January 1993

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Recommended Citation
DOI: https://doi.org/10.58948/2331-3528.1413
Available at: https://digitalcommons.pace.edu/plr/vol13/iss1/6

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Comment

Creating A Genetic Underclass: The Potential for Genetic Discrimination by the Health Insurance Industry

I. Introduction

Imagine the following: you are a healthy individual, married to a healthy spouse, with healthy children. You attempt to purchase health insurance coverage for yourself and your family. As a prerequisite to eligibility, the insurance company requires both you and your spouse to submit to a variety of genetic tests. Because you are both in good health and have never suffered from serious illness, you feel confident that there is no reason for concern. Therefore, you both freely consent to the simple blood tests. Neither you nor your spouse are aware of any history of

1. According to the American Council of Life Insurance Medical Section Committee on Genetic Testing, “[g]enetic tests are laboratory tests used to determine the presence or absence of abnormal or defective genes and/or chromosomes. Such tests are direct measures of such defects or abnormalities, as opposed to indirect manifestations of genetic disorders.” AMERICAN COUNCIL OF LIFE INSURANCE AND HEALTH INSURANCE ASSOCIATION OF AMERICA, REPORT OF THE ACLI-HIAA TASK FORCE ON GENETIC TESTING 1991 2 (1991) [hereinafter ACLI-HIAA TASK FORCE]. Genetic tests employ various technologies to detect pre-existing genetic traits, changes in chromosomes, or changes in deoxyribonucleic acid (DNA), the chemical bearer of genetic information. OFFICE OF TECHNOLOGY ASSESSMENT, GENETIC MONITORING AND SCREENING IN THE WORKPLACE 3 (1990) [hereinafter Genetic Monitoring]. See infra Part II for a further discussion of DNA; and infra note 2 for a discussion of the various tests. Genetic testing by insurers involves screening individuals to identify particular inherited traits or disorders. See Neil Holtzman, Proceed With Caution 193-200 (1989).

2. Today, DNA tests are administered through a variety of diagnostic techniques. OFFICE OF TECHNOLOGY ASSESSMENT, MEDICAL TESTING AND HEALTH INSURANCE 18 (1988) [hereinafter Medical Testing]. Because DNA is present in all body cells, it can be easily extracted from blood and stored for an indefinite period. GENETIC MONITORING, supra note 1, at 78. In prenatal genetic tests, fetal cells are obtained through amniocentesis.
illness within your families. Unfortunately, the test results show that you are a carrier of the DNA marker that indicates a predisposition to lung cancer. Faced with the prospect that you may develop lung cancer and become an economic drain through huge medical costs, the insurance company denies coverage to you and even to your family because of the possibility that your children may carry the gene. Your family is left without health insurance, despite the fact that you have not manifested any symptoms of the disease and your children have not been tested to determine if they even possess this risk-laden genetic make-up.

In November, 1991, Earvin "Magic" Johnson announced his early retirement from professional basketball because he had tested positive for the human immunodeficiency virus (HIV). The announcement provoked disbelief at Johnson's tragedy and controversy at Johnson's disclosure that he became infected from "messing around with too many women." Amidst the uproar, one fact seemed forgotten; a fact that underlies this trag-

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**DAVID SUZUKI & PATRICK KNUDTSON, GENETICS: THE CLASH BETWEEN THE NEW GENETICS AND HUMAN VALUES 148 (1990).** Because most DNA-based tests for genetic disorders are technically difficult, costly to perform, and are sometimes unreliable, widespread use of genetic testing is limited. **MEDICAL TESTING, supra, at 19.** Most blood tests are limited to biochemical profiles that are derived from analyzing a battery of twelve or more tests per blood sample. *Id.* at 122. **See generally id. at 121-41 (explaining technical background of HIV screening).** **See also GENETIC MONITORING, supra note 1, at 77-95 (discussing the technical molecular background behind genetic testing).** Diagnostic tests offered by biotechnology firms range in price anywhere from $200 to $980 per test, and can rise as high as $3000. *Id.* at 95; Larry Gostin, **GENETIC DISCRIMINATION: THE USE OF GENETICALLY BASED DIAGNOSTIC AND PROGNOSTIC TESTS BY EMPLOYERS AND INSURERS, 17 AM. J.L. & MED. 109, 116 (1991) [hereinafter GENETIC DISCRIMINATION].** For example, the test for Huntington's disease costs $450 per sample. **GENETIC MONITORING, supra note 1, at 95. See infra Part II** for a further discussion of diagnostic tests administered by biotechnology firms.

3. Genetic tests identify diseases by isolating a "marker," an "unusual DNA sequence that is believed to be inherited with a disease causing gene." **DOROTHY NELKIN & LAURENCE TANCREDI, DANGEROUS DIAGNOSTICS 27 (1989).** Markers are detected through techniques that fragment DNA drawn from blood cells so that the region on a chromosome where a defective gene is located can be identified. *Id.*

4. Lung cancer is the leading cause of cancer death among Americans. **GENETIC MONITORING, supra note 1, at 91.** There is evidence of various genetic defects that contribute to the development of cancer. Environmental exposures such as smoking may exacerbate this condition. *Id.*

5. Richard W. Stevenson, **Magic Johnson Ends His Career, Saying He Has AIDS Infection, N.Y. TIMES, Nov. 18, 1991, at A1.**

6. Harvey Araton, **Players, Temptation and AIDS, N.Y. TIMES, Nov. 10, 1991, § 8, at 11.**
edy and is telling of the direction technology is leading our society. Johnson did not decide to submit to an acquired immune deficiency syndrome (AIDS) test because of his personal concern of infection, rather he consented to an AIDS test along with several other tests as part of a routine annual procedure mandated by his insurance company.\(^7\) Johnson's experience reflects the growing use of diagnostic testing by insurance companies to screen applicants for eligibility and rate-setting purposes.\(^8\) Johnson is fortunate that his public figure status sets him apart from the rest of society, and he probably does not have to worry that this discovery may threaten his insurance coverage. The majority of society does not enjoy the same economic status as Johnson, and the potential for abuse by insurance companies that use diagnostic testing as a tool for profit is greater than ever before.

Genetic researchers are continuously unearthing secrets of the human body that seem to indicate that the course of life does not lie with fate, but rather with inherited human qualities that are determined long before birth.\(^9\) New diagnostic tests that probe DNA sequences for the genetic markers of diseases that are inherited through families can predict illnesses long before they are clinically manifested.\(^10\) Hundreds of genetic markers have been identified that indicate an inherited predisposition not only to physical and mental illness, but to physical and personality traits.\(^11\) Diagnostic genetic tests can provide enormous

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7. Stevenson, supra note 5, at B12.
11. To date, thousands of hereditary genes have been discovered. These include: the gene associated with Huntington's chorea, a fatal, degenerative disease that affects the brain; the gene associated with neurofibromatosis, or "Elephant Man's Disease;" and the gene associated with cystic fibrosis, a debilitating lung disease that was first discovered through "mapping" of family history. OFFICE OF TECHNOLOGY ASSESSMENT, MAPPING OUR GENES; GENOME PROJECTS: HOW BIG, HOW FAST? 134-35 (1988) [hereinafter MAPPING OUR GENES]; Natalie Angier, Scientists Discover the Gene in a Nervous System, N.Y. TIMES, July 30, 1990, at A1, col. 2; Sandra Blakeslee, Scientists Find Hope for Victims of Cystic Fibrosis by Discovering its Gene, N.Y. TIMES, Aug. 24, 1989, at B13, col. 1. See infra Part II notes and accompanying text for a more expansive discussion of genetic mapping. Genetic structures associated with common illnesses such as heart disease, various forms
benefits, including early detection of predisposition to illness that creates an opportunity for preventive care. Identifying and understanding the DNA sequences of disease-causing genes will also lead to discoveries of cures and new preventive treatments. Prenatal screening for genetic disorders provides parents with a choice of whether to raise a child with an untreatable disease. In nonclinical settings, genetic tests can provide legal evidence of an individual's criminality or provide early detection of learning disabled children.

Despite all the apparent benefits associated with genetic information, it also carries "potential for social detriment." Genetic testing raises serious concerns that the identification of an individual's predisposition to illness may be used in ways that harm the individual. The insurance industry, employers, and the government all have an "immediate or potential interest in promoting large-scale genetic screening to identify" those individuals who carry genetic disorders. This is particularly true in the clinical setting, where genetic information may reduce or prevent access to health care through the loss of insurance. In this setting, testing becomes a means of identifying those individuals who are potentially at risk for future illness, and therefore present a potential insurance risk. Critics charge that insurance


12. Nelkin & Tancredi, supra note 3, at 7. Among the benefits are "disease prevention through genetic counseling, and treatment of the disorders through genetic manipulation." Genetic Discrimination, supra note 2, at 110.


14. Id. at 151. DNA tests are currently used in the courts to establish the identity of suspects in criminal cases when the key evidence is biological material such as blood or semen. Diagnostic tests are also used to provide evidence that correlates violent behavior with brain abnormalities. Id. See also Andrea De Gorgey, The Advent of DNA Databanks: Implications for Information Privacy, 16 AM. J.L. & MED. 381 (1990).

