

Chapter 6

Legal Considerations

CONTENTS

	Page
FEDERAL RESPONSIBILITY	103
Occupational Safety and Health Administration	103
National Institute for Occupational Safety and Health	109
Environmental Protection Agency	109
Title VII of the Civil Rights Act of 1964	110
Workers' Compensation Programs	111
Rehabilitation Act of 1973	113
The Americans With Disabilities Act of 1990	114
CONFIDENTIALITY AND PRIVACY ISSUES	116
Right To Confidentiality	116
Duties of the Occupational Health Physician	120
COLLECTIVE BARGAINING CONCERNS	122
The Duty To Bargain Over Genetic Monitoring and Screening programs	123
Genetic Monitoring and Screening Refusals	125
Arbitral Review	126
NLRA Preemption of Common Law Torts	126
USE OF GENETIC MONITORING AND SCREENING RESULTS IN EMPLOYMENT DECISIONS	126
Right of Employer To Use Monitoring and Screening Data in Terminating Employment	126
Uses of Genetic Monitoring and Screening Data in Other Employment Actions	127
Common Law Right to a Safe Workplace	128
Right of Employee To Know Monitoring and Screening Results	129
Right of Employee To Refuse Genetic Monitoring and Screening	129
Liability of Employer for Inaccurate Monitoring and Screening Results	131
JUDICIAL USES OF GENETIC MONITORING AND SCREENING DATA	131
Use of Genetic Monitoring and Screening Data in Civil Liability Proceedings: Nature of Civil Suits for Workplace Injury	131
Genetic Monitoring and Screening Data as Evidence in Occupational Disease Suits .	131
New Kinds of Claims Based on Genetic Monitoring and Screening Data	132
SUMMARY AND CONCLUSIONS	133
CHAPTER 6 REFERENCES	134

Boxes

Box	Page
6-A. Occupational Disease Throughout the Ages	104
6-B. The Lead Standard	106
6-C. Liability Issues	132

Only a limited body of law exists dealing directly with genetic monitoring and screening in the workplace, because the technologies are so new. However, a substantial body of law has developed in dealing with the broad subject of medical testing. Most likely, the body of law governing genetic monitoring and screening in the workplace will grow out of the rules dealing with this related practice. As disputes arise, courts can look to analogies with medical technologies that share common features. An analysis of the law of genetic monitoring and screening in the workplace, therefore, is largely an examination of ways that legal disputes governing other kinds of medical testing of workers have been handled. This chapter will examine this broader area of medical testing law, noting where genetic monitoring and screening arguably differ from medical testing in general, and where special rules regarding genetic monitoring and screening have developed.

Whether workplace or clinical applications are in question, techniques for analyzing an individual's genetic makeup present unique concerns. A person generally has little control over his or her genetic traits. When lifestyle issues such as drug use or alcoholism are in question, it can be argued that there is at least some element of individual choice. An individual's genetic composition, however, is acquired with no choice, but, it can be influenced to some degree with prenatal diagnosis and eventually with gene therapy (41). Analyzing these personal characteristics raises legal questions of the most sensitive sort. Among the fundamental legal issues raised by genetic monitoring and screening are privacy from unwanted testing, confidentiality of the intimate information obtained, discrimination in employment opportunities, and ultimately, the health of the testing subject (see chs. 4,5, and 7).

Genetic monitoring and screening in the workplace are governed by both statutory and common (judge-made) law. Statutes governing genetic monitoring and screening include the Occupational Safety and Health Act (OSH Act) (29 U.S.C. 651 *et seq.*), which establishes a framework for regulating workplace injury and disease hazards by the Occupational Safety and Health Administra-

tion (OSHA). The work of other Federal agencies, including the National Institute for Occupational Safety and Health (NIOSH), is also important in this regard. Common law applicable to genetic monitoring and screening includes employee relations, medical malpractice, negligence, and the right to privacy. There are also discrimination issues addressed by workers' compensation statutes, Title VII of the Civil Rights Act of 1964 (42 U.S.C. 2000e), and the Rehabilitation Act of 1973 (29 U.S.C. 791 *et seq.*). Issues governed by collective bargaining are covered by the National Labor Relations Act (NLRA) (29 U.S.C. 151 *et seq.*).

FEDERAL RESPONSIBILITY

A relationship between health hazards in the workplace and disease has been recognized since the early 1700s, when Bernardino Ramazzini penned *A Treatise of the Diseases of Tradesmen* (see box 6-A) (69). He wrote:

When you come to a sick Person says Hippocrates, it behoves [sic] you to ask what Uneasiness he is under, what was the Cause of it, how many Days he has been ill, how his Belly stands, and what Food he eats: To which I'd presume to add one Interrogation more: namely, what Trade he is of (69).

In modern times, the U.S. Government has assumed some responsibility for safeguarding worker health by establishing various agencies to oversee workplace safety. Several of these agencies are discussed below.

Occupational Safety and Health Administration

OSHA has regulated some employer practices that could have a bearing on genetic monitoring and screening, including employee access to medical records and communications about hazards by employers to employees. The limited experience with genetic technologies will be addressed first, followed by a more thorough discussion of experience involving related techniques.

Direct Experience With Genetic Monitoring and Screening

In 1980, OSHA found itself embroiled in a controversy concerning several of its carcinogen

Box 6-A--Occupational Disease Throughout the Ages

Occupational disease is not a recent phenomena. As long as men and women have work@ they have suffered disease, illness, and injury as a result of their workplace environments. The following examples illustrate occupational diseases prevalent in 17th and 18th century Europe:

- . Miners--Individuals who work in the mines suffer from “difficulty of breathing, swellings of the feet, falling of the teeth, ulcers in the gums, pains and tremblings in the joints. They especially fall prey to the “mineral spirits which the lungs suck in along with the air, and corrupt and taint the natural temperament of the brain and the nervous juice, from whence spring the tremblings and stupidity. ”
- **Brewers**— “*The* servants employed in the brewing of ale and beer, undergo all the symptoms and inconveniences of drunkenness merely from their being constantly employed in pouring out wine and taking the grapes out of the press. In a word, those who do this sort of work for several months together and spend most of the winter in such laboratories, grow lethargic and dejected with little or no appetite. ”
- **Tobacco workers**— “*Those* who make snuff find that their lungs do gradually become dry and withered. The powder they work with pricks and dries the tender coat of the lungs and windpipe, and with their foul steams not only cloud the Animal Spirits in the brain, but at the same time corrupt the ferment of the stomach by enervating the acid of that part. ”
- . Gilders--Gilders become asthmatic and their complexion assumes a dangerous ghostly aspect. Their neck and hands tremble, their teeth fall out, their legs are weak and mauled with the Scurvy’ due to their exposure to mercury in the air.
- **Bakers**-- “Bakers, in sifting flower, in kneading it into dough, and in baking that in the oven, are exposed to infinite fatigue and toil. The inspiration of the flying particles of the meal stuff up not only the throat, but the stomach and the lungs with a tough paste; by which means they become liable to coughs, shortness of breath, hoarseness and at last to asthma. Sometimes the hands of bakers are swelled and pained. Kneading dough squeezes the nutritious juices out of the arteries of the hands. Last, both millers and bakers are generally troubled with lice. ”
- **Fishermen**— “*Fishermen* and mariners have a skin as hard as an elephants and suffer from ulcers that are dry and sordid, as if they were pickled with salt. And indeed sailors are forced to feed upon gross food, salt meat, half rotten water, and bread half worm-eaten, we cannot but conclude that their bodies are crowded with bad juices and disposed to malignant fevers. ’
- **Field Workers**— “Sifters of corn work with a grain powder that I am tempted to suspect has worms in it imperceivable to the senses; and that these worms being put into motion, and dispersed through the air, in the sifting and measuring of corn; some of them stick to the skin and mouth and cause the burning heat and itching that is observed both in the throat and all over the body.
- . **Academics**-- “*All* Men of Letters in the Learned World do not escape *from* disease. ‘Tis a known saying that a man grows wise by sitting, and is not aware of the inconveniences accruing to his body, All the Men of Learning complain of a weakness of the stomach. For while the brain is employed in digesting, what the itch of knowledge and the love of learning throws in, the stomach can’t but make an imperfect digestion of the ailment, by reason that the Animal Spirits are diverted and taken up in the intellectual service. ”

SOURCE: B. Ramazzini, *A Treasure of the Diseases of Tradesmen* (London, England: Publisher Unknown, 1705).

standards (56). Thirteen of the standards required a preassignment examination by a physician before an employee could be assigned to a regulated area. The standards specified that the examination include the personal history of the employee, family and occupational background, including genetic and environmental factors (29 CFR 1910.1003(g)(1)(i)). Subsequent to publicity surrounding this language, OSHA later clarified that these words do not require genetic screening or the exclusion of qualified employees based on genetic findings (64).

While it may have chosen in 1980 not to recognize a genetic screening requirement, OSHA still may include such a rule in its standards in the future. The OSH Act is silent on genetic monitoring and screening. In the absence of a clear prohibition, nothing in the Act appears to prevent OSHA from requiring genetic monitoring and screening as it does other kinds of medical tests.

OSHA actively considered using this authority on one occasion. During 1983, as part of the standard-

setting process for ethylene oxide, OSHA explored the use of genetic monitoring for possible inclusion in the standard's medical surveillance requirements (48 FR 17,284, 17,285). The monitoring merely would have been recommended, though, since OSHA felt that it lacked sufficient information on which to base mandatory requirements (48 FR 17,305). In the final rule a set of mandatory tests not including genetic measures was required to ensure uniformity, and a proposed nonmandatory test for chromosomal damage was dropped (49 FR 25,784).

Thus, OSHA considers genetic monitoring a permissible medical surveillance procedure but has not yet required it. This leaves open the possibility that such tests could be mandated as part of a future standard. They could also be recommended for use subject to employer discretion. Whether an employer could require them is unresolved.

Requirements for Conventional Medical Testing

While leaving genetic monitoring and screening to future proceedings, OSHA has addressed the use of more conventional medical tests on several occasions. Medical surveillance, encompassing both the use of specific biological exposure measures and routine clinical examinations, is required in over 20 OSHA standards governing workplace exposure to hazardous substances. Under the OSH Act, OSHA must ensure for each chemical controlled by a standard that no employee suffers material impairment of health even if exposed throughout his or her working life (6(b)(5) OSH Act).

Further authority is contained in a number of other provisions of the OSH Act. Most notable among these is the section which says that a standard shall prescribe the type and frequency of medical examinations or other tests to be made available by the employer (or at his or her cost) in order to most effectively determine exposure risks (6(b)(7) OSH Act).

Medical surveillance in one form or another is also mandated in OSHA standards dealing with noise and the occupation of diving. While these standards prescribe certain tests that must be offered to employees, they do not prevent employers from supplementing them with other tests of their own choosing. Therefore, even though OSHA does not require the use of genetic monitoring and screening measures, the exposure standards would not prevent employers from choosing to use them.

The OSHA lead standard (29 CFR 1910.1025) has generated considerable legal controversy. This is the only OSHA standard calling for actual biological monitoring rather than more general medical surveillance (see box 6-B).

Role of the General Duty Clause

Another section of the OSH Act provides OSHA a more general authority that could be used to require genetic monitoring and screening. Known as the general duty clause, this section requires employers covered by the Act to maintain a workplace free from recognized hazards that are causing or likely to cause death or serious physical harm to employees (5(a)(1) OSH Act). A vigorous OSHA could interpret a workplace "free from recognized hazards" to be one in which workers have been genetically tested for susceptibility to environmental exposures capable of inducing toxic harm.

It can be argued that the clause requires employers to use genetic monitoring tests if these measures can provide a safer workplace or to use screening to identify individuals with specific susceptibilities. Failure to use them could demonstrate that an employer had not taken all necessary precautions before placing an employee in a high-risk job (99). Further, absent the availability of other technologies, an employer wishing to use the tests could argue that monitoring and screening tests provide the only means to ensure a safe and healthy workplace (99). Arguments against the use of genetic monitoring and screening, however, are the availability of other means to achieve safety, the lack of established efficacy for most newly proposed tests, and the adverse risks to employees when tests are used inappropriately or the results are misinterpreted (18). On balance, it seems unlikely that an employer could successfully contend that the general duty clause requires genetic monitoring and screening, absent a directive on their use from OSHA.

Protections Against Genetic Monitoring and Screening and Their Consequences

Considerations discussed so far involve sources of authority in the OSH Act for mandating the use of genetic monitoring and screening tests. On the other side of the issue are the protections the Act provides for employees who refuse testing, or who wish to limit the negative consequences of unfavorable test

Box 6-B—The Lead Standard

The history of the lead standard provides insight into the factors that could influence OSHA to adopt genetic monitoring or screening requirements in the future. Before genetic monitoring or screening could be required, there should be a readily available measure of exposure that is reasonably inexpensive and diagnostically reliable, similar to that used in blood lead testing. The measure must also be a valid predictor of a disease process. Analysis of sister chromatid exchanges, for example, provides a general indicator of cellular harm but not a predictor of a specific illness (see ch. 4). In addition, there must be a medical benefit to be gained from early diagnostic information. A chance must exist that absorption of a toxin can be reversed or that a disease process can be halted. Further, if the experience of the lead standard is a guide, OSHA will probably only require genetic monitoring if ambient exposure controls are not available as a reasonable alternative. Another solution is removal of the worker from the workplace site.

