Chapter 4

Genetic Monitoring and Screening in the Workplace: Corporate Opinion and Practice

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Chapter 4

Genetic Monitoring and Screening in the Workplace: Corporate Opinion and Practice

ATTITUDES ABOUT GENETIC MONITORING AND SCREENING

To gauge the extent of current and possible future use of genetic monitoring and screening in the workplace, the survey explored corporate attitudes toward such techniques. Health and personnel officers were asked their views concerning corporate genetic monitoring and screening policies, the cost-effectiveness of such testing, and uses and handling of test results.

Genetic testing includes a number of technologies to detect genetic traits, changes in chromosomes, or changes in DNA. As used in the workplace, it encompasses two activities: monitoring and screening. Thus, genetic testing of employee populations involves both examining persons for evidence of induced change in their genetic material (monitoring) and methods to identify individuals with particular inherited traits or disorders (screening).

Company Policy and Genetic Monitoring and Screening

Corporate health officers were asked whether their companies had a formal policy related to genetic tests, either in the screening of job applicants or the monitoring of employee health. Only 1 percent of health officers reported a formal company policy on genetic screening tests. Similarly, only 1 percent reported a company policy on genetic monitoring tests. Hence, even among the largest industrial companies, only a handful of companies had developed a formal policy on genetic monitoring and screening.

Rather than signifying a lack of corporate opinion about the use of such tests, such a response could indicate that attitudes toward genetic monitoring and screening had not been expressed as policy. In order to explore corporate opinion concerning genetic monitoring and screening, the survey asked health and personnel officers about their companies' attitudes toward the use of genetic tests.

Acceptable Uses of Genetic Monitoring and Screening

Corporate personnel and health officers were asked the same series of questions about the acceptability within their companies of using genetic monitoring and screening for various purposes. The parallel series of questions allows a comparison of differences in perceived acceptability of genetic monitoring and screening in the workplace between those responsible for employee health and those responsible for personnel matters in large corporations.

A majority of the personnel and health officers surveyed (56 percent and 50 percent) said that their companies considered the use of genetic monitoring and screening tests for employees or job applicants as generally acceptable to inform employees of their increased susceptibility to workplace hazards (table 4-1 and 4-2). The aim of the question was to get at their understanding of current company policy.

Three of the other five possible uses of genetic monitoring or screening in the workplace were considered as generally unacceptable by pluralities of the personnel officers responding to the question. Close to half (48 percent) felt that their companies would consider it generally unacceptable to conduct genetic monitoring or screening of employees to "exclude employees with increased susceptibility from risk situations." This compares with 51 percent for the health officers. The survey did not ask what happened to employees who were excluded. Over half of the personnel and health officers also felt it would be generally unacceptable to their companies to use genetic tests to "establish links between genetic predisposition and workplace hazards' (52 percent and 55 percent) or to "monitor chromosomal changes associated with workplace exposure" (53 percent and 55 percent).

The personnel officers and health officers differed somewhat in their perceptions of the acceptability of using genetic tests to "establish evidence of pre-employment health status for liability purposes. " Although 50 percent of health officers considered

Table 4-l—Acceptable Uses of Genetic Monitoring and Screening: Personnel Officers

Q.8. Would your company consider the use of genetic tests for employees or job applicants as generally acceptable or unacceptable to:

(Base: Personnel officers)

	Unweighed base	Percent			
		Generally acceptable	Generally unacceptable	Don't know[a]	No answer
Make a clinical diagnosis of a sick employee.. . . .	(569)	47	46	1	5
Establish links between genetic predisposition and workplace hazards	(569)	40	52	2	6
Inform employees of their increased susceptibility to workplace hazards.	(569)	56	37	1	7
Exclude employees with increased susceptibility from risk situations	(569)	45	48	1	7
Monitor chrornosomal changes associated with workplace exposures	(569)	39	53	1	7
Establish evidence of preemployment health status for liability purposes	(569)	47	45	1	7

[a]Volunteered response.

SOURCE: Office of Technology Assessment, 1991.