15. Carey, supra note 11, at 78.


companies may abuse genetic tests to legitimate arbitrary exclusionary practices that "enlarge institutional power with little regard for the rights . . . of individuals." Thus, insurance companies may rely on genetic tests to deny access to health insurance, shifting the burden to the government to take care of the health care bill for the uninsured.

In this age of genetic wizardry, genetic testing is a double-edged sword. It allows for early diagnosis and treatment of diseases and disorders, and possibly even their elimination. However, the social, medical, and legal issues surrounding the use of genetic tests are of a dimension not yet realized. In the field of health insurance, genetic testing threatens to infringe upon individual rights because it can be used to separate individuals into "insurable" and "uninsurable" groups. Insurers may use genetic markers as a basis for denying coverage or determining rates and eligibility unfairly. "The fact that genetic diseases are sometimes closely associated with discrete ethnic or racial groups such as African Americans, Ashkenazi Jews or Armenians compounds the potential for discrimination." In addition, if insurance eligibility is tied to the results of genetic testing, individuals will seek confidentiality for the results of these tests. Genetic testing raises serious concerns about discrimination, the right to privacy, and whether the legal world is prepared to confront these issues before their impact is widely felt.

This Comment will examine genetic research and its poten-

18. Nelkin & Tancredi, supra note 3, at 8.
20. The terms "insurable" and "uninsurable" connote separate insurance pools which are distinguished according to insurance risk classifications. See infra Part III for a discussion of insurance risk classification.
22. Bloom's Syndrome, Gaucher's disease, or Tay-Sachs disease. Id. at 111 n.10.
23. Family Mediterranean Fever. Id. at 111 n.11.
24. Id. at 111.
25. It is important to distinguish between insurers mandating genetic testing and insurers having access to genetic information. ACLI-HIAA Task Force, supra note 1, at 8. The use of mandatory genetic tests by insurers for determining eligibility is remote, however, genetic testing is increasingly performed by clinicians. It is this information that insurers currently have an incentive to know about. Id. See infra Part IV.B. discussing adverse selection.
tional impact on health insurance. Part II profiles the historical background behind this issue and the technologies used. Part III outlines the basic principles underlying insurance risk classification. Part IV addresses the potential for abuse of genetic testing by both insurers and private citizens. Part V examines current legislation to determine whether the law recognizes a right to confidentiality in genetic testing and whether existing legislation invites discrimination against genetically tested individuals. Current legislation is also evaluated to determine whether genetic testing by third parties violates existing statutes and whether analogies can be drawn to statutes that protect other groups at risk. Part VI proposes possible reforms to confront the implications of genetic testing. Part VII concludes that a ban on the use of genetic information for health insurance underwriting is needed to protect individuals from genetic discrimination.

II. Background

Before the profound legal and social effects of genetic testing can be appreciated, it is necessary to understand the basic principles of the technology and its application. The Human Genome Project is a massive international research initiative

26. Genetic testing also has a potential impact on life insurance. However, some of the strongest concerns about genetic testing focus on the accessibility and availability of health insurance. See ACLI-HIAA Task Force, supra note 1, at 4. The ACLI-HIAA Task Force report presumes such fervor arises over health insurance because "life insurance is not perceived as an entitlement to the same extent as health insurance." Id. Although many of the issues raised in this Comment apply to both health and life insurance, this Comment will focus on health insurance. See generally Medical Testing, supra note 2.

27. Genetic discrimination is defined as "discrimination directed against an individual or family based solely on an apparent or perceived genetic variation from the 'normal' human genotype." Billings, supra note 17, at 476.

In a recent study, Dr. Paul Billings of the California Pacific Medical Center compiled information regarding actual cases of genetic discrimination. Id. Forty-one separate incidents of discrimination were reported; thirty-two involved insurance discrimination and seven involved employment discrimination. Id. at 478. Many of the individuals in the study possessed a hereditary condition but were asymptomatic and healthy. Id.

28. The agencies involved with the research efforts on the human genome use different terminology to refer to these efforts. At the National Institutes of Health, the term is the "Human Genome Project." At the Department of Energy, it is the "Human Genome Program." Other references also include the "Human Genome Initiative." H.R. Rep. No. 478, 102nd Cong., 2d Sess. 7, n.9 (1992).

29. "[T]he scope of ... [the Human Genome Project] would be unparalleled in the
to study and detail the genetic structure of human DNA. The long-term goal of the project is to map and sequence the molecular structure of all human genes, including disease-causing genes hidden within the DNA structure. The research project, primarily funded by the United States, is scheduled to last at least fifteen years and cost an estimated three billion dollars. The two major United States government institutions sponsoring the genome project are the National Institutes of Health and the United States Department of Energy. The genome project includes an unprecedented study of the social, legal, and ethical issues raised by genetic testing.

The structure of DNA was discovered in 1953 by Dr. James Watson, who won a Nobel Prize for his achievement. DNA is a double helix structure, partially composed of four nucleotides

history of the life sciences . . . . This [project is] among the ranks of such ambitious, goal-oriented Big Science projects of the past as the building of the first atomic bomb or sending astronauts to the moon." SUZUKI, supra note 2, at 316-17.

30. Elke Jordan, Invited Editorial: The Human Genome Project: Where Did it Come From, Where is it Going?, 51 AM. J. HUM. GENETICS 1 (1992). Although the United States was the first country to initiate research efforts, other programs are under way in the United Kingdom, France, the European Community, and Japan. Id.

31. A gene is a unit of hereditary information. MAPPING OUR GENES, supra note 11, at 21. The genome is the total genetic endowment packaged in the chromosomes. MEDICAL TESTING, supra note 2, at viii. The genome has also been defined as "[a]ll the genetic material in the chromosome of a particular organism; its size is generally given as the total number of base pairs." Jon Beckwith, The Human Genome Initiative: Genetics’ Lightning Rod, 17 AM. J.L. & MED. 1, 2 n.8 (1991) (quoting United States Dep’t of Health & Human Services and Dep’t of Energy, Understanding Our Genetic Inheritance, The U.S. Human Genome Project, The First Five Years, FY 1991-1995 86 (1990)).


33. The United States Department of Energy began a genome research program in 1987. James D. Watson, The Human Genome Project and International Health, 253 JAMA 3322, 3323 (1990). Within the National Institutes of Health, the project is administered by the National Center for Human Genome Research. Smaller genome research projects are also under way at the United States Department of Agriculture and the National Science Foundation. Combined federal funding for these programs exceeded $85 million in 1990. Id.

34. Jordan, supra note 30, at 4. Three areas earmarked for ethical study are: "privacy of genetic information, protection from discrimination based on genetics, and safe introduction of genetic tests into mainstream medical practice." Id.


36. Each molecule of DNA is composed of two separate DNA strands that are held together by weak hydrogen bonds. SUZUKI, supra note 2, at 32. The two strands coil
bases: guanine (G), cytosine (C), adenine (A), and thymine (T). The bases occur in pairs, and the arrangement of these pairs is defined as the sequence. The sequence of the base pairs in the DNA encodes the genetic information. Thus, the encoded genetic information can be described by sequences of base pairs such as GCATGTATCCTGTA.

The base pair sequences that make up DNA are used by the body to manufacture proteins. In its simplest form, a sequence is “read” by the body, which generates messenger ribonucleic acid (RNA). Messenger RNA is then decoded by the cell to form proteins. Proteins, such as enzymes and hormones, control body activities and functions. Thus, the genetic code establishes traits that are passed from one generation to the next.

The human body carries fifty to one hundred thousand genes. A human gene can vary in size from less than ten thousand base pairs to more than two million. The human genome consists of approximately three billion base pairs strung along the forty-six human chromosomes. The Human Genome Project aims to ultimately map the sequence of all three billion base pairs that make up the human genome.