The lead standard, which calls for periodic blood tests of workers exposed to lead, requires medical removal protection (MRP) for workers found to have high blood lead levels. Under this procedure, the employee must be removed from the job and placed in another involving no lead exposure with existing pay and benefits for up to 18 months. If no alternative job can be found, the employee still must be removed from the job while retaining full pay and benefits. These requirements were upheld by the Circuit Court of Appeals for the District of Columbia citing the provisions of the OSH Act.

Another aspect of the debate over the lead standard has interesting implications for the use of genetic monitoring. The lead industry had argued that compliance with exposure standards be measured through biological monitoring of individual workers to determine whether workplace lead levels were having measurable health effects. Organized labor, however, contended that ambient air measurements were appropriate indicators of workplace health effects. It feared that use of biological monitoring for this purpose would create an incentive for employers to discharge workers who were sensitive to lead rather than to reduce exposure levels. The final OSHA standard called for ambient lead levels to be used to measure workplace exposure and for biological monitoring to be used to assess the health of individual workers. This resolution could be a model for the use of genetic monitoring in exposure standards.

In addition to such health benefits of monitoring, reduction of ambient lead levels involves tremendous engineering costs that may be beyond the means of many smaller companies. Biological monitoring and MRP may be less expensive when weighed against the costs of these alternative measures. Of course, requirements that full pay be given for 18 months means MRP creates an incentive to reduce ambient levels and maintain worker productivity. While biological monitoring involves both indirect (e.g., anemia) and direct (e.g., elevated blood and urine lead concentrations) indicators of excessive lead intake, medical surveillance follows symptoms (e.g., weakness, impaired mental function, disorders of peripheral nerves). Biological monitoring makes it possible to identify effects or symptoms before toxins produce disease.

SOURCES: office of Technology Assessment, 1990, based on R.I. Field, "The Federal Role in Biological Monitoring," unpublished manuscript, Boston University Center for Law and Health Sciences; *United Steelworkers v. Marshall*, 647 F.2d 1189 (D.C. Cir. 1981).

results. Such protections are limited, however, and apply to only certain situations.

The OSH Act contains a protection for workers having religious objections to OSHA practices (20(a)(5) OSH Act). OSHA has granted a limited number of exceptions to its safety standards for such workers (76). It seems unlikely that many workers would take advantage of this provision. An explicit antidiscrimination clause of the OSH Act prohibits employers from firing or otherwise discriminating against employees who have exercised any right under or related to the Act (29 U.S.C. 660(c)).

Applying this language to discrimination resulting from genetic monitoring and screening, how-

ever, appears to be limited to instances of OSHA-mandated monitoring and screening programs, of which there are none (39). If the employer instituted genetic monitoring or screening on its own, the worker would be protected only if some aspect of the program violated the OSH Act unless, of course, the worker refused to participate in the monitoring or screening program.

Access to Medical and Exposure Records

The OSH Act also governs employee access to medical and exposure records kept by employers (29 CFR 1910.20). Such standards seek to prevent abuses that could result from the availability of these data (56). These records can serve a number of

purposes. By using them, OSHA can monitor compliance, NIOSH can conduct research with patient-identifying information removed, unions can learn about workplace exposure levels, and employees can obtain information of possible value in treatment or counseling by a private physician (34). Such records can also be transferred to subsequent employers.

The definition of ‘employee medical records’ in the standard is fairly broad (29 CFR 1910.20 (c)(6)(i)) and would clearly cover results from genetic monitoring and screening. Records include, among other things, results of medical examinations, whether preemployment, preassignment, periodic, or episodic, and laboratory tests, including all biological monitoring results (29 CFR 1910.20(C)).

Workers also have access to their “employee exposure record’ which includes environmental monitoring or measuring, biological monitoring results, and material safety data sheets or ‘any other record which reveals the identity . . . of a toxic substance or harmful physical agent.” The regulations also grant employees access to various types of analyses that use these records.

The extent of the protection afforded workers by these rules, however, is limited, since mere access neither aids an employee unable to interpret the data nor allows for the correction of erroneous information (74). The antidiscrimination provision of the OSH Act protects employees from retaliation for exercising their rights to see their medical records (11(c)(1) OSH Act). This would also apply to genetic monitoring and screening records. When test results are wrong, unreliable, or invalid measures of the traits they are purported to reflect, employees would most likely have to rely on other legal protections, such as a common law right of action for defamation or for medical malpractice.

Finally, the regulations require employers to provide medical information to employees only on request. Once a request is made, all medical and exposure records, including analyses based on them, must be provided. These regulations apply only where the employee has been exposed to certain hazardous substances. Employees could fail to gain access, however, if they are unaware the information exists.

Recordkeeping Requirements

Another OSHA regulation of potential relevance is the requirement for recordkeeping involving occupational injuries or illnesses (29 CFR 1904.2). According to the regulation’s definition, occupational illness of an employee is any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or diseases that may be caused by inhalation, absorption, ingestion, or direct contact.

Thus, genetic damage could be viewed as an occupational illness provided the link between the genetic defect and the subsequent disease were clearly demonstrated. If OSHA were to adopt this interpretation, then employers would have to include in their logs any positive results of genetic monitoring tests.

The scope of this rule has been the subject of conflicting interpretations by the Occupational Safety and Health Review Commission (OSHRC), which reviews OSHA enforcement actions. In one case, OSHRC found congressional intent favoring a broad interpretation of the reporting regulations to provide information “for future scientific use” (36). The employer argued that it did not have to record the illnesses of three workers because the illnesses had not resulted from occupational exposures. OSHRC held that the requirement to record illnesses is not limited to those directly caused by occupational exposures and includes conditions for which these exposures were either a contributing factor or aggravated a preexisting condition.

In another case, OSHRC deferred to the employer’s judgment as to what is reportable and ruled that the standard does not require the employer “to do more than make a reasonable judgment based on the information and expertise available to it” (7). The employer failed to record the illnesses of eight employees with asbestosis. The occupational health physician initially had not given this as the diagnosis, but did diagnose asbestosis in light of additional information after the company received a citation. OSHRC found that the medical evidence initially had been unclear, so that no duty to provide the correct occupationally related diagnosis existed. Some argue that this decision signals a view by OSHRC that all doubts about recordability

should no longer be resolved in favor of recording (78).

Hazard Communication Standard

OSHA has issued a regulation mandating that certain information on hazardous workplace substances be communicated to employees (29 CFR 1910.1200). Essentially, this rule amounts to a workplace right-to-know law. Employers must keep records of hazardous substances and provide labels, data sheets, and written communications to employees.

The Hazard Communication Standard deals with information on substances and not on individual workers, so its effect on worker test data is likely to be indirect. Genetic monitoring and screening tests could, however, influence the scope of the rule. The regulation very broadly describes the kind of data needed to indicate a health hazard (sec. (d)(2)). For health hazards, evidence which is statistically significant and which is based on at least one positive study conducted in accordance with established scientific principles is considered to be sufficient to establish a hazardous effect if the study results meet the health hazard definitions. Health hazards are defined as hazards that may cause measurable changes in body function such as decreased pulmonary function. Employees exposed to such hazards must be apprised of both the change in body function and the signs and symptoms that signal change.

Employers have considerable leeway in construing this language. Chemical manufacturers, importers, and employers evaluating chemicals are not required to follow any specific methods for determining hazards, but they must be able to demonstrate that they have adequately ascertained the hazards of the chemicals produced or imported in accordance with established criteria.

This language is also significant because it appears to relieve employers of any obligation to use genetic monitoring procedures to evaluate toxicity. Such a freedom to ignore genetic tests, however, applies only in the context of communicating hazards and would not preclude the inclusion of genetic monitoring and screening requirements in exposure standards.

The hazard communication regulation could have one other effect on genetic monitoring. Genetic monitoring tests, when developed, could be extremely sensitive measures of toxic effects that

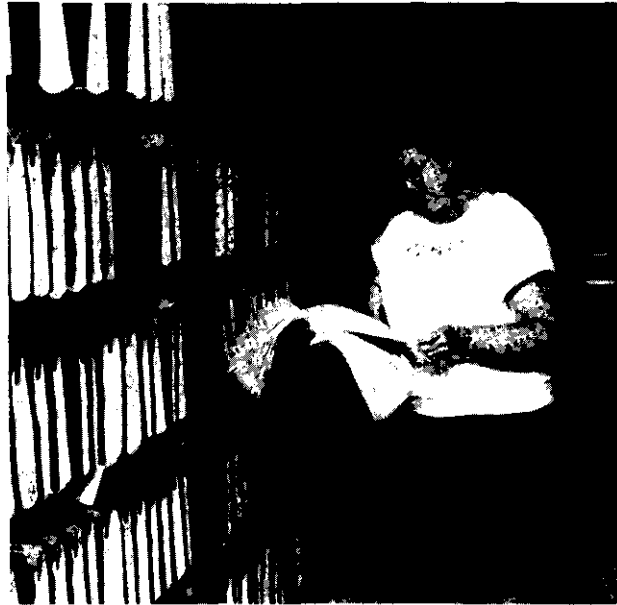


Photo credit: Kathy Goldberg

Epidemiological research at the National Institute for occupational Safety and Health, Cincinnati, OH.

could detect early preclinical biological effects not revealed by conventional techniques. To the extent that genetic monitoring indicates health effects before other measures, it could trigger a finding of a health hazard and an obligation to provide employee information. Such an obligation could serve to discourage the use of genetic monitoring in cases dealing with toxic substances covered by the hazard communication standard. However, some believe the evidence to date does not establish clearly the potential of genetic monitoring tests to predict future disease (18).

High Risk Occupational Disease Notification Act

Because of its possible relevance to future genetic monitoring and screening, the High Risk Occupational Disease Notification and Prevention Act deserves attention. If passed by Congress, the legislation will establish a scheme to identify and notify all current and former workers exposed to hazardous chemicals during the last 30 years who are determined to be at an increased risk of occupational disease. The purpose is to enable them to seek early medical screening and treatment for any toxic effects.

Given the intent of early notification, identification of the most vulnerable workers could be an issue. This legislative scheme could thereby become

an impetus for application and evaluation of genetic screening to locate susceptible workers. There is the opposing view that this would have been resolved at the risk assessment stage (73).

National Institute for Occupational Safety and Health

NIOSH is charged with conducting research to support OSHA's regulatory activities, even though it has no regulatory authority of its own (29 U.S.C. 671). As one of the foremost research organizations in the field of occupational safety and health, NIOSH, however, can have considerable influence with OSHA and the occupational health community.

Based on its expertise and express statutory authority, NIOSH is probably the most appropriate Federal agency to conduct extensive research on workplace medical screening (76). Seven areas where NIOSH has authority to develop recommendations with relevance to genetic monitoring and screening have been identified:

- research on substances likely to affect sensitive employees,
- research to identify individuals most likely to be sensitive,
- certification of monitoring and screening procedures,
- development of guidelines for evaluating test results,
- development of medical criteria for using tests,
- investigation of protective policies needed for high-risk workers, and
- development of guidelines for personnel actions based on test results (74).

At the time OSHA's medical surveillance and biological monitoring requirements for hazardous substances were being developed, NIOSH played an active role. In particular, it aided in creating the lead standard and provided support in developing testing standards, certifying laboratories performing tests, and establishing medical removal and wage retention protections.

NIOSH is an appropriate agency to conduct research into the medical consequences of workplace genetic monitoring and screening, but has yet to undertake substantial work in this area due to budget limitations. An additional role of NIOSH in such genetic monitoring and screening should be mentioned. Because medical monitoring programs

provide considerable sources of data for occupational health research, if genetic monitoring and screening results were to become available and accessible to NIOSH under OSHA access to medical records rules (29 CFR 1904), tremendous opportunities for research would ensue. Nevertheless, the sensitive nature of this information could require special confidentiality and anonymity protections for workers. More importantly, research is needed to determine the validity and predictive value of genetic monitoring and screening tests in the working population (18).

Environmental Protection Agency

While its mission is not directly related to worker health, the Environmental Protection Agency (EPA) administers a number of programs that could have relevance for genetic monitoring and screening. EPA's mission of protecting the general population from toxic pollution often intersects with the responsibilities of OSHA. Several programs of interest have possible implications for workplace monitoring and screening.

The Toxic Substances Control Act (TSCA) (15 U.S.C. 2610 *et seq.*), the primary statute regulating the chemical industry, requires testing and labeling of hazardous chemicals. These procedures could provide important information to genetically susceptible workers. Although the right to information on specific chemicals under this Act is limited, TSCA requires that toxic substance manufacturers develop adequate data with respect to the substances' effects on public health and the environment.

Two programs administered by EPA as part of the Superfund program could also have implications for genetic monitoring and screening. The original Superfund law, the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601 *et seq.*), established the Agency for Toxic Substances and Disease Registry (ATSDR), whose responsibilities include assessing health effects of toxic substances found at hazardous waste dump sites and creating registries of individuals living near these sites who might have been exposed to these substances. The Superfund Amendments and Reauthorization Act of 1986 (SARA) (Public Law 99-499) substantially increased the responsibilities of ATSDR and established timetables for its work. ATSDR has met those timetables by issuing

toxicological profiles for high priority chemicals, health assessments for all the National Priorities List Superfund sites, and procedures for developing exposure and disease registries.

