id.* at 104.

employers are obligated to pay the costs.¹⁸⁹ In developing standards for medical examinations, the Board probably is not required to conduct a cost-benefit analysis when a health related regulation is issued. While California courts have not definitively stated that a cost-benefit analysis is not necessary, the United States Supreme Court did so when analyzing similar provisions contained in the federal OSHA. In *American Textile Manufacturers Inst., Inc. v. Donovan*,¹⁹⁰ the Court noted that,

[C]ongress specifically chose in §655(b)(5) to impose separate and additional requirements for issuance of a subcategory of occupational safety and health standards dealing with toxic materials and harmful physical agents; it required that those standards be issued to prevent material impairment to health *to the extent feasible*. Congress could reasonably have concluded that *health* standards should be subject to different criteria than *safety* standards. . . .¹⁹¹

Concluding that a cost benefit analysis was not required for health standards, the Court determined that Congress, in defining the relationship between costs and benefits, had placed worker health above all other considerations.¹⁹² The standards will be set aside only if "other considerations" render impossible the achievement of the health goal.¹⁹³

Accordingly, the authority to enact a genetic monitoring program designed to assure the continued health of workers is vested in the Occupational Safety and Health Standards Board. In promulgating regulations, the Board should give priority to the inclusion of provisions of a genetic monitoring program which provide for employer disclosure, medical removal when disease susceptibility is encountered, and wage and benefit retention during the removal period.

B. Provisions Encouraging Employee Participation

The incorporation of provisions demanding disclosure by employers and providing for salary retention and removal¹⁹⁴ should be included to assure that an enacted program serves the interests of both employers and employees. Absent full disclosure and removal provisions, con-

189. CAL. HEALTH & SAFETY CODE §142.3(d).

190. 452 U.S. 490 (1981). In interpreting the language of section 6(b)(5) of OSHA, which is similar to the language of section 6401 of the California Labor Code, the Court held the occupational exposure limits for cotton dust valid. *Id.* at 541. In *Donovan*, the Court did pay special heed to language in section 6(b)(5) providing that the standard should "to the extent feasible" assure no impairment of health. *Id.* at 506-22. Section 6401 of the California Labor Code does not include the feasibility language.

191. *Donovan* at 512.

192. *Id.*

193. *Id.* at 509.

194. See *infra* notes 197-216 and accompanying text.

flicts between the interests of employers and employees could arise. Employers may believe that susceptible workers can be removed from the workforce to limit liability and maximize profit. Employees who participate may believe that despite test results, they may elect to remain in the toxic work environment. If the legislative goals articulated under Cal-OSHA are to be effected, a compromise must be achieved: full disclosure coupled with medical removal and wage guarantee is the ideal method.

Full disclosure provisions are essential to the program, primarily because the implementation of a mandatory program for all affected employees is unlikely. All existing medical surveillance programs are optional to the employee,¹⁹⁵ perhaps because administrative agencies promulgating regulations believe that mandatory programs would interfere with the workers' constitutionally protected privacy interests.¹⁹⁶ A genetic monitoring program compelling employee participation is unnecessary so long as other incentives that would encourage participation are included in the regulations. A medical removal and wage guarantee program provides the proper incentive.

A statutory medical removal and wage guarantee program is ideal to achieve a balance between the interests of employers and employees. Models for removal and wage guarantees have been implemented for workers experiencing the consequences of excessive exposure to vinyl chloride,¹⁹⁷ lead,¹⁹⁸ and asbestos.¹⁹⁹ The program implemented for lead exposure, the most comprehensive of the removal and wage guarantee programs, provides that when an employee becomes eligible for removal, the employer may transfer the employee to another job or location, reduce hours, or lay the employee off.²⁰⁰ The employer is obligated, nonetheless, to maintain the employee's earnings, seniority, and provide "other employment rights and benefits . . . as though the employee had not been removed . . ."²⁰¹ for up to eighteen months.

