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### **The Positives and Negatives of Genetic Screening**

Genetic screening and testing has come a long way over the years. There is a lot of progress that has been made, from screening newborns for potential issues all the way to screening adults for what possibly may lie ahead in their future or their reproductive future. With all of these technological advances come more information available at people's finger tips and therefore more ethical and social issues that arise because of genetic screening.

It has been since the 1980s when genetic research started to get big, that issues with genetic discrimination started to become more prevalent (4). Europe was the first to put out many policies and laws to help protect people from insurers and employers from using their genetic information against them. The United States then followed to have these protective measures too so that the genetic information was kept private (4). There have been many cases of genetic discrimination but it is difficult to show the impact or prevalence of the discriminatory practices that took place. This therefore makes it difficult for there to be a real case built because there are also chances that these incidents occurred due to error rather than the insurers making a conscious decision to discriminate against these people because of their genetic testing (4).

Before going into too much detail it is very important to understand what is meant by genetic information. This has to do with genetic testing, diseases or disorders in family members, and the genetic test results of all family members (6). The little genetic information that can be shared with everyone is sex or age of the individual. Looking more at genetic

nondiscrimination in health insurance, there are many employment practices that must be followed. When there is any discrimination based off of genetic information it will be seen as unlawful. Therefore acts like failure of employment due to that individual's genetic information, the segregation on an individual by not referring them for employment, or if the employer himself discriminates based off of the genetic information about that individual are all seen as unlawful (6).

According to the Senate Bill No. 559 there is law that now prohibits the discrimination against any person in any program based on genetic information. This is just like any other law where there is no discrimination against sex, gender, race, color, religion, sexual orientation, marital status, ancestry, source of income, disability, and this now includes genetic information (7). All of these possible areas to be used to discriminate a person are protected when it comes to both housing accommodations and employers. The bill later goes on to include that there is no discrimination against any person when it comes to selecting them for a training program that leads into employment (7). These are all crucial laws and policies that help protect individuals so that they can still be encouraged to partake in these important technological advancements.

The reason why we have no discrimination against genetic information is to protect individuals from employment and health insurance companies that could use the genetic information against them. This legislation is to help protect individuals from the improper use of the genetic information so that they can still be encouraged to use genetic testing and partake in genetic research for the better of themselves and the future of testing (5). These tests are done to help improve the health and longevity of people which means they should not be punished for information that is gained from these tests and research projects. There needs to be individual health insurance market protections so that the insurance issuers are not allowed to use the

genetic information to dictate what the individual is eligible for. They are also not allowed to use the genetic information of the enrolled employee's family members to adjust the insurance (5). To prevent this from happening the insurance issuers must follow the policies and laws that prohibit them from collecting genetic information before the employment of that particular individual.

Some of the other negatives that could come from genetic testing, other than possible discrimination based on results, are ambiguous test results, false positives, and incidental findings (3). Therefore both the individual and the family of the individual needs to be aware of all that can come from these tests before they decide what tests they want to have performed. These tests are used to help individuals make informed decisions about how to interpret results, which interventions are best for them, and what genetic screenings they should participate in (1). The reasons for genetic testing are that they offer specific people who are at high risk for certain issues, to get early treatment and preventative care. What the patient decides on and goes through cannot be done without the important roles of the primary care professionals to make sure all of the correct information is available and used to the patient's best abilities to make informed decisions (1).

Disease prevention and management are the main reasons why genetic testing is becoming more and more important and prevalent. Genetic testing can be delivered in many ways which could actually dictate what populations get tested and therefore cause disparities even in the testing (2). How tests are delivered are associated with how willing people are to undergo the testing. The policy decisions that go into dictating where genetic tests are delivered will influence the uptake of different patients which could be dictated by the amount of disturbance the tests cause rather than have it be dictated by race (2).

It seems as though there are a lot of down falls and negatives that could possible come from genetic testing but there are also many positives. The genetic testing that is being done now includes newborn screening, reproductive genetic testing, and family history assessment (3). The newborn screening will help to identify what infants will need special early treatment, where as reproductive genetic screening will help with reproductive decision making. All of these are ways to identify issues and create preventative measures to help improve the health and longevity of the individuals. The traditional goal of screening it to aid in early identification of diseases or risks to certain diseases so that certain therapies and treatments can be implemented (3). Instead of there only being a hand full of diseases that are checked, with technology now, the individual can be informed about all of their genetic traits to help improve prevention and treatment even more.

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