The first step to mapping a gene is charting the location of together like a spiral staircase to form the double helix. Id.
the gene on the chromosome.\textsuperscript{51} Genes are located by finding minor genetic variations, called polymorphisms, that occur throughout human DNA and act as markers.\textsuperscript{52} These markers are easily detected, and act as identifiable regions on a chromosome that are useful for locating nearby genes.\textsuperscript{53} Creation of genetic linkage maps within families is accomplished by tracking variations in these genetic markers.\textsuperscript{54} When parents have different forms of a marker, the linkage of the marker to a particular gene can be followed in the child.\textsuperscript{55} Using family linkage studies, scientists can now locate a particular gene associated with a specific disease.\textsuperscript{56}

Genetic discoveries are not limited to disease-causing genes, but also include genes that belie a predisposition or susceptibility to a particular disease.\textsuperscript{57} "Some common disease susceptibilities, such as heart disease or cancer, are correlated with an altered gene."\textsuperscript{58} However, this correlation does not mean that all heart disease and cancer is related to such susceptibility genes.\textsuperscript{59} The actual development of the disease is a result of a combination of factors, such as other genes and the environment.\textsuperscript{60} The discovery of a genetic mutation associated with heart disease has made early detection a matter of life and death for carriers, who

\begin{footnotesize}
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\item \textsuperscript{51} \textit{Suzuki}, supra note 2, at 305.
\item \textsuperscript{52} Mapping Our Genes, supra note 11, at 27.
\item \textsuperscript{53} Id. A specific polymorphism may be associated with a gene variant that causes a disease. Id. at 28-30. These "linked polymorphisms" can then be used as indicators in predictive genetic tests. See Jason Brandt et al., Presymptomatic Diagnosis of Delayed Onset Disease with Linked DNA Markers: The Experience in Huntington's Disease, 261 JAMA 3108 (1989).
\item \textsuperscript{54} Mapping Our Genes, supra note 11, at 27.
\item \textsuperscript{55} Id. For a more complete description of genetic linkage mapping, see id. at 26-30. See generally Brandt, supra note 53.
\item \textsuperscript{56} Nelkin & Tancredi, supra note 3, at 28. One of the oldest methods for studying human gene linkages is through the study of family histories. Suzuki, supra note 2, at 307. By tracing a particular trait through a family tree, patterns of inheritance are detectable. Id. Single gene hereditary illnesses such as cystic fibrosis are the simplest to detect because they only require the location of one gene or its associated marker. \textit{Role of Genetic Testing}, supra note 38, at 51. There are currently over four thousand known single gene hereditary illnesses. E. Donald Shapiro, Dangers of DNA: It Ain't Just Fingerprints, N.Y.L.J., Jan. 23, 1990, at 1.
\item \textsuperscript{57} Beckwith, supra note 31, at 5.
\item \textsuperscript{58} Id.
\item \textsuperscript{59} Id.
\item \textsuperscript{60} Id.
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can reduce the risk of developing the disease by changes in diet and exercise. Ultimately, genetic discoveries may unearth genetic susceptibilities to mental illnesses such as manic depression and schizophrenia, and to addictive behaviors such as alcoholism.

Genetic isolation of several diseases has resulted in easy identification of the associated genetic flaw through simple tests. Current tests use blood or urine samples to test for chemical properties of certain genes. The market for the tests is huge. Within days of the discovery of the cystic fibrosis gene, two companies, Integrated Genetics and Collaborative Research, offered a diagnostic test priced at up to two hundred dollars per test. This potential for large profits fuels genome research. As genetic discoveries accelerate, tests proliferate, and prices drop, insurers will be increasingly tempted to use them.

Genetic tests, however, are not always correct. Genetic tests unaccompanied by a detailed family history leave room for error. Also, "[t]he sensitivity of genetic testing is limited by the known mutations in a target population." "Moreover, genetic

61. Carey, supra note 11, at 70.
62. Id. at 71, 78.
63. MEDICAL TESTING, supra note 2, at 15-16.
64. Id.
65. Recent reports predict that genetic tests will generate a two hundred million dollar to one billion dollar per year market for biotechnology companies. Carey, supra note 11, at 69; NELKIN & TANCREDI, supra note 3, at 33. Screening tests are currently available for several common cancers such as colon, breast, and uterine/cervical cancers. MEDICAL TESTING, supra note 2, at 16. Tests are also available for heart disease, diabetes, and other rare diseases. NELKIN & TANCREDI, supra note 3, at 33, 28-29.
66. Carey, supra note 11, at 71.
67. See generally id.
68. See generally Kass, supra note 8. The ACLI-HIAA Task Force reports that cost is a practical reason that has prohibited widespread use of genetic testing by insurers. ACLI-HIAA TASK FORCE, supra note 1, at 5. The Task Force further points out that it will be "years and perhaps decades before insurers could realistically afford genetic testing on any wide-scale basis." Id.
69. MEDICAL TESTING, supra note 2, at 135-40. Genetic test results may be inaccurate due to the possibility of multiple mutations that cause the same condition. "Linkage tests," tests that identify a marker associated with a causative gene rather than the gene itself, are generally reliable only to the extent that the marker is very close to the disease causing gene. Id.
70. Genetic Discrimination, supra note 2, at 113; HOLTZMAN, supra note 1, at 198-99. For example, because the cystic fibrosis (CF) chromosome is detectable in only 75% of the United States Caucasian population, false identification of the disease is inevita-
testing is not based on causality, but on correlation." The underlying premise of most genetic tests is not that the identified gene will always give way to illness, but that certain genetic markers are present in the chromosomes of people suffering from inherited illnesses. These genetic markers are then used to single out high-risk groups and sub-groups. However, "the onset date, severity of symptoms, and efficacy of treatment and management are highly variable." Thus, the results of genetic tests are far from scientific certainty.

III. Health Insurance and Risk Classification

The concept of insuring against loss by distributing risk dates back five thousand years. Modern American health insurance effectively began in 1929 with the Baylor University Hospital Plan. This plan served as the model for the nonprofit Blue Cross and Blue Shield (BC/BS) organizations that still exist today. Private commercial health insurance blossomed in the 1940s, and by 1953 it covered more Americans than the BC/BS organizations. Before considering the insurance industry's need to employ genetic tests as a basis for risk classification, a basic understanding of the American health insurance industry and the principles of insurance classification is compulsory.

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74. Genetic Discrimination, supra note 2, at 114.
75. Id.
76. Emmet J. Vaughan, Fundamentals of Risk and Insurance 67 (5th ed. 1989). For instance, as early as 3000 B.C. Chinese merchants distributed the risk of loss during shipment by shipping some of their goods on each other's boats. Id. The cost of losing any particular boat was thus split among the merchants. Id. at 68.
77. Id. at 75. See Kass, supra note 8, at 2.
78. Vaughan, supra note 76, at 75.
79. Kass, supra note 8, at 3.
A. Health Care Financing Systems

Today Americans may be covered under a variety of commercial and nonprofit health care financing systems. The four major systems are nonprofit BC/BS organizations, commercial health insurers, self-insured health benefit plans, and health maintenance organizations (HMOs). Each system will be briefly discussed and their common reliance on risk classification will be explained.

BC/BS organizations are nonprofit health insurers that generally serve a limited geographic region. Most BC/BS organizations operate like commercial insurers, except that some states require them to have an annual open enrollment period. There are approximately seventy-seven BC/BS organizations nationwide, providing coverage for about seventy-nine million people.

Commercial health insurance providers are for-profit companies. Commercial health insurers are not generally required to provide open enrollment periods, and are usually not restricted to a specific geographic area. There are roughly one thousand commercial health insurers that provide health insurance to approximately 111 million people.

Self-insured health benefit plans have become a major provider of health insurance over the last fifteen years. Self-insurance is typically used by large employers, who can directly pro-

80. Vaughan, supra note 76, at 285. Not all of these health care financing systems are technically insurance. For example, health maintenance organizations (HMOs) are not considered insurance, but they provide similar benefits to members and are generally not distinguished by consumers. Id. at 76.
82. Vaughan, supra note 76, at 285.
83. Medical Testing, supra note 2, at 57. An open enrollment period is a limited period of time where the organization must provide a policy to any applicant regardless of his/her health status. Kass, supra note 8, at 4. Roughly thirty-one percent of BC/BS organizations have open enrollment periods. Medical Testing, supra note 2, at 57.
84. Medical Testing, supra note 2, at 57.
85. Kass, supra note 8, at 7.
86. Id. at 3.
87. Medical Testing, supra note 2, at 57.
88. Vaughan, supra note 76, at 267.
89. Kass, supra note 8, at 7.
90. Medical Testing, supra note 2, at 54.
provide insurance for their employees, rather than hire an outside insurance company or other provider.91 Companies began self-insuring in the 1970s in an effort to cut the cost of employee benefits.92 Self-insurance offers several other advantages to large employers; most importantly, the federal Employee Retirement Income Security Act (ERISA)93 exempts self-insurance plans from most state insurance regulations.94

Technically, HMOs are not health insurers. HMOs are health care providers, but they operate on the same basic principles as insurers. HMOs provide comprehensive medical services to members in return for a fixed monthly fee.95 HMOs grew at an annual rate of twenty percent from 1981 to 1986, and as of 1987 over twenty-seven million people were enrolled in HMOs.96

B. Risk Classification

Health insurance coverage is provided under either group or individual policies.97 Group policies are generally issued to employers, unions, or other large affiliations of people.98 Most commercial insurers and BC/BS organizations provide both group and individual policies.99 HMOs rarely allow individual enrollment.100 Self-insured health benefits plans are not easily classified as group or individual, but may have characteristics of both types of policies.