Table 4-2—Acceptable Uses of Genetic Monitoring and Screening: Health Officers

Q.1O. Would your company consider the use *of genetic screening or monitoring of* employees or job applicants as generally acceptable or unacceptable to:

(Base: Health officers)

	Unweighed base	Percent			
		Generally acceptable	Generally unacceptable	Don't know[a]	No answer
Make a clinical diagnosis of a sick employee.	*(494)*	*43*	48	1	7
Establish links between genetic predisposition and workplace hazards	(494)	36	55	•	9
Inform employees of their increased susceptibility to workplace hazards.	(494)	50	42	•	8
Exclude employees with increased susceptibility from risk situations	(494)	39	51	•	10
Monitor chrornosomal changes associated with workplace exposures	(494)	34	55	*	10.
Establish evidence of preemployment health status for liability purposes	(494)	41	50	•	9

[a]Volunteered response.

"Indicates less than 1 percent.

SOURCE: Office of Technology Assessment, 1991.

this an unacceptable use for genetic tests, 47 percent of personnel officers considered it acceptable.

The use of genetic monitoring and screening tests "to make a clinical diagnosis of a sick employee" was considered as generally acceptable to 47 percent of personnel officers, compared with the 48 percent of health officers who felt such a use was generally unacceptable. The survey found some differences between health and personnel officers in their perceptions of the acceptability of genetic tests for occupational health monitoring in their companies. However, the more striking finding is that companies appear to be fairly evenly split over the acceptability of using genetic monitoring and screening in the workplace for the benefit of either the employee or the employer. Regardless of the health and personnel officers interpretations of company policy, the Office of Technology Assessment (OTA) survey found no significant change from 1982 to 1989 in the number of companies using monitoring and screening (1,2).

Employer Attitudes Toward Genetic Monitoring and Screening in the Workplace

The future of genetic monitoring and screening in the workplace depends on corporate attitudes toward the use of the technology. The possibility that genetic monitoring and screening technology may

Table 4-3-Attitudes Toward Genetic Monitoring and Screening

Q.41. How do you feel about the following general statements concerning genetic screening and monitoring in the workplace? For each statement, please indicate whether you agree strongly, agree somewhat, disagree somewhat, or disagree strongly.

(Base: Health officers)

		Percent					
	Unweighed Base	Agree strongly	Agree somewhat	Disagree somewhat	Disagree strongly	Don't know[a]	No answer
It's fair for employers to use genetic screening to identify individuals whose increased risk of occupational disease poses the potential for greater costs to the employer.	(494)	17	39	15	18		10
The employer should have the option of deciding how to use the information obtained through genetic screening and monitoring.	(494)	15	32	19	24		
The decision to perform genetic screening of job applicants and employees should be the employers.	(494)	29	33	12	14	•	12
The decision to perform genetic monitoring of employees should be the employers.	(494)	29	33	12	16	•	10
Government agencies should provide guidelines for genetic screening of job applicants and employees.	(494)	34	27	11	18	*	10
Government agencies should provide guidelines for genetic monitoring of employees.	(494)	33	27	11	18	•	10
Genetic screening in the workplace represents a potential threat to the rights of employees.	(494)	20	38	16	15	•	11

[a]Volunteered response.
"Indicates less than 1 percent.
SOURCE: Office of Technology Assessment, 1991.

seriously threaten employee rights is a key concern surrounding its use. To gauge employer sensitivity to this issue, health officers were asked whether they agreed or disagreed that genetic monitoring and screening pose such a threat. The survey found that health officers were aware of the concern. Nearly 6 out of 10 (58 percent) of the health officers responding to the survey agreed with the idea that genetic screening represented a potential threat to the rights of employees (table 4-3). However, health officers were more likely to agree somewhat (38 percent) than strongly (20 percent) with the notion. Interestingly, those who reported that their companies currently employed genetic monitoring and screening were most likely (79 percent) to agree that such testing represented a potential threat to employees.

Although such testing was perceived as a potential threat to employee rights, 6 out of 10 health officers (62 percent) agreed that "the decision to perform genetic screening of job applicants and employees should be the employer' s." The same proportion (62 percent) also agreed that "the decision to conduct genetic monitoring of employees should be the employers.' Most health officers felt that the employer had the right to make the decision whether or not to conduct such tests.

The basic issue in many minds, however, is not what information would be collected by genetic monitoring and screening in the workplace, but how it would be used. Earlier questions about workplace uses of genetic monitoring and screening indicated that health officers reacted more favorably to uses designed to inform employees of risk and to establish relationships between exposure and health outcomes. Hence, a somewhat more controversial use of genetic monitoring and screening was explored here.