195. See CAL. ADMIN. CODE, tit. 8, R. 5208, 5210, 5212-14, 5216.

196. See *Whalen v. Roe*, 429 U.S. 589, 599-600 (1977). The interest of the government in securing health for its citizens cannot interfere with the individual's constitutionally protected privacy interest. The "interest in independence in making certain kinds of important decisions" is constitutionally protected. *Id.* at 599-600.

197. CAL. ADMIN. CODE, tit. 8, R. 5210(k)(5) (provides for medical removal but not wage guarantees).

198. *Id.* R. 5216(k)(1-2). Medical removal required until blood level is acceptable; salary retention, seniority, and benefits may be retained for up to 18 months. *Id.* R. 5216(k)(3), 5216(k)(6)(A-F).

199. *Id.* R. 5208(d)(4). Medical removal is required if respirators are ineffective; and provides for wage retention only if an alternative position is available. *Id.*

200. *Id.* R. 5216(k)(5).

201. *Id.* R. 5216(k)(6)(B).

The employee is returned to the original employment assignment when disease symptoms return to a certain level.²⁰²

In addition to providing employees with an incentive to participate in a genetic monitoring program, a medical removal and wage guarantee program balances the interests of workers and employers, placing the financial responsibility for worker health on the employer. The employer's legitimate interest in reducing liability and increasing profit margins arguably is not protected by removal and wage guarantee provisions. These interests, nevertheless, should not predominate when employee health and safety is the alternative.²⁰³ Employers have traditionally been financially responsible for the diseases and injuries incurred by workers as a result of the work environment²⁰⁴ and for the costs of rehabilitating injured workers.²⁰⁵ In placing these financial obligations on the employer, the Legislature has recognized that costs will be shifted to consumers²⁰⁶ and reflected in the price of goods.²⁰⁷

Accordingly, employees would not be completely protected by a medical removal and wage retention program. For the employee who has sustained permanent genetic damage, the employer's obligations cannot be expected to continue indefinitely. Since an employee's interest in working is not a fundamentally protected interest,²⁰⁸ the employee should not be accorded the option of continuing his exposure in a dangerous setting. Permitting the employee to elect to continue exposure would interfere with a program goal of health

202. *Id.* R. 5216(k)(5)(B), 5216(k)(6).

203. See CAL. HEALTH & SAFETY CODE §429.11 (provisions of that section are cited *supra* at note 1); see also *supra* note 1 (purpose of the Cal-OSHA).

204. See *supra* notes 97-109 and 124-42 and accompanying text.

205. CAL. LAB. CODE §139.5; see I. SANCHEZ, G. MORRIS, J. MILLER, M. EDELSTEIN, *THE CALIFORNIA WORKERS' COMPENSATION REHABILITATION SYSTEM* 130-77 (1981) (overview of the California workers' compensation rehabilitation system).

206. G. CALABRESI, *THE COST OF ACCIDENTS* 53-54 (1970).

207. See *Usery v. Turner Elkhorn Mining Co.*, 428 U.S. 1, 18-19 (1976).

208. Under equal protection analysis, classifications restricting employment opportunities are only entitled to minimum level of scrutiny. *Mass Bd. of Retirement v. Murgia*, 427 U.S. 306, 313-14 (1976). But see *Sailer Inn, Inc. v. Kirby*, 5 Cal. 3d 1, 17, 485 P.2d 529, 539, 95 Cal. Rptr. 329, 339 (1971). Although the right to work is not a fundamental right, the California Supreme Court has recognized that the right to work and "concomitant opportunity to achieve economic stability are essential to the pursuit of life, liberty, and happiness . . . and that this right . . . is of the very essence of personal freedom and opportunity that it was the purpose of the (Fourteenth) Amendment to secure." *Id.* at 17, 485 P.2d at 539, 95 Cal. Rptr. at 339. Although this entitlement could arguably support a worker's contention that a right exists to elect to remain in a dangerous work setting, if the alternative to continued exposure is job termination. Employee election should not prevail, however, because permitting the employee to consent to disease risks defeats the goal of disease reduction. An additional consideration arguing against employee choice is that disease risks also extend to offspring. See *supra* notes 49-58 and accompanying text.