The critical differences between group and individual policies are the use of risk classification and the method of underwriting.101 The American insurance market is a private, volun-

91. Id.
92. Id.
94. Under ERISA, self-insured plans are not required to comply with state laws requiring minimum insurance benefits, anti-discrimination standards, payment of insurance premium taxes, or participation in insurance risk pools. MEDICAL TESTING, supra note 2, at 55.
95. VAUGHAN, supra note 76, at 275.
96. MEDICAL TESTING, supra note 2, at 58.
97. Id. at 41.
98. Id. at 42.
99. Id. at 56-58.
100. According to the Group Health Association, no more than four percent of HMO members are enrolled as individuals. Id. at 59.
101. Id. at 42. Underwriting is "[t]he process of selecting risks and classifying them according to their degrees of insurability so that the appropriate rates may be assigned."
tary market; thus, risk classification is a fundamental part of the insurance system. Underwriting is used by insurers to determine whether, and on what basis, they will accept an application for insurance. The premise of underwriting is that the insured should pay a premium according to the risk presented. An insurer's goal is to accurately assess the quality of risk of the applicant and establish premiums that reflect that risk. Insurance companies base underwriting decisions on medical information from various sources, including the insurance application, attending physician's statements, medical examinations, and information services such as the Medical Information Bureau.

A basic tenet espoused by insurance companies is their responsibility to treat all policyholders fairly and equitably. Therefore, premiums charged should correlate to the risk an individual policyholder presents to the insurer. "Basic to the concept of providing insurance to persons of different ages, sexes, . . . occupations and health histories . . . has been the right of the insurer to create classifications to recognize the many differences which exist among individuals." Characteristics that impact risk assessment, such as age, health, gender, occupation, and frequency of alcohol or tobacco use, are analyzed to deter-

102. MEDICAL TESTING, supra note 2, at 41.
105. See id. at 411.
109. Bailey, supra note 107, at 781-82.
110. Id. at 782.
111. Id. at 780.
mine their effects on an individual's mortality. The influence these characteristics have on mortality forms a basis for insurance companies to classify individuals into groups with comparable mortality risks and charge appropriate premiums. Thus, risk classification allows insurers to maximize profits and efficiency by charging different rates based upon risk, and compete for customers by offering lower prices to lower risk individuals.

The value of any risk classification is increased by its ability to create prevention incentives on the part of insureds. Ideally, the variable on which the classification is based should be one in which the insured exercises control. One way to measure prevention incentives is the degree to which risk classifications are based on variables within the insured's control. For example, smoking is a controllable addiction that is used by insurers in risk classification. Charging lower premiums for non-smokers is an incentive for smokers to quit smoking, which in turn, lowers the expected loss to insurers. Because the ability of the classification to influence an individual's behavior is an indicator of the classification's efficiency, controllable variables are more efficient risk classification tools.

Some variables, even if extremely accurate and efficient, cannot be used for other reasons and are considered suspect classification variables. Examples of suspect variables are those based on racial or ethnic groups. Use of race or ethnic heritage as a classification variable is considered unacceptably discriminatory and is generally not allowed.

112. ROBERT I. MEHR ET AL., PRINCIPLES OF INSURANCE 657-59 (8th ed. 1985). Individuals and family members are required to complete forms detailing their medical histories. HOLTZMAN, supra note 1, at 194. If applicants are at increased risk for a disease, the insurance company may seek additional information from other sources. Id.

113. See generally id.

114. See Bailey, supra note 107, at 782; see generally KENNETH ABRAHAM, DISTRIBUTING RISK: INSURANCE, LEGAL THEORY, AND PUBLIC POLICY (1986).

115. ABRAHAM, supra note 114, at 71.

116. Id.

117. Id. at 72-74.


119. ABRAHAM, supra note 114, at 92-93.

120. Id. at 93.

121. Id.
The use of risk classification is in natural tension with the basic insurance function of risk distribution. Risk classification seeks to sort the insured population into relatively homogenous groups. In a competitive market, effective risk classification gives an insurer a competitive edge. If an insurer's system is extensively classified, that insurer will skim the low-risk population "away from insurers whose classifications are less refined." This can leave a high-risk group faced with premiums so high that they are essentially uninsurable. Such extensive segregation of risks works against the basic concept of risk distribution that is the foundation of insurance.

IV. Potential Abuses

The availability of predictive and diagnostic genetic tests, and their potential use for health insurance risk classification, highlights the conflicting interests of the health insurance industry and the individual's right to privacy. Access to genetic information is a means of planning long-term health costs for both individuals and insurers. For insurers, the information may be used to deny coverage or increase insurance rates based on an individual's genetic risk. For the individual, genetic information often carries profound benefits, affording an individual a chance to begin preventive care. The potential for abuse of genetic information must be considered from both the individual's and the insurer's perspective.

A. Public Concerns

For individuals, the use of genetic testing by insurers presents several problems, but the most significant is the fear

122. Id. at 65.
123. See id. at 74.
124. Id. at 68. See also Nelkin & Tancredi, supra note 3, at 58.
125. Abraham, supra note 114, at 68.
126. Id. at 65.
127. See ACLI-HIAA Task Force, supra note 1, at 4. Right to privacy involves issues of confidentiality not only in preventing insurers from acquiring genetic information, but also in keeping information obtained by insurers confidential. Id.
128. Nelkin & Tancredi, supra note 3, at 70-73.
129. ACLI-HIAA Task Force, supra note 1, at 4.
130. Nelkin & Tancredi, supra note 3, at 72-74.
that insurers will use genetic information in the classification of risks.\textsuperscript{131} Opponents believe that such use threatens to create a "genetic underclass."\textsuperscript{132} Fear exists that the use of genetic tests will serve as a tool for denying access to health care either through higher premium rates, or by outright denial of insurance coverage for high-risk individuals.\textsuperscript{133} On more basic moral grounds, individuals should be respected as "autonomous beings who hold views, make choices and take actions based on their personal values and beliefs."\textsuperscript{134} Individuals should have the right to voluntarily determine whether they want to know if they are at risk for genetic illness and who should have access to their genetic information. In addition, because genetic testing cannot always provide conclusive results, its use should be approached with caution.\textsuperscript{135} False positive test results sometimes occur, and even individuals with true positive results may never become ill.\textsuperscript{136} The questionable reliability of genetic tests undermines their use as an efficient risk classifier.\textsuperscript{137}

A 1986 survey by the Health Insurance Association of America (HIAA) estimated that 158 million Americans under the age of sixty-five were covered by some form of group health insurance and nine million more were covered by individual health insurance.\textsuperscript{138} Group policy insurance is "essentially low-cost, mass protection."\textsuperscript{139} The basic premise of group policies is

\begin{itemize}
  \item \textsuperscript{131} See generally id. One slightly related ethical concern is the loss of the individual's right not to know his/her genetic makeup. If genetic tests are required by insurers, individuals will be forced to look at their future health prospects, something not everyone wants to do. Furthermore, those who do want to know "may be dissuaded from seeking early diagnostic tests because they may lose the insurance coverage needed to prevent the disease." H.R. Rep., supra note 28, at 17.
  \item \textsuperscript{132} ACLI-HIAA Task Force, supra note 1, at 4.
  \item \textsuperscript{133} Eric T. Juengst, Priorities in Professional Ethics and Social Policy for Human Genetics, 266 JAMA 1835, 1836 (Oct. 2, 1991).
  \item \textsuperscript{134} Kass, supra note 8, at 24.
  \item \textsuperscript{135} Medical Testing, supra note 2, at 136-40.
  \item \textsuperscript{136} Brokaw, supra note 71, at 327.
  \item \textsuperscript{137} Medical Testing, supra note 2, at 20.
  \item \textsuperscript{138} Clifford & Iucalano, supra note 106, at 1808. In addition, "most people in the United States acquire health insurance (and often disability and life insurance) as subscribers to group plans through their employment." O. W. J. Quarrell, et al., Insurance and Presymptomatic Diagnosis of Delayed-Onset Disease, 262 JAMA 2385, 2385 (1989) (replying to O. W. J. Quarrell from Jason Brandt, et al.); see supra Part III for a discussion of various insurance plans.
  \item \textsuperscript{139} Medical Testing, supra note 2, at 43.
\end{itemize}
that in a large group, although some individuals may require more expensive care than others, the overall risk and costs are balanced over a wide pool. Group insurance underwriting evaluates the risk of an insurable group to determine premium rates and coverage terms.\textsuperscript{140} Because of the nature of group insurance, individuals are not generally classified into separate risk categories, and are therefore at less risk of discrimination based on the use of genetic testing.\textsuperscript{141}

In contrast, insurers underwriting individual health insurance consider the characteristics of each individual applicant.\textsuperscript{142} Self-insurers also often consider the health status of individual job applicants because future medical costs are incurred directly by the company.\textsuperscript{143} As a result, those seeking coverage under individual policies or self-insured plans face greater potential for discrimination than those who have access to group insurance.

In the absence of genetic testing for risk classification, the risk associated with genetic diseases or susceptibilities is distributed over the entire insured pool.\textsuperscript{144} Currently, insurance companies must pay for treatment of a genetic disorder when it is manifested unless the policy specifically excludes coverage for such an illness.\textsuperscript{145} Thus, the costs associated with genetic disorders are spread across the insurance pool just as the costs of other diseases are distributed.