Health officers also were asked whether they agreed that it is unfair for employers to use genetic screening to identify individuals whose increased

Table 4-4-Cost-Effectiveness of Genetic Monitoring and Screening

Q.7. **Do you think it is currently cost-effective or not cost-effective for a company like yours to:**

(Base: Personnel officers)

	Unweighed base	Percent				
		cost-effective	Not cost-effective	Not an issue[a]	Not sure	No answer
Conduct biochemical genetic tests as part of preemployment screening	(569)	3	52	1	43	2
Conduct direct-DNA tests as part of preemployment screening	(569)	1	53	1	44	2
Conduct genetic monitoring of all workers exposed to workplace hazards	(569)	8	45	1	44	2
Conduct genetic screening of workers to detect genetic susceptibilities to workplace hazards	(569)	7	45	1	45	2

[a]Volunteered response.

SOURCE: Office of technology Assessment, 1991.

risk of occupational disease poses the potential for greater costs to the employer. A majority of the health officers (56 percent) agreed while only a third of the health officers (33 percent) disagreed. However, among those companies currently conducting genetic monitoring and screening, the majority of health officers (57 percent) disagreed with such use of genetic tests. Only 43 percent of the health officers from such companies agreed that it was fair for employers to use genetic screening to reduce their risk of costs associated with occupational disease.

Health officers were more evenly divided on the issue of who should decide how the information obtained from genetic monitoring and screening would be used. Almost half (47 percent) agreed that the employer should have the option of deciding how to use such information. Nearly an equal proportion (43 percent), however, disagreed. Current genetic testers reported a stronger opposition to this position with over half of the health officers (56 percent) from companies reporting current testing disagreeing that the employer should have the option of deciding how to use such information.

Since most health officers felt the decision to conduct genetic monitoring and screening rested with the employer, one might expect relatively little enthusiasm about a government role in the issue of genetic monitoring and screening. However, 6 in 10 health officers (61 percent) agreed with the notion that "government agencies should provide guidelines for genetic screening of job applicants and employees.' Virtually the same proportion of health officers (60 percent) agreed that 'government agencies should provide guidelines for genetic monitoring of employees. " In companies currently using such genetic tests, the majority (71 percent) agreed that government agencies should provide guidelines in these areas.

The interest in government guidelines, however, should not be surprising given the recognition of the potential threat to employee rights raised by the technology, and the division of opinions over the proper uses of such tests. Government guidelines would fill the absence of any professional or corporate consensus on the applications, uses, and limits of genetic monitoring and screening in the workplace.

Cost-Effectiveness of Genetic Monitoring and Screening

The current economic feasibility of genetic monitoring and screening in the workplace was examined by asking personnel officers how cost-effective they considered the technology. Few corporate personnel officers believe that any of the uses of such tests is currently cost-effective. One percent of personnel officers considered the use of direct-DNA tests as part of preemployment screening currently cost-effective for their companies, and 3 percent considered the use of biochemical genetic screening tests as part of preemployment screening as cost-effective. In contrast, 52 and 53 percent of the personnel officers surveyed found that both types of testing were not cost-effective (table 4-4).

A larger percentage of personnel officers (7 percent) considered using genetic screening to detect genetic susceptibilities to workplace hazards as cost-effective. A similar proportion (8 percent) of corporate personnel officers felt it was currently

Table 4-5-Screening Conducted To Identify Persons With Increased Health Risks

Q.8a.. Do you conduct *any form of* screening to identify employees or job applicants at increased risk for these jobs?

(Base: Health officers in companies where employees are exposed to workplace conditions with greater risk of negative health outcome)

Unweighted base	(180)
Yes	71%
No	25
No answer	4

SOURCE: office of Technology Assessment, 1991.

cost-effective to conduct genetic monitoring of all workers exposed to workplace hazards. However, nearly six times as many personnel officers (45 percent) felt that such forms of genetic monitoring and screening were not currently cost-effective.

THE IMPACT OF GENETIC MONITORING AND SCREENING ON THE WORKPLACE

Screening To Identify Persons With Health Risks

Most company health officers did not believe that their employees were exposed to workplace conditions where individual susceptibilities affect the likelihood of negative health outcomes. The majority (65 percent) said that employees in their companies were not exposed to such conditions.

