

Predictive health  
information in the  
conclusion of  
insurance contracts

OPINION



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## A OUTLINE OF PROBLEM

In this Opinion the German National Ethics Council (NER) considers the significance of predictive health information in the conclusion of personal insurance contracts as well as the concerns that have been expressed in relation to such information.

Taking out insurance means protecting oneself from loss events which, while unknown, might possibly occur in the future. Insurers attempt, on the basis of historical data, statistical considerations and projections, to determine the risk presented by a specific group of persons and to calculate the contributions to be made by the members of that group accordingly. The basis of insurance is that one does not know exactly whether or not one will be affected by a loss. If one did, one would wish either to insure oneself for a very large sum or not at all. Uncertainty as to whether one is going to sustain a loss personally is therefore a constitutive element of the principle of insurance.

With the development of medicine and of modern diagnostic techniques, and specifically with the establishment of molecular human genetics, it has increasingly become possible to predict whether and how someone will fall ill. With the growth of our knowledge of the genetic foundations of many diseases and of the interactions between genes, lifestyle and environmental factors, it is now possible to predict with a high degree of certainty whether, for example, a person will or will not be affected at some time in the future by particular hereditary conditions. However, predictions of pathology are possible not only on the basis of genetic tests. Other modern medical diagnostic procedures can also be used to predict health risks or diseases long before their onset.

In this connection, predictive health information can help those concerned to reduce risks to their health by preventive measures. It can, however, also be used by insurers for the calculation of risks and premiums. This gives rise to a number of concerns, some of which are appreciable – for instance, that

individuals may be subjected to thoroughgoing genetic scrutiny, that their right to ignorance may be restricted and that those who have drawn inferior cards in the “genetic lottery” may be threatened with exclusion and disadvantage. On the other hand, it is also stated that the use of predictive health information corresponds to the usual procedure applied in the calculation of morbidity and mortality risks and that the consideration of genetic risk factors is a logical extension of this practice; it therefore constitutes a differentiation justified on objective grounds and not unwarranted discrimination against the genetically disadvantaged.

This Opinion is intended to help clarify the extent to which the collection and use of predictive health information in the conclusion of private personal insurance contracts are legitimate. The National Ethics Council, in arriving at its conclusions, is building on the foundation of the considerations developed in its Opinion on the use of predictive health information in pre-employment medical examinations.<sup>1</sup>

In the current process of legislation on reform of the health-care system in Germany, new rules are to be established for certain aspects of access to private health insurance. However, the proposed new rules do not cover all spheres of private personal insurance, while even in the field of health insurance they deal only with particular areas. The arguments and recommendations presented in this Opinion therefore remain fully valid.

## B PRIVATE PERSONAL INSURANCE

### 1. Principle of risk equivalence

Private insurance is governed by the principle of risk equivalence. The premium level for an insured is determined by the level of risk that he<sup>2</sup> represents for the insurer. In practice, the insurer will assign a proposer<sup>3</sup> to an equal-risk group. Such a group might for example combine insureds of the same age or sex or with similar medical histories. There is a given probability that each insured will claim on his insurance during the course of his life. Proposers who may be expected to claim more frequently by virtue of their physical or mental constitution will be charged higher premiums or in certain cases even refused cover. From the contributions for each risk group and hence for each insured, the insurer builds up reserves. Since the level of the reserves is equivalent to that of the risk, the necessary funds are available in the event of claims.

Correct assignment of a proposer to a risk group is of decisive importance to the insurer. The types of insurance to which the principle of risk equivalence and hence predictive health information are relevant are presented below.

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<sup>1</sup> National Ethics Council 2005.

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<sup>2</sup> For simplicity, the masculine form is used in this Opinion for both sexes.

<sup>3</sup> For convenience, in the following the word “proposer” will be deemed to include the person to be insured, although the two will in practice not necessarily be identical.

## 2. Types of insurance

### 2.1. Private health insurance

When a private health insurance contract is concluded, an individual risk assessment is made. For this purpose the proposer has a duty of disclosure; that is to say, he must inform the insurance company of all circumstances relevant to determination of the risk. An important function is performed by the answers given by the proposer to a list of questions about his health; the period to which the questions relate is generally three, five or ten years. Incorrect replies to the health questions, or failure to answer them, may prejudice cover. As a rule, insurance companies also demand that attending physicians are released from their obligation of professional secrecy, so that medical practitioners and hospitals are allowed to provide the insurer with information on a proposer's health or medical history.

Newborns whose birth is notified to a parent's private health insurance company within two months are included in the policy without a waiting period and without assessment of the risk. Unlike the situation of statutory health insurance, in which family members without an income of their own are covered without the payment of contributions, in the case of private health insurance a separate contract must be concluded for each insured person, and hence also for each child.

Some ten per cent of the population of Germany have private health insurance.<sup>4</sup> The persons concerned are those not subject to the compulsory statutory insurance scheme. The first group not subject to compulsory insurance comprises manual workers and salaried employees whose regular annual remuneration from work exceeds a certain limit.<sup>5</sup> The minimally employed are also

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4 Source: Statistisches Bundesamt [Federal Statistical Office], as at November 2004. <http://www.bpb.de/files/LQ7Y05.pdf>, accessed January 2007.

5 The earnings limit for compulsory statutory health insurance in 2006 was 47 250 euro, or 3937.50 euro per month; for 2007 it is 47 700 euro, or 3975 euro per month.

not compulsorily insured.<sup>6</sup> In addition, the following are not subject to compulsory insurance regardless of income: the self-employed and members of the liberal professions, civil servants, judges, soldiers and other persons covered by the regulations and principles governing the civil service or in receipt of a retirement pension.

Only certain of these groups are eligible to join the statutory health insurance scheme on a voluntary basis.<sup>7</sup> At present, 6.8% of the members of the statutory scheme are insured voluntarily.<sup>8</sup> Persons such as the self-employed and members of the liberal professions are not eligible to join the statutory scheme if they previously had private insurance. A person who becomes subject to compulsory insurance after reaching the age of 55 years may in certain circumstances also no longer be able to join the statutory scheme, for instance if he was not insured under the statutory scheme in the last five years and for at least two and a half years during this period did not have insurance, was exempt from compulsory insurance or his principal earnings were from self-employment. Nor is it automatically possible for a person to return to the statutory scheme if he has not applied to join voluntarily within three months of losing his cover (e.g. the cover of family insurance on reaching the age limit in the case of children, or in the situation of divorce). Persons who are not compulsorily insured and are not eligible to join the statutory health insurance scheme can protect themselves from the consequences of illness only by taking out private health insurance.

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6 The earnings limit for minimal employment is 400 euro per month.

7 Under Social Law Code V Section 9(1), those eligible to join the insurance scheme include the following: persons who have ceased to be compulsorily insured and who were insured in the last five years before cessation for at least 24 months or immediately before cessation for a continuous period of not less than 12 months; persons whose family insurance lapses when they or the parent from whose insurance the family insurance is derived comply with the required period of prior insurance; and persons who commence employment for the first time and who do not have insurance owing to their income level.

8 Source: Bundesministerium für Gesundheit [Federal Ministry of Health], as at 1 May 2006. [http://www.die-gesundheitsreform.de/presse/infografiken/pdf/infografik\\_versicherte\\_gkv\\_2006.pdf](http://www.die-gesundheitsreform.de/presse/infografiken/pdf/infografik_versicherte_gkv_2006.pdf), accessed January 2007.

According to the Federal Statistical Office, there were 188 000 people without health insurance cover in the Federal Republic of Germany in 2003.<sup>9</sup> They constitute a heterogeneous group. For instance, many of the minimally employed do not take out private health insurance for reasons of cost. Self-employed persons on low incomes or persons without a source of income of their own may sometimes also be unable to afford private health insurance. Some proposers are declined by private insurance companies owing to existing medical conditions or particular risks of illness. If they fall ill, those without insurance must either pay for their own treatment or resort to the social welfare system.

## 2.2. Life insurance

Life insurance is by far the most widespread form of private provision for old age and surviving dependants in Germany.<sup>10</sup>

Endowment life insurance establishes a capital sum to provide for the insured's old age and for surviving dependants in the event of his death. The sum insured is paid either at the contractually agreed time or upon the death of the insured. It may be paid either as a lump sum or as an annuity over a specified period.

Pure term life insurance, on the other hand, covers only the death of the insured. The agreed sum insured is paid only if the insured dies before the expiry of the agreed term. Term life insurance is appropriate for the protection of surviving dependants particularly if the insured is concerned more with the repay-

ment of debt than with the building up of capital. Accordingly, many banks require the conclusion of a pure term life insurance contract to guarantee loans.

When a life insurance contract is concluded, an individual risk assessment, including evaluation of the proposer's health, is made. In the standard situation, it is sufficient here too for the proposer to answer a few questions about his health. Medical examinations are usually required only in the case of high sums insured (for instance, 250 000 euro or more) or of a relatively old proposer. For term life insurance, for example, a number of companies offer lower premiums to non-smokers.

According to the insurance companies, increased life insurance premiums are demanded in 5 to 7% of cases, while life insurance cover is declined for about 2% of proposers.<sup>11</sup>

## 2.3. Permanent disability and occupational incapacity insurance

Approximately one employed person in four has to give up his work before reaching retirement age owing to occupational incapacity or permanent disability.<sup>12</sup> Now that the occupational incapacity pension cover provided by the statutory social insurance scheme has been changed to a two-stage reduced-earning-capacity benefit, private occupational incapacity insurance has assumed greater importance. There is no statutory entitlement to benefit if, although the occupation for which one has trained can no longer be practised for health reasons, another activity, even if calling for lower skills and less well paid, is possible for more than six hours per day. The full reduced-earning-capacity benefit is payable only to persons capable of working for less than three hours per day. To qualify for this benefit, those concerned

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9 Statistisches Bundesamt [Federal Statistical Office], Mikrozensus [microcensus] 2003. The microcensus constitutes the official representative statistics on the population and labour market in Germany. It covers 1% of the population, corresponding to approximately 390 000 households with some 830 000 persons (random sample).

10 Some 96.9 million life insurance contracts (including pension funds and pension investment funds) were in force in Germany on 31 December 2005. 45.7% of households in the Federal Republic have taken out at least one life insurance policy. Source: Gesamtverband der Deutschen Versicherungsunternehmen e. V. (GDV) [German Insurance Association] 2006: 88; 69.

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11 See Regenauer 2001. Cover is usually refused for excess mortalities of more than 400% (see Münchner Rückversicherungs-Gesellschaft 2001).