Another potential concern for all policyholders relates to pre-existing condition clauses in both group and individual policies. Health insurance coverage is usually limited to current illnesses and does not cover pre-existing conditions.\textsuperscript{146} If genetic defects qualify as pre-existing conditions, potential savings could be significant enough that insurers will seek the use of genetic tests even in the group insurance setting. Further, such pre-existing condition clauses could permit insurers to use genetic tests

\textsuperscript{140} Mowbray, \textit{supra} note 104, at 350.
\textsuperscript{141} Medical Testing, \textit{supra} note 2, at 42-45.
\textsuperscript{142} Vaughan, \textit{supra} note 76.
\textsuperscript{143} Medical Testing, \textit{supra} note 2, at 45.
\textsuperscript{144} See generally Abraham, \textit{supra} note 114, at 67-68.
\textsuperscript{146} Wortham, \textit{supra} note 118, at 398 n.292.
as a basis for avoiding liability on a policy long after it is written.147

B. Insurance Industry

Currently, neither insurers nor employers require genetic testing to obtain coverage, but insurers use other tests to gather medical information that is "strongly influenced by genetic factors."148 Insurers have powerful economic incentives for using genetic testing. Genetic testing can defray costs and guard against potentially unprofitable patients.149 Insurers argue that access to diagnostic tests, including genetic tests, is necessary to keep the industry intact.150 Insurers also argue that individuals possessing a genetic predisposition to disease will burden the rest of the insurance pool through high medical costs once they become ill.151

The insurance industry is based on the principle of shared risk.152 Appropriate levels of contribution are spread across the insurance pool based on a risk assessment of each individual.153 Individual risk classification enables insurers to set rate schedules according to individual risk. Genetic testing would enhance risk classification by providing predictive information of an individual's chances of future illness. Not only can insurers benefit from distinguishing high-risk individuals, but employers who provide self-insured health benefit plans also stand to benefit by

147. See Genetic Discrimination, supra note 2, at 135.

148. Phillip Reilly, ASHG Statement on Genetics and Privacy: Testimony to United States Congress, 50 AM. J. HUM. GENETICS 640, 641 (1992). For example, individuals who purchase large life insurance policies must usually consent to cholesterol tests. Id. Diabetes and high blood pressure tests are also used in qualifying for life and health insurance. Id. Applicants are often required to reveal detailed family histories. Id.

149. "Unprofitable" patients within this context are individuals whose genetic profiles place them in high-risk categories. High-risk categories include those individuals whose genetic make-up is possibly degenerative or fatal, or both. See Nelkin & Tancer, supra note 3, at 58-59.


151. Id.

152. See generally Kass, supra note 8. See supra Part III for further explanation of risk classification.

153. Kass, supra note 8, at 5.
minimizing potential employee medical costs.154 “The economic integrity of insurance companies is premised on the concept that an equitable ‘risk selection and classification’ is necessary in order for insurance companies to remain viable.”155 Insurers are businesses that must protect themselves from unprofitable investments.

Insurers argue that they should have access to all information that bears significantly on risk classification.156 Failure to use this information will result in the “subsidization of high-risk persons by low-risk groups.”157 If this information remains undisclosed, it unfairly burdens the low-risk group. In addition, customers may be lost if low-risk individuals believe that the benefits of coverage are not worth the cost of high premiums.158

Insurers also argue that genetic testing to determine eligibility is analogous to current insurance classification techniques.159 Classification factors currently used include age, sex, health status, health history, financial status, and occupation.160 Just as individuals who have poor driving records pay higher premiums for automobile insurance, individuals who smoke pay higher health insurance premiums than nonsmokers.161 Moreover, premiums for women are generally cheaper than for men because women live longer.162

Perhaps the industry’s gravest fear lies in the possibility that applicants “could use genetic testing to foresee coverage

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155. Id. at 74.
156. MEDICAL TESTING, supra note 2, at 47.
157. Id.
158. Id.
159. Insurers currently use information available from other sources such as personal medical histories — to trace past illnesses and conditions; family medical histories — to identify concerns regarding parents, children, and spouses; and various tests to determine current physical conditions. See Moseley, supra note 154, at 77. See also MEDICAL TESTING, supra note 2, at 45.
160. MEDICAL TESTING, supra note 2, at 45.
162. Wright, supra note 161, at 26.
needs and exploit the insurance system.” "Adverse selection" is the abusive purchase of insurance by individuals who are higher risks than their insurers are aware. Adverse selection drives up the costs of the insurance pool. The result is an unfair distribution of these costs due to increased premiums for all policyholders, including healthy individuals with few medical costs.

Currently, insurance companies protect themselves against adverse selection in three ways. First, insurers protect themselves by including pre-existing condition clauses in both group and individual policies. These clauses provide that if a pre-existing condition is discovered "within two years after the policy is sold, the policy can be canceled or rewritten." A pre-existing condition is one that existed prior to the applicant's policy and has "impaired the applicant's health to some degree."

Second, some protection is afforded by the Medical Information Bureau (MIB). Over seven hundred insurance companies belong to the MIB, which acts as an insurance databank carrying medical findings and test results on health and life insurance applicants. The MIB currently does not carry genetic information.

Finally, insurance companies may require the applicant to submit to a physical exam before providing coverage. In 1990, the American Council of Life Insurance (ACLI) and the HIAA formed a task force to study the issues surrounding the industry's use of genetic testing. The Task Force found that "[n]o insurer — life or health — currently requires genetic tests." However, the ACLI and the HIAA consider genetic information as "potentially relevant to risk classification as any other medical information." The Task Force has stated that "the ACLI and the HIAA should continue to aggressively defend

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163. ACLI-HIAA TASK FORCE, supra note 1, at 8. See also H.R. REP., supra note 28, at 18.
164. ACLI-HIAA TASK FORCE, supra note 1, at 8.
165. Wright, supra note 161, at 27.
166. HOLTZMAN, supra note 1, at 195.
167. Id.
168. Id.
169. Id. at 196.
170. Id.
171. ACLI-HIAA TASK FORCE, supra note 1, at 5.
172. Id. at 10.
their member companies’ need to have access to and to consider any relevant health information for underwriting purposes, including genetic test information."\textsuperscript{173}

V. Current Legislation

Since 1868, the federal government has not significantly regulated the insurance industry.\textsuperscript{174} Initially, insurance was not considered interstate commerce, and regulation was left completely to the domain of the states.\textsuperscript{176} Insurance companies were free to develop and set rates and policies pursuant to each state’s regulatory law.\textsuperscript{176} However, by 1944 the insurance industry “had grown to such an extent that its operation no longer could be regarded as anything less than ‘commerce’. . . .”\textsuperscript{177} In \textit{United States v. South-Eastern Underwriters Association},\textsuperscript{178} the Supreme Court overruled earlier case law and held that the insurance industry was subject to congressional regulation under the Commerce Clause.\textsuperscript{179} Industry fear of federal regulation prompted the National Association of Insurance Commissioners (NAIC)\textsuperscript{180} to propose legislation that would maintain state regulatory authority.\textsuperscript{181}

The NAIC proposal became the McCarran-Ferguson Act,\textsuperscript{182} which mandated that regulation of the insurance industry remain in the hands of the states.\textsuperscript{183} Shortly after the enactment

\textsuperscript{173} Id.
\textsuperscript{174} Kass, supra note 8, at 6.
\textsuperscript{175} See Paul v. Virginia, 75 U.S. 168 (1869) (holding that “[i]ssuing a policy of insurance is not a transaction of interstate commerce,” and thus, is regulated by the states), overruled by United States v. South-Eastern Underwriters Ass’n, 323 U.S. 811 (1944).
\textsuperscript{176} See ROBERT H. JERRY, UNDERSTANDING INSURANCE LAW 52-68 (1987).
\textsuperscript{177} Bailey, supra note 107, at 781.
\textsuperscript{178} 322 U.S. 533 (1944).
\textsuperscript{179} Id. See Bailey, supra note 107, at 781.
\textsuperscript{180} The insurance industry formed the National Association of Insurance Commissioners in 1871 to promote uniformity in insurance regulation and to protect insurance policyholders. JERRY, supra note 176, at 81.
\textsuperscript{181} Id. at 53.
\textsuperscript{183} Section 1011 of the McCarran-Ferguson Act states that, “the continued regulation and taxation by the several States of the business of insurance is in the public interest, and that silence on the part of the Congress shall not be construed to impose any barrier to the regulation or taxation of such business by the several States.” 15 U.S.C. § 1011 (Supp. II 1988). Section 1012(a) further declares that “[t]he business of insurance,
of the McCarran-Ferguson Act, the insurance industry recognized the need for uniform legislation to allow insurers to transact business across state lines.\textsuperscript{184} The NAIC began to formulate model statutes to guide insurance regulation, and today continues to develop model codes and act as a clearinghouse for insurance industry regulatory information.\textsuperscript{185}

Despite the efforts of the NAIC, state insurance statutes are still fragmented.\textsuperscript{186} However, state regulations generally provide for the control of rates to prevent inadequate, excessive, or discriminatory practices; the prevention of unfair trade practices by insurers; and the prevention of insolvency of insurers to protect the interests of insureds.\textsuperscript{187} Rate-setting regulations seek to ensure that rates are sufficient to prevent insolvency without being excessive, and are at the same time fairly and equitably distributed among individuals.\textsuperscript{188} Generally insurers are free to cooperate in devising rate schedules.\textsuperscript{189} These rate schedules are submitted for approval to the state administrative agency that regulates insurance.\textsuperscript{190}

The greatest area of difficulty lies in achieving the proper balance in rates to prevent discrimination among insureds.\textsuperscript{191} Generally, risks are classified to closely match individual premiums with the risk they present. However, errors in risk classification or the use of many classifications can increase administrative costs and, in turn, increase premiums beyond the savings achieved by classification.\textsuperscript{192}

and every person engaged therein, shall be subject to the law of the several States which relate to the regulation or taxation of such business.” Id. § 1012(a). Section 1012(b) states that “[n]o Act of Congress shall be construed to invalidate, impair, or supersede any law enacted by any State for the purpose of regulating the business of insurance . . . unless such Act specifically relates to the business of insurance . . . .” Id. § 1012(b).