Only 31 percent reported that employees were exposed to workplace conditions in which individual susceptibilities affect the risk of negative health outcomes. In those companies employees are usually screened for the susceptibility. In 7 out of 10 of those companies (71 percent) some form of screening was used to identify employees or job applicants at increased risk for those jobs (table 4-5).

Medical histories represented the primary mechanism for screening employees or job applicants for individual susceptibility to workplace risk. Nearly 9 out of 10 (88 percent) of those companies reporting screening for individual susceptibility used medical histories to identify the individuals at risk (table 4-6).

Other forms of nongenetic screening were also important. Three-fifths of the companies (61 percent) conducting any form of screening for individual susceptibilities to workplace exposures reported using some form of nongenetic screening (e.g., allergy testing, lower back x-rays) other than medical histories.

Table 4-6-Types of Screening Conducted To Identify Persons With Increased Health Risks

Q.8b. Which, if any, of the following types of screening are conducted to identify increased individual susceptibility to workplace risk?[a]

(Base: Health officers in companies where screening is conducted to identify employees or job applicants at increased risk of negative health outcome)

Unweighed base	(139)
Medical history	88%
Nongenetic screening (e.g., lower back x-ray, allergy testing)	61
Genetic screening	1
None	4
No answer	3

[a]Respondents could give more than one answer.

SOURCE: Office of Technology Assessment, 1991.

Only 1 percent of health officers in companies where screening is conducted to identify employees or applicants at increased risk of negative health outcomes reported that their companies conducted genetic screening to identify increased susceptibility to workplace risk. These cases included one electric utility and one manufacturing and two nonmanufacturing companies. It is interesting to note that two of these four companies did not report genetic monitoring and screening on the other specific questions concerning genetic monitoring and screening (i.e., they were not included in the earlier estimates of the rates of genetic monitoring and screening) (l).

Overall, the survey found that genetic monitoring and screening played a limited role in identifying workplace risk. Although most companies that recognized differential employee risk used some form of screening to identify increased individual susceptibility, almost none used genetic monitoring and screening. This could indicate that, at present, medical histories and nongenetic tests are viewed as adequate to corporate needs.

Basis for Genetic Monitoring and Screening

The survey data lead to the conclusion that relatively few of the companies that responded conduct genetic tests of employees or job applicants to identify individual susceptibility to workplace conditions. The question remains, however, about what triggers genetic monitoring and screening in

Table 4-7-Genetic Monitoring or Screening for Specific Purposes

Q.22. Has genetic screening or monitoring ever been done in your company based on:

(Base: Health officers in companies that have ever done genetic screening or monitoring)

Unweighed base	(59)
Family history	16%
Gender	9
Ethnic or racial background	19
Cofactors (e.g., smoking)	0
Job exposures	13

SOURCE: Office of Technology Assessment, 1991.

the workplace. Earlier OTA survey findings suggested that a substantial portion of the reported genetic monitoring and screening in the workplace was idiosyncratic-related to individual employee requests, research projects, and the like (1,2). However, to the extent that systematic testing was being conducted, the basis of that individual testing becomes important.

A total of 59 health officers (12 percent) out of the 494 participating in the survey reported some form of pastor present genetic monitoring or screening of employees by their companies. These health officers were asked about the factors considered in initiating genetic monitoring or screening in their companies. Nineteen percent of health officers in those companies reported that such testing was based on *ethnic or racial background,* as in the case of sickle cell trait. Five of the eight doing such testing had 10,000 or more employees. Workplaces in all eight companies involved employee exposure to chemicals or ionizing radiation (table 4-7).

Sixteen percent of health officers from such companies reported that their firms had done genetic monitoring or screening based on *family history. Once* **again, all** were from companies in which employees were exposed to chemicals or ionizing radiation and 4 of the 6 companies had 10,000 or more employees.

Thirteen percent of health officers in companies that have ever conducted genetic monitoring or screening reported job *exposures as the* basis of such testing. In all of these cases employees were exposed to chemicals or ionizing radiation. Most of the cases (10 out of 12) involved companies with 10,000 or more employees.

Table 4-8-Handling of Abnormal Genetic Test Results for Employees

Q.24. Is counseling offered to all employees with abnormal (positive) genetic test results by the company or are they referred to their own physicians?