Genetic monitoring could provide a useful measure of the exposures experienced by people on the registries. Genetic screening could help to identify those most at risk. While ATSDR's mission is to protect members of the general population living near hazardous waste dump sites, its procedures would be applicable to the protection of workers at these sites, as well, either directly through EPA guidelines or indirectly through adoption by OSHA. In fact, ATSDR has worked with NIOSH, the Centers for Disease Control, and unions with hazardous waste site workers.

SARA also included an extensive right-to-know provision, Title III, requiring manufacturers and others that regularly emit hazardous waste into the environment to report the substances used and regularly emitted to State and local authorities. Genetic monitoring of populations exposed to chemicals as the result of leaks, whether workers or members of the local community, may be one way of dealing with such emergencies. Genetic screening results could help to identify those in most need of assistance in these circumstances.

Title VII of the Civil Rights Act of 1964

Title VII of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000e), prohibits discrimination in hiring, discharge, compensation, or other terms, conditions or privileges of employment because of an individual's race, color, religion, sex, or national origin. All forms of employment and preemployment bias are forbidden, including discrimination in hiring, discharge, promotion, layoff and recall, compensation and fringe benefits, classification, training, apprenticeship, referrals for employment, union membership, and all other "terms, conditions, or privileges of employment. "

The Act applies to employers, labor unions, and employment agencies. Private firms with 15 or more employees and engaged in an "industry affecting commerce" are covered. While State and local governments are subject to Title VII, the Federal Government is specifically exempted along with Indian tribes, departments and agencies of the District of Columbia, and bona fide private membership clubs.

The Supreme Court has found as a central purpose to Title VII "to make persons whole for injuries suffered on account of unlawful employment discrimination' (l). Although the term "discrimination" is not defined in Title VII, it has been defined by one court as "a failure to treat all persons equally where no reasonable distinction can be found between those favored and those not favored" (10). The Supreme Court has recognized two main forms of employment discrimination, "disparate treatment' and "disparate impact. " Disparate treatment occurs when an employer simply treats some people less favorably than others because of their race, color, religion, sex, or national origin. Proof of discriminatory motive is required. Disparate impact involves employment practices that appear to be neutral in their treatment of different groups but in fact affect one group more severely and cannot be justified by the requirements of the job or business. Proof of discriminatory motive is not required.

The disparate impact concept was established by the Supreme Court in *Griggs v. Duke Power Co.* (37) when it unanimously held that an employer's use of certain standardized tests violated Title VII because they disqualified Black applicants at a substantially higher rate and were not shown to predict job performance.

In another case (l), the Court clarified *Griggs* and held that a plaintiff may establish a prima facie case of disparate impact by showing that the tests at issue select applicants for employment or promotion in a racial pattern significantly different from that of the pool of applicants. The burden was then on the employer to show that any given requirement has a distinct relationship to the employment in question. The plaintiff could still rebut this evidence, however, by demonstrating that other tests or selection procedures, without a similarly undesirable racial effect, would also serve the employer's legitimate interest in efficient and trustworthy workmanship (l).

The recent Supreme Court decision in *Wards Cove Packing v. Atonio* imposes more stringent standards on workers attempting to use statistics to prove discriminatory employment practices (96). Some critics of the decision claim that it overrules the Court's ruling in *Griggs*. According to *Griggs*, once an employee presented sufficient statistical evidence that certain employment practices had a discriminatory effect on women or Blacks, the

employer had the burden of proving that the challenged practices were a justified business necessity.

It has been argued that the *Wards Cove* decision is a victory for employers and forces employees to bear the burden of disproving employers' business justifications for discriminatory practices. Employers, using genetic monitoring and screening to identify workers or applicants susceptible to certain illnesses, could discharge, fail to promote or hire, or in other ways discriminate against such individuals and claim business justification. Employees would then be placed in the more difficult position of disproving the need for that claim. This could mean that certain minorities that are susceptible to certain diseases (e.g., sickle cell disease, Tay-Sachs, hypertension) could face disproportionate discrimination in job situations where genetic screening is used. Many genetic screening procedures have a disparate impact (e.g., sickle cell disease, glucose-6-phosphate dehydrogenase (G-6-PD) deficiency that could implicate Title VII.

Workers' Compensation Programs

Workers' compensation programs were devised in the early part of the 20th century to provide no-fault compensation to workers suffering harm as a result of their employment. There are also two Federal workers' compensation programs: the Federal Employees Compensation Act for Federal Government workers and the Longshore and Harbor Workers' Compensation Act for shipyard and maritime workers. In addition, the Federal Employers' Liability Act provides compensation for railroad employees, and the Jones Act provides the same for sailors. All of these programs seek to provide speedy recoveries without the need to adjudicate fault, but they require that the harm have a work-related cause.

Initially, workers' compensation programs dealt with traumatic injuries and not with work-related diseases. As the workplace origin of many forms of illness became apparent, workers' compensation systems responded either through statutory change or judicial construction. A particular challenge is posed, though, by diseases with long latency periods between exposure to a causative agent and onset of illness. It is the compensation of such long latency conditions that presents the most likely opportunity for the application of genetic monitoring and screening.



Photo credit: Earl Dotter

The use of protective clothing can help prevent occupational illness and injury.

With a lapse of up to 40 years between exposure to a toxic substance and manifestation of illness, the task of determining which exposure caused the disease and whether it is work related can become problematic. When the disease is one that is generally caused by workplace substances, such as asbestosis or silicosis, it is easier to establish the work-relatedness of the worker's claim. When it is one that can be caused or aggravated by outside factors, such as many forms of cancer, the long interval can make evidence of work-relatedness harder to establish.

According to one legal expert (48) genetic monitoring and screening obviously have many advantages for employers, not the least of which is the reduction of the cost of workers' compensation claims. Workers' compensation claims have escalated substantially in recent years, and employers are finding the cost to obtain and maintain this insurance extremely high. Compensation claims are becoming more expensive because most cases require that the compensation board determine whether the injury is a work-related injury. In some cases, this is a particularly difficult factual question. For responsible employers, determining this question early is cost-saving because it reduces the need to legally challenge an employee's claim for compensation (48).

Role of Genetic Test Data as Evidence

Genetic monitoring and screening data may help claimants with the evidentiary task of proving the workplace etiology of occupational diseases. Generally, proof of a workers' compensation claim for occupational disease involves three primary elements (30). First, there is the hazardous nature of the substance that is the suspected causative agent. This can be based on OSHA or NIOSH reports and standards, as well as on general scientific findings. Second, there is the nature of the claimant's illness and resulting disability. This is usually based on the testimony of an examining physician. Third, the worker must establish the link between the hazardous exposure and the disease. This can be a difficult step, especially when the disease is one that is common outside of the workplace. An often-cited example is lung cancer, which can result from workplace asbestos exposure but also from smoking outside of the workplace.

To prove this third element in the chain, monitoring and screening data obtained in the workplace can be extremely helpful. Most studies linking occupational diseases to toxic agents are based on studies of large populations or on animal responses. Extrapolating from these data to individual instances of a disease gives questionable results. Genetic monitoring and screening data can support causality claims in two ways. First, they can serve the same function as conventional medical tests. Screening produces a baseline to demonstrate a worker's level of genetic composition before employment has begun. Monitoring shows the worker's response to the agent as exposure progresses. The link between workplace exposure and illness is thereby revealed. Genetic screening can serve a second role of showing whether the worker had a special susceptibility to the substance involved. If the claimant did, it will be easier for the claimant to assert that the disease is work-related.

Monitoring and screening data are particularly relevant to the issue of multiple causation. States vary in their treatment of diseases that have both work-related and outside causes. In some States, such as California, workers are fully compensated even when outside factors are involved (54).

In other States, such as Arkansas, workers can only be compensated for the portion of their disease caused by workplace factors (Arkansas Labor Code sec. 14(a)(3)). In these States, genetic screening may

help workers show to which agents they are particularly sensitive and are most likely to contribute to their illness. Monitoring may help them demonstrate a pattern of progressive biological harm corresponding to a workplace exposure. At the same time, employers may be able to show that nonworkplace factors were the ones most likely to have harmed the claimant and that workplace exposure did not contribute to harm. In either case, genetic test data may be able to improve the accuracy of compensation decisions.

Workers' Compensation of the Susceptible Employee

In most States, a claimant's right to workers' compensation is not affected by a preexisting condition. The general rule is that an employer takes the worker as the employer finds the worker, with no allowance for a disability that developed before employment that predisposes the worker to occupational illness. Presumably, this rule would extend to a preexisting genetic vulnerability to workplace toxins.

Once an employer has hired a genetically susceptible individual, an employer faces an increased likelihood of paying compensation which may discourage hiring susceptible applicants. Many States have tried to mitigate this possible effect in one of a number of ways.

The first approach is the use of second injury funds. These are State-run funds that contribute to the compensation of a worker whose work-related injury or disease also has a preemployment cause (49). The existence of such a fund, if applicable, would reduce the risk to an employer who hires a genetically susceptible worker. The availability of screening, moreover, would make it easier to use this mechanism, since the role of preemployment factors would be more clearly revealed.

The second approach allows workers to waive their right to file an occupational disease claim, once a vulnerability is found. There are 5 States that permit such waivers and another 15 that allow waivers for claims involving aggravation of a preexisting condition (76). Massachusetts, however, expressly forbids such waivers (Mass. Ann. Laws, ch. 152, sec. 46).

The availability of waivers could present a serious dilemma for workers' compensation. If genetic screening were available, employers could screen all

workers and ask the susceptible ones to waive their right to bring claims. This could eliminate virtually all liability for occupational disease while leaving workers who develop work-related illnesses with no available compensation. The issue of waivers is an area that may require further examination if workplace genetic screening becomes available.

The final approach apportions liability between the employer and other responsible parties, including the worker, when a preexisting, nonemployment cause is involved. The issue still arises, however, of the amount of responsibility to attribute to each cause. In the case of a genetic predisposition, the question of liability maybe more one of ethics or of public policy than of law. Another complicating factor is the general rule that a prior nondisabling condition is not a disability for purposes of apportionment (49). A latent genetic trait would appear to fall under this category. Thus apportionment as presently structured might not apply to susceptibilities found in genetic screening.

Admissibility of Genetic Monitoring and Screening Data

In the spirit of granting compensation to workers as quickly and efficiently as possible, compensation proceedings are held informally, generally without formal rules of evidence (49). In addition, most States presume that the worker's condition is compensable in the absence of evidence to the contrary (49). Genetic monitoring and screening are likely to remain controversial for some time after their initial use, and there will likely be questions of reliability and appropriateness of such tests. It is possible that hearing officers, unaccustomed to novel forms of medical evidence, will look on genetic data with suspicion or give it more credence than it deserves. They may tend to ignore any doubt that the data cast on the compensability of claims. Employers may face a heavy burden in seeking to rely on genetic monitoring and screening to reduce occupational disease liability.

Rehabilitation Act of 1973

The Rehabilitation Act of 1973 (29 U.S.C. 701-796) enacted a comprehensive ban on discrimination against handicapped individuals in a broad range of areas. The principal provisions of the Act regarding employment rights are found in section 501, which requires affirmative action in Federal Government employment (29 U.S.C. 791); section 503, which

regulates the practices of employers who have service, supply, or construction contracts with the Federal Government (29 U.S.C. 633a(c)); and section 504, which applies to practices of entities that operate programs receiving Federal financial assistance (29 U.S.C. 794). The Act was amended in 1978 to add enforcement procedures for Federal applicants and employees claiming a violation of section 501 (29 U.S.C. 794a(a)(l)) and to adopt the rights and remedies prescribed by Title VI of the 1964 Civil Rights Act for enforcement of section 504 (29 U.S.C. 794a(a)(2)).

The Act targets discrimination and deeds which adversely "limit, segregate, or classify" handicapped applicants or employees. Among the practices specifically forbidden by interpretive regulations are discriminatory recruitment, transfers, job assignments, leaves of absence, fringe benefits, and "any other term, condition, or privilege of employment" (28 CFR 41.52; 34 CFR 104.11).

Sections 503 and 504 prohibit discrimination against otherwise qualified individuals with handicaps in employment and other areas. The term "individuals with handicaps" is defined for this purpose as "any person who (i) has a physical or mental impairment which substantially limits one or more of such person's major life activities, (ii) has a record of such impairment, or (iii) is regarded as having such impairment" (29 U.S.C. 706(6)(B)).

Under section 503, all Federal contracts and subcontracts in excess of \$2,500 must include clauses obliging the contractor to refrain from discrimination and take affirmative action to promote employment opportunities for the handicapped. By regulation, an employer with a contract exceeding \$50,000 and having more than 50 employees must prepare a written affirmative action plan outlining the contractor's practices and procedures for increasing opportunities for the handicapped (41 CFR 60-741-4 to 60-741-6). Absent a waiver (41 CFR 60-741.3), contractors are subject to the affirmative action obligation in all of their activities so long as they are performing the government contract. Contracts with State and local governments, however, require affirmative action only in the agencies performing work on the contract (91).