185. JERRY, supra note 176, at 81.
186. Id. at 68-69.
188. JERRY, supra note 176, at 72.
189. Id. at 71.
190. Id.
191. Id. at 72.
192. See ABRAHAM, supra note 114, at 64-68.
All fifty states have enacted legislation requiring fair and equitable treatment of insured parties in the insurance underwriting process. These state insurance laws are largely based on the Unfair Trade Practices Act (UTPA), a model code developed by the NAIC. The UTPA permits, and to a degree even requires, discrimination but distinguishes between fair and unfair discrimination. For example, under the UTPA unfair discrimination results when identical premiums are charged to a sixty year old man in poor health and a twenty year old woman in good health. Insurers must determine an equitable premium for both parties, and the "rates should be adequate but not excessive and should discriminate fairly between insureds . . . so that each insured will pay in accordance with the quality of his risk." 

The UTPA proscribes "unfair discrimination between individuals of the same class and of essentially the same hazard." The UTPA is generally interpreted to permit any classification variable as long as a "statistical difference between groups can be known, while ignoring other issues." Fair discrimination generally means that insurers must establish rates based on a measurement of the burden shifted to the insurance fund by each policyholder. Anything less is unfair discrimination.

In most of the state insurance discrimination statutes, interpretation of recurring phrases such as "unfair discrimination"


195. See Bailey, supra note 107, at 782.

196. NAIC MODEL LAWS, REGULATIONS AND GUIDELINES, vol. IV, page 880-1 (Nat'l Ass'n of Ins. Comm'rs Jan. 1991). Bailey, supra note 107, at 782-83. Rates should discriminate fairly between insureds and reflect each insured's risk classification; rates should not be unreasonable or excessive. Id.

197. Id.

198. MOWBRAY, supra note 104, at 411 (emphasis in original).


200. Wortham, supra note 118, at 370.

201. See id. at 361.

202. Id.
and "same class involving essentially the same hazard" is left to the judiciary.203 Cases have interpreted such terms in the same way that the UTPA has been interpreted.204 Thus, underwriting within the spirit of state anti-discrimination laws binds an insurer to accord similar treatment to those with similar health risks.205

The cases illustrate that risk classification is recognized as a fair means of establishing premiums. Generally, insurance companies have free reign to conduct health-related non-discriminatory screening in order to classify the risk of an applicant.206 The only significant exceptions are found in statutes that forbid insurers from denying insurance to individuals carrying the sickle cell trait, Tay-Sachs trait, or HIV-infected or AIDS-diagnosed individuals.207

A. State Regulation of the Use of Genetic Testing

In April 1992, Wisconsin became the first state to ban the use of genetic testing in health insurance underwriting.208 The
Wisconsin law amended the state’s existing insurance code to prohibit health insurers from requiring any individual to obtain a genetic test, to reveal that he or she has undergone genetic tests in the past, or to disclose the results of such tests. In addition, health insurers are prohibited from denying insurance or setting premiums based on whether an individual has obtained a genetic test or on the results of such a test.

No other state has banned the use of genetic tests by health insurers, but some states restrict the use of genetic information or are considering a prohibition like that of Wisconsin. California statutorily prohibits an insurance company from classifying applicants or choosing premiums for life or disability insurance, but not health insurance, on the basis of an individual's genetic make-up. The California Insurance Code section 10143 provides that:

[n]o insurance company . . . shall refuse to issue or sell or renew any policy of life or disability insurance after appropriate application solely by reason of the fact that the person to be insured carries a gene which may, under some circumstances, be associated with disability in that person's offspring, but which causes no adverse effects on the carrier. Such genes shall include, but not be limited to, Tay-Sachs trait, sickle cell trait, . . . and X-linked hemophilia A.

Further, the code provides that “[n]o such policy issued . . . shall demand or require a higher premium rate or charge by reason of the fact that the person to be insured carries such traits . . . .”

In 1991, the California legislature passed a bill that would have prohibited most health care plans from refusing to enroll or charge different premiums to any person because that person "carries a gene which may, under some circumstances, be associated with disability in that person or that person's offspring." The legislation, however, was vetoed by Governor Pete Wilson. A similar bill is again pending before the California

209. WIS. STAT. ANN. § 631.89(2)(a), (b) (West 1992).
210. Id. at § 631.89(2)(c), (d) (West 1992).
212. Id.
213. Id.
215. Gov. Wilson Vetoes Measure to Ban Use of Genetic Testing to Deny Insur-
legislature.\textsuperscript{216}

A proposal to amend Michigan's insurance code to prohibit the use of genetic testing was also recently introduced.\textsuperscript{217} The Michigan proposal defines "$[u]nfair methods of competition and unfair or deceptive acts or practices in the business of insurance" to include a refusal to insure "because the insured or applicant for insurance declined to submit to genetic testing or because of the results of genetic testing."\textsuperscript{218}

Other states have enacted legislation that addresses the use of genetic testing or test results, but does not prohibit their use as a basis for denial of coverage or calculation of premiums. The Maryland Insurance Code provides that "[a]n insurer may not refuse to insure or make or permit any differential in ratings, [or] premium payments, . . . solely because the applicant or policyholder has the sickle cell trait, . . . or any genetic trait which is harmless within itself, unless there is actuarial justification for it."\textsuperscript{219}

Arizona statutorily provides that "[n]o insurer shall refuse to consider an application for life or disability insurance on the basis of a genetic condition . . . ."\textsuperscript{220} Further, Arizona law provides that:

\begin{quote}
[t]he rejection of an application or the determining of rates, terms or conditions of a life or disability insurance contract on the basis of a genetic condition . . . constitutes unfair discrimination, unless the applicant's medical condition and history and either claims experience or actuarial projections establish that substantial differences in claims are likely to result from the genetic condition.\textsuperscript{221}
\end{quote}

Thus, an individual possessing a gene for a life-threatening disease or disorder is unprotected in Arizona and Maryland if the insurer can provide actuarial justification for use of the genetic trait in underwriting.

The issues relating to HIV status and certain genetic dis-
eases that are distinctive to specific racial groups are closely related to genetic testing and concerns about confidentiality. Many states have enacted legislation to prohibit unfair discrimination against carriers of sickle cell anemia.222 In the 1970s insurance companies charged higher premiums or denied coverage to African-Americans who carried the sickle cell trait.223 Workplace discrimination also occurred against such individuals. In the early 1970s laws requiring sickle cell screening were passed in twenty states, only exacerbating the discrimination.224 However, Florida, Louisiana, and North Carolina enacted laws prohibiting such discrimination and by the mid-1970s most state laws requiring sickle cell testing had been repealed.225 With the enactment of state legislation, such unfair discrimination appears to have ended. Under the Florida statute, no insurer “shall refuse to issue and deliver any policy of life insurance solely because the person to be insured has the sickle cell trait.”226 Similarly, the Louisiana Insurance Code prohibits unfair discriminatory premiums, or insurance coverage denial to a person solely because the applicant has the sickle cell trait.227 Genetic traits for other diseases are no different from genetic traits for sickle cell anemia.

Tay-Sachs disease (TSD)228 screening programs were also implemented in the early 1970s.229 TSD screening can identify whether parents are carriers of the disease.230 If both parents are

Sickle cell anemia is a single gene “hereditary blood disorder found almost exclusively in black populations.” Suzuki, supra note 2, at 144. 
Individuals who inherit the sickle cell gene from both parents suffer from painful, often life-threatening symptoms of sickle cell anemia. Individuals who inherit one sickle cell gene and one normal gene are considered to have sickle cell trait. Individuals with the sickle cell trait show no clinical symptoms of sickle cell anemia. Id.

223. Genetic Monitoring, supra note 1, at 41-42.

224. Id.


228. “TSD is a rare inherited, incurable, neurological disease most prevalent in Jews of Ashkenazi [northern European] origin.” Genetic Monitoring, supra note 1, at 43.

229. Id.

230. Id.
carriers they have a twenty-five percent chance of having a child with TSD. As a result of screening in the United States, the incidence of TSD in the Jewish population has been reduced by at least seventy percent. Similar to sickle cell anti-discrimination statutes, some states have enacted anti-discrimination statutes to prevent discrimination against individuals who carry TSD.