(Base: Health officers in companies that have ever done genetic screening or monitoring)

Unweighed base	(59)	Excluding missing values
Company counseling	6%	9%
Referred to own physicians	44	70
Both	13	21
No answer	37	

SOURCE: Office of Technology Assessment, 1991.

Only 9 percent of health officers reported that genetic monitoring or screening had ever been done on the basis of *gender. These cases* involved, once again, companies in which employees were exposed to chemicals or ionizing radiation. (Glucose-6-phosphate dehydrogenase deficiency is an example of a genetic disorder that affects only males.) Genetic monitoring or screening based on cofactors, such as smoking, was reported by none of the health officers surveyed.

How Results Are Disseminated

The corporate health officers in companies that had conducted genetic monitoring and screening of employees, regardless of the basis of the testing, were asked about the conditions under which test results were disseminated to the affected employees.

In those companies that informed employees of genetic monitoring and screening results, the survey found that the employee with abnormal test results was typically referred to his or her own physician. Over one-third (37 percent) of the health officers from companies which had ever conducted any form of genetic monitoring or screening did not respond to this question. Among health officers responding to the question, 70 percent reported that employees with abnormal findings were referred to their own physicians exclusively (table 4-8). Another 21 percent of the health officers reported that counseling was offered by the company, as well as the employee being referred to his or her own physician. The remaining 9 percent reported that the employee was given counseling by the company, with no mention of referral to a personal physician.

Table 4-9-Changes in Workplace Practice or Exposure Level Due to Results of Monitoring

Q.28. Has your company ever instituted or changed a workplace practice or exposure level due to the results of:

(Base: Health officers)

	Unweighed Base	Percent			
		Yes	No	Don't know[a]	No answer
Genetic monitoring in your own establishment(s) .	(494)	1	92	•	8
Other nongenetic medical monitoring in your own establishment(s)	(494)	30	63	1	7
Genetic monitoring in another company's establishment(s)	(494)	1	91	•	7
Other nongenetic medical monitoring in another company' s establishment(s)	(494)	11	81	1	7
Information published by Federal agencies, including NIOSH and OSHA	(494)	55	40	1	5

[a]Volunteered response.

"Indicates less than 1 percent.

SOURCE: Office of Technology Assessment, 1991.

Workplace Changes

Only 1 percent of health officers said that their own genetic monitoring programs resulted in a change in workplace practice or exposure level (table 4-9). One percent also reported making such changes in their own firms on the basis of genetic monitoring results in another company.

The most common source of changes in workplace practice, however, was the Federal Government. A majority (55 percent) of the health officers reported that their companies had instituted or changed workplace practices or exposure levels due to information published by Federal agencies, including the National Institute for Occupational Safety and Health (NIOSH) and the Occupational Safety and Health Administration (OSHA).

Treatment of Identified Risk

Since personnel officers may be in a position to use information obtained from genetic tests for personnel action, the survey asked their opinions about whether employees with identified susceptibilities should be excluded from positions of known risk.

The majority of personnel officers surveyed (58 percent) felt that the individual with genetic susceptibilities should be excluded from positions of known risk (table 4-10). On the other hand, a third of personnel officers (35 percent) believed that the employee should be allowed to take the job, if he or she waived corporate liability. In both large and small companies, only a minority of personnel officers adopted the employee choice model of handling genetic susceptibility. It should be noted that this forced choice question may not have exhausted the range of options open to employers and employees when genetic susceptibility was identified. A number of respondents objected to the starkness of the choice of answers in the question. Nonetheless, the question did help to reveal a sense of the present balance between employee rights and employer responsibility in this area.

Why Companies Have Decided Against Genetic Monitoring and Screening

In both 1989 and 1982, a number of companies that had conducted genetic monitoring or screening in the past reported that they no longer do so. The reasons companies decided to stop genetic monitoring or screening are extremely relevant in considering the future of genetic monitoring or screening in the workplace. Equally important, Knot more so, are the reasons that influence companies never to begin genetic monitoring or screening of employees. Indeed, these reasons are particularly important in examining whether events between 1982 and 1989 caused those considering the use of genetic monitoring and screening in 1982 to abandon those plans.