maintenance and conflict with statutory measures intended to curb the proliferation of occupational diseases.²⁰⁹

The constitutionality of both removal²¹⁰ and wage guarantee²¹¹ provisions has not gone unchallenged. In a comprehensive opinion, the United States Court of Appeals for the District of Columbia Circuit upheld both medical removal and wage guarantee provisions for the lead standard in *United Steelworkers of America v. Marshall*.²¹² The United States Supreme Court in *American Textile Manufacturers Inst. Inc. v. Donovan*,²¹³ however, remanded the wage guarantee provisions of the cotton dust standard to the Secretary of Labor²¹⁴ because the agency "failed to make the necessary determination or statement of reasons that its wage guarantee requirement is related to the achievement of a safe and healthful working environment."²¹⁵ The Court did not state that wage guarantee provisions were impermissible, although the issue of whether OSHA was vested with the authority to promulgate wage guarantee provisions was left open.²¹⁶

Two key arguments in support of a wage guarantee program would be available to the agency proposing a mandated genetic monitoring program. First, if the employer were allowed to transfer employees to alternative settings, but were not forced to guarantee wages, no incentive would exist for maintaining a safe workplace. No mandate requiring that the workplace be made absolutely safe exists.²¹⁷ When the employer's dilemma is between wage guarantee obligations or improving the safety of the workplace, the advantages to the employer of improving the safety of the workplace are evident. In a competitive marketplace where costs of worker injury and disease must be borne by the employer, elimination of unsafe conditions will enhance an employer's ability to participate in a competitive market.²¹⁸

Secondly, wage guarantee programs also assist in assuring employee participation in a genetic monitoring program. As noted earlier,²¹⁹

209. CAL. HEALTH & SAFETY CODE §429.11; see also *supra* note 1.

210. *United Steelworkers of America v. Marshall*, 647 F.2d 1189 (D.C. Cir. 1981) (lead standard case).

211. *Id.*; see also *American Textile Manufacturers Inst., Inc. v. Donovan*, 452 U.S. 490 (1981) (cotton dust standard case).

212. 647 F.2d 1189, 1238 (D.C. Cir. 1981).

213. 452 U.S. 490 (1981).

214. *Id.* at 541.

215. *Id.* at 537-38.

216. *Id.* at 537.

217. *Industrial Union Dep't, AFL-CIO v. American Petroleum Inst.*, 448 U.S. 607, 641 (1980).

218. *Cf. Usery v. Turner Elkhorn Mining Co.*, 428 U.S. 1, 18 (1975). In *Turner Elkhorn Mining*, the Court notes that even if a regulation imposes a substantial burden on an employer, it is for Congress to choose how the burden should be distributed. *Id.* at 18. As long as the decision is "rational," the Court will not upset the scheme chosen by Congress. *Id.* at 19.

219. See *supra* notes 195-96 and accompanying text.

medical surveillance programs typically are optional to employees. If workers were faced with the alternative of being transferred to a lower paying position or of having their hours cut based upon test results, incentives to participate would be lacking. Accordingly, wage guarantee programs would encourage employee participation in genetic monitoring programs. In addition to disclosure, removal, and wage guarantee provisions, a compelled genetic monitoring program should also encompass provisions requiring that test result data be submitted to OSHA.

C. Test Results Reporting

One of the concomitant benefits of a compelled genetic monitoring program is the ability of the administrative agency to obtain additional data about workplace safety. While standards for worker exposures to chemicals are developed based on the compilation of the best scientific data available, data to determine whether the prescribed standards are sufficient to create a safe working environment are lacking. Since one of the legislative directives under OSHA is continued research for the purpose of improving occupational safety and health,²²⁰ a compelled program should not be enacted absent a specific provision for data submission by employers. Under the California Administrative Code, Cal-OSHA has a right of access to relevant exposure and medical records.²²¹ The Code, however, does not mandate that employers submit information.²²²