B. HIV/AIDS Testing

Like individuals who carry "abnormal" genetic traits, HIV-infected individuals have an interest in protecting the confidentiality of their health status. No statute affords HIV-positive individuals absolute confidentiality. All states require the reporting of AIDS cases and HIV-positive test results, but vary regarding identification of the infected individual. Those states that provide confidential testing also vary as to the degree of confidentiality. Some states support confidentiality but still require reporting of the subject's name to state health officials. Nevertheless, "there is little state legislation that specifically treats discrimination on the basis of HIV [status]."

Several states have enacted legislation to forbid access to

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231. Id.
232. Id.
233. Larry Gostin, A Decade of a Maturing Epidemic: An Assessment and Directions for Future Public Policy, 16 Am. J.L. & Med. 1, 17 (1990). Disclosure of an individual's HIV status can lead to employment and/or insurance discrimination. Id.
235. Id. at 166.
HIV tests results by insurers.\footnote{See, e.g., N.Y. PUB. HEALTH LAW § 2782 (McKinney Supp. 1992); Wis. STAT. ANN. § 631.90 (West 1988 & Supp. 1989).} Such bans recognize the potential for discrimination if test results are made available to insurers. In New York, an individual's interest in privacy extends to his or her HIV status,\footnote{N.Y. PUB. HEALTH LAW § 2782 (McKinney Supp. 1992).} and the disclosure of an individual's HIV status without consent is prohibited.\footnote{Id.} New York's legislative intent is expressed as the hope that this protection will stimulate "voluntary confidential testing for the human immunodeficiency virus (HIV) so that individuals may come forward, learn their health status, make decisions regarding the appropriate treatment, and change the behavior that puts them and others at risk of infection."\footnote{Id.}

However, Connecticut protects the insurer's right to know.\footnote{Conn. GEN. STAT. § 19a-583(a) (Supp. 1992).} Connecticut provides that "[n]o person who obtains confidential HIV-related information may disclose or be compelled to disclose such information, except to . . . (11) [l]ife and health insurers . . . in connection with underwriting and claim activity for life, health, and disability benefits . . . ."\footnote{Id.}

Genetic testing raises similar concerns regarding confidentiality of test results. "Discrimination based on an infectious condition can be as inequitable as discrimination based on other morally irrelevant grounds such as race, gender, or handicap."\footnote{Gostin, supra note 233, at 19-20.} Confidentiality of HIV-related records and protection from discrimination based on HIV status have been addressed by state legislation in an effort to encourage voluntary HIV testing.\footnote{Edgar & Sandomire, supra note 234, at 155.}

Similar protection and legislation could be applied to genetic testing.

C. Federal Legislation on Genetic Testing

At the federal level, the House of Representatives is considering legislation introduced by Rep. John Conyers, Jr., (D-
Mich.), to safeguard the privacy of individuals who submit to genetic testing.247 The Human Genome Privacy Act is a response to the ethical questions248 raised by the Human Genome Project. The Human Genome Privacy Act proposes to safeguard individual privacy of genetic information from the misuse of records maintained by agencies or their contractors or grantees for the purpose of research, diagnosis, treatment, or identification of genetic disorders, and to provide to individuals access to records concerning their genome which are maintained by agencies for any purpose.249

Congress held hearings on the bill on October 17, 1991,250 and it is currently pending before the House Government Operations Committee. While this bill would protect an individual's privacy interest in genetic information collected by the federal government, it does not address the use of genetic information provided by other sources. Thus, the bill would have no effect on a health insurer's ability to require genetic testing as a condition of coverage or to deny coverage based on genetic information otherwise obtained.

The bill has found support from the American Society of Human Genetics (ASHG).251 The ASHG views the bill as the foundation of a comprehensive plan to protect individual privacy.252 The ASHG has delineated several guidelines that they believe are critical to any successful plan. Any plan must be based on the premise that unauthorized disclosure of genetic information to third parties "may seriously harm the individual who has been tested."253 Such a plan must also determine "who should be authorized to collect genetic information, how it should be stored, how it may be linked to other data, [and] who

248. Possible ethical questions include the potential consequences of the use of genetic testing by nonclinical third parties such as insurers. Nelkin & Tancredi, supra note 3, at 6.
251. Reilly, supra note 148.
252. Id.
253. Id.
should control access to it.”254 Furthermore, the ASHG believes that the plan must delineate rules “that clearly define the permissible and impermissible uses of such data by third parties such as insurers, employers, and school systems.”255

D. The Americans with Disabilities Act

Federal and state legislation prohibit discrimination based upon characteristics including race, gender, religion, national origin, age, and disability.256 However, there are no statutory safeguards that directly protect against discrimination based on the immutable characteristic of one’s genetic make-up. If a genetic condition is recognized as a disability, significant protection from abuse may lie in disability law. The Americans with Disabilities Act (ADA) of 1990257 extended the Civil Rights Act of 1964 to protect individuals with disabilities. A disability is defined as “(A) a physical or mental impairment that substantially limits one or more of the major life activities . . . ; (B) a record of such impairment, or (C) being regarded as having such an impairment.”258 Physical or mental impairment includes any physical disorders, disfigurements, or any mental or psychological handicap, such as retardation or illness.259

Regulations interpreting the ADA do not discuss discrimination based on genetic predisposition to disease.260 Persons who suffer a current genetic disability, such as cystic fibrosis, are clearly protected.261 In addition, the ADA protects not only the actually disabled but also those who are “regarded” as dis-

254. Id.
255. Id.
256. Genetic Discrimination, supra note 2, at 119.
259. Id.; see Genetic Discrimination, supra note 2, at 122.
261. Genetic Discrimination, supra note 2, at 120.
Whether the interpreting regulations take a restrictive or expansive construction of this provision will determine whether genetic predisposition to disease is covered by the ADA. 263 Even if persons with genetic predispositions are included, the protection provided by the ADA does not extend to risk classification for purposes of insurance underwriting. 264 The impact of the ADA on the field of health insurance is limited to those individuals who obtain health insurance through their employer. 265 The ADA allows employers to require pre-employment medical examinations only after a job offer has been made. 266 In addition, any medical exams and inquiries about disabilities must be “job-related and consistent with business necessity.” 267 Finally, the ADA prohibits an employer from “participating in a contractual or other arrangement or relationship that has the effect of subjecting a . . . qualified applicant or employee with a disability to discrimination,” including relationships to provide fringe benefits. 268

Considered together, these provisions appear to effectively prevent an employer from denying health insurance based on genetic testing, but do not restrict the premiums charged for such coverage. Since many employers have established self-insured health benefit plans, they have a significant incentive to discriminate in hiring based on genetic predispositions. If the ADA does prohibit employment discrimination against individuals with genetic predispositions, it will close this potentially major area of discrimination, but will have a limited effect on commercial health insurance.


263. Id. Representative John Conyers, Jr. (D-Mich.), is pushing for an expansive interpretation of who is regarded as disabled. Sherman, supra note 260, at 15.


267. Id. at § 12112(c)(4) (West Supp. II 1990).

268. Id. at § 12112(b)(2) (West Supp. II 1990).
VI. Proposals to Prevent Genetic Discrimination

The existing health care financing system is facing major problems, even without the use of genetic testing to screen health insurance applications. In 1989, there were over thirty-three million Americans without health insurance coverage. Some segments of the population are disproportionately left without coverage, such as Hispanic-Americans, of whom forty-one percent have no health insurance. In addition, health care costs have skyrocketed, increasing the importance of adequate health insurance. Spending on health care in the United States increased 128% from 1980 through 1989. Use of genetic testing by insurers would certainly increase the number of uninsured because people at risk for genetic disease would be faced with higher premiums or would become uninsurable. Many of the people who would be impacted in this way are currently insured because their genetic predispositions have not been detected.

There are several options for addressing the potential impact of genetic testing on the availability of health insurance. Many of the options would also address the broader problems of the health care financing system. The options include: 1) prohibiting genetic testing by insurers; 2) allowing testing, but limiting how insurers can use the information; 3) establishing a national health insurance program; 4) establishing high-risk insurance pools; 5) promoting private reinsurance; 6) mandating employer-funded health insurance; and 7) eliminating the ERISA exemption for self-insured plans. Each of these options will be considered.