In order to examine this issue, all health officers were asked whether their companies had considered and decided against the use of genetic monitoring or screening in the past 10 years based on their own or other companies' experiences with monitoring or screening.

Table 4-10-Exclusion or Choice: Treatment of Employees at Risk

Q.9. If an employer becomes aware that an employee has a genetic susceptibility to serious illness if he or she is exposed to substances in the workplace, do you think the employer should exclude that employee from those jobs for which he/she is at increased risk or do you think the employer should allow the employee to take those jobs, if he/she waives corporate liability?

(Base: Personnel officers)

	Unweighed base	Percent					
		Exclude	Allow to take	It depends	Not legal [a]	Don't know[b]	No answer
Total	(569)	58	35	•	1	1	5
Type of business							
Electrical utility	(43)	52	32	0	1	0	15
Pharmaceutical	(20)	50	47	0	0	0	3
Other chemical	(37)	37	50	0	0	7	6
Petroleum	(10)	63	30	0	3	0	5
Electronic	(21)	80	9	0	0	6	5
Other manufacturing	{176)	63	26	0	0	1	10
Nonmanufacturing	(262)	57	38	•	1	•	3
Number of employees							
Less than 5,000	(308)	58	36	0	1	•	6
5,000 to 9,999	(99)	55	38	1	0	1	6
10.000 or more	(154)	62	31	0	1	2	4

[a]Volunteered response including "not legal" and "cannot be done."
[b]Volunteered response.
•Indicates less than 1 percent.
SOURCE: Office of Technology Assessment, 1991.

Two percent of those surveyed in 1989 reported that their companies had decided to discontinue or not to initiate new genetic monitoring in the past 10 years based on their own experience (table 4-11). This included one health officer who reported that genetic monitoring or screening was being currently conducted, two who reported that genetic testing was discontinued, and six health officers at companies that had never conducted genetic monitoring or screening. Three percent reported that their companies had chosen not to use genetic monitoring because of the results of genetic monitoring in another establishment.

Two percent of health officers reported that their companies had chosen not to use genetic screening based on their fins' own experiences. This included two health officers at companies that currently conducted genetic monitoring or screening, two at companies that had discontinued genetic testing and six at companies that had never conducted genetic monitoring or screening. Two percent of health officers reported that their firms had chosen not to use genetic screening because of the results of genetic screening at another company.

The results to this question suggested that experiences with genetic monitoring and screening provided only a partial explanation for why some companies chose to discontinue genetic testing. First, many of those "former testers" did not cite experiences in their own establishments or others as the reason they stopped testing. Second, a number of "current testers" indicated that they chose not to test in the past based on experiences with genetic testing, but they were apparently currently using some tests from the survey's genetic testing inventory. This suggests that the choice 'not to test' may reflect decisions about individual tests or individual cases, not about biochemical genetic screening and cytogenetic monitoring in the generic sense.

More importantly, the majority of health officers in companies that never conducted genetic monitoring or screening did not cite past experiences in their own or other companies as the reason for not using genetic monitoring or screening. There seems little evidence that events or concerns about genetic monitoring or screening between 1982 and 1989 had led more than a handful of companies away from using such tests.

Personnel Officer Recommendations

Nearly 9 out of 10 personnel officers (88 percent) said that, if asked, they would recommend against the use of genetic screening as part of preemployment screening (table 4-12). Two percent of the personnel officers reported they "didn't know." Thirty-five personnel officers (6 percent) reported

Table 4-n-Reasons Companies Have Chosen Not To Use Genetic Monitoring or Screening

Q.29. **In the past 10 years has your company chosen not to use genetic screening or monitoring due to the results of:**

(Base: Health officers)

	Unweighed Base	Percent			
		Yes	No	Don't know[a]	No answer
Genetic monitoring in your own estabiishment(s) .	(494)	2	86	•	12
Genetic monitoring in another company's establishment	(494)	3	85	*	12
Genetic screening in your own establishment(s) . .	(494)	2	84	2	13
Genetic screening in another company's establishment	(484)	2	84	1	13

[a]Volunteered response.
"Indicates less than 1 percent.
SOURCE: Office of Technology Assessment, 1991.

Table 4-1 2—Recommendations for Genetic Screening

Q.22. If you were asked, would your recommmend to your company that genetic screening be done as part of preemployment screening?