12 Source: Verband Deutscher Rentenversicherungsträger 2000. <http://www.deutsche-rentenversicherung.de>, accessed January 2007.

must, before the onset of the situation covered by the insurance, have completed periods stipulated by pension law amounting to not less than five years and in addition have engaged in activities subject to compulsory contributions for not less than three years within the last five years before the onset of the reduced earning capacity.

For the self-employed or minimally employed who have not voluntarily joined the statutory pension scheme (see Section 2.4.), there is no statutory entitlement to benefit in the event of occupational incapacity or permanent disability.

A private occupational incapacity insurance policy will pay a pension if the insured is not less than 50% occupationally incapacitated by illness or accident. Contribution payments are suspended on commencement of payment of the benefit.

As in the case of private health insurance, an individual risk assessment is made when private occupational incapacity insurance is taken out. The premiums depend on the proposer's occupation, age, sex and state of health, the term of the policy, the period of the agreed benefit and its level.

## 2.4. Pension insurance

Under the statutory pension insurance scheme, all employed workers, including trainees, are compulsorily insured on commencement of their first employment and thereby become entitled to retirement pension and where applicable to a pension for surviving dependants.

The self-employed are as a rule not required to join the compulsory statutory pension insurance scheme.<sup>13</sup> The mini-

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<sup>13</sup> However, Social Law Code VI explicitly mentions groups of self-employed persons who are required to be insured under the compulsory statutory pension insurance scheme. These include in particular self-employed persons whose activity resembles that of an employee – for instance, self-employed teachers and self-employed nurses, midwives and obstetric nurses. Self-employed builders, marine pilots, coastal mariners and inshore fishermen are also subject to compulsory pension insurance under the statu-

mally employed, too, are exempt. Anyone who is not compulsorily insured can voluntarily join the statutory scheme.

The insurance industry has a number of different private pension insurance models, some of which enjoy tax advantages or receive other forms of state support (for example, the “Rürup” or “Riester” pensions).

A risk and health assessment as in the case of the conclusion of a private health, occupational incapacity or life insurance contract is carried out only where a private pension insurance policy is supplemented by additional cover, for instance for occupational incapacity. Financial provision for old age, on the other hand, is independent of the proposer's state of health. Should an insured die before retirement age from an illness the risk of which was unknown at the time of conclusion of the contract, no benefit is payable by the insurance company.

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tory scheme. Certain professional groups – e.g. medical practitioners, engineers, architects, tax advisers and lawyers – can claim exemption from compulsory participation in the statutory pension insurance scheme if they belong to a professional pension fund.

## **C POSSIBLE MEDICAL USES OF PREDICTIONS OF ILLNESS**

In medicine, a conceptual distinction is made between prognosis and prediction. A prognosis is defined as a statement about the future course of a past or currently existing disorder. A prediction, on the other hand, specifies the probability of the onset of a disease that has not yet occurred or cannot be detected by standard medical methods. However, the two notions may overlap: for instance, a disease from which a patient has recovered may indicate an increased risk of its reoccurrence or of the occurrence of another illness.

A wide range of methods can be used for the appraisal of health risks. The forecasting of illness by modern genetics has lately attracted particular attention. With the increasing identification of genetic factors in illness, these have become a focus of public interest. However, statements about the future of a person's health can be made on the basis not only of genetic but also of other methods.

### **1. Prediction and prognosis on the basis of medical history**

Diseases may take different courses. They may be completely and permanently cured (e.g. many infections, bone fractures, or successfully treated tumours); they may proceed in phases, intermittently or chronically (as in the case of epilepsy, multiple sclerosis, rheumatic disorders or mental disturbances); or they may prove lethal if therapy fails (for instance, malignant tumours or myocardial infarction). At onset, the prospects of successful therapy and the prognosis of a disease are often unclear. However, prognostic statements can frequently be made on the basis of the characteristic course of the disease. These are usually in the nature of probabilities. Following a myocardial infarction, a prognosis can be made on the basis of information on cardiac

function obtained, for example, by electrocardiography (ECG) or ultrasound examination. In cancers, probabilities of a cure or of survival can be associated with various stages of the disease (the affected organ, tumour size and extent, metastases, or histopathological findings). The prognosis can be further refined by the use of modern laboratory techniques, for instance by determining the pattern of gene activity in the tumour. Our knowledge of this field will increase appreciably in the future and may be expected to assume great importance for the development of new therapeutic strategies.

Congenital conditions in a newborn, such as cardiac malformations, for which therapy is indicated often permit a long-term health prognosis where they cannot be cured. They may be associated with a permanent impairment even if treated. Various forms of developmental disturbances may call for lifelong treatment. Congenital particularities that emerge in childhood and may constitute an indication for therapy can also become financially significant for insurers. For example, tooth malalignment may necessitate orthodontic treatment, or a prognosis of below-average final body size may be a reason for treating a child with growth hormone.

In some cases, a prediction is also possible on the basis of the medical history. For instance, a history of recurring untreated tonsillitis in childhood may suggest an increased probability of heart disease in old age.

### **2. Prediction and prognosis on the basis of medical examinations**

Medical examinations and tests are traditionally carried out when symptoms of illness occur. However, they may also be conducted with preventive intent in the form of more or less comprehensive screening of individuals ("health check") or groups with an increased average risk or of whole-population screening.

By means of various kinds of medical examinations, some involving the use of technical apparatus, it is possible not only to diagnose manifest conditions or their early forms but also to make forecasts extending in some cases far into the future. For example, a physical examination by a doctor may reveal a plethora of diseases or their early manifestations and risk factors or risk constellations. High blood pressure or high body weight, for instance, presents a particular risk of cardiovascular diseases. The results of urine tests may point to future renal pathology. Physical examinations often indicate the need for more detailed technology-based tests whereby pathological changes can be detected at an early stage. For example:

- » Imaging techniques. These include, for example, X-ray and ultrasound examinations, computerized tomography (CT) and magnetic resonance imaging (MRI). One of these tests is usually carried out where simpler methods have revealed an anomaly calling for more detailed investigation. However, X-ray and ultrasound examinations are also used for screening population groups at increased risk of a given condition. Imaging techniques can diagnose early manifestations of disorders that present an increased risk in the longer term, such as various tumours, disturbances of cardiac and vascular function, hereditary conditions such as polycystic kidney disease, congenital organ malformations or degenerative brain disorders. The prognosis depends mainly on the nature of the disease, its treatability and its current stage.
- » Electrophysiological tests. Testing of the electrical activity of the heart (ECG) is an important technique of functional diagnosis of the myocardium and its contractility. An ECG permits prognoses and determination of the longer-term risk of illness. The electrical activity of the brain is tested to monitor epileptics and their therapy (electroencephalography, or EEG). An EEG can also identify an increased risk

of convulsions, for instance after a head injury or in relatives of epilepsy sufferers.

- » Biochemical tests. A large number of biochemical parameters of the blood permit the detection of functional disorders of various organs. In addition to the testing of basal function, specific provocative tests of the functioning of certain organs may be conducted. Tests of blood chemistry are carried out not only where a specific condition is suspected but also, owing to their high diagnostic potential and low cost, for universal screening purposes. In this way, conditions such as chronic inflammations, metabolic disturbances, tumorous pathology and increased risks of cardiovascular diseases can be identified. Standard tables have been compiled for establishing, for instance, the ten-year risk of a lethal cardiovascular disorder in healthy subjects on the basis of age, sex, smoking/no smoking status, blood pressure and blood cholesterol level.

### **3. Prediction on the basis of familial history**

To identify health risks for which there are as yet no physical indications at the time of examination (prediction), genetic factors – that is, a person's constitutional characteristics – are the first line of approach. The classical method used by medical practitioners to predict health and illness is the familial history – i.e. questions about the occurrence of diseases in the family. This can be a very effective method of identifying health risks, especially if reliable information on pathology in biological relatives is available and the family is large. The familial history may constitute a screening method to predict the future course of an individual's health status.

Where certain disorders known to be hereditary have occurred in a person's relatives, this may indicate an increased risk of illness in the person himself. If the disease has a simple

hereditary pathway – that is, if it is based on the alteration of a single gene – the risk is determined by the laws of inheritance and the variation of time of onset with age. This applies, for instance, to various dominant<sup>14</sup> hereditary neurodegenerative disorders, such as Huntington’s disease, particular forms of Alzheimer’s, various forms of cerebellar and muscular conditions and peripheral neuropathies. Specific dominant hereditary forms, predominantly rare, are also known for breast and ovarian cancer, various kinds of intestinal and skin cancer, and malignant tumours of hormonal glands such as the thyroid. In such cases, a sufferer’s children and siblings have up to a 50% risk, as determined by a familial history, of developing a disease of this kind.

In other disorders occurring in familial clusters (multifactorial disorders), a simple hereditary pathway is not identifiable.<sup>15</sup> These include, for instance, hypertension, diabetes mellitus and allergies. Family clusters are also observed in psychiatric illnesses and convulsive disorders. As a rule, a person’s risk of illness depends on the number of family members proved to be affected and on their age of onset. The risk ranges from a few per cent to over 30%. More precise predictions based on the familial history alone are not usually possible.

## 4. Predictive genetic diagnosis

The familial history constitutes an indirect method of predictive genetic diagnosis. It allows predictions referred to a particular group – the group of biological relatives. Cytogenetics and molecular genetics, on the other hand, permit the direct identification of pathological gene variants. Individual predictions can be made by these techniques.

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<sup>14</sup> Dominant inheritance is characterized by occurrence in successive generations. A pathological variant of a gene inherited from one parent already suffices for the expression of the relevant character.

<sup>15</sup> Multifactorial disorders result from the interaction of a number of genetic predispositions, often additionally influenced by environmental factors.

A few hundred thousand of an individual’s gene variants are currently believed to be functionally relevant. They are responsible for all hereditary differences between people, from “normal” characteristics such as skin and hair colour to inherited diseases. Where characteristic symptoms suggest the possibility of a given hereditary disorder in an individual, genetic tests can be conducted to confirm the diagnosis.

For the purposes of this Opinion, genetic tests are defined as all tests that directly furnish information on an individual’s genetic endowment by means of the analysis of substances taken from the body. These may be tests of chromosomes (cytogenetic analysis), DNA or RNA (molecular genetic analysis) or gene products (biochemical or immunochemical assay). Depending on the presence or absence of pathological manifestations, the procedure will constitute either genetic diagnosis or a predictive genetic test. Phenotypic examinations (e.g. analysis of an individual’s externally visible characters) or imaging techniques, on the other hand, are not regarded as genetic tests, even if information on genetic characters can be derived from them in certain cases.