A wage guarantee and medical removal program may be a positive incentive for employers to enhance the safety of the workplace. Some employers, however, may opt to incur the liability attendant to medical removal and wage guarantee and forego improvements in the

220. California Labor Code section 6353 provides, "The division shall conduct continuing research into methods, means, operations, techniques, processes and practices necessary for improvement of occupational safety and health of employees." CAL. ADMIN. CODE, tit. 8, R. 3204(a). "Access" is defined as the "right and opportunity to examine and copy." *Id.* R. 3204(c)(1). See also CAL. CIV. CODE §§56-56.37, (Confidentiality of Medical Information Act); See *Review of Selected 1981 California Legislation*, 13 PAC. L.J. 713, 717 (1982) (for a general review of the provisions of the Act pertaining to disclosure of medical information by employers). Under all existing monitoring program, employees have access to their medical records. E.g., CAL. ADMIN. CODE, tit. 8, R. 5208(j)(2)(C), 5210(m)(2), 5212(p)(3)(B), 5213(q)(4)(B), 5214(o)(4)(B), 5216(n)(4)(B). Under the provisions of the Confidentiality of Medical Information Act, disclosure of the contents of an employee medical file is impermissible without employee authorization except in narrowly defined circumstances. CAL. CIV. CODE §56.20(c). One of the exceptions provides for the release when compelled by another provision of the law. *Id.* §52.20(c)(1).

221. See CAL. ADMIN. CODE, tit. 8, R. 5208(j)(2)(C), 5210(m)(2), 5212(p)(3)(A-B), 5213(q)(4)(A-B), 5214(o)(4)(A), 5216(n)(4)(A).

222. *Id.* R. 5208(j)(2)(C), 5210(m)(2), 5212(p)(3)(A-B), 5213(q)(4)(A-B), 5214(o)(4)(A), 5216(n)(4)(A).

workplace, particularly if the costs of improvements required a major capital outlay or product alteration. Consequently, if a genetic monitoring program is to achieve one of its primary objectives, maintenance of worker health, data submission must be a component of the administrative regulations.

CONCLUSION

Medical laboratory tests that can aid workers in discovering whether their health has been affected by exposures encountered in the workplace have now been developed. These tests are performed to identify a worker's increased susceptibility to diseases such as cancer or the production of birth defects in offspring. Although disagreement exists within the scientific community about whether the tests accurately predict increased susceptibility, a consensus among researchers is not required by the courts to incorporate a mandate for tests into a medical surveillance program.

This comment has demonstrated that a genetic monitoring program should be adopted by administrative regulation for those industries that generate exposures that are dangerous to worker health. If genetic monitoring is not compelled, the decision of whether to include or exclude monitoring from an employee medical surveillance program is discretionary with the employer. An employee will be protected only if the employer elects to conduct genetic monitoring and implements a program that provides for full disclosure and also incorporates a medical removal and salary retention program.

Absent these provisions, employees who contract disease or who are terminated because of genetic structure are hampered in their efforts to recover from the employer. If an employer elects not to conduct genetic monitoring, the interest of the Legislature in reducing occupational and genetic disease and in maintaining a safe and healthy workplace is impaired.

For a compulsory genetic monitoring program to be successful, the program must be designed to encourage employee participation. Medical surveillance programs traditionally have been optional for employees, and regulations forcing employee participation are not likely to be upheld because they would offend employees' constitutionally protected privacy interests. Accordingly, a compelled genetic monitoring program encompassing the following provisions should be adopted by administrative regulation: (1) a requirement that employers fully disclose information about testing being performed and the results of the tests; (2) procedures for removal of the worker from the site

of the hazardous exposure when test results identify disease susceptibility; (3) a system assuring salary and seniority retention during the removal period; and (4) a requirement that statistical data compiled from test results be submitted to an appropriate governmental agency. The implementation of this proposal would be a significant step toward the improvement of workplace safety and amelioration of occupationally induced disease.

Linda J. Seifert

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