A. Prohibit Genetic Testing by Insurers

Legislation prohibiting genetic testing or the use of genetic test results by insurers is the simplest way to prevent discrimination in the availability of coverage or rate-setting. Such a ban

270. Emily Friedman, The Uninsured; From Dilemma to Crisis, 265 JAMA 2491, 2491 (1991).
271. Id. at 2493.
272. For a discussion of several of these options, see Kass, supra note 8, at 30.
would be most effective at the national level. However, states could pass comparable restrictions, such as the Wisconsin statute, in the absence of federal legislation.\textsuperscript{273} Such a prohibition would prevent insurers from requiring genetic testing during the application process, and from acquiring and using the results of genetic tests performed for other purposes. This would eliminate the incentive for individuals to avoid genetic tests recommended by physicians or conducted for research purposes, out of the fear that they would not be able to acquire health insurance.\textsuperscript{274}

The major objective of this proposal is to maintain the status quo, and prevent additional people from losing their health insurance. Although this option is vigorously opposed by the insurance industry,\textsuperscript{275} the actual impact on the industry would likely be limited. Unlike AIDS, which insurers believe creates a substantial incentive for adverse selection, most genetic predispositions do not present the individual with unequivocal knowledge of near-term life threatening illness. Many genetic traits only indicate a susceptibility to future illness. Thus, even if there is adverse selection based on genetic test results, the potential cost to insurers may not be as great as with AIDS, or may not occur at all.

Under this proposal, the risks that would have been detected by genetic testing would continue to be distributed across the insurance pool. As long as no insurer had access to genetic information, no company could gain a competitive advantage.\textsuperscript{276} Such a prohibition would be a very effective and relatively painless way to prevent abuse of genetic information by insurers.

\textbf{B. Regulate the Use of Genetic Testing by Insurers}

This option includes two possibilities for regulating the use of genetic information acquired by insurers. The first possibility is to allow insurers to conduct genetic testing, but not allow them to ask applicants for the results of unrelated genetic tests

\begin{itemize}
\item \textsuperscript{273} Under the doctrine of preemption, federal law takes precedence over any inconsistent state law. John E. Nowak, \textit{et al.}, \textit{Constitutional Law} § 9.1, at 295 (3d ed. 1986).
\item \textsuperscript{274} Kass, \textit{supra} note 8, at 30.
\item \textsuperscript{275} See ACLI-HIAA Task Force, \textit{supra} note 1. The industry has also vehemently opposed restrictions on the use of AIDS testing for risk classification. See generally Clifford & Incalano, \textit{supra} note 106, at 1815-17.
\item \textsuperscript{276} Kass, \textit{supra} note 8, at 29.
\end{itemize}
conducted by other parties or for other purposes. Similar to the ban on the use of genetic information, this would prevent individuals from avoiding unrelated beneficial genetic tests for fear of insurance implications.\textsuperscript{277}

The second alternative is to prohibit insurers from completely denying insurance based on an applicant’s genetic predisposition. Insurers would be allowed to attach a rider\textsuperscript{278} denying coverage for the disease the applicant is at risk of developing. This would allow the applicant to obtain coverage for all other health care needs.

Under either proposal, the use of genetic testing must be subject to certain standards.\textsuperscript{279} Applicants must give informed consent to the genetic tests required by the insurer. Applicants should also be made aware that coverage may be denied or limited based on the test results.\textsuperscript{280} Finally, specific tests should be evaluated and approved by the regulatory authority to assure test reliability.

C. \textit{Establish National Health Insurance}

National health insurance has been a major topic of debate in recent years. Insurers vehemently oppose national health insurance because it would essentially put them out of business.\textsuperscript{281} There is also increasing political debate on the subject as the number of people without health insurance rises.\textsuperscript{282}

Although there are an unlimited number of ways to structure national health insurance, one likely scheme would be to establish a single insurer in each state.\textsuperscript{283} Under such a proposal, hospitals would receive an annual budget to cover all services.\textsuperscript{284}

\textsuperscript{277}Id. at 30.
\textsuperscript{278} A rider is a restrictive condition on a policy that contains special provisions that are not contained in the policy contract. \textit{Lewis E. Davids, Dictionary of Insurance} 226 (1977).
\textsuperscript{279} Kass, \textit{supra} note 8, at 32.
\textsuperscript{280} Id.
\textsuperscript{281} \textit{See, e.g., Edward Neuschler, Canadian Health Care: The Implications of Public Health Insurance} (1990) (evaluating the Canadian national health care system).
\textsuperscript{282} For example, Senator Bob Kerrey (D-Neb.) is a strong supporter of a national health care system and has introduced legislation to create such a system. S. 1446, 102d Cong., 1st Sess. (1991). \textit{See generally, Friedman, supra} note 270.
\textsuperscript{283} Id.
\textsuperscript{284} Id.
Patients would not be billed for services and the hospitals would consider it a budget expenditure.285 Fee-for-service physicians would submit claims directly to the insuring agency.286

National health insurance would not only address potential concerns regarding genetic testing, but would address the larger problem of the uninsured.287 The need for genetic testing would be eliminated under a system of national health insurance, because it would operate like a very large group policy. National health care, however, is certain to be vigorously opposed and is unlikely to be enacted in the near future. Thus, it does not offer short-term protection against genetic discrimination.

D. Establish Risk Pools

Risk pools are a method of providing subsidized health insurance to high-risk people.288 Risk pools would generally be established at the state level, and have already been created in some states.289 A risk pool is an insurance fund that makes coverage available to the medically uninsurable and to those applicants who cannot afford insurance elsewhere.290 Typically, policyholders pay premiums up to a legislatively imposed ceiling.291 The remaining funds may be supplied by a market-share-based tax on insurance companies, a premium tax on individuals with health insurance, or from general tax revenues.292 Although risk

285. Id.

286. Id.


288. Schramm, supra note 269, at 3297.


291. Id.

292. See Model Health Plan for Uninsurable Individuals Act § 7 (Nat’l Ass’n of Ins. Comm’rs 1992). This model code has been adopted by thirteen states as a response to the rise in the number of uninsurable individuals. NAIC Model Regulation Service (July 1992). See also Todd, supra note 290.
pools would not directly prevent abuse of genetic testing, they provide a secondary source of insurance for those rejected coverage based on the results of genetic tests.

E. Promote Private Reinsurance

Favored by the insurance industry, private reinsurance is a program for reducing the number of uninsurable people. Reinsurance is simply double insurance. The direct-insurer issues policies to individuals or groups, and purchases insurance from a second insurer to cover unexpected losses. This limits the direct-insurer's exposure to loss from high-risk policyholders, theoretically encouraging direct-insurers to take on high-risk applicants. Reinsurance is not a complete solution because the medically uninsurable would still be unable to buy coverage, but it would relieve some of the burden that might otherwise fall on the risk pools. As with risk pools, reinsurance would not directly prevent abuse of genetic information, but would increase the availability of insurance for those with a genetic predisposition to illness.

F. Mandate Employer-Funded Health Insurance

State mandated coverage could consist of a state regulatory requirement that all employers provide health insurance to all their employees. However, to provide complete coverage of the population, a pool similar to a risk pool must be established to provide coverage to the unemployed. The mandate to provide coverage would include high-risk and medically uninsurable individuals. Proponents estimate that two-thirds of those currently uninsured would become insured under such a proposal.

293. Schramm, supra note 269.
294. Id.
295. Id.
296. Id.
297. Kass, supra note 8, at 35. Hawaii has implemented such a system, requiring coverage for all employees who work more than 19 hours a week. Rogers Worthington, Hawaii Tries Health Coverage For All, CHICAGO TRIB., Sept. 6, 1992 at C23.
298. Id.
Since coverage would be mandated, this proposal would directly address the potential for abuse of genetic testing. However, such legislation would probably be opposed by the business community due to the cost it would impose on employers. Similar to national health insurance, mandatory employer-funded health insurance is not a likely short-term protection against genetic discrimination.

G. Eliminate the ERISA Exemption for Self-Insureds

Under ERISA, self-insured employee health benefit plans are not subject to state insurance regulations. This exemption may blunt the effectiveness of state bans on the use of genetic information. The exemption also impacts the viability of risk pools because self-insureds may not be subject to premium or market share taxes. Thus, repeal of the exemption is necessary for effective regulation of the use of genetic information under any of the other proposals.

These proposals are just a few of the many possible health insurance reforms that would protect against genetic discrimination. Each would provide some measure of protection to individuals with a genetic predisposition to disease. Some of the proposals would also address the crisis facing the uninsured in today's health care system.

VII. Conclusion

This Comment has analyzed the potential use and abuse of genetic testing by the health insurance industry, and has presented several options for preventing such abuse. The single most effective way to prevent abuse is a ban on the use of genetic information in health insurance underwriting. A federal ban would provide comprehensive protection, but is unlikely considering the history of congressional deference to state insurance regulation. State bans modeled after the Wisconsin legislation offer a simple, effective means of protection for those with a genetic predisposition to disease. A ban would maintain the status quo, allowing policy-makers, citizens, and the insurance in-

301. Kass, supra note 8, at 33.
dustry time to evaluate the usefulness and consequences of genetic testing. Such a ban could easily be reconsidered if there is evidence of significant adverse selection or if necessary to adapt to developing genetic technology. Most importantly, a ban would allow individuals with genetic predispositions to remain covered until health care reforms reduce or eliminate the huge numbers of uninsured. Insurers can effectively classify risks without genetic testing. A ban on the requirement or use of genetic testing properly balances the insurers’ right to fair and equitable risk classification with the public’s interest in access to affordable health insurance.

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* To my parents, John and Wol Sue, my brother, Chris, and Jon.