A predictive genetic diagnosis may be appropriate where someone is at increased risk of developing a genetically mediated disease owing to its occurrence in his family and to the laws of inheritance. If the disease has a simple hereditary pathway and genetic diagnosis shows that the subject is not a carrier of the pathological genetic alteration, the possibility of his being affected by this hereditary disorder can be definitively ruled out. If the genetic diagnosis reveals a pathological mutation, the probability of illness depends on the mutation’s penetrance.<sup>16</sup> Hence a direct genetic diagnosis, as opposed to the familial history, has the consequence that the subject is assigned to a different risk group, because he now carries not the familial average risk but the individually ascertained risk. Depending on the disorder concerned, the extremes may be 0% or 100%.

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<sup>16</sup> Penetrance denotes the probability that a genetic mutation will give rise to the relevant disease.

A predictive genetic diagnosis of this kind should be made only in the context of genetic counselling, owing to the psychological distress that may result. Practical experience shows that a high percentage of those at risk of developing treatable disorders with genetic causation, such as hereditary cancers, take advantage of the possibility of such an investigation; the take-up percentage for non-treatable disorders, on the other hand, is very much lower.

The identification of gene variants that dispose to multifactorial disorders is still in its infancy, but is likely to grow at an increasing pace in the next few years. Given the anticipated advances in genome research, the further development of genetic laboratory techniques (gene chip or microarray technology and high-throughput sequencing), coupled with improved knowledge of the corresponding phenotypic effects, will make it possible to establish individual genetic risk profiles. In the long term, these could even replace the familial history. These advances may well also permit determination of the level of the genetic dose for the relevant predisposition and prediction of the probability of the disorder becoming manifest, not only in the subjects who undergo genetic testing but also in their biological relatives. When applied in large-scale screening programmes, risk profiles of this kind could in certain circumstances provide differentiated information on the risks of illness of relatively large population groups. A predictive genetic diagnosis may sometimes precede the onset of the relevant condition by decades. However, notwithstanding diagnostic refinements, in the case of multifactorial disorders only probabilities of subsequent occurrence can be established.

Predictive genetic diagnosis is likely to make it increasingly possible to undertake specifically directed disease prevention. In the case of atherosclerosis, for example, the translation of the genetic disposition into a manifest disorder can be at least partially prevented by means of, say, diet, physical activity and drugs. After all, the manifestation of multifactorial disorders depends not only on genetic but also on external factors. In the longer

term, this principle will probably be applied systematically to a large number of different genetic predispositions.

On the other hand, the currently possible tests involving measurement of gene activity in specific tissues belong not to the field of predictive genetics but to that of prognosis. Genetic techniques of this kind can be used, for example, to characterize the degree of malignancy of tumours. These tests are directed to the genetic particularities of the tumour tissue (somatic cell genetic analysis). Unlike hereditary tumorous conditions, the far more common sporadic tumours are not associated with constitutional genetic alterations. The results may be very important both for prognosis and for decisions as to therapy.

## **5. Predictions based on lifestyle and other external agencies**

Lifestyle factors, occupational exposure, dietary habits and environmental conditions may also possess predictive relevance. For instance, prolonged nicotine use demonstrably increases the risk of cancer of the respiratory tract and urinary bladder, as well as of atherosclerosis and its sequelae such as myocardial infarction and strokes. Alcohol use extending over a period of many years carries the risk of increased doses and dependency, with a plethora of medical and social consequences. Extreme sports, which may also be associated with particular perils, can increase the risk of a variety of sequelae or even of premature death.

## D CONCERNS

The prospect of the collection and use of predictive health information in the conclusion of insurance contracts has given rise to public debates, not only in Germany but also in many other countries, in which warnings of risks and undesirable developments have been voiced and precautionary regulation is demanded. These concerns mostly relate to the possible use of information derived from genetic tests. However, they can equally well apply to predictive and prognostic health information obtained by other methods. The principal concerns are discussed in the following sections. They are evaluated in Sections E and F.

### 1. Discrimination and injustice

There is a widespread fear that predictive health information – in particular, the results of genetic tests – could be used to the disadvantage of individuals in whom future pathology is predicted in the conclusion of private insurance contracts; the concern is that these persons may be refused insurance or insured only on payment of a higher premium. The main cases of this kind reported in Germany have involved biological relatives of sufferers from Huntington’s disease, who were required to accept more onerous terms when taking out life insurance or whose proposals for occupational incapacity insurance were declined.<sup>17</sup> Such consequences are condemned as unfair and discriminatory, for two reasons. First, it is held to constitute objectively unwarranted unequal treatment if persons who are currently healthy are assigned to a different group from other healthy individuals and equated with sufferers from illness merely because, by virtue of their genes, they will or might develop a disorder at some future time. Second, it is felt to be unfair to disadvantage those affected on the grounds of genetic characteristics dealt to them

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<sup>17</sup> See Lemke/Lohkamp 2005.

by fate and beyond their control: after all, one cannot do anything about one’s genes. Again, in most cases an unequivocal prediction as to whether the pathological disposition will result in manifest illness is impossible.

However, the charge of discrimination relates not only to disadvantaging based on mere genetic risk but also to that of individuals with a manifest disorder or at greater risk of morbidity and mortality by virtue of their medical history. One criticism is, for example, that private health insurers refuse cover to sufferers from psychological conditions.<sup>18</sup> Other accusations of discrimination were made when multiple sclerosis patients were unable to obtain private health or occupational incapacity insurance.<sup>19</sup> In these cases too, critics insist that sufferers should be able to obtain insurance.

### 2. Stigmatization and impairment of self-esteem

Another fear is that persons with a predisposition to genetic disorders might be stigmatized. They could face the threat of social exclusion if deemed to be an insurance risk and thereby become as it were “branded”. Such a stigma could apply not only to individuals but also to families or ethnic groups. In the United States, for example, a warning has actually been given that Ashkenazi Jews, who exhibit an above-average incidence of certain diseases, might be disadvantaged as a group by insurers or employers by virtue of their ethnicity.<sup>20</sup>

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<sup>18</sup> According to an article in the *Süddeutsche Zeitung* of 22 August 2006 (p. 19), a survey of private insurers conducted by the Bundespsychotherapeutenkammer [Federal Association of Psychotherapists] showed that 40 out of the 48 private health insurance companies approached never accepted persons suffering from psychological conditions, while even the slightest suspicion or an increased risk of a psychological illness was sometimes sufficient for a proposer to be declined.

<sup>19</sup> As reported in the Bayerischer Rundfunk’s television documentary “Stationen” of 26 July 2006.

<sup>20</sup> Wadman 1998, Brandt-Rauf et al. 2006.

Even if a person disposed to a genetic disorder or other health risks keeps the relevant knowledge to himself, it may constitute a heavy burden. Predictive health information can shatter one's self-image and self-esteem. Awareness of the likelihood of developing a serious illness in the future may, like the diagnosis of the disease itself, destroy the normality of a person's previous lifestyle and self-perception and give rise to a sense of being "marked".

### **3. Infringement of the right to informational self-determination, and in particular of the right to ignorance**

A third charge is that, in the conclusion of insurance contracts, insurers collect health information about the proposer – that is, information regarded as especially sensitive. A particular object of criticism is that in certain circumstances information on the future of a proposer's own health is forced on him, and that he experiences this information as burdensome and would rather not have it. This is held to infringe the proposer's personal rights – in particular, the right to informational self-determination and the right to ignorance.

Anyone wishing to take out private health, life or occupational incapacity insurance must indeed disclose health information that is confidential and belongs to the individual's private sphere, the protection of which is a fundamental right. As a rule, people would rather keep it to themselves if they are HIV-positive, have a brain tumour or are undergoing treatment for addiction; however, under current law they must disclose such information to an insurer before a contract is concluded. An even greater threat to the private sphere arises if insurers are permitted actively to demand tests or examinations to determine whether proposers carry a higher than normal genetic risk of developing certain disorders. Such tests not only make information which the proposer himself already had available to the insurer, but also, in particular, generate new information that no

one – not even the proposer – possessed before. Critics maintain that such thoroughgoing scrutiny gives rise to the "completely transparent" proposer. The main consideration, however, is that predictive health information might dramatically alter a subject's lifestyle and vision of life. Not everyone wishes, or has the inner strength, to look into the future and plan for the fate, which he carries within himself, of developing a serious and perhaps incurable illness. Many will prefer ignorance, or would rather not know everything that they could know. It is held that such an option should be respected as an expression of a person's individual way of planning and organizing his life. Those concerned invoke the right to ignorance which protects the individual from having predictive health information forced upon him. Nor can a proposer be sufficiently protected if, with his consent, the insurer keeps the test results to itself and merely draws certain conclusions from them for the purposes of the contract. These conclusions – for instance, a premium loading as a condition of the contract – would make it fairly obvious to the proposer that he presents an above-average health risk.

Where insurers, in assessing a proposer's health, ask for information on the occurrence of certain disorders in his family, this too raises issues of personal rights – in particular, of the fundamental right to informational self-determination and of protection of the private sphere – which in this instance also affect the personal rights of third parties. The question is whether proposers – and insurers – should be able to dispose of this knowledge with a similar degree of freedom to that applicable to information which concerns only the proposer himself. Such issues also arise if genetic data are obtained by specific tests as a part of the process of health assessment. Such data generate information not only about the proposer himself but also about his biological relatives.

## 4. Avoidance of medically useful predictive tests

Another fear is that, by virtue of the possible social or economic disadvantages of predictive health information, individuals might not allow such information to be gathered even if it is medically useful, for instance because it can be applied for preventive purposes.

The reason for this concern is that, under current law, information about particular health risks in a proposer which is known to the proposer himself must also be disclosed to the insurer. In genetic counselling, doctors as a rule therefore point out prior to the conduct of genetic tests that, in the event of a positive result, patients might face problems in the conclusion of new insurance contracts and should therefore consider in advance whether to take out additional cover. People occasionally decide not to undergo predictive genetic tests so as not to prejudice future insurance cover.

Whereas these issues are particularly problematic owing to the long time spans involved, they are not confined to the situation of genetic tests. Many medical examinations can yield results that indicate a particular risk of illness and impair insurability if they are required to be disclosed before conclusion of a contract.

## 5. Risk equivalence instead of solidarity

A final charge is that a decision on a health insurance contract or the calculation of insurance premiums on the basis of genetic risks is irreconcilable with the ethical precept of solidarity with the sick, the weak and the imperilled. In a community based on solidarity, it is held, everyone is entitled to appropriate medical care, and the relevant conditions should not be made dependent on the probability of developing diseases in the course of life – that is, on good or bad fortune in the “genetic lottery”.

In addition, as scientific and technical advances increasingly facilitate the prediction of the risks and courses of illness, it is considered that private health insurance will be driven to its limits, given that its business principle is based on the balancing of uncertainty and the forecasting of risk. Hence the principle of solidarity can be the only long-term, sustainable basis for a fair healthcare system. This critique is levelled not only at differentiation by the risk of illness but also at differentiation by disorders that have already become manifest. It is stated to be unfair and inconsistent with the solidarity principle to impose the additional burden of increased insurance contributions on the sick or those presenting increased health risks, or to exclude such persons from health insurance cover.

## **E PREMISES AND PRINCIPLES OF EVALUATION**

### **1. Background: the duality of the solidarity model and the contract model in the German insurance system**

For an evaluation of the potential problems arising out of the use of predictive health information in the conclusion of insurance contracts, a distinction must be made between forms of insurance based on the solidarity model and on the contract model respectively.

#### **1.1. Solidarity model**

In Germany, the solidarity model is the basis, in particular, of the statutory health insurance scheme, in which nearly 90% of the population are enrolled (see Section B 2.1.). Inclusion in the scheme and the level of contributions payable are independent of the probability of a claim. Persons who are already ill or disabled or old are more likely to claim on their insurance, and to claim more benefit, than the healthy, the able-bodied and the young, but all are insured on the same terms without assessment of risk. This ensures that the healthy provide fully for the sick.

The balancing of solidarity between the healthy and the sick in the system of statutory health insurance is supplemented by a balancing of solidarity according to income level: higher earners pay higher contributions than the less well paid. Another element of solidarity is that non-earning children and spouses are covered without the payment of additional contributions.

However, solidarity with the sick is not unconditional even in the solidarity model. Those requiring cover must themselves make a reasonable contribution to the cost. It would be incompatible with this model if one had the option of not taking out

insurance until one became ill – that is, of being able, in the event of illness, to claim benefit from the solidarity community without previously having paid contributions of one's own. To preclude such “free-rider” situations, the law requires the majority of the population to take out cover with one of the statutory health insurance funds for the financial consequences of illness, as well as under the statutory pension insurance scheme for permanent disability.

The compulsory nature of the insurance at the same time ensures that the entire group of those insured under the statutory scheme reflects, at least approximately, the average distribution of “bad” and “good” health risks in the population, because no one can be excluded on the grounds of poor health prospects, while, conversely, no one can dispense with insurance or negotiate lower contributions on the grounds of a good health prognosis.

In the solidarity model described above, the problems set out in Section D cannot arise. However, private insurance schemes are not modelled along the same lines as social insurance, but always conform to a model that involves a differentiation by health risks on conclusion of a contract and compels neither proposers nor insurance companies to enter into a contract.

#### **1.2. Contract model**

This model is based on the principle of freedom of contract, which implies that both insurers and proposers can choose freely with whom they wish to conclude a contract of insurance and negotiate on what it should cover. This means that insurers are not obliged to accept a proposal, and can themselves determine the scope and conditions of the cover they offer; equally, proposers can choose whether or not to take out insurance, and can opt for whichever insurer can provide them with the desired cover on the most favourable terms. As a rule, this is the model adopted by private health, life, occupational incapacity and pension insurers.

The structural characteristics of the model include differentiation of contractual terms according to the individual risk presented by the proposer. Insureds are supposed to contribute by risk-equivalent premiums to the pool of funds which they wish to cover any claims they make. Anyone who is already ill or old at the time of conclusion of a contract and therefore presents a high risk must pay a higher premium than someone who is healthy and young and consequently constitutes a low risk. Alternatively, an insurer may exclude a given risk from cover or decline to conclude a contract at all.

Even in the case of an insurance scheme to which the insureds contribute risk-equivalent premiums, the healthy in practice pay disproportionately more than the sick. Anyone who remains healthy and does not claim on the insurance must nevertheless pay the agreed premiums. However, in this case the insureds in each risk class constitute a group whose premiums fund the cover for claims made by its individual members. This approach is very different from the solidarity of the healthy with the sick and of high earners with low earners as implemented in the social insurance system. In particular, it is a fundamental principle of the contract model that risks already existing or identifiable at the time of conclusion of a contract are not borne jointly by the insureds.

Insurance schemes that conform to the contract model are based not on any notion of social justice, but on an idea of contractual fairness according to which proposers with the same risk profile receive equal treatment in terms of contractual conditions, whereas proposers with different risk profiles are treated differently. The more probable the occurrence of a claim and the greater the resulting expected charge on the community of insureds, the higher will be the premium payable for acceptance of the risk. Hence a proposer who has already had a myocardial infarction cannot expect to be insured on the same terms as one who is and always has been healthy.

If premiums are to be differentiated according to equivalence of risk and if the insurer is to be free to decide where ap-

plicable not to enter into a contract because the risk is excessive, the risk presented by a proposer must be assessed. The proposer must therefore accept an encroachment on his personal rights: he must disclose information about existing and anticipated medical conditions. However, the collection and use of such information are inherent in the logic of the contract model of insurance.

Risk assessment is intended not only to ensure that the burden of premiums is distributed fairly among the insureds, but also, in particular, to combat the danger of antiselection, in which the proposer seeks to take unfair advantage of the insurance company. Antiselection occurs if a proposer intentionally brings about a disproportion between risk and premium because he himself is aware of a particularly high risk but the insurer is not. The proposer can then deliberately choose a very high level of cover and nevertheless pay only the premium corresponding to an average risk. If this situation is sufficiently widespread, it can threaten the profitability of a private insurance company and hence its capacity to perform its function effectively, because it will face claims not covered by the agreed premium income. A blatant example would be if someone who knows that he will die soon takes out a life insurance policy under which a large sum is payable to third parties specified in the contract as beneficiaries or to whom entitlement to payment has been assigned. A comparable situation in the field of health insurance would be if a person deliberately failed to insure against illness, thus saving the premium, but relied on obtaining insurance at a standard premium level in the event of illness. Without a risk assessment, the community of insureds would in this case have to meet the cost of that person's illness and ultimately also that of his failure to provide in due time for this situation, without having received a premium in line with the risk in return. Hence another purpose of the risk assessment is to achieve contractual equality by contributing to equality of information on risks between proposers and insurers.

For risk assessment, proposers are asked, before conclusion of a contract, for information about medical conditions or risks

relevant to the contract. Indeed, these must be disclosed even if the proposer is not explicitly asked to do so. Another requirement in some cases is that doctors who have treated the proposer be released from their obligation of secrecy so that they can be questioned by the insurer about medical findings relevant to the risk to be assumed. Less frequently, insurers require the prospective insured to undergo a special medical examination as a condition for conclusion of a contract.

## 2. Should the contract model be departed from?

Risk differentiation and assessment, and hence also the collection and use of information that permits prediction of the risk of illness in a proposer, are intrinsic to the logic of a system of insurance based on the contract model. The political option exists of avoiding the associated problems by choosing an alternative system whereby private insurance is brought into line with the solidarity model. This solution has recently been adopted in some European countries for health insurance.<sup>21</sup> It is not yet clear whether a similar approach will eventually be adopted in Germany. Moreover, the relevant debate concerns only health insurance, and not other forms of private insurance, such as

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<sup>21</sup> For instance, everyone resident in Switzerland is required to take out basic health insurance. The conclusion of this compulsory basic insurance must not be refused to anyone who applies for it and who is resident in the territory covered by the health insurance company (which is compelled by law to enter into a contract). The premium is independent of income, age and sex, but varies from canton to canton and between insurance companies. Adult insureds must accept a statutory excess for the cost of outpatient treatment and medicines. Tax-funded grants subsidize the premiums of low-income persons and families. A system of financial equalization that allows for differences in the structure of the insureds (age and sex) is applied between the various providers of compulsory health insurance. Cover for benefits not provided by the system of compulsory health insurance can be obtained by supplementary private insurance. Insurers providing this supplementary cover are not legally compelled to enter into contracts; risk assessments are carried out (European Observatory on Health Care Systems 2000). All persons resident in the Netherlands are also required to have basic health insurance cover, which substantially corresponds to that provided by the former

life insurance or occupational incapacity insurance. For this reason, the issue still remains of whether and to what extent, in the conclusion of private insurance contracts, restrictions on insurers' freedom of contract are justified or indeed essential in order to protect proposers from discrimination, disadvantage and excessive scrutiny.

## 3. An approach within the contract model: protection of the weaker party and fair balancing of contractual interests

It is an accepted principle of our legal system that limits to the freedom of contract must be imposed if, in commercial relationships, flexibility of action and the power to determine the content of a contract are distributed very unequally between the parties. Such limits are required to protect the weaker party from being overwhelmed by the stronger. They do not signify a departure from the principle of freedom of contract, but instead create conditions whereby the structurally inferior party too can make effective use of his freedom of action and a fair balancing of interests in the contract can be expected.

Structural inferiority arises consistently in the conclusion of a standard insurance contract. The proposer cannot negotiate on a basis of equal rights. He is confronted with a powerful

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statutory health insurance scheme. Insurance companies are legally compelled to enter into contracts. As in Switzerland, premiums are set independently of income, age and sex, and vary from company to company and in accordance with the chosen scale (for example, according to the level of excess). Low-income persons and families receive state assistance with premiums. Unlike the situation in Switzerland, employed persons must pay not only the basic premium but also 6.5% of their income in health insurance contributions (employers do not contribute). The rate for certain groups, such as the self-employed or the retired, is 4.4%. A system of equalization by risk structure between the insurance companies takes account of age, sex, use of prescribed drugs and certain diagnosis-based groups. As in Switzerland, cover for benefits not included in the basic system can be obtained from companies providing supplementary private insurance, which are not legally compelled to enter into a contract and which make risk assessments (Bartholomé/Maarse 2006).

partner who determines in advance the terms of the insurance, down to the very text of the forms constituting the contract. In the usual run of insurance contracts, at any rate, the proposer is in by far the weaker position. In formal terms, admittedly, he is free to accept or refuse an examination for the purpose of predicting illness if this is demanded by the insurance company. However, he must then expect that a refusal will result in failure to conclude a contract, thus leaving him without the desired cover. Given that terms in the insurance sector are substantially the same, he is unlikely to succeed by turning to a different insurance company for cover. In such a situation, the only possibilities open to the proposer are to accept the thoroughgoing scrutiny with its potentially burdensome consequences, to agree to unfavourable special terms of insurance, or to forgo a policy altogether. In such circumstances, insurance companies must accept that they cannot impose onerous contractual terms on proposers without restriction, on a take-it-or-leave-it basis. Nor must they circumvent justified restrictions on their freedom of action by declining to conclude a contract if the proposer does not accept their terms.

Hence the decisive issue for evaluation of the use of predictive health information in the field of private insurance is what restrictions on insurers' freedom of contract are appropriate in order to eliminate the structural inferiority of potential proposers and to ensure a fair balance of contractual interests.

## F IMPLICATIONS FOR THE FORM OF CONTRACTS

### 1. Protection from “discrimination”

It is not uncommon for actuarial risk differentiations to coincide with distinctions according to criteria deemed in the anti-discrimination laws to be impermissible, such as those of sex, age, ethnicity or disability. Such convergence is the basis of criticisms that reject risk differentiation as impermissible “discrimination” and hold that, if it is not in any case prohibited by the Equal Treatment Law or directly by Article 3 of the Basic Law (Constitution), it ought to be banned by additional provisions in the anti-discrimination legislation.

To ensure a balance of contractual interests when an insurance policy is taken out, it is appropriate to protect proposers from discrimination. However, the fact that the risk differentiation practised by the insurance industry has the effect that proposers who are ill or disabled, have had a serious illness or whose genetic endowment indicates the likelihood of the onset of specific disorders in the future are treated differently from healthy proposers, does not in itself suffice to constitute “discrimination” as defined in the anti-discrimination legislation. Discrimination can be deemed to exist only if there is no objective reason for unequal treatment or for disadvantaging.

In the case of a private contract of insurance, however, there are objective reasons for the unequal treatment of proposers. Those concerned are treated unequally not because they are disabled, have a given genetic endowment, a given sex or a given ethnicity, but because they present an above-average risk to the insurance company and will therefore probably claim higher financial benefits from the company than other insureds. This is neither unfair nor arbitrary provided that the risk differentiation is actuarially correct – that is, if the characteristics adduced for it really do have predictive value in terms of claims expectancy.

For this reason, the Equal Treatment Law that took effect in Germany in 2006 does indeed permit differentiation on the grounds of age, sex or disability if it is based on a risk assessment verified actuarially and by statistical data. From this point of view, it is misleading to describe this as “genetic discrimination”. What would, on the other hand, constitute discrimination would be the application for the purposes of risk differentiation of parameters that lack prognostic value with regard to the insurance company’s future claims expectancy.<sup>22</sup> Although the fact that risk differentiation places the relevant proposers at a disadvantage in terms of access to insurance constitutes a social problem, it must be distinguished from discrimination.<sup>23</sup>

## 2. Private insurance as a necessity of life

A consequence of risk differentiation might be that persons who are sick or disabled cannot obtain private insurance at all, or can secure cover only on payment of a higher premium. In the field of health insurance in particular, hardship may be caused, for example, if a person is refused health insurance by a private company owing to an existing medical condition or a particularly high risk of illness and is not eligible to join a statutory health insurance fund voluntarily. That person is then ultimately left with no possibility of obtaining cover for the financial consequences of illness. This consequence is condemned as unfair and contrary to the principle of solidarity. Indeed, what underlies the charge of “discrimination” is often the view that,

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<sup>22</sup> In many of the cases of “genetic discrimination” so far reported, insurers have interpreted genetic information wrongly or differentiated on the basis of information with no prognostic value (e.g. Billings et al. 1992). This has been characterized as “bad business” (Hellman 2003); such errors call not for rectification of the principle of risk differentiation, but for its correct application.

<sup>23</sup> However, certain provisions of the German anti-discrimination legislation do preclude on social grounds some forms of risk differentiation that are thoroughly justified actuarially. For instance, under the Equal Treatment Law costs incurred in connection with pregnancy and maternity must on no account (or must no longer) give rise to differences in premiums or benefits.

where private health insurance companies differentiate by risk classes in the conclusion of contracts, this is inconsistent with the requirements of social justice and tantamount to refusal of social solidarity.

For a person to be left without any form of health insurance is unsatisfactory. He must pay the costs resulting from his illness himself as long as he can afford to do so; only when this is no longer possible can he expect to receive social welfare benefits. This means that the system of social security does not protect him from impoverishment due to illness. However, the question is whether this constitutes a gap in the social safety net that should be filled by compelling private insurance companies to forgo risk assessment and differentiation. The answer depends on whether, and if so to what extent, it is appropriate for insurers to be expected to do this in the context of a fair balancing of contractual interests.

In our society, certain kinds of insurance represent elementary necessities of life. This is unequivocally the case with health insurance. The same applies to some extent also to occupational incapacity insurance and perhaps to life insurance with the aim of providing for surviving dependants. Insurance of these kinds is intended to protect the insured from financial ruin due to illness or misfortune, and is indispensable for many. Where the social state does not provide for these eventualities but instead leaves such cover to the system of private insurance, it must necessarily be recognized that proposers have a justified interest in unrestricted access on as favourable terms as possible to the cover they require, and that this must be taken into account in achieving a fair contractual balance between the parties. This is particularly so because insurance companies often ascribe general-interest functions to the policies they offer and portray them as a complementary pillar or alternative to the state system of social security.

However, allowance for the justified interests of proposers cannot, on the basis of the contract model, extend to the point that differentiation by risk is totally precluded, so that every

proposer has to be insured without risk assessment. This could be the case at most if restrictions on insurers' freedom of contract were derived from social-policy objectives and notions of social justice. If the precept of a fair balance of contractual interests is taken as the criterion, the interests of insurers in the effective functioning and profitability of private insurance must equally be recognized as justified and be taken into account. But these interests would be disregarded if, in the case of private insurance contracts based on the principle of freedom of contract, insurers were required to forgo risk assessment, whereas proposers could choose whether or not to take out insurance. In this situation, an insurer could not calculate risk-equivalent premiums. It could base its calculation on the average population risk, but would then have no control over whether its insured risks corresponded to the average for the population. It is in fact much more likely that if insurers were required to conclude contracts without risk assessment, this would constitute a substantial incentive for many people not to take out health insurance in their "healthy" years, but to delay doing so until illness threatened or they actually fell ill. This would place the insurance companies at a disadvantage. Admittedly, insurers could in theory allow for this risk of antiselection in setting the level of their premiums – but that would make insurance more expensive and encourage further antiselection. The result would be a downward spiral that would render insurance unattractive and ultimately pointless.<sup>24</sup>

### 3. Protection of the right to informational self-determination

Risk assessment encroaches on a proposer's right to informational self-determination. Proposers must disclose to the insurer in-

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<sup>24</sup> Antiselection could theoretically be prevented by making insurance compulsory for proposers too. However, this would merely be to seek a solution outside an insurance system based on the principle of freedom of contract.

formation about their state of health and future health prospects which they would normally keep to themselves and which is protected in law from improper third-party access by data protection rules and by obligations of confidentiality underpinned by penal sanctions. In certain circumstances, proposers must also allow such information to be collected by means of examinations and tests carried out at the insurer's instigation. The fact that a proposer consents to the risk assessment does not, having regard to the structural imbalance of power in the steps involved in the formation of the insurance contract, constitute sufficient justification for the resulting encroachment on his personal rights. For a fair balance of interests between the two contractual parties, such an encroachment must be necessary and appropriate. Furthermore, the more extensive the encroachment, the greater the burden of justification will be.

The encroachment on a proposer's right of informational self-determination is even greater if he is required not only to disclose information that he himself possesses, but also to release his doctors from their obligation of secrecy so that insurers can obtain information from them or verify the information provided by the proposer. The proposer thereby forfeits control over what information is furnished. However, the greatest encroachment occurs if the proposer is required to consent to an examination of his state of health and future health prospects by the insurer. Such an examination can reveal information about the threat of future pathology or existing illnesses of which the proposer has hitherto been unaware and of which he might well not wish to become aware. Ignorance will be preferred mainly if an illness thereby detected or predicted is incurable. The revelation of his risk, in such circumstances, will leave the proposer with hardly any scope for action, but may well plunge him into despair. There is no doubt that proposers have a legitimate interest, protected by the right to ignorance, in such knowledge not being forced on them.

Here too, however, the balancing of interests between the parties to the contract should not result in an all-or-nothing

solution. The counterpart of the proposer's right to informational self-determination is the insurer's interest, which is equally legitimate in the context of the contract model, in charging risk-equivalent premiums and protecting itself from antiselection.

## **4. Detailed considerations on the balancing of interests: restriction of the insurer's right of questioning and examination and of the proposer's duty of disclosure**

### **4.1. The practice of insurers: limited risk assessment and risk differentiation**

In practice, insurers make only very limited use of the possibilities of risk assessment and differentiation that are theoretically at their disposal. In the "standard" insurance situation, they do not require proposers to undergo a medical examination on behalf of the insurance company. The standard situation is defined as one that does not involve unusual benefits, such as conspicuously high sums insured under a life or occupational incapacity insurance policy or waiving of the usual waiting periods before commencement of cover in private health insurance. Insurers then primarily want to know what the proposer himself knows. A medical examination or a request for information from the proposer's doctors may be required only if the details given by the proposer indicate the existence of a particular risk, such as the concrete suspicion of an existing disorder. On the other hand, insurers do not seek to establish as exact as possible an objective risk profile of the proposer for the purposes of risk differentiation, in order themselves to form a comprehensive impression of his state of health and health prospects independently of what the proposer himself knows. The member companies of the Gesamtverband der Deutschen Versicherungswirtschaft e. V. [German Insurance Association] have made a voluntary formal

commitment not to require the conduct of predictive genetic tests for predispositions to future diseases; this moratorium expires on 31 December 2011.<sup>25</sup> In practice, they also waive the right to demand examinations and tests that might reveal other risk factors in a proposer, such as an existing medical condition, of which he is as yet unaware. There is thus at present no evidence, in the practice of insurers when concluding contracts, of a trend towards the "completely transparent" proposer.

There are various reasons for this reticence. One is the cost of a medical examination. This must be borne by the insurance companies and would assume substantial proportions if examinations were carried out without the concrete suspicion of an increased risk – that is, on a routine basis for all proposers. The waiving of the collection of predictive genetic data is facilitated by the fact that the relevant tests are not widely conducted, so that there is little danger of proposers exploiting their own knowledge of a risk obtained from tests undergone voluntarily to the disadvantage of the insurer. It therefore does not seem necessary for the insurer to protect itself from antiselection by itself requiring an examination to verify that the proposer has correctly and fully disclosed his own knowledge of risk. A part is surely also played here by the political pressure generated by the public debate on the possible limitation of the use of predictive genetic information for insurance purposes. This pressure is no doubt the reason why, in the moratorium, the insurance companies have waived the right not only to collect but also to use predictive genetic information obtained by the proposer from tests and examinations

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<sup>25</sup> "The insurance companies agree not to make the conduct of predictive genetic tests a prerequisite for the conclusion of a contract. They further declare that for private health insurance and for all types of life insurance, including occupational incapacity, permanent disability, accident and dependency annuity insurance up to a sum insured of less than 250 000 euro or an annuity of less than 30 000 euro, they will not require their clients to submit to the company any predictive genetic tests conducted voluntarily for other reasons before conclusion of the contract. Within these limits, the insurers waive the precontractual obligation to disclose risk-related circumstances provided for in the Insurance Contracts Law" (Gesamtverband der Deutschen Versicherungsunternehmen e. V. [GDV] [German Insurance Association] 2004). On the waiving of the requirement to disclose the results of genetic tests, see Section 4.6.

undergone voluntarily (see Section 4.6.). A further reason for the insurers' reticence concerning the collection of information on risk factors of which the proposer himself is unaware is, however, no doubt that it might meet with reservations on the part of proposers and thereby be detrimental to business in the sector.<sup>26</sup> Uncertainty as to whether one is more likely to fall ill or to die sooner than others is a typical risk for which insurance is taken out. If an insurer requires proposers to have their risk profile established and makes the conclusion of a contract and the level of premium dependent on the result, it is excluding precisely this uncertainty from the cover provided. It may then perhaps be able to offer more favourable terms to persons with a favourable risk profile, but will then lose the segment of the market composed of clients who wish to have this uncertainty not resolved but insured. These will prefer an insurer that includes this cover.

The fact that insurers in practice – whether voluntarily, for reasons of commercial calculation or owing to political pressure – make only limited use of the possibilities of risk assessment and differentiation is not immaterial to the evaluation. The limitations on risk assessment that an insurer can be called upon to accept for the purposes of a fair contractual balance depend not least on whether these would call into question the effective functioning and profitability of insurance and give rise to appreciable antiselection. Insurers' practice proves that scope for limitations on risk assessment certainly exists in this connection.

Against this background, the following sections set out in detail the restrictions deemed necessary on the insurer's right to question and to demand examinations and on proposers' duty of disclosure. It is essential to ensure that the unequal negotiating power of the contractual parties does not work to the disadvantage of proposers. The following considerations deal initially with "standard" insurance situations that do not involve unusually high agreed benefits. Insurance contracts providing for cover over and above "standard" levels are discussed in Section 5.

## **4.2. Prohibition of tests and examinations for identification of a risk of future disorders of which proposers are unaware**

For the purposes of risk assessment, insurers should not be permitted to require the conduct of genetic tests for the identification of genetic characters and other tests and examinations for the prediction of diseases that will probably affect a proposer in the future.

The decisive element here is not that such tests and examinations relate to the future health of the proposer. Any risk assessment looks into the future of the proposer's health. From the point of view of the insurer, it is irrelevant whether what is to be identified in the proposer is an existing or earlier disorder or the genetic predisposition to a disorder. All these factors together are pertinent to the risk assessment only because they permit predictions as to the occurrence or reoccurrence of specific disorders in the future. The crucial point is that these tests may force on the proposer information that he would rather not have. Proposers have a legitimate interest, which is protected by the right to ignorance, in not being confronted against their will with the knowledge that they can expect to develop a serious, incurable disease. They further have a legitimate interest in the non-collection in the first place of information that may not only be of no use to them but in certain circumstances also have adverse social consequences.

The current practice of risk differentiation proves that insurers can manage without such predictions. There is no evidence that future market pressures will necessitate an intensification of risk differentiation so that better terms can be offered to proposers with a more favourable genetic endowment. The vast majority of proposers will always prefer insurance in which the uncertainty about their future health prospects is not resolved before the conclusion of a contract but is instead included in the cover. Again, it is possible even without thoroughgoing

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<sup>26</sup> Breyer/Bürger 2005.

precontract scrutiny of a proposer's health to observe the principle of contractual fairness whereby lower-risk proposers with better health prospects should enjoy more favourable contractual terms. For instance, private health insurance companies often grant premium refunds if no claims have been made.

Nor can it be argued that genetic tests must be permissible to enable insurers to protect themselves from antiselection by proposers who are themselves aware of their genetic risk factors. Insurers' right to question and proposers' precontractual duty of disclosure already serve the purpose of ensuring parity of information when a contract is concluded (see Sections 4.4. ff.). These instruments cannot guarantee that proposers will always furnish complete or correct information. They are nevertheless plainly considered by insurers to suffice for keeping the danger of antiselection within bounds. That is the only possible reason why they do not in practice consistently require a precontractual medical examination to assess the risk independently of the information supplied by proposers.

It can therefore be assumed that the waiving of the collection of information on proposers' health prospects, in accordance with current practice, is not detrimental to the effective functioning and profitability of private insurers. In that case, precedence should be accorded to the interest of proposers in limiting encroachment on their private sphere and in preserving their right to ignorance.

The arguments in favour of a prohibition of genetic tests directed towards the identification of a risk of future pathology of which a proposer is unaware apply equally to other (non-genetic) medical examinations carried out for the same purpose. The critical point for the proposer here is that he must relinquish his right to ignorance and allow himself to be confronted by unexpected predictions of illness. It is immaterial how such a prediction is arrived at and whether a given examination or test will in addition have a stigmatizing effect. For the purposes of contractual balancing of interests, it makes no difference whether a molecular genetic test or an ultrasound examination is responsi-

ble for forcing on the proposer information concerning, for example, future kidney failure due to polycystic kidney disease.

It is therefore insufficient for the debate on possible regulation to be confined to genetic tests. All test and examination procedures conducted for the purpose of determining the risk of future pathology are equally detrimental to the interests of proposers set out above. In all such cases, priority should be accorded to the proposer's right to ignorance. For this reason, tests and examinations to identify a risk of future pathology of which proposers are unaware should not be permitted.

### **4.3. Prohibition of medical screening for the diagnosis of existing pathology of which proposers are unaware**

A proposer's interest in not being confronted, through an insurer's risk assessment, with unexpected information that might interfere with the way he lives his life is affected not only by the prediction of future pathology but also by the diagnosis of an existing disorder. In the case of existing medical conditions too, the forcing of information on a proposer is not necessarily compatible with his wishes and interests; this applies, for example, to the diagnosis of an incurable and terminal malignancy or of an untreatable neurodegenerative condition that will condemn the patient to a lingering death.

Those concerned must be able to decide for themselves whether and when to seek such information. The right to informational self-determination also includes the option not to go to the doctor and to wish not to know if one is ill. Although a right to ignorance can never prevent those concerned from eventually being confronted with the distressing truth about their state of health, this does not justify leaving it to the insurer's risk assessment to determine whether this truth is revealed.

The only situation in which this might not apply would be if medical examinations for the diagnosis of existing pathology

were indispensable to insurers. However, this is not the case at least with “standard” insurance contracts, as is borne out by the fact that such examinations have hitherto been used either not at all or quite unsystematically.

For this reason, it should also not be permissible, in risk assessment, to demand the application of medical screening methods with the aim of detecting the presence of an unspecified illness in a proposer unless there is a concrete indication of pathology. This is a far-reaching restriction. It would not only prevent insurers from requiring proposers to consent for the purposes of risk assessment to, for example, computerized tomography to search for hitherto undetected tumours – something that would in any case not be contemplated by an insurer for reasons of cost alone. It would also preclude laboratory diagnosis, which might well be very cheap and is likely to be increasingly accurate in the future, whereby screening for a large number of diseases can be carried out systematically by means of blood tests. For consistency, it would then also be necessary to ban, for example, blood pressure measurements taken without a good reason but merely on suspicion. This is admittedly a medical routine that is virtually taken for granted, mainly on historical grounds and because it is so simple. However, as a method of screening for “concealed” pathology in a proposer, it is analogous to a CT scan conducted for no specific reason, and should therefore similarly have no place in an insurer’s risk assessment.

To sum up, the following considerations should apply to medical examinations carried out for the conclusion of private insurance contracts. It should not be permissible for insurers to require tests and examinations to screen for risk factors of which a proposer himself is unaware. This applies both to current illnesses from which a proposer may be suffering and to characteristics suggesting the likelihood of a given disorder in the future. For this reason, the application of medical screening methods, whether genetic or non-genetic, for the purposes of risk assessment should not be allowed. Insurers should only be permitted to require a proposer to undergo a medical exami-

nation with a view to obtaining additional information for risk assessment purposes if there are concrete indications of a risk calling for diagnostic confirmation, for example on the basis of the information given by the proposer in the proposal form. These restrictions on the right to require examinations should apply to “standard” insurance contracts. They in any case substantially correspond to the practice of insurance companies and do not impose an unacceptable burden on them. It seems appropriate to make these restrictions compulsory, in order to protect proposers from excessive scrutiny of their person and to guarantee their right to ignorance.

#### **4.4. The insurer’s right to question**

The right to question proposers about their medical history and existing medical conditions, complaints or disabilities is the most important way – and indeed, if medical examinations for risk assessment are substantially precluded, often the only way – in which insurers can obtain information on the risk factors present in a proposer. Since the questioning of proposers is as a rule not a consequence of findings that need to be confirmed, but takes place in accordance with a standard pattern, and hence without any specific suspicion – as it were, at random – it too actually constitutes a screening method for risk factors. However, it differs crucially from the medical screening methods discussed in the previous sections and found to be impermissible. The proposal form which insurers require proposers to complete is unlike a medical consultation in that its purpose is not to arrive at a diagnosis of illness on the basis of information given by the patient on his condition, pains and complaints and of his medical history. It is intended to inform the insurer about diagnoses, known to the proposer, which have been made in the past or which are self-evident because the pathological quality of a complaint is obvious. With regard to the right to question, the proposer’s level of knowledge is both the source

and at the same time the limit of what the insurer can learn about the proposer's present health and health prospects. The proposal form does not examine the proposer, but records his level of knowledge. In that respect it is not a medical screening method. Where proposal forms include questions directed more towards diagnosis than towards the communication of information about a diagnosis that is already clear, these should be deleted (on this point, see Section 4.5. on the familial history).

The fact that the proposer must disclose his own knowledge of his state of health to the insurer represents a comparatively minor encroachment on his personal rights, and one that is totally justified by the purpose of the contract. However, to ensure protection of the right to informational self-determination, strict limitation to a specific purpose is essential: for the conclusion of an insurance contract, the information that may be collected is confined to that necessary for fixing the terms of that contract.

In the conclusion of a contract and in determination of the premium level, the insurer has a legitimate contractual interest in applying a differentiation in accordance with the risk presented by the proposer to the insurer (in accordance with the principle of risk equivalence). The risk differentiation can be limited by prohibiting insurers from requiring certain medical examinations for the collection of risk information, but these cannot be completely ruled out if the system of private insurance is to be retained. However, that would in practice be the situation if insurers were not allowed to use information already in the possession of a proposer for risk differentiation. From this point of view, the insurer's right to question is essential to the contractual purpose of private insurance.

Again, contractual fairness demands that parity of information about relative health risks is achieved between the parties. Only then can an insurer prevent proposers from exploiting their superior knowledge to obtain advantages for themselves at the expense of the insurer – and of the other insureds.

The counterpart of the insurer's right to question is the proposer's contractual obligation to answer the questions fully and

truthfully. For this reason, proposers must accept the disclosure of their own knowledge of their risk factors to the insurer and the possibility that it may result in the contract being declined or in the charging of a higher premium. This consequence has given rise to criticism of insurers' right to question. The concern is that medically indicated examinations will be avoided because they might yield results with adverse implications for an insurance contract if they had to be revealed to the insurer. This concern has been voiced primarily in relation to genetic tests (see Section D). However, the problem arises analogously with all other diagnostic tests and examinations. Anyone who undergoes a cancer screening test must allow for the possibility of obtaining a result that might impede access to private health, life or occupational incapacity insurance. It is a moot point whether this problem actually does deter many people from undergoing reasonably indicated medical examinations and treatments. At all events, in a system of private insurance the issue cannot be avoided by abolishing insurers' right to question.

#### **4.5. Questions about illnesses in the family (familial history)**

Questioning about illnesses in the family (the familial history) is one of the classical medical procedures used for various purposes, often on a routine basis. Its aim is to arrive at a more precise diagnosis in the case of unclear findings. This is commonly also the purpose of a familial history required by an insurer, where it is necessary to establish whether medical findings or complaints declared by a proposer when so asked are relevant to the risk assessment. In this case too, the aim is to arrive at a more precise diagnosis on the basis of existing results that are known to the proposer. In this situation, the taking of a familial history should be permissible.

However, the familial history does not always serve the purpose of diagnostic verification of existing medical findings. It

can also be used even in the absence of such findings to determine whether the proposer is at risk of developing any disorders. That is usually the aim of insurers in including questions about illnesses in the family in the pre-contract proposal form. It seems doubtful whether the familial history in this case is covered by the insurer's right to question.

The crucial objection here is not that the familial history affects the personal rights of third parties because information on the state of health of biological relatives is collected in order to obtain indications of risks existing in the proposer. The proposer is asked about his own knowledge of illnesses in the family; he is in possession of data that belong to him personally. He can use these data in his own interests without regard to the personal rights of his relatives, for instance to facilitate diagnosis when medical tests on himself have not yielded a clear result. He should likewise be able to do this in order to satisfy precontractual obligations of disclosure to the insurer. The personal rights of family members are protected by the strict limitation of purpose that must be observed under the data protection rules. The insurer may use the information communicated only for the purposes of concluding the contract with the proposer, but on no account in connection with possible contracts with the family members.

Another reason is in fact decisive. A familial history not required on the grounds of existing medical findings in a proposer can have the effect of forcing on him previously unsuspected information concerning his personal health risks. For example, he might realize for the first time from the insurer's reaction that certain disorders that have occurred in his family are hereditary and might therefore also affect him. This would constitute an encroachment on his right to ignorance. If a proposer comes from a large family and is well informed about his relatives' state of health, the familial history may constitute quite thoroughgoing scrutiny of the proposer in terms of his risks of illness.

Questions about a proposer's own medical history too may give rise to unpleasant surprises by virtue of the conclusions drawn by an insurer from the answers, for instance because the

proposer is unaware of the severity of the disorder and of the prognostic significance of the results of which he is aware and which he discloses. Proposers must accept the possibility of such surprises. The right to ignorance does not afford any protection against learning the meaning of information which one already has. However, this consideration cannot automatically be extended to the familial history because the situation is essentially different here. The purpose of questions about illnesses in the family is not to make information about existing risk factors that are known to the proposer accessible to the insurer too. They are intended to establish whether such risk factors are present in the first place. Like a medical consultation in which a patient is asked about health problems, complaints or symptoms, the familial history serves the purpose of diagnosis. It is a method of medical examination. However, medical examinations which are not occasioned by concrete findings declared by a proposer, but which screen for risk factors even where there is no indication that these exist, should not be permissible for risk assessment in the conclusion of standard private insurance contracts. This implies that the routine taking of a familial history should also not be permitted, because it is not covered by the insurer's right to question. The pre-contract proposal form to be completed by proposers must not be made an instrument of medical diagnosis. In this regard, the proposer's right to ignorance takes precedence over the insurer's informational interests.<sup>27</sup>

#### **4.6. Should genetic risk factors be excluded from the right to question?**

In the German Insurance Association's moratorium mentioned earlier, the member companies not only waive the right to demand that proposers undergo genetic tests for the purposes of

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<sup>27</sup> With regard to the permissibility of questions about the familial history in "non-standard" insurance contracts, see Section 5, below.

risk assessment, but also undertake that they “will not require their clients to submit to the company any predictive genetic tests conducted voluntarily for other reasons before conclusion of the contract. Within these limits, the insurers waive the pre-contractual duty of disclosure of risk-related circumstances provided for in the Insurance Contracts Law”.<sup>28</sup>

By not requiring the disclosure of this information, the insurers are relinquishing their claim that they must always have the same level of knowledge as proposers about risk-related circumstances – that is, special risk factors. Parity of information between proposers and insurers concerning known risk factors is a legitimate requirement in insurance contracts for which risk differentiation is permissible. It is generally regarded as indispensable for protecting insurers from the abuse of superior knowledge by proposers (antiselection). The insurance industry has nevertheless declared its willingness to make concessions on this point in response to specific public concerns about the possible use of predictive genetic tests. At the same time, it wished to forestall the possibility of statutory regulation and perhaps make it superfluous.

The waiving of a requirement to disclose the results of genetic tests and the associated restriction of insurers’ right to question, as declared in the moratorium, should be retained. It at the same time invalidates the concern that patients might refrain from undergoing genetic tests that are in themselves medically indicated for the treatment or prevention of illness in order to evade a possible duty of disclosure in the conclusion of private insurance contracts. The waiving of this requirement also precludes the insinuation of a practice whereby proposers might spontaneously submit results of genetic tests favourable to themselves with a view to negotiating lower premiums. Further-

more, the voluntary nature of the moratorium suggests that the insurance industry does not expect the abuse of proposers’ superior knowledge on a scale that might seriously call into question the effective functioning of private insurance.

However, the exceptional character of this concession must surely be taken seriously. It is certainly the case that the waiving of the requirement of genetic testing provided for in the moratorium can be extended to all medical examinations and tests without making it impossible for private insurance to function effectively; indeed, such a generalization is called for in order to protect proposers’ right to informational self-determination (see Sections 4.2. and 4.3.). On the other hand, the waiving of the requirement to disclose results of predictive genetic tests known to the proposer cannot be extended to the results of all medical examinations. That would in practice be tantamount to abolishing risk assessment altogether and give rise to a serious risk of antiselection.

If the exceptional character of the moratorium is retained, however, proposers would not be treated uniformly in terms of the scope of their precontractual duty of disclosure. Anyone who knows from a predictive genetic test that he has an increased future risk of illness may keep this information to himself. He will be insured on standard terms. If someone is in possession of such knowledge from other medical examinations, he must disclose it to the insurer and accept the fact that he will be able to obtain insurance only at an increased premium, if at all. For instance, if asked, proposers must disclose to an insurer the results of examinations and tests (other than genetic tests) which are known to them in relation to current or past disorders or an existing disability; furthermore, this is so even if the disorder or disability is of genetic origin. Unfavourable results of an HIV test or cancer screening test undergone voluntarily by a proposer must also be disclosed. This unequal treatment not uncommonly meets with incomprehension on the part of affected proposers, who feel it to be unfair. It is ultimately a consequence of the fact that predictive genetic tests have attracted particular

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<sup>28</sup> Gesamtverband der Deutschen Versicherungsunternehmen e. V. (GDV) [German Insurance Association] 2004. An earlier version in English is available at [http://www.gdv.de/Hauptframe/index.jsp?oid1=13794&oidl2=15202&oidl3=15205&contentUrl=/English/English\\_Press\\_Information/inhaltsseite375.html](http://www.gdv.de/Hauptframe/index.jsp?oid1=13794&oidl2=15202&oidl3=15205&contentUrl=/English/English_Press_Information/inhaltsseite375.html), accessed February 2007.

attention in the public perception, resulting in pressure for regulation. The insurance industry's moratorium responds to this pressure with an exception from the duty of disclosure, which, however, can only subsist as an exception because the principle of risk equivalence is relinquished if it is made the rule. The inconsistencies associated with the application of an exception must be accepted.

However, the waiving of the requirement of disclosure of genetic risk factors known to proposers, as declared in the moratorium, remains exceptional even if it is extended to genetic tests irrespective of method. The insurance industry deems predictive genetic tests to be confined to those involving molecular genetic and cytogenetic techniques, whereas a broader definition, also encompassing, for example, biochemical detection of genetic predispositions, is used in this Opinion (see Section C 4.). Furthermore, the requirement of disclosure should also be dispensed with if a proposer is aware of genetic risk factors because he draws conclusions to that effect from the occurrence of certain disorders in his family. For instance, the children of families in which one parent is affected by Huntington's disease are often organized in self-help groups and are therefore perfectly conscious of the hereditary pathway of this disease; they know that they have a 50% risk of falling ill themselves. Under current law, insurers are allowed to ask for such information as a part of their right to question, and proposers must disclose it truthfully. On the other hand, according to the moratorium, proposers need not disclose anything if they have undergone a predictive genetic test and know that they carry the pathogenetic predisposition and will therefore certainly fall ill. The former requirement and the latter exception are not readily reconcilable. The inconsistency should be resolved by an additional provision in the voluntary moratorium whereby the insurers also waive the requirement of disclosure of genetic risk factors known to proposers from the familial history.

#### 4.7. Proposers' duty of disclosure

The extent of an insurer's right to question should be paralleled by that of a proposer's obligation to answer questions truthfully and fully. The consequences of failure to comply with this requirement are governed by the current law relating to insurance contracts. If a proposer has not, or not correctly, disclosed risk-related circumstances known to him, the insurer can withdraw from the obligation to meet claims if the circumstance not disclosed to the insurer was unknown to the insurer and if the proposer has acted culpably. However, in the case of undisclosed circumstances about which the insurer has not explicitly asked, the insurer can withdraw only if the proposer has acted with malicious intent. Such a withdrawal is in any case possible only within one month of the time when the insurer learned of the infringement of the duty of disclosure. Furthermore, an absolute time limit applies: an insurer can no longer withdraw from a health insurance contract once three years have elapsed since it was concluded, and from a life insurance contract when ten years have elapsed since its conclusion – unless the proposer has failed with malicious intent to comply with his duty of disclosure.

The precept of contractual fairness requires proposers voluntarily to disclose to an insurer circumstances that are manifestly relevant to the assessment of the risk he presents even without being explicitly asked. However, if the proposer fails to do so, the insurer must prove that he has acted with malicious intent if it wishes to withdraw from the contract for that reason. That will often be difficult. In practice, a proposer can usually expect adverse consequences from a failure to comply with the duty of disclosure only if he answers questions asked by the insurer incorrectly. The onus is placed on the insurer to ask specifically about risk factors relevant to the insurance. This seems fair, because the insurer has a clear general view of what constitutes a risk-related circumstance for the purposes of its intended risk differentiation.

#### 4.8. Questioning of attending physicians; release from the duty of secrecy

If insurers are not to have the right to require proposers to undergo medical screening before conclusion of a contract because this would excessively limit proposers' right to ignorance, they do not have the option of exposing incorrect information given by a proposer before conclusion of a contract by requiring, or even merely "threatening", confirmatory examinations. The questioning of doctors by whom a proposer is being treated is one of the few means of verification remaining for insurers. There is no obvious legitimate interest on the part of proposers in its prevention. It is therefore perfectly legitimate for insurers to demand that proposers release their doctors from their duty of secrecy for the purpose of verifying the information supplied when concluding a contract.

However, the fact of releasing doctors from their duty of secrecy should not give insurers blanket powers to peruse proposers' medical records. This means that a physician to whom such a request is addressed should not be permitted simply to send the medical records to the insurer. The purpose of the contract does not constitute a compelling reason for such a far-reaching relinquishment of the proposer's right to informational self-determination.<sup>29</sup> Here again, as with the questions to be answered by the proposer, the insurer should be required to specify the possible risk factors concerning which it wishes to be informed. For the purposes of concluding a contract, insurers can require proposers to release their doctors from their duty of secrecy only in respect of this information.

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<sup>29</sup> BVerfG [Federal Constitutional Court], 1 BvR 2027/02, 23 October 2006, [http://www.bverfg.de/entscheidungen/rk20061023\\_1bvr202702.html](http://www.bverfg.de/entscheidungen/rk20061023_1bvr202702.html), accessed January 2007.

#### 5. Special risks: insurance contracts not covered by the "standard" situation

The rules established in this Opinion should apply to "standard" insurance contracts. A contract can be regarded as "standard" if it does not provide for unusually high benefits, differing from the cover given by the vast majority of insurance contracts. Although this is not a hard and fast distinction, it is practicable. This is evident from the practice of insurers, who waive medical examinations for proposers only in the case of "standard" contracts. The upper limits mentioned in the formal voluntary commitment of the German insurance industry at any rate afford a plausible indication of what insurers consider not to fall within the standard situation. The waiving of the requirement of information agreed in the moratorium applies only to private health insurance policies and to all kinds of life insurance, including occupational incapacity, permanent disability, accident and dependency annuity policies, with a sum insured not exceeding 250 000 euro or an annuity of 30 000 euro.<sup>30</sup>

The question whether a contract falls within the range of "standard" insurance contracts is important for normative purposes because, in the balancing of the two parties' contractual interests, more weight must be given in this case to the personal rights of the proposer – in particular, his right to ignorance. Only "standard" insurance can be claimed to be a basic necessity of life, to which access must be ensured as a general service. Conversely, when unusually high benefits are agreed, insurance companies should have more far-reaching scope than in the standard situation for requiring proposers to undergo contract-related medical examinations and for verifying the information furnished by a proposer, so that they can set risk-equivalent premiums. For such contracts, insurers should also be permitted to ask proposers about illnesses in their families.

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<sup>30</sup> See note 28.

Proposers should be required to accept such thoroughgoing scrutiny. Since they are not dependent on the insurance in this situation, it is acceptable for them to have to forgo the conclusion of a contract if they are not prepared to agree to the encroachment on their personal rights associated with the risk assessment.

## 6. Implications for social policy

The aim of this Opinion is to make recommendations on the use of predictive health information in the conclusion of private personal insurance contracts. It does not, on the other hand, seek to outline a system of insurance of a consistently social nature with a view to comprehensively eliminating the existing inadequacies of cover in terms of fairness and availability.

In the debate about reform of the healthcare system in Germany, models that preclude risk assessment in the field of private as well as statutory health insurance are proposed. These models constitute a departure from the principle of risk-equivalent premium setting. In addition, universal compulsory health insurance is proposed.

Such steps raise far-reaching questions about the structures of social security, which cannot be answered, as it were in passing, in the context of this Opinion on the use and collection of predictive health information in private insurance.

## G SUMMARY AND RECOMMENDATIONS

### General principles of personal insurance

1. In the conclusion of insurance contracts covering risks that depend on the insured's state of health, examinations and tests involving thoroughgoing scrutiny may constitute an unacceptable encroachment on proposers' personal rights and on their interest in obtaining cover. For their protection, it may be necessary, and also reasonable in terms of the interests of the insurance companies, to limit the collection of health information of this kind.
2. Cover for the particularly important fields of health, long-term care and pensions is provided by compulsory statutory insurance for the vast majority of Germany's population. This statutory insurance system, based on the principles of the social state, operates by different rules from its private counterpart. Its risks are borne on the basis of solidarity by the large group of compulsorily insured persons defined by law in accordance with individual incomes, with the partial support of grants from the state. Acceptance into the scheme and the level of contributions do not depend on the present or future state of health of the insured.

Private personal insurance companies, on the other hand, must obtain their clients individually. The parties decide freely whether to conclude a contract. In this situation, the crucial point for proposers is their personal interest in a favourable ratio of premium to cover. Sharing of the risks by other insureds on the basis of solidarity is feasible at most to a very limited extent in the conclusion of private-law contracts of this kind.
3. Private insurance is governed by the principle of risk equivalence. The terms of the contract – in particular, the level of

- premiums – depend on the nature and extent of the individual risk presented. For this reason, proposers are asked, before a contract is concluded, to disclose relevant medical conditions or risks; indeed, these must be disclosed even without an explicit request to that effect. The application of this principle implies that persons with an increased risk of illness must accept the exclusion of certain benefits, loadings or even refusal of cover.
4. The principle of risk equivalence is not called into question for private insurance contracts. However, with regard to specific individual classes of insurance, it is necessary to consider how far the collection of information on proposers' health prospects and the resulting consequences for the conclusion of a contract should be limited. In the absence of such a limitation, proposers must either accept the encroachment on their personal rights, and in particular on their right to informational self-determination, represented by the collection of predictive health information with its possibly distressing implications, or forgo protection from the financial consequences of a loss.
  5. The insurance industry has a justified interest in avoiding antiselection. Antiselection can arise if a proposer who is aware of a particular circumstance – e.g. an existing disorder or an increased risk of the occurrence of a disorder – takes out insurance with a view to making a substantial claim after paying only a small number of premiums. The insurer's right to ask proposers about risk-related circumstances ultimately serves the purpose of achieving contractual equality through equality of information (parity of knowledge).
  6. As to the extent to which an insurance company is permitted to collect health information about a proposer before a contract is concluded, a balance must be struck between the proposer's justified interests and those of the insurer.
  7. The identification of genetic factors in illness, as well as improvements in general medical diagnosis, are increasingly making it possible to predict future pathology. This both increases opportunities for risk differentiation and makes antiselection more likely.
  8. Encroachment on a proposer's personal rights and on his right to informational self-determination can result not only from genetic tests but also from a number of other predictive examinations (e.g. imaging techniques or biochemical and electrophysiological methods). Their use for the purposes of insurers' risk assessment and differentiation gives rise to the same concerns as the use of genetic tests. For this reason, any prohibitions on the collection and use of predictive health information imposed to protect proposers' personal rights should also apply to the results of non-genetic examinations and tests.
  9. To protect proposers' rights, the collection of information on their health by insurers should be permissible only if it is confined to the minimum required for an individual insurance contract. Insurers must in addition guarantee that the data cannot be used for any purpose other than risk assessment for the relevant proposal (the use of the data must be strictly confined to the specific purpose).
- ## **Information to be provided by proposers**
10. Anyone wishing to conclude a private personal insurance contract must disclose to the insurer information about his health that is confidential and belongs to the individual's private sphere, which is protected as a fundamental right. This encroachment on the proposer's personal rights must be deemed acceptable because it serves the purpose of achieving parity of knowledge between the proposer and the insurer in

relation to risk factors that are already known. The permissible questions to the proposer, as well as his duty of disclosure, include, for example, his medical history and current disorders. They may also include questions about health-related aspects of lifestyle if the insurer takes account of lifestyle when applying standard actuarial rules for risk differentiation.

11. It is inherently consistent with the principle of parity of knowledge for questions about predictive genetic information already known to a proposer to be permissible. It would therefore also be permissible to ask whether the proposer has voluntarily undergone certain genetic tests that might indicate an increased probability of future pathology.
12. In practice, however, appreciable departures from the principle of parity of knowledge between insurers and proposers are made with regard to information about genetic risk factors. Under the voluntary formal commitment currently applicable until 31 December 2011, the member companies of the Gesamtverband der Deutschen Versicherungswirtschaft e. V. [German Insurance Association] waive any requirement of disclosure of results of predictive genetic tests known to the proposer and undertake not to take these into account. By this moratorium, the companies are responding to public concerns that insurers' risk assessment might lead to progressively more thoroughgoing scrutiny of proposers' health prospects. The main reason for these concerns is the predictive capacity of genetic tests. The insurance industry should maintain the moratorium.
13. In its current form, however, the moratorium treats genetic information inconsistently, relating as