(Base: Personnel officers)

Unweighed base	(569)
Yes	69%
No	88
Don't know[a]	2
No answer	4

[a]Volunteered response.
SOURCE: Office of Technology Assessment, 1991,

that, if asked, they would recommend genetic screening be done as part of preemployment screening.

Those who would recommend genetic screening were asked to specify the criteria that the screening should be based on. The two leading criteria for recommending the use of preemployment genetic screening were predisposition to work-related illnesses (23 percent) and the cost-effectiveness of the screening (23 percent). Workplace exposure to hazardous material (19 percent) was another criterion presented. Others suggested that the screening must be based on government guidelines and consistent with laws (10 percent) (table 4-13).

The personnel officers had similar attitudes toward genetic monitoring. Nine out of ten corporate personnel officers (89 percent) said that they would recommend against periodic genetic monitoring of employees (table 4-14). Two percent "didn't know." Six percent-43 personnel officers in the sample-said they would recommend that such monitoring of employees be conducted.

Table 4-13-Criteria for Genetic Screening

Q.22. if you were asked, would you recommend to your company that genetic screening be done as part of preemployment screening? if yes, based on what criteria?[a]

(Base: Personnel officers who would recommend genetic screening)

Unweighted base	(35)
in high risk areas (unspecified)	4%
Workplace//on-the-job exposure/hazardous materials	19
Predisposition to work-related illness/hazardous to those with certain traits.	23
if participation was voluntary/optional.	
Based on government guidelines/consistent with laws	10
if cost-effective/depends on cost-effectiveness . . .	23
All other mentions	22

[a]Respondents could give more than one answer.
'Indicates less than 1 percent.
SOURCE: Office of Technology Assessment, 1991.

The two leading criteria for recommending periodic genetic monitoring were workplace exposure to hazardous material (29 percent) and the cost-effectiveness of the tests (21 percent). Other criteria included predisposition to work-related illnesses (10 percent), government guidelines (9 percent), or voluntary participation (2 percent) (table 4-15).

Health Insurance and Genetic Monitoring and Screening

The survey found that cost-effectiveness of genetic monitoring and screening influenced corporate decisions on implementing such programs. While most personnel officers in companies using genetic monitoring and screening cited cost-benefit analysis as an important factor in the decision to conduct such

Table 4-14-Recommendations for Genetic Monitoring

Q.23. If you were asked, would you recommend to your company that periodic genetic monitoring of employees be done?

(Base: Personnel officers)

Unweighed base	(569)
Yes	6%
No	89
Don't know[a]	2
No answer	3

[a]Volunteered response.

SOURCE: Office of Technology Assessment, 1991.

Table 4-15-Criteria for Genetic Monitoring

Q.23. If you were asked, would you recommend to your company that periodic genetic monitoring of employees be done? If yes, based on what criteria?[a]

(Base: Personnel officers who would recommend genetic monitoring)

Unweighed base	(43)
In high risk areas (unspecified)	49%
Workplace/on-the-job exposure/hazardous materials	29
Predisposition to work-related illness/hazardous to those with certain traits.	10
If participation was voluntary/optional..	2
Based on government guide lines /consistent with laws	9
If rest-effective/depends on cost-effectiveness	21
All other mentions	18

[a]Respondents could give more than one answer.

SOURCE: Office of Technology Assessment, 1991.

tests, only a small proportion considered the tests to be cost-effective.

Cost-effectiveness was not the only reason put forward against adoption of genetic monitoring and screening by employers. In addition, respondents voiced concerns about the tests' reliability and legality, the liability associated with them as well as fair and appropriate uses of the technology. Nonetheless, when one considers the survey findings of very widespread adoption of drug testing in the workplace, it seems fair to conclude that the cost-effectiveness of employee medical monitoring and screening may be more important than consensus on reliability, legality, and employee rights, in adoption of workplace tests (see ch. 2).

The survey identified one factor that could change the perceived cost-effectiveness of genetic monitoring and screening in the workplace: the health insurance risk to the employer of the employee with a genetic disease, condition, or trait. The survey

Table 4-1 6-Hiring of Job Applicants Considered To Be Health Insurance Risks

Q.27. If a job applicant is currently healthy and able to perform the job, but is considered to be a health insurance risk would that consideration reduce the likelihood of his/her being hired by your company-a lot, some, or not at all?

