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THE USE OF GENETIC TESTING IN INSURANCE

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Summary - Use of the genetic testing results by insurance companies for underwriting process has been a research topic for this paper. Defined that modern scientific developments give the opportunity for the insurance companies to implement genetic test as a new underwriting method. One of the biggest problem here is related to find the ways of genetic discrimination. Determined that main genetic tests realize for the Huntington's disease, BRCA 1, BRCA 2, Myotonic dystrophy, Polyposis coli, Multiple endocrine neoplasia, Hereditary motor and sensory neuropathy, Monogenic form of Alzheimer's disease.

Introduction. New developments in the field of genetics allow insurers to use of genetic testing technology (genetic information) as a new underwriting method [5]. There are nearly 70,000 genetic testing products on the market, with an average of 10 new products entering the market each day [10]. The Human Genome Project has estimated that humans have between 20,000 and 25,000 genes [9].

Main part. Genetic testing is currently used in six different ways: diagnostic testing, predictive testing, carrier testing, prenatal testing, preimplantation testing and newborn screening [7].

Genetic testing is aimed at making the diagnosis of a genetic disease and involves the analysis or assays of human DNA, RNA, chromosome, protein (peptide), or metabolite [1]. Given the potential of genetic testing in predicting future health, many fear that insurance companies will misuse genetic information by raising rates or denying coverage to those who test positive for certain disorders [7].

The use of genetic information for life, disability, critical illness and long-term care insurance is likely to increase in relevance as testing becomes more widespread and better clinical data emerges [3].

Insurance companies argue that regulatory limits on their ability to use genetic tests will induce 'adverse selection'; and this has disadvantages not just for insurers, but also for society as a whole [8].

There are few main benefits of genetic testing:

1. Testing for these genetic abnormalities is helpful since preventive measures could be started.
2. Prophylactic surgery has been shown to greatly reduce the risk of cancer.
3. Enhanced surveillance could lead to earlier detection of the cancer.
4. Information could be used for making life decisions or family planning [7].

According to the viewpoint of society as a whole, not all adverse selection is adverse. Limits on genetic discrimination that induce the right amount of adverse selection (but not too much adverse selection) can increase 'loss coverage', and so make insurance work better for society as a whole [8].

If a person applying for insurance obtains a life insurance of high value without disclosing to the insurance company of the existence of high risk of developing hereditary diseases, for example Huntington's disease, such an action may serve to decrease the fairness of the actuarial calculations [1].

For life, disability, critical illness and long-term care insurance, regulations typically fall into the following categories:

1. No regulation.
2. No regulation with written or unwritten codes of conduct from insurance industry groups.
3. Prohibitions on insurers requiring applicants to take a genetic test and prohibitions on discrimination if the applicant refuses to take a test.
4. Prohibitions or moratoriums on using results from existing tests when policies are below certain limits.
5. Prohibitions or moratoriums on using results from existing tests at all [3].

Here is the main problem how to avoid genetic discrimination using genetic testing data to assess insurance risk? Many industrialized countries have attempted to ensure the equitable integration of genetics in the underwriting process. Others go so far as to use legislation to prohibit by access insurers to genetic information [5]. Europe has adopted a plethora of laws and policies, both at the regional and national levels, to prevent insurers from having access to genetic information for underwriting [2].

Implications for the use of genetic testing for insurance:

1. Genetic predisposition could predict current and future health care costs due to preventive treatment and increased monitoring.

2. Could become a diagnosable disease category like high cholesterol and blood pressure, and “so be viewed as an existing condition” rather than presymptomatic.
3. Reimbursement issues: changes classification of the disease [7].

Genetic discrimination is a prejudicial action as perceived by the respondents that resulted from insurers’ knowledge of an individual’s genetic condition based on observation, family history, genetic testing, or other means of gathering genetic information [4]. Genetic discrimination in insurance could discourage individuals from seeking testing and prevent them from seeking timely treatment that could in the long run improve health and reduce healthcare costs [7]. Genetic discrimination refers to discrimination of an individual on differences in the genome or gene from the normal genome or gene actually or predictively [1].

In France, insurers cannot request an applicant to undergo genetic testing for the purpose of the insurance application. Insurance companies cannot also use information provided by such a genetic test [12].

In the United Kingdom much attention is paid to the seven impairments of relevant genetic tests specified by the Association of British Insurers’ Code of Practice: Huntington’s disease, BRCA 1, BRCA 2, Myotonic dystrophy, Polyposis coli, Multiple endocrine neoplasia, Hereditary motor and sensory neuropathy, Monogenic form of Alzheimer’s disease [11].

Conclusion. The using of genetic testing in insurance has a big opportunity and challenge for the insurance companies and for the policyholders. The main benefits replay to the preventive measures that be started for the genetic abnormalities; making life decisions or family planning and so on. But the main problem is the genetic discrimination that could be occurs in the underwriting process.

REFERENCES

1. Ida, R., Ono M. et al., (2004). Guidelines for genetic testing. Genetic-Medicine-Related Societies: Japan Society of Human Genetics, Japan Society of Obstetrics and Gynecology, et al.
2. Joly Y., Burton H., Knoppers B.M., Feze I.N. (2013). Life insurance: Genomic stratification and risk classification. *European Journal of Human Genetics*, DOI: 10.1038/ejhg.2013.228
3. Klein, Ronald (2017). *Genetics and Life Insurance. A View Into the Microscope of Regulation*. Published by The Geneva Association—International Association for the Study of Insurance Economics.
4. Lapham EV, Kozma C, Weiss JO: Genetic discrimination: perspectives of consumers. *Science* 1996, 274:621-624.
5. Lemmens T., Joly Y., Knoppers B.M. (2004): Genetic and life insurance: a comparative analysis. *GenEdit* 2004.
6. Shannyn C. Riba. The Use of Genetic Information in Health Insurance: Who will be Helped, Who will be Harmed and Possible Long-Term Effects. *REVIEW OF LAW AND JUSTICE* [Vol.16:2 2017].
7. Tetushkin, Eugene (2000). Genetic discrimination in insurance and employment. *Genetika*.
8. Thomas, R. Guy (2018). Why Insurers Are Wrong about Adverse Selection. *Laws* 2018, 7, 13. MDPI.
9. Wong, Hector (2017). Seeing the Future? How Genetic Testing Will Impact Life Insurance. *Swiss Re, Asia*.
10. *Health Plan Landscape for Genetic Testing* (2018), AHIP. <https://www.ahip.org/>
11. Regenauer, Achim. *GENETIC TESTING AND INSURANCE – A GLOBAL VIEW*. Munich Re Group.
12. Summary of Provisions on Genetic Discrimination in other Jurisdictions. Canadian Coalition for Genetic Fairness. Available at <http://ccgf-cceg.ca/en/home/>