Section 504 prohibits discrimination against otherwise qualified individuals with handicaps regardless of ethnicity or other similar characteristics, by entities that receive or administer Federal financial

assistance. This section tracks Title VI of the 1964 Civil Rights Act except that section 504, unlike the latter, includes employment coverage and covers programs conducted by the Federal Government. The Civil Rights Restoration Act of 1987 was passed in response to a 1983 Supreme Court decision that had the effect of narrowing the applicability of section 504 (and other civil rights statutes) to apply only to the particular "program or activity" receiving Federal financial assistance, and not to the institution as a whole (38). In response to the Court decision, the Restoration Act specified that section 504 (and other civil rights statutes) apply to all operations of the entity receiving Federal financial assistance, and not only to the particular activity receiving such assistance.

In order to fall under the protection of the Rehabilitation Act, an employee must prove that his or her genetic trait is an impairment, or is regarded as an impairment. Although the statute does not define the term impairment, Department of Health and Human Services regulation implementing section 504 defines physical impairment as:

... any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more of the following body systems: neurological; musculoskeletal; special sense organs; respiratory, including speech organs; cardiovascular; reproductive; digestive; genito-urinary; heroic and lymphatic; skin; and endocrine (45 CFR 84.3(j)(2)(i)(A) (1983)).

Under the guidelines and model regulations promulgated to implement section 504, an employer receiving Federal financial assistance may not make preemployment inquiry about whether the applicant is handicapped or about the nature and severity of an existing handicap unless a preemployment medical examination is required of all applicants and the information obtained from the examination is relevant to the applicant's ability to perform job-related functions. The basic purpose of section 504 is to ensure that handicapped individuals are not denied jobs or other benefits because of the prejudiced attitudes or the ignorance of others (79). The Supreme Court, applying a balancing test to section 504, has observed a balance between the statutory rights of the handicapped to be integrated into society and the legitimate interests of Federal grantees in preserving the integrity of their programs (2). While a grantee need not be required to make fundamental or

substantial modifications to accommodate the handicapped, it maybe required to make reasonable ones.

In addition, to be covered under section 504, a handicapped individual must be otherwise qualified. This term has been defined judicially as meaning a person who is able to meet all of a program's requirements in spite of his or her handicap (81). Accordingly, an individual with a genetic predisposition for a disease or illness may not be eliminated from consideration for employment or promotion simply because of the predisposition so long as the individual is otherwise qualified for the position. In such a case, the employer would have to make reasonable accommodation for the person.

The Americans with Disabilities Act of 1990

The Americans with Disabilities Act of 1990 (ADA) (Public Law 101-336) is a recently enacted civil rights bill that extends a clear and comprehensive prohibition of discrimination on the basis of disability to the private sector. Title I bans discrimination against individuals with disabilities in hiring, discharge, compensation, or any term, condition, or privilege of employment by an employer engaged in an industry affecting commerce. In July 1992, Title I will apply to employers with 25 or more employees and, in July 1994, to employers with 15 or more employees.

According to ADA some 43 million Americans have one or more physical or mental disabilities, and this number will increase as the population ages. The Act defines disability as:

- (A) a physical or mental impairment that substantially limits one or more of the major life activities of such individual;
- (B) a record of such an impairment; or
- (C) being regarded as having such an impairment.

However, questions have been raised concerning the use of the word "impairment" in the ADA definition of disability (29). For example, is it an impairment when:

- . an employee is at risk of developing cancer 20 years in the future from present-day workplace exposure to a hazardous substance;
- . an employer is at risk because the employee may become disoriented from exposure to a workplace toxin and damage some equipment;
- or

- the public is at risk because a pilot with a genetic marker for heart disease suffers a heart attack and crashes the plane?

Isa “fictional impairment” such as limb deformity, epilepsy, or deafness the same as an increased risk of possibly becoming ill in the future? An increased risk of developing cancer at some future point is an injury that courts have recognized. However, increased risk of future disease or illness does not relate to present job performance in the same way that present fictional impairment does. The possibility of developing cancer or asbestosis 20 years in the future would not presently impair a worker so that it substantially limits one or more of the major life activities nor would it prevent the worker from currently performing the job (29).

When applied to genetic monitoring and screening the definition of disability does not expressly address the question of increased risk of disease based on genetic factors. The emphasis in the definition of “impairment” suggests that some increased risk of disease without actually having the disease (if the disease is considered an impairment) would not be a disability. Moreover, the definition addresses individuals presently having an impairment or being so regarded or having a record of such an impairment in the past. It does not address “future” impairments. On the other hand, if an employer ‘regards’ any individual with a marker or trait for a genetic condition as impaired, then perhaps the individual would come under the protection of the Act. This has not yet been tested in court.

The exclusion from the scope of some protection under ADA of individuals who have contagious diseases or infections (so long as the disease about which there is a genetically based increased risk is only potentially a hazard, not currently contagious or infectious, or is not a contagious or infectious disease at all, i.e., genetically transmitted conditions), argues strongly that such increased risk diseases could be considered a disability if the other requirements are met (11). Thus, would such an increased risk limit one or more of an individual’s major life activities? If yes, that person is disabled and probably protected by ADA.

An employer may have a defense to a charge of discrimination under the Act if the employer can demonstrate that qualification standards, tests, or selection criteria that screen out or tend to screen out

or otherwise deny a job or benefit to an individual with a disability are job-related and consistent with business necessity, and no reasonable accommodation is possible. Under the Act reasonable accommodation is defined as:

- (A) making existing facilities used by employees readily accessible to and usable by individuals with disabilities; and
- (B) job restructuring, part-time or modified work schedules, reassignment to a vacant position, acquisition or modification of equipment or devices, appropriate adjustment or modifications of examinations, training materials or policies, the provision of qualified readers or interpreters, and other similar accommodations for individuals with disabilities.

Accordingly, an employer could possibly deny a transportation or public safety job (e.g., airline pilot, bus driver) to a worker with a genetic marker for heart disease. The genetic screening that would identify the marker for heart disease could take place only after a job offer has been made and before employment duties begin. The job offer may be conditioned on the results of such an examination provided that all new employees are subjected to the same examination and the confidentiality requirements of the Act are observed. If a genetic problem is discovered, the employer may have to offer reasonable accommodation in the form of a desk job or other assignment where the possible heart problem would not affect public safety.

As to whether ADA permits or prohibits genetic monitoring and screening, Title I section 102 subsection (c)(2) prohibits preemployment medical examinations or inquiries designed to uncover information about disabilities unless the inquiry is designed to reveal the applicant’s ability to perform the job-related tasks. Strict interpretation of this language means that a covered entity may not require a medical examination unless that examination is job-related and consistent with business necessity. An employer’s attempt to lower costs by reducing its contribution to group health insurance premiums by detecting increased risk of experiencing diseases or conditions based on genetic factors would appear not to be ‘job-related’ or a ‘business necessity,’ no matter how advantageous such actions might be for the employer. The job-relatedness of the medical examination or inquiry and consistency with business necessity requirements would

seem to preclude remote cost-cutting measures aimed at weeding out genetically costly employees (11).

Employment safety and health issues are perhaps in a different class to the extent to which a disabled individual under ADA poses a threat to the workplace and co-workers or to the general public. Threats caused by that individual's disability may not be afforded protection under ADA. Increased risk of disease—even if contagious—would have to present a clear and present danger rather than a simply statistically greater likelihood of ultimate disease contraction (11). ADA appears to prohibit genetic screening as a part of prohibited medical examinations and genetic information obtained by means of a prohibited inquiry.

CONFIDENTIALITY AND PRIVACY ISSUES

Beyond the role of occupational health and safety regulation, common law rules regarding confidentiality and privacy are relevant to genetic monitoring and screening in the workplace. These include the right to:

- confidentiality of test results;
- have information forwarded to other health care personnel;
- have information regarding implications for immediate family;
- know test results, the right to have a copy of test results;
- accuracy of test results; and
- refuse testing.

Right To Confidentiality

There are four elements of the common law cause of action for public disclosure of private facts:

- the facts must be disclosed to the public;
- the facts disclosed must be private;
- the facts made public must be highly offensive and objectionable to a reasonable person of ordinary sensibilities; and
- the public must not have a legitimate interest in the information.

It can be argued that employers who learn of their employees' genetic defects and susceptibilities through genetic screening in the workplace could have a duty to keep this information

confidential and not disclose it to anyone absent express consent of the employee. Failure to do so could result in a charge of invasion of privacy brought by an employee against an employer. There is also the argument that genetic information may not be considered highly offensive and objectionable as would, for example, some diseases. Under this line of reasoning, genetic information may not be subject to the same constraints with respect to privacy and confidentiality as some other conditions.

The existence of a right to confidentiality depends on the relationship between the test subject and test administrator. When a patient and physician are involved, an obligation of confidentiality can generally be found to flow from physician to patient. Since physicians must necessarily be entrusted with communications of the most personal and private nature in order to effectuate proper diagnoses and cures (70), the confidentiality obligation has been part of ethical codes for physicians since Hippocrates. In 1984, the American Medical Association's (AMA) Judicial Council reaffirmed the Hippocratic Oath in publishing its most recent statement on confidentiality which says that the information disclosed to a physician during the course of the relationship between physician and patient is confidential to the greatest possible degree. The patient should feel free to make a full disclosure of information to the physician in order that the physician may most effectively provide needed services. The patient should be able to make this disclosure with the knowledge that the physician will respect the confidential nature of the communication. The physician should not reveal confidential communications or information without the express consent of the patient, unless required to do so by law (5).

Ethical standards of the medical profession did not have legal counterparts in common law. Early English law indicated that neither a voluntary vow of secrecy nor the privacy of the relationship alone were sufficient to establish a privileged communication (98). Under common law, a physician could disclose in court and elsewhere a patient communication. In jurisdictions, such as Georgia, that still follow the common law approach, the result is a harsh one for patients.

Evolving case law in most States, however, has come to recognize a right of patients to sue when a physician has made a disclosure of medical informa-

BERRY'S WORLD JIM BERRY



"Pity! You, yourself, tested out well. Your GENES didn't make it."

Photo credit: United Media

tion about the patient without the patient's consent. The route taken toward recognizing the physician's duty to maintain confidentiality has varied. In some States, courts have pointed to the Hippocratic Oath and AMA's statement to support the common law requirement of confidentiality between doctor and patient. Other States point to such a policy by referring to statutory enactments such as the testimonial privilege statutes or the confidentiality provisions of the physician licensure and discipline statutes.

Under the testimonial privilege statutes in virtually every State, physicians may not testify in court about a patient's condition unless the patient has either consented to the testimony or waived the right to consent. Only eight States lack testimonial privilege statutes regarding physicians and patients (Alabama, Connecticut, Florida, Kentucky, Maryland, Massachusetts, New Mexico, and South Carolina). Numerous cases have based a duty not to disclose on the State testimonial privilege statute.

Twenty States protect the relationship between a patient and his or her physician by providing that the disclosure of confidential information by the physician is a ground for revocation of the medical license or other disciplinary action. In an Ohio case, for example, the plaintiff sued an insurance company for fraudulently inducing his physician to divulge confidential information obtained from the plaintiff in the course of the doctor-patient relationship (40). The court used three indications of public policy—the medical profession's code of ethics, the statutory discipline provisions subjecting physicians to discipline for breach of confidentiality, and the testimonial privilege statute—to hold that a patient can recover damages from a physician for unauthorized disclosure concerning the patient.

Several grounds on which testimonial privilege can be based have been described (74). Many States recognize a testimonial privilege that permits a patient to prevent a physician from divulging medical information in court. State medical licensing statutes may also create a cause of action. In California, there is statutory protection in the form of the Confidentiality of Medical Information Act (Cal. Civ. Code sec. 56) which provides for recovery of compensatory damages, punitive damages up to \$3,000, attorney fees up to \$1,000, litigation costs, and criminal penalties for unauthorized disclosure of medical information.

There may also be a cause of action for unauthorized disclosure of medical data based on the breach of a contractual relationship. The obligation of the physician to maintain confidentiality of medical information can be seen as part of a contractual obligation to the patient. Physicians also have a responsibility to maintain confidentiality as part of the generally accepted standards of professional conduct in medicine.

A problem may arise, however, for subjects of genetic monitoring or screening in employment situations. In these cases it could be argued that the physician is acting as an agent of the employer and not as the patient's representative. Moreover, in many instances, the testing may be done by a nurse or medical technician, with no physician involved at all. The legal obligations of a medical professional in these circumstances are not clear, but many courts have held that there is no physician-patient relationship (74). In a Michigan case (7 1), the court held that a physician who examines a patient for a purpose

other than diagnosis or treatment for the benefit of someone other than the patient does not owe a duty of care that would subject him to liability for malpractice.

Even more problematic is the status of a genetic screening subject who is a job applicant. In this case, the subject lacks even the responsibilities created by the employer-employee relationship to rely on for legal support. Other sources of law must be looked to for protection and will be discussed later.

One formidable obstacle that employees will face is the right of their employer to see their test results. When the employer has provided the physician and paid for the procedure, there is little legal basis for asserting that it should be denied access to the results. The physician's primary duty in this situation is to the employer who hired him. There are few legal restrictions on employer access to workplace records and, in many instances, workers are unaware of the disclosures (74). The OSHA standard for access to medical records does not limit an employer's access but merely guarantees employee access.

One source of limited protection for employees is contained in the Code of Ethics for Physicians Providing Occupational Medical Services (6,74). The confidentiality obligations of physicians are described in strong terms, limiting disclosure of information to requirements of law or overriding public policy. The code also prohibits disclosure to other physicians unless requested by the subject "according to traditional medical ethical practice." The information that can be provided to the employer is limited to "counsel about the medical fitness of individuals in relation to work." Employers may not be given "diagnosis or details of a specific nature."

While the code lacks legal authority, it does establish the accepted standard for medical practice in this field, lending possible support to a claim for malpractice for unauthorized disclosure of confidential medical information. The effectiveness of this provision, though, would depend on the circumstances. Genetic screening results indicating susceptibility to the effects of a workplace toxin would, presumably, be reported to the employer as a lack of fitness for a particular job because of medical sensitivity.

An employee or a job applicant who is subjected to genetic monitoring or screening must assume that there will be at least some employer access to the results. The question then becomes protection against disclosure beyond the immediate employment setting. In that context, the worker can rely on two sources of law. For release of accurate information, a worker can look to professional and contractual obligations of the physician and employer. For disclosure of false or unreliable information, a worker may look to a claim for defamation.

Protection against release of information to the general public is, for the most part, provided. Some States, however, require reporting of individuals with certain serious communicable diseases, such as AIDS, but a genetic defect is not a communicable disease and is unlikely to fall in this category.

There is an exception in California to the confidentiality rule for psychotherapists, who have a duty to warn persons in immediate danger of harm from a psychotherapy patient (87), but genetic monitoring and screening results are not likely to reveal an immediate risk to others. It is, of course, likely that a genetic defect is shared by other family members and that it can be passed onto offspring. Disclosure in these circumstances, however, is generally a matter of patient discretion and not a matter of legal obligation of the physician. Unlike the case of a communicable disease, there is no immediate threat of harm to others.

The obligations of an employer who releases employee medical records without authorization are less clear. In California, such disclosure triggers statutory civil and criminal penalties, as discussed. Furthermore, the California Constitution explicitly guarantees a right to privacy (Cal. Const. art. I, sec. 1). In other States, a worker could rely on a common law claim for invasion of privacy.

Disclosure of inaccurate genetic monitoring or screening information can be seen as a form of libel. The key element of a libel claim is that the information divulged is untrue, so such a claim would be invalid when accurate test results are released. If test data are incorrect, though, libel can be found.

A question arises as to the libelous nature of test results that are accurate but subject to possible misinterpretation. This is an important issue for genetic monitoring and screening information,

which is new and could be misunderstood by those receiving it. A direct analysis of a subject's chromosomes is likely to be reliable in terms of the presence or absence of a particular gene. Whether the gene always expresses itself through a particular trait, however, may be subject to considerable individual variation. A test result, for example, may reveal that a worker has an undesirable gene that may predispose the worker to susceptibility to toxic harm. Environmental or countervailing genetic factors, though, may negate this susceptibility. A medical report that includes the test result will be accurate in terms of whether the subject has the gene, but might be an unreliable predictor of whether the worker will develop the disease in question.

It is unclear whether disclosure of such technically accurate information could constitute libel. There may be an analogy to other kinds of tests whose validity is subject to question (e.g., intelligence tests). In general, it is unlikely that an employer or physician would commit libel for simply reporting the test result. Any conclusions based on it that are communicated to others, though, might be suspect if careful qualifications are missing.

Another means of legal relief for patients whose medical information has been disclosed is a suit for tortious public disclosure of private facts. Such a cause of action is part of the 20th century common law protection of privacy. Common law privacy action protects medical records because such records involve intensely personal facts, which when disclosed are generally disclosed to an individual (a health care professional) and not to the public. In an Alabama case, the court recognized such an action, stating that unauthorized disclosure of intimate details of a patient's health may amount to unwarranted publicization of one's private affairs (42). Neither the public nor the employer has a legitimate interest in knowing each and every detail of an employee's health. Certainly, there are many ailments about which a patient might consult a private physician, but which have no bearing or effect on one's employment.

The Supreme Court in *Whalen v. Roe* (97) recognized that the physician-patient relationship falls within a constitutionally protected zone of privacy. Plaintiffs in *Whalen* challenged a New York law that required physicians prescribing certain drugs to report the drug name, dosage, pharmacy,

and patient's name, address, and age to the State Department of Health. The law was enacted to address a concern that prescription narcotic drugs were being diverted into unlawful channels either by stolen or multiple prescriptions, unauthorized refilling of prescriptions, or over-prescribed medications. While the Court recognized the need to protect the privacy of the physician-patient relationship, it held that the particular disclosure requirement did not violate a patient's constitutionally protected privacy right because the information was securely stored, the information was not publicly disclosed, and an individual was not deprived of the right to acquire and use the medication. The Court recognized "the individual's interests in avoiding disclosure of personal matters." However, the Court distinguished between an individual's interest in autonomy and an individual's interest in nondisclosure: the former clearly being protected by the Constitution (97).

Finally, at least five States--California, Montana, Rhode Island, Utah, and Wisconsin--maintain a more direct means of protecting the patient from unauthorized disclosures of medical information by adoption of statutes that specifically protect such information (Cal. Civ. Code 56.10- 56.16; Mont. Code Ann. 50.16-525- 50.16-553; R.I. Gen. Laws 5-37.3-1 to 5-37.3-11; Utah Code Ann. 63-2-88; Wis. Stat. Ann. 146.82).

At least three States have specific legislation addressing genetic health care information. In Maryland, genetic information is targeted as warranting protection. Under a Maryland statute, information collected in hereditary disorder programs must be kept confidential (Md. Health-Gen. Code Ann. 13-109(c)). Rhode Island and Utah laws protecting privacy of genetic or general health care information have special provisions providing for compensation of patients when confidentiality is breached. Rhode Island law provides that a patient can collect actual and exemplary damages and, at the discretion of the court, attorney fees maybe awarded when a health care professional breaches the confidentiality act. Under the Utah Information Practices Act, if State officials improperly and intentionally disclose health care information, the patient can receive exemplary damages of \$100 to \$1,000 (Utah Code Ann. 63-2-88). Even if State law does not specifically mention compensation for the patient, the existence of statutes could serve as basis for a private lawsuit claiming breach of confidentiality.

There is concern about whether doctor-patient confidentiality extends to other types of health professionals. Some States have enacted confidentiality statutes that apply to communications between patients and any health care provider or officer, employee or agent of a health care provider or facility (R.I. Gen. Laws 5-37.3-3(a)). Such would be the case if paramedical health care providers did genetic monitoring and screening in the workplace. In other jurisdictions, courts have noted that the rationale for creating physician-patient privilege to protect the patient's right of privacy justifies extending the privilege to cover people assisting physicians, even in the absence of a specific statute so providing (101). The trend seems to be to extend the duty of confidentiality to include other health care professionals, which would mean that providers of genetic services who were not physicians would nevertheless be required to maintain confidentiality.

One could argue that no physician-patient relationship exists in the occupational health setting when the company-hired physician has not been chosen by the employee. When health examinations are a condition of employment, submitting to an examination by this physician maybe something an employee cannot refuse. Further, if no treatment is given, only health monitoring or screening, this, too, supports the lack of a physician-patient relationship. When, for example, a physician employed by an insurance company examines an individual for the purpose of insurance qualification, the physician owes no duty to the individual to treat or to disclose problems discovered during the examination (27). Physicians in these circumstances would still be expected to adhere to the standard of care for any health care rendered but may not be held to the traditional fiduciary duty that a traditional physician has to a traditional patient. The difficult question arises when the condition or disease discovered in the examination is one caused or exacerbated by conditions in the workplace environment. In that instance, it can be argued that a company physician does have an ethical and moral duty, if not a legal duty, to inform the employee-patient of any findings.

Duties of the Occupational Health Physician

Occupational health physicians evaluate the medical fitness of applicants and employees in the workplace. Occupational health physicians are different from private physicians in training, loyalties,

and legal and ethical duties (75). When an occupational health physician undertakes genetic monitoring or screening of an employee or job applicant, there can be some question whether legal precedents protecting confidentiality in the physician-patient relationship apply. If the occupational health physician is hired by the employer, either on a contract basis or as a salaried employee, to do genetic monitoring or screening of other employees, it could be argued that the occupational health physician's first duty is to the employer and not to the test subject. If the employer is paying for the tests this, too, could support the argument that the employer is entitled to receive any test results. However, other legal precedents based not on fiduciary or contractual aspects of the physician/employer-patient/employee relationship, but on specific ethics codes or statutes applying to occupational health physicians, as well as more general precedents regarding tortious public disclosure of private facts or violation of a constitutional right to privacy provide a basis for holding occupational health physicians liable for unauthorized disclosure of medical information about a job applicant or employee. Occupational health physicians are left then to balance patient privacy and confidentiality on the one hand with employer need-to-know on the other.

Occupational health physicians do not practice medicine in an ethics vacuum. The American College of Occupational Medicine Code of Ethical Conduct (formerly American Occupational Medical Association (AOMA)) specifies that occupational health physicians should maintain confidentiality. Even with respect to disclosures to employers, it cautions that occupational health physicians should provide bottom-line information, not specific details. The relevant provision states that: "Physicians should treat as confidential whatever is learned about individuals served, releasing information only when required by law or by overriding public health considerations, or to other physicians at the request of the individual according to traditional medical ethical practice, and should recognize that employers are entitled to counsel about the medical fitness of individuals in relation to work, but are not entitled to diagnoses or details of a specific nature" (6). This code may provide the policy basis for recognition of a legal duty of occupational health physicians to maintain confidentiality, just as the Hippocratic Oath and the AMA statement have



General:

- Care of work-related illnesses and injuries
- Follow-up treatment coordinated with your personal physician
- Occupational Rehabilitation Therapy
- Respirator fit testing
- X-rays
- Medical laboratory testing (eg. cholesterol risk factor analysis, throat cultures)
- immunizations
 - Allergy shots
 - influenza vaccine injections
 - Immunizations required for company travel
- Blood pressure screening (walk-in)
- Non-prescription cold medications (walk-m)
- Percent body fat measurements



Tests/Exams

- Chemical Specific Periodic Medical Exams (offered to certain groups of employees with potential exposures to regulated chemicals or physical agents)
- Health Exam (offered every two years as a supplement to your personal physician's physical exam)

Included:

- Health history
- Blood pressure
- Height and weight
- Blood and urine analysis (drug testing is NOT included in these exams)
- Hearing test
- Eye pressure testing for glaucoma (employees over 40 years)
- Tests for lung capacity
- Stool exam for blood (employees over 40 years)
- Vision testing
- Chest X-ray
- Electrocardiogram
- All non-emergency tests and examinations should be by appointment

Health Education

- Health promotion program which includes presentations on a variety of topics including:
 - CPR Training
 - Nutrition
 - Stress
 - First Aid
 - Hypertension
 - Shift Work
 - * Eyes
 - Poisons
 - Coronary Risk Factors
 - * AIDS
 - * Basic First Aid
 - Computer Terminals
 - Cancer Prevention (Breast Self Examination)
 - Ergonomic Evaluation
 - Hearing Conservation
 - Sports Injuries
 - * Back Injury Prevention
 - Substance Abuse Intervention
 - Hypothermia
 - Hyperthermia
- * Exercise Classes
- Brochures on a Variety of Topics



Counseling

- Assistance for lifestyle changes such as drinking, weight loss and smoking cessation
- Employee Assistance Program
 - Medical consultations
- Pre-placement counseling
- Pregnancy in the workplace counseling

Photo credit: The Dow Chemical Co., Michigan Division

A pamphlet describing a medical department's programs.

provided a basis in some States for judicial recognition of a duty on behalf of private physicians not to disclose. On the other hand one commentator has pointed out that the AOMA use of the word “individual” in the code rather than ‘patient’ is an attempt to make the occupational health physician-patient relationship not a traditional doctor-patient relationship (73).

The need for protection of health care records in the hands of employers has been recognized by legislatures. Statutes in Connecticut and California specifically protect confidentiality of medical records obtained in the course of employment (Corn. Gen. Stat. Ann. 31-128f; Cal. Civ. Code 56.20 (a)(c)). Public employers in Wisconsin have an obligation to maintain confidential records of work-related injuries and illnesses (Wise. Stat. Ann. 101.055(7)(a)). A Montana health care confidentiality statute could also be read to include occupational health physicians. It covers even those health care professionals who merely diagnose (Mont. Code Ann. 50-16-101 *et seq.*). The preamble to the statute states that persons other than health care providers obtain, use, and disclose health record information in many different contexts and for many different purposes. It is the public policy of this State that a patient’s interest in the proper use and disclosure of his or her health care information survives even when the information is held by persons other than health care providers (Mont. Code Ann. 50-16-101-502(4)).

Rhode Island law protects confidentiality of health care information about a “patient,” even when that information is in the hands of third-parties such as employers. However, information obtained outside of a doctor-patient relationship through genetic monitoring or screening “arguably” would not be considered information about a “patient” (R.I. Gen. Laws 5-37.3-4(a)). Accordingly, Rhode Island protections would only cover more traditional health care information (e.g., information from an employee’s personal physician about the employee’s genetic status) that makes its way to an employer’s files.

In Florida, employees of the school systems are guaranteed confidentiality of their medical records except that a hearing officer or panel can have access to the records at a hearing on the competency of the employee (Fla. Stat. Ann. 231.291(3)(a)(5)).

In Connecticut, the law protecting the confidentiality of employee medical records has an exception allowing dissemination of information pursuant to terms of a collective bargaining agreement. Thus, employees or unions may be able to obtain information about health care risks to the employee population as a whole in order to bargain for better health and safety standards (Corn. Gen. Stat. Ann. 31-128f).

Various statutes protecting confidentiality of health care records in the workplace might be used as the basis for a private suit against an occupational health physician or employer for breach of confidentiality. There have been no such cases brought so far. The occupational health physician’s or employer’s duty to an employee who is a union member may also be created by terms of the collective bargaining agreement. Thus, an employee might bring a claim for violation of privacy under the bargained labor agreement. Also, as is the case with physicians generally, occupational physicians or employers could be held liable for tortious or unconstitutional invasion of privacy in disclosing confidential information.

COLLECTIVE BARGAINING CONCERNS

NLRA sets forth a relatively complex scheme governing relationships of employees, labor organizations (unions), and employers engaged in businesses affecting interstate commerce (29 U.S.C. 151 *et seq.*). Implementation of workplace genetic monitoring and screening programs implicate NLRA provisions from several perspectives.

The Act allows employees to organize unions and negotiate with employers over so-called “mandatory subjects of bargaining” -i.e., wages, hours, and other terms and conditions of employment (sec. 8(d) of the NLRA). NLRA also governs the relationship between individual employees and their unions by stating that unions must “make an honest effort to serve the interests of all . . . members [of an appropriate collective bargaining unit], without hostility to any.” Such efforts do not preclude unions from entering into agreements with employers that have unfavorable impacts on some employees in the appropriate collective bargaining unit (3 1).

The Duty To Bargain Over Genetic Monitoring and Screening Programs

As employment conditions, safety and health matters have long been recognized as mandatory subjects of bargaining (61). The National Labor Relations Board (Board or NLRB) has ruled that mandatory subjects of bargaining include fitness-for-duty physical examinations including medical testing (51) and thus, has set the precedent for the inclusion of genetic monitoring and screening of current employees as mandatory subjects of collective bargaining.

Matters germane to the working environment are considered mandatory subjects unless they affect an employer's ability to exercise entrepreneurial control. To the extent genetic monitoring and screening programs are designed to assess either an employee's continued fitness to safely perform the work or an employee's ability to safely perform different work without affecting health, they are material changes in the employment relationship. As such, they are subject to bargaining insofar as they implicate both job security and disciplinary consequences in the event the employee refuses to submit to them (50,51,72). Such tests cannot be fairly construed as cutting to the core of an employer's ability to exercise entrepreneurial control of its business.

It now seems clear, however, that preemployment genetic screening of job applicants will not be considered a mandatory subject of bargaining. The seminal case on this issue is *Allied Chemical & Alkali Workers of American Local No. 1 v. Pittsburgh Plate Glass Co.* (4). In this case, the Supreme Court held that conditions applicable to retirees, as nonemployees, are subject to union bargaining if they "vitally affect" current employees. The Court, however, ruled that in this case the retirement benefits at issue lacked a sufficiently vital effect on existing employees. Thus, the contours of effects sufficiently "vital" to current employees are unclear. Undoubtedly, resolution of the preemployment drug testing questions by NLRB and the courts will have a heavy bearing on the issue of genetic screening of applicants.

Relying on *Allied Chemical*, NLRB has ruled that drug testing of applicants for employment is not a mandatory subject of bargaining (83). Although the courts have not reviewed this ruling, it can be



Photo credit: Gianna Bosko

Headquarters of the American Federation of Labor and Congress of Industrial Organizations, Washington, DC.

expected to stand. The analysis used by the Board would suggest that it would not regard genetic testing differently than drug testing as applied to applicants (89).

If NLRB and the courts ultimately decide that unions have a right to negotiate preemployment conditions, it might logically follow that this right carries with it the corresponding duty to fairly represent the interests of applicants. This question, however, has yet to be addressed.

The duty to bargain in good faith recognized in sections 8(b)(3) and 8(a)(5) of NLRA also includes corresponding duties of unions and employers, respectively, to provide on request information relevant to the subject of negotiations (23,63). For example, if an employer seeks to negotiate a change, the union must be given access to information in the employer's possession supporting its proposals. In terms of proposed implementation of genetic monitoring and screening requirements, the union would have the right to receive information such as the scientific literature the employer used in developing a testing proposal and data on known workplace exposures to chemicals that may be implicated by that testing proposal (63). It is important to note that this duty to supply information on request extends beyond the conclusion of negotiations. On request, employers must provide unions with information

that is necessary to police the employer's compliance with a specific term of employment such as genetic monitoring or screening as well as the collective bargaining agreement as a whole (60).

Scope of the Duty To Bargain Over Genetic Monitoring and Screening Programs

A threshold determination that genetic monitoring and screening are mandatory subjects of bargaining under section 8(d) of NLRA leads to a duty to bargain initial implementation and subsequent changes only if the union has not otherwise waived its right to bargain. Employers may implement a change affecting an area subject to bargaining if they have negotiated the provision in good faith and those negotiations resulted in an impasse (62,86). At that point, the union is free to use its economic weapons—including the strike. On the other hand, employers may not implement a proposal if such a change represents a modification of an existing collective bargaining agreement. Section 8(d) of NLRA squarely prohibits such unilateral midterm modifications. Hence, a collective bargaining agreement that defines the contents of permissible physical examinations and does not include genetic monitoring or screening, or permits such testing with limitations, would probably serve as a bar to an employer's ability unilaterally to implement such testing or modify it during the term of the collective bargaining agreement.

Collective bargaining agreements may, however, contain waivers by the union of its statutory rights to bargain over mandatory subjects during the term of the agreements so long as such waivers are "clear and unequivocal." Such waivers are not to be inferred lightly. The contract language relied on must be specific or the bargaining history of that language must be such that it can be concluded that the union "consciously yielded." Broad, so-called management rights clauses have been regarded by NLRB's General Counsel as not permitting unilateral imposition of drug testing (55). A similar position could be anticipated with respect to genetic monitoring and screening.

While such waivers turn on the totality of circumstances, including bargaining history and wording of the clause at issue, it is fair to assume that imposition of genetic monitoring or screening of current employees may well be regarded by NLRB as a significant change requiring a particularly clear and unequivocal waiver even in the face of a history

of more "routine" forms of workplace medical surveillance. The very controversial nature of genetic monitoring and screening, like that of drug testing, may well dictate a heightened standard of waiver by contract or by past practices regarding medical surveillance.

Union inaction is considered another form of waiver. An employer meets its duties under section 8(a)(5) of NLRA by giving the union notice of its intended changes and thereby giving the union an opportunity to negotiate. If it is otherwise permissible to implement the change, the employer may institute it if the union fails to request negotiations in a timely fashion (20,44). Hence, an employer would not violate NLRA if it announced its intention to use either genetic monitoring or genetic screening of either current employees or applicants, and the union, by its silence, acquiesced in the change. This, of course, assumes that the intended change was not presented to the union as a *fait accompli* over which bargaining would be fruitless (19,66,82).

Once it is assumed that a duty to bargain genetic monitoring and screening exists, absent waiver, that duty encompasses an obligation to meet and discuss all aspects of the monitoring and screening process itself as well as its effects, including the uses to which it can be put and protections for affected employees.

While either party could insist to the point of impasse on the use or abandonment of a specific test, it is fair to assume that impasse would be far more likely in situations where screening is used to predict tendencies towards disease that bear little or no relationship to occupational exposures. The lack of immediate relationship to present ability to perform or to possible deleterious effects of workplace exposure could be regarded by the union as strong reason to adamantly oppose the screening. On the other hand, resistance by the union might be less in the case of tests that predict susceptibility to occupational agents such as dusts or fumes. This would include screening for homozygous serum alpha antitrypsin deficiency to assess increased risk of emphysema in workers exposed to dusts. In all probability, discussions of such screening would focus on the accuracy of the tests and the employer's responses thereto.

Virtually all aspects of a mandatory genetic monitoring and screening proposal would be subject to negotiation. Regardless of whether proposed tests

were to be used for applicant screening, employee screening, or employee monitoring, the parties would be required to discuss test selection. In this context, the union would be free, and indeed duty bound to explore with the employer the validity of the test as applied to the workplace. The employer would then be required to demonstrate why, in its opinion, the proposed test furthers its interests in maintaining employee health and safety.

Another area of negotiations that could apply to genetic screening of job applicants, and genetic monitoring or screening of current employees would be the weight accorded test results. In this context, the predictive and diagnostic value of tests would be significant. If the test detected genetic changes or abnormalities that bore on an employee's or applicant's present ability to work, such workplace relevance would support hard bargaining by employers and acquiescence by unions without fear of violating a duty of fair representation. On the other hand, if such a test bore little relevance to present job fitness and was, at best, an unspecific predictor of potential, future ill effects, both the employer and the union would be effectively constrained from agreeing to monitoring and screening that violated State or Federal handicap antidiscrimination laws. Within these two extremes, unions and employers could use their economic powers (strike and lockout, respectively) to "convince" each other of the workplace relevance, or lack thereof, of a particular test as well as to determine the weight it would be given in other job-related matters.

Even if a particular genetic screening program could be said to have sufficient workplace relevance, unions could be placed in a difficult position with respect to their duty of fair representation if organ-specific genetic conditions disclosed by the screening occurred significantly more frequently in identifiable ethnic groups. Such is the case with screening for sickle cell disease, G-6-PD deficiency, and thalassemia (76). If responses to such testing would have a disparate impact on a particular ethnic group, a union's duty to fairly represent all bargaining unit members would be heightened (31,88). Absent a cogent showing of business necessity, it could not safely agree to such genetic screening.

Another bargainable element of a proposal regarding genetic monitoring and screening would be access to test results. A variety of existing laws and regulations already provide strict rules governing

the release of medical records. However, in order to carry out their obligations to protect the safety and health of bargaining unit members, unions could (under section 8(a)(5) of NLRA) insist on receiving summary data regarding genetic monitoring and screening that did not disclose individual employee results (29 CFR 1910.1001; 20 CFR 1910.1017).

Perhaps the most sensitive aspects of negotiations regarding genetic monitoring and screening would be those focusing on effects of a test result that would disqualify employees from their existing jobs or preclude them from moving to a different, and perhaps, higher paying job. Both forms of disqualification would implicate existing wage and seniority provisions in collective bargaining agreements. Unions would, therefore, be obligated to explore in depth effects of genetic monitoring and screening with employers.

Presumably, genetic monitoring or screening of employees in connection with their current jobs could result in discovery of changes or traits, respectively, that would require removal from the presumed deleterious workplace exposure. If this could be accomplished, unions could insist in bargaining that those changes be implemented before the job status of an employee is adversely affected. Employers may insist, or the circumstances may dictate, that the only "safe" alternative is removal of an employee to a job free from the deleterious exposure. If such a job existed, questions would have to be resolved as to whether an employee so disqualified could use seniority to displace (bump) a junior employee or whether an employee could only use seniority to claim available open jobs. In either case, one result could be no available job which an employee could safely perform. Hence, the parties would have to address the issue of benefits available for medical discontinuance (termination). Another result could be movement to a lower paying job. In such circumstances, the parties would have to explore the possibility of maintaining an employee's former rate of pay for some fixed period of time or perhaps permanently (so-called red circling).

Genetic Monitoring and Screening Refusals

Employee refusals to submit to employer-required genetic monitoring and screening fall into two categories, namely "concerted" refusals of one or more employees and individual refusals. Explora-

tion of any “rights” to refuse genetic monitoring and screening under NLRA requires separate analyses of these two types of refusals with the assumption that the employer has otherwise complied with its bargaining obligations.

Section 7 of NLRA gives employees the right to engage in “concerted activities for the purpose of collective bargaining or other mutual aid and protection” (e.g., the strike). This right to strike is not, however, unfettered. Otherwise lawful strikes may lose the protection of NLRA under certain circumstances.

An individual’s refusal to be tested at a unionized or nonunionized workplace, however, may not be protected by NLRA unless the action is an integral part of group activity-past or present. Even then, such refusals may be regarded as concerted, yet unprotected, if they violate an express or implied no-strike obligation.

Arbitral Review

Genetic monitoring and screening requirements would, at some point, typically be subject to review by arbitrators under arbitration provisions in collective bargaining agreements. This is the preferred method for dispute resolution in organized workplaces to avoid strikes and lockouts. In the wake of presumptions favoring the arbitrability of labor disputes flowing from the so-called “Steelworker Trilogy,” it is fair to assume that many disputes surrounding workplace genetic monitoring and screening would be resolved by arbitrators (93,94,95).

Genetic monitoring and screening requirements implemented under broad provisions permitting employers to take “reasonable measures” to protect health and safety can be challenged as to their reasonableness (9,100). Indeed, even absent such express management rights, arbitrators would typically infer a reserved management right to promulgate rules and regulations to ensure employee safety and health and would review such rules and regulations under a standard of reasonableness (26).

NLRA Preemption of Common Law Torts

Drawing from recent experience involving workplace drug testing programs, it is fair to assume that employees covered by collective bargaining agreements may seek to bypass contractual grievance and arbitration procedures by filing suits

against their employers in State or Federal courts alleging violations of tort laws. Torts such as intrusion on seclusion, invasion of privacy, defamation, and intentional (or negligent) infliction of emotional distress could be alleged (34,77). Such suits may, however, be preempted under the strong Federal policy favoring arbitral resolution of workplace disputes implicit in section 301 of the Labor Management Relations Act. OSHA’s development of medical records access requirements inspired controversy on several points, including trade secret protections, the use of unreasonable searches and seizures, and the right to access for representatives of employees (56).

USE OF GENETIC MONITORING AND SCREENING RESULTS IN EMPLOYMENT DECISIONS

Right of Employer To Use Monitoring and Screening Data in Terminating Employment

As in the case of the employer’s right to medical examinations of employees, the right to use the results of medical tests in employment decisions is limited primarily by Title VII of the Civil Rights Act of 1964 and by the Rehabilitation Act of 1973. Common law rights in this area grow out of the doctrine of employment-at-will. This rule formed the basis for most employment relationships, absent an explicit contract between the parties, and gave the employer virtually unlimited authority to terminate the employment relationship at any time (76).

The doctrine of employment-at-will includes the right to refuse to hire an individual because of a perceived physical inability to perform the job (24) and the right to terminate employment because of a belief that the employee is no longer able to perform adequately (67). With respect to genetic monitoring and screening, this would mean that an employer could use either in any way, including personnel decisions. Even if test results were inaccurate or unreliable, the employer would be protected in basing employment actions on them.

In recent years courts have begun to erode the scope of the at-will doctrine by creating exceptions. While some courts have found contractual obligations that override the doctrine, the more commonly used exception is based on a tort of wrongful discharge founded on public policy considerations (59).

One such case that relied on a public policy exception to the employment-at-will doctrine has some relevance for genetic screening (68). The court held that an employee had a cause of action for wrongful discharge after he had been terminated for refusing to take a polygraph test, even though the State he was employed in, Pennsylvania, has a statute prohibiting such a requirement. In the absence of a remedy for the employee in the statute, the court ruled that he could sue under the common law public policy exception to employment-at-will. It was found that "Pennsylvania's anti-polygraph statute embodies a recognized facet of public policy" that would give rise to a cause of action for tortious discharge under Pennsylvania law, if refusal to take a polygraph test was the basis for the discharge (68). Under this holding, in a State with a statute prohibiting the use of genetic monitoring and screening, an employer would be constrained from terminating an employee based on refusal to take such a test. Had a statute on the subject not existed, however, it is not clear whether the court would have reached the same decision.

A New Jersey law based on atypical genetic traits, may create an even broader exception to the at-will doctrine for personnel actions based on genetic test results (NJ Stat. Ann. sec. 10:5-5(y)). This law appears to limit employers in taking any action including dismissal, based on genetic screening results that might have a discriminatory impact. A question might arise, though, concerning the use of monitoring. Chromosomal damage reflects harm to genetic material, but is this harm a genetic trait? An argument can be made that it is not, since the damage is likely to affect specific cells and not a change in the individual's genetic makeup. An inherited trait would not be at issue. Under this analysis, the New Jersey statute would not apply to genetic monitoring results.

Courts may react differently when genetic monitoring and screening results indicate occupational susceptibilities than when they suggest a higher risk for a nonoccupational condition. For example, employees genetically at risk for manic-depressive illness may never develop the condition. Whether they do or not may depend on nonoccupational exposures. In this case, the employer would be taking a personnel action based on a purely non-work-related factor. On the other hand, some employers are now excluding smokers on similar grounds. The ultimate effect on the employee may

be speculative, since the expression of many genetic traits depends on environmental influences, and their ultimate expression may also be beyond the employee's control. This may appear to some judges to present a more compelling violation of public policy principles than a personnel action based on work-related health effects.

Even when a nonoccupational medical condition is present, however, a court may still decline to find a public policy exception to the at-will doctrine. In one case (17), a Federal appeals court upheld an employer's decision to discharge an employee with diabetes based on an adverse medical report. It is possible that many courts will find that employers have broad discretion to make medical judgments of the fitness of employees and that reliance on genetic monitoring and screening for this purpose does not violate public policy.

The weight of public policy arguments in favor of exceptions to the at-will doctrine for genetic monitoring and screening findings may also depend on whether a trait is more common in a specific racial or ethnic group. Exclusion based on such a trait raises issues under Title VII, since it could amount, in practice, to racial or ethnic discrimination. If a public employer were involved, this kind of exclusion could directly raise issues of equal protection under the Constitution. Because of the constitutional issues and profound public policy concerns raised by racial or ethnic discrimination, courts may be more likely to find a public policy exception to the at-will doctrine when genetic monitoring and screening touches on questions of discrimination.

Uses of Genetic Monitoring and Screening Data in Other Employment Actions

While exceptions to employment-at-will have grown to cover different grounds for dismissal, they have not been applied to other kinds of employment actions. Employers have few common law constraints in taking other actions, such as hiring, promotion, and placement. It has been observed that in the absence of a statutory protection, 'monumental changes in the at-will doctrine will be required before anything even approaching a good-cause standard can be applied to an employer hiring decision or promotion, transfer, work assignment, or other related matters' (76). In these other areas, OSHA regulations--e.g., the medical removal and



Photo credit: Earl Dotter

An auto painter in a spray booth.

rate retention rules for various hazardous substances, and statutes, including Title VII and the Rehabilitation Act—provide the only existing constraints on employer use of genetic monitoring and screening for personnel decisions.

It should be noted that Title VII may provide substantial limits on employer actions. In one case (103), the court considered the defendant's practice of excluding fertile women from certain jobs involving exposure to hazardous chemicals. The plaintiff claimed that this violated Title VII as discriminatory, and the defendant asserted that it was necessary to protect future offspring. The court placed a heavy burden on the defendant to justify the practice and ruled that it must demonstrate a business necessity for the practice by showing that within the scientific community there is sufficient opinion that female workers face a significant risk. Moreover, plaintiffs

can rebut this defense by demonstrating that there are alternative employment practices available that would accomplish the same protection with a lesser differential impact. While a further discussion of the role of this case in extending Title VII protection to nontermination employment actions is beyond the scope of this chapter, it can be observed that Title VII can place significant constraints on health and safety employment practices that have a discriminatory impact (8). In a recent case (90), the Ninth Circuit upheld the employer's fetal protection policy. The case is pending before the Supreme Court.

Common Law Right to a Safe Workplace

As discussed earlier, employees have a right to a safe workplace under common law, as well as under the OSH Act. The obligation to provide such a workplace may be affected by the availability of genetic monitoring and screening data. It might be argued that the obligation to provide a safe workplace has been met if the workplace contains only employees who have met reasonable genetic standards. An employer might contend that a safe workplace has been provided, if, absent other safeguards, all of the workers have been screened and found not to be susceptible to workplace chemicals. It may be impossible, however, to show that no risk remains for the workers who are not susceptible to workplace chemicals. As one commentator points out, even if the most susceptible workers are removed from the workplace, the remaining workers may also face a serious risk (85).

According to one employer, perhaps the best approach is to improve the OSHA requirements for disclosure of workplace hazards to give current employees the opportunity to receive regular voluntary monitoring, to provide the information only to employees, and to allow the employees to make an informed decision about whether to accept new employment or continue working in an area where principles of assumption of the risk would reduce employer liability (assuming knowing and intelligent waivers are made by employees who have access to the information needed to make a responsible decision). Since employers are currently obligated to provide a workplace free from recognized hazards, employer liability should not be diminished by genetic monitoring, nor should employer responsibility be reduced merely because the employer's workforce has been monitored, and those individu-

als with genetic susceptibility eliminated from the workforce population (48).

The effects of genetic test data on the duty to provide a safe workplace are subject to considerable speculation, but a few observations can be made. As discussed, there appear to be few common law limits on an employer's right to use preemployment screening and to make hiring decisions at will. Even under the Rehabilitation Act or ADA, an employer can refuse to hire a handicapped individual when a legitimate business qualification is involved. If genetically susceptible job applicants can be screened out, employers may have an easier task of creating a safe workplace.

With regard to monitoring, though, the duty may be increased. If sophisticated new tests become available to detect preclinical harm, then unsafe workplaces could become easier to identify. Furthermore, employers may have a duty to use any reasonable test to ensure workplace safety. However, one commentator has pointed out that even if a common law duty existed, employees may not have any remedy (73). As with other legal issues discussed, workers, unlike job applicants, have legal protections and may see benefits from genetic monitoring and screening.

Right of Employee To Know Monitoring and Screening Results

Whether or not genetic monitoring and screening results are communicated to employers or to others, employees have an interest in knowing what they are. An employee, for example, may wish to take personal health precautions based on the results or may choose to decline employment that is revealed to be hazardous. An employee may use the results as the basis for a legal action, or may have a general interest in knowing information that may have personal significance. There are several sources of law available to compel such access.

First, there is the OSHA access to medical records rule, discussed above. This regulation is broad in scope, going beyond records maintained under specific OSHA toxic exposure standards, but only when exposure to certain substances occurs. Employees are also protected by common law obligations of physicians and employers concerning known hazards. Physicians have a duty to inform patients (but not necessarily applicants or employees) of diseases that are discovered (74). Massachu-

setts has a statute that requires an employee to be provided a copy of the medical report for employer-required exams (Mass. Ann. Laws ch. 149, sec. 19A (1976)). Several cases have found company physicians liable for failing to detect or to inform employees of illnesses such as lung cancer (12), Hodgkins disease (13), and tuberculosis (102).

Beyond medical information on an individual basis, employers have obligations to inform workers about workplace hazards. The obligation created by the OSHA hazard communication standard has already been discussed. Employers also have a common law obligation to provide safe working conditions (32). This includes a duty to warn about hidden dangers. In a California case, the court held that while an employer does not have a duty to discover whether an employee is fit for work, if the employer assumes this task, the employer is liable if it is performed negligently (21). This case could have clear implications for genetic screening. Should an employer decide to use a screening program, whether through the use of genetic or conventional tests, the employer must meet a reasonable standard of care. It may be the case that if the employer assigns an employee to a job for which the employee is genetically unfit, liability could ensue especially if the employee is never informed of the screening results.

The duty of physicians to inform patients of medical findings applies to job applicants as well as employees. The physician's professional responsibility in this regard is to protect the patient's health, regardless of employment considerations. The duty of employers to warn of workplace hazards, however, would not protect job applicants. If not hired, the screening subject cannot claim a need to know about hazards in the workplace. Subjects might want to know their test results, but absent a clear contractual understanding, they would have no rights in this regard.

Right of Employee To Refuse Genetic Monitoring and Screening

If monitoring and screening are performed in response to an OSHA standard, the employee is free to decline the test. The OSH Act does not give OSHA the authority to require employees to submit to medical examinations (OSH Act 6(b)(7); 29 U.S.C. 656(b)(7) (1976)). OSHA's regulations do not require employees to be tested against their will

or provide sanctions against employees who refuse testing. The rights of workers in relation to their employers regarding employer-instigated genetic monitoring or screening programs, however, are less clear. Several arbitrators have held that employers can require employees to take medical examinations as a condition of employment to enable the employers to meet safe and healthful workplace maintenance obligations (15).

If they wish to be hired, job applicants probably have few, if any, rights to decline. Their primary legal rights would be based either on Title VII of the Civil Rights Act of 1964 (42 U.S.C. 200e) (53) by asserting that the tests were discriminatory or on the Rehabilitation Act of 1973 or ADA by asserting that the tests were not job-related. Beyond that, there is no common law right to be considered for employment after refusing to submit to a preemployment qualification.

Applicants for public employment, as well as public employees, may have a remedy in the protection of the Fourth Amendment to the Constitution against unreasonable searches and seizures (58). While not every medical test is necessarily a search and seizure, the Supreme Court has held that taking a blood sample can constitute an unreasonable search (80). A number of cases limiting employer testing rights have relied on the obligation of government bodies to provide this protection (84).

The reasoning in this case could be extended to tests for markers of genetic diseases since the analysis of blood for genetic conditions could easily be analogous to the analysis of urine for traces of specific substances. This analysis could be upheld, if a government employer had a compelling need for the information, if the testing were done only once and with warning, and if the employee knowingly submitted to the testing in order to be transferred to a new job. A key question would clearly be what constitutes a compelling need for the information. An agency might argue, for example, that it needs to know whether an applicant for a job involving access to sensitive or secret information might develop a psychological condition, e.g., schizophrenia or manic-depressive illness, that would compromise the applicant's trustworthiness. It might also claim that knowing an employee's susceptibility to toxic exposures was needed to ensure protection

from a job involving such exposures. Given the apparent willingness of many courts to permit government drug testing in the face of acknowledged constitutional concerns, it may be possible that these arguments could prevail for a genetic monitoring or screening program that involved a government job found to be sensitive enough.

A medical test to which the employee does not consent, then, can be a search if it is performed by the government. As a result, medical tests by public employers can only be performed on reasonable grounds and only with the subject's consent.

There are at least two situations in which this protection may extend to private employers (52). The first is when an employer's activities are closely intertwined with the government so that a government entity reserves the right to hire, promote, terminate, or reinstate employees. The second is when testing is government-mandated. It seems unlikely that an indirect government connection of a private employer (e.g., conducting government-mandated medical tests or receiving government funds) would be sufficient to establish government involvement in a genetic monitoring or screening program that would trigger constitutional protections against unreasonable searches and seizures.

An employee's only reliable recourse in asserting a right to refuse genetic monitoring or screening would be found in statutes that specifically prohibit use of such tests or related information for employment purposes. Three States—Florida, Louisiana, and North Carolina—have laws prohibiting discrimination based on sickle cell trait. A refusal to submit to a test for this trait would likely be upheld on public policy grounds.

Of particular interest is the New Jersey law discussed earlier banning discrimination based on any "atypical heredity, cellular or blood trait" (NJ Stat. Ann. sec. 10:5-5(y)). Such traits include sickle cell and Tay-Sachs. An employee could argue that this legislation forbids use of the results of genetic screening for employment decisions, so an employer may not require that genetic tests be administered as a condition of employment. In States without such laws, employees refusing to take genetic screening tests must look to other legal authorities for protection against dismissal.

Liability of Employer for Inaccurate Monitoring and Screening Results

As discussed, physicians may face malpractice liability for producing inaccurate genetic monitoring and screening results. Physicians may also face actions for libel if they disclose incorrect information about testing subjects. Another form of liability may exist if employers use inaccurate test results in making employment decisions.

It is unclear whether such a claim would succeed, unless the use of genetic information was already established to be against a State's public policy. With respect to other employment decisions, the common law offers little recourse. Job applicants would have even less in the way of legal protection. The employee's primary recourse would appear to be against the physician or other health professional administering the test for malpractice or libel.

The accuracy of test results is an area that may need further legal attention. Most discussions of genetic monitoring and screening have focused on the individual who is found to be genetically vulnerable. Different problems may arise for the individual who is incorrectly thought to be vulnerable but who is, in fact, not. Box 6-C illustrates some specific claims that might be available to employees.

Of equal concern are the false negatives, the individuals for whom genetic tests show an ability to withstand exposure to a toxic substance but who are actually susceptible to it. Based on genetic test results, these workers may be placed in contact with hazardous chemicals with which they would not otherwise wish to work. Their legal remedy would most likely be against the test administrator for malpractice and against the employer for negligent supervision of the test administration. These workers would, of course, be able to collect workers' compensation for their harm, but in some States this might not be a substantial recovery.

Workers with false negative test results are not directly protected by other sources of law. They would have access to their medical records under the OSHA rules, but they would likely have no reason to examine them for errors. The employer, moreover, may have fully complied with applicable OSHA testing standards. All medical tests leave some chance for mistaken results, even when properly administered. If there is a regular practice of producing incorrect test results, the employer

might face liability for malpractice constituting gross negligence or for failure to provide a safe workplace. Isolated instances of inaccuracy, though, might be well within accepted testing standards. Additional legal remedies in this area may be needed (92).

JUDICIAL USES OF GENETIC MONITORING AND SCREENING DATA

Use of Genetic Monitoring and Screening Data in Civil Liability Proceedings: Nature of Civil Suits for Workplace Injury

One kind of civil suit related to genetic monitoring and screening has already been discussed. These are suits against physicians and others administering tests for inaccurate test results. These actions may be based on claims of malpractice or libel. The most profound effect of genetic monitoring and screening on civil liability, however, is likely to be on suits for harm from occupational diseases.

Direct tort actions against employers for workplace injuries are barred in every State by provisions in workers' compensation laws making them the exclusive remedy for workplace harm (49). In return for the right to this simpler form of compensation, workers' compensation laws prohibit employees from bringing actions for civil claims directly against their employers. Two routes around this ban are available. The first is to use one of the limited exceptions to the prohibition that are available in most States, as will be discussed. The second is to sue a third-party, such as a manufacturer who supplied a product that caused or contributed to the harm.

Third-party suits for toxic workplace harm have often relied on a claim that a defendant failed to warn of its product's hazardous properties. A court permitted such a suit against an asbestos manufacturer based on the defendant's knowledge and concealment of the dangers of asbestos (16). The lack of an adequate warning was seen in this case to make the product unreasonably dangerous.

Genetic Monitoring and Screening Data as Evidence in Occupational Disease Suits

Genetic monitoring and screening data may serve much the same role in tort suits for occupational

Box 6-C-Liability Issues

Inaccurate genetic monitoring and screening can lead to a variety of claims for injury beyond those for adverse employment actions:

- **Emotional Distress**—If an **employee tests positive** for a genetic defect, but the test result is incorrect, the resulting mental distress may be compensable. Such distress may be considered to be foreseeable to a physician and an employer. A physician in a New York case was held liable for erroneously informing a patient that she had tuberculosis, resulting in tuberculosis phobia. In a New Jersey case, a court awarded damages for emotional distress in the context of exposure to toxic substances. A false or erroneous test result may trigger anxiety or phobic reactions with debilitating effects on a patient, rendering the employer liable. The primary issue here is whether the exclusivity provisions of workers' compensation laws will bar such suits.
- **Failure to Counsel**—**If** a monitoring or screening result is accurate and the employee-patient is positive for a genetic ailment, and the employee-patient is notified a **cause of action may still exist for the distress caused** by the news. A duty may exist to provide both pretest and posttest counseling, since otherwise the employee-patient is not prepared to handle the news of positivity. Such a failure is likely to be viewed as intentional, so that a worker may be able to sue in spite of worker's compensation.
- **Failure to Diagnose**—**If the monitoring or screening** is positive but the employee is not fully notified of either the results or their full implications, then a diagnosis may be missed that could have led to positive medical intervention. The courts' reactions in such a situation have been quite consistent: compensation has been awarded for any mental distress and psychic injury suffered by the patient, and also for the "loss of a chance" of treatment because of the missed diagnosis.

SOURCES: Office of Technology Assessment, 1990, based on Barry R. Furrow, Widener University, Wilmington, DE, personal communication March 1990; *Ayers v. Township of Jackson*, 106 N.J. 557, 525 A.2d 287 (1987); *Kraus v. Spielberg*, 37 Mis. 2d 29, 236 N.Y.S.2d 143 (1962); R.L. Willmore, "In Fear of Cancerphobia" *Toxics Law Reporter* 3(18):559-565, 1988.

diseases as in workers' compensation claims. The data can provide a crucial link in the causal chain between exposure to a harmful substance and manifestation of illness (30). Screening data can show that the worker was susceptible to the substance before exposure began. Monitoring data can show that biological harm developed as exposure progressed.

The issue of scientific uncertainty on causation has been an important one in much toxic tort litigation (14). In the litigation over the health effects of Agent Orange on Vietnam veterans, for example, the court considered the lack of scientific certainty concerning the consequences of exposure to this substance in approving the settlement of a product liability class action case (43). Similarly, another court (3) struggled with the issue of probability of causation in awarding compensation to some plaintiffs exposed to radiation from a nuclear test. Similar issues have arisen in many other cases involving allegations of toxic harm (14,22,35). If a plaintiff in such a case were able to document a link between individual injury and a toxic exposure, rather than relying on epidemiological or animal

studies, the plaintiff would have a much easier time demonstrating causation.

Genetic monitoring and screening data might also help workers to use the two exceptions to the exclusivity of the workers' compensation remedy described above. If an employer compiles test data showing that injury has resulted, the employer may have an obligation to reveal it to the worker (46). Failure to do so may result in liability to direct suit for intentionally concealing a hazard.

If the employer conducts the tests, the employer may be functioning in a dual capacity (76). Any negligence in test administration could then subject the employer to direct suit. This could include liability for harm from administration of the test itself, for negligently obtaining and using incorrect results, or for misusing correct results. Such suits could include those for malpractice (25) and libel described earlier.

New Kinds of Claims Based on Genetic Monitoring and Screening Data

It is possible that the act of conducting genetic monitoring and screening will create new responsi-

bilities for employers that result in new liabilities (65). Specifically, employers may be held to have a duty to take protective measures when medical harm is found. Failure to disclose positive medical results was one basis for finding intentional concealment of a workplace hazard (46). In an earlier case (45), a court found a specific duty of an employer to disclose to an employee a disease condition found in the course of a medical examination and to refrain from assigning him work that would aggravate the condition.

Employers performing genetic monitoring and screening may have an obligation to use the results for worker protection. By gaining information that creates the option of excluding susceptible workers through genetic screening, they may also take on a duty to exclude them. Similarly, by using genetic monitoring, employers may create a duty as well as an option to remove workers who show signs of toxic harm.

This could put employers who use genetic monitoring and screening in a double bind. They face constraints in using test results for hiring, firing, and other personnel decisions based on civil rights legislation, handicapped protection legislation, and exceptions to the at-will doctrine. At the same time, they also face constraints in not using the results when risks to individual workers are found. Additionally, genetic monitoring and screening results, as discussed, could make it easier for employees to file suits against employers for occupational diseases. The threat of these new liabilities could deter many employers from using the tests.

SUMMARY AND CONCLUSIONS

The real dilemma posed by emerging technologies for genetic monitoring and screening lies in their dual nature. They may prove to be invaluable tools for preventive medicine, keeping vulnerable workers from jobs that are almost certain to cause them harm, and identifying those in need of medical attention before serious illnesses develop. On the other hand, they may present a means for discrimination against workers who, through no fault of their own, are susceptible to the toxic effects of workplace chemicals. The likely role of the legal system in regulating these technologies, therefore, will not be straightforward.

The legal system will also face a challenge in making decisions in light of scientific uncertainty.

No medical test is perfectly accurate, and genetic monitoring and screening are unlikely to be exceptions. Some healthy workers will undoubtedly be screened out of jobs that would cause them no harm, and some susceptible workers will likely gain inaccurate reassurance. Who should bear responsibility for such uncertainty no one can control?

The contribution that will be made by several important sources of law have been discussed. The exact role of each will depend on the nature of the tests that are developed and their application. While it is clear that many legal tools presently exist, it is probable that new ones will be needed as unexpected challenges arise.

Over the past several years, changes directly affecting the law in this area have been modest, perhaps because genetic monitoring and screening technologies have yet to see wide application. Two changes, however, stand out. The most important has been the statutes passed in a few States limiting the use of genetic information in employment decisions. In three of these States—Florida, Louisiana, and North Carolina—the laws are specific to testing for sickle cell trait. In New Jersey, though, a fairly broad measure was passed banning employment discrimination based on genetic traits. If this measure becomes a model for other jurisdictions, the adverse impact of genetic monitoring and screening results on employees and perhaps benefits, too, could be severely curtailed. The New Jersey experience will be interesting to observe as more genetic monitoring and screening tests become available.

The second important change is the proliferation of right-to-know laws at both the State and Federal levels. Primary among these in terms of its likely effect on genetic monitoring and screening is the OSHA hazard communication standard. This rule requires that employees be given access to considerable information on the toxic chemicals with which they work. It also gives employers broad discretion in deciding whether or not to use genetic data in determining the extent of a hazard. The degree to which genetic findings are used by employers to define hazards and by employees to make requests for information may provide an early indication of the role that genetic data will play in workplace safety activities.

Other workplace right-to-know provisions include the OSHA access to medical records rule, the

chemical labeling provisions of TSCA and Title III of SARA. Congress recently gave consideration to the High Risk Occupational Disease Notification and Prevention Act of 1987, which would have required access to information, including mandatory notification, for large numbers of workers exposed to toxic chemicals.

The recently enacted ADA—which extends a clear and comprehensive prohibition of discrimination on the basis of disabilities to the private sector—could potentially have considerable impact on the use of genetic monitoring and screening in the workplace. While the law protects individuals considered to have certain physical or mental impairments, it is unclear whether individuals having a marker or trait for a genetic condition would also be covered. As to whether it permits or prohibits genetic monitoring and screening, ADA prohibits preemployment medical examinations or inquiries designed to uncover information about disabilities unless they are intended to reveal the applicant's ability to perform job-related tasks. Thus, such a requirement would seem to preclude measures aimed at weeding out individuals having certain genetic characteristics.

Changes in the common law relating to workplace genetic monitoring and screening have been incremental over recent years. An increasing body of case law is developing, however, over employer screening for drug use and AIDS. It is likely that developments regarding privacy, confidentiality, and the right of employers to make employment decisions based on test results will continue to be rapid in these areas and will form the basis for court cases regarding genetic monitoring and screening. Of particular interest in terms of common law developments is the apparent continuing expansion of the public policy exception to the at-will doctrine. This trend may also play an important role in forming judicial attitudes toward employment decisions based on genetic monitoring and screening test results.

On the whole, it appears that Federal regulatory law as administered by OSHA is likely to have the most immediate impact on the use of workplace genetic monitoring and screening. OSHA has already addressed this area to a very limited and unspecific extent. It has also dealt extensively with related practices of biological monitoring and screening that will form a ready source of rules for

genetic monitoring and screening. OSHA's rules on access to medical records and hazard communication are among the most directly applicable sources of existing law.

There is a need, however, to better anticipate the impact that genetic monitoring and screening technologies will have on occupational safety and health practices. As the primary authority in this area, OSHA would seem to be the most appropriate candidate for this role. In facing this issue, moreover, OSHA can draw upon the resources of NIOSH. NIOSH is charged with providing research and recommendations for OSHA regulatory development, and it is a well-respected source of these clinical and legal issues that workplace genetic monitoring and screening will present. Guidance from these agencies as technologies develop can serve a needed role in steering other sources of law, both judicial and legislative, through the challenges that genetic monitoring and screening will present.

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