(Base: Personnel officers)

Unweighed base	(569)
A lot	3%
some	39
Not at ail	55
No answer.	2

SOURCE: office of Technology Assessment, 1991.

provided some evidence that employers are interested in the health care risks of healthy, asymptomatic individuals, in job decisions. Moreover, a number of employers were currently screening job applicants to identify the health care risk of the applicant and his or her dependents.

It is worth mentioning that of the 565 personnel officers that responded to the survey, 24 percent purchased their current health insurance plan(s) from a private carrier, 42 percent were self-insured, and 33 percent cited both types of plans (see app. A).

The personnel officers were asked about the degree to which health insurance risk, among otherwise able-bodied job applicants, affected employment decisions. The majority of personnel officers (55 percent) reported that the health insurance risk of an otherwise healthy job applicant would not affect the likelihood of the applicant being hired by their companies. However, the survey found that in 42 percent of companies, the health insurance risk of the job applicant reduced the likelihood of an otherwise healthy, able job applicant being hired "a lot" (3 percent) or "some" (39 percent) (table 4-16).

The effect of concerns about health insurance risk on decisions about employee testing is not simply theoretical. About 1 in 10 personnel officers (11 percent) reported that the companies assessed health insurance risk of job applicants on a routine basis. Another quarter of the companies (25 percent) reported that the health insurance risk of job applicants was assessed sometimes. Hence, while 6 out of 10 companies (63 percent) reported that they never assessed the health insurance risk of job applicants, more than one-third (36 percent) reported that they did assess health insurance risk, though not necessarily on a routine basis (table 4-17).

Table 4-17—Assessing Health Insurance Risks of Job Applicants

Q.28. Does your company assess the health insurance risk of job applicants on a routine basis, sometimes or never?

(Base: Personnel officers)

Unweighed base	(569)
On a routine basis	11?40
Sometimes	25
Never	63
No answer	2

SOURCE: Office of Technology Assessment, 1991.

Table 4-18-Assessing Health Insurance Risks of Dependents of Job Applicants

Q.28a. Does the health insurance assessment of job applicants also consider the health of dependents?

(Base: Personnel officers in companies that assess the health insurance risk of job applicants)

Unweighed base	(198)
Yes	9%
No	88
No answer.	4

SOURCE: Office of Technology Assessment, 1991.

Perhaps even more striking is the extent to which health insurance risk was already being assessed in some large companies. Among those conducting any assessments of the health insurance risk of applicants, 1 in 10 (9 percent) companies also considered the health of dependents in the assessment (table 4-18). The responses to the preceding questions varied little between self-insured companies, companies with a private insurance carrier, and companies with both types of plans.

The growing concern among employers over the rising costs of employee health insurance, and the increased efforts to reduce those costs to the employer, are likely to increase the scope of health insurance screening in the workplace. To the extent that genetic monitoring and screening can identify employee and dependent risk to atypical subsequent health care demands, cost-effectiveness as a means of employee monitoring and screening may be increased.

The survey suggests that the cost and reliability of such tests are more of a factor than any issue of fairness. Even at this point in time, half of the personnel officers interviewed (53 percent) considered the use of a preemployment health exam in order to identify job applicants who represent high insurance risks as acceptable. If genetic tests could be used to predict risk to subsequent health conditions more reliably than medical histories and nongenetic tests, given the present climate of corporate opinion and practice related to employee screening, one would expect the new technology to be increasingly adopted as it passes a cost-effectiveness review.

It is important to keep in mind, however, that very little genetic monitoring and screening is currently being conducted by employers. The survey does not suggest that it is currently being used for health insurance screening purposes. Moreover, only a handful of companies that were not currently conducting genetic monitoring and screening anticipated doing so in the next few years. Based on the survey findings, the factor most likely to increase use of genetic monitoring or screening in the workplace is demonstrations that they can identify health insurance risks.

CHAPTER 4 REFERENCES

1. U.S. Congress, Office of Technology Assessment, ***Genetic Monitoring and Screening in the Workplace, OTA-BA-455*** (Washington, DC: U.S. Government Printing Office, October 1990).
2. U.S. Congress, Office of Technology Assessment, ***The Role of Genetic Testing in the Prevention of Occupational Disease, OTA-BA-194*** (Washington, DC: U.S. Government Printing Office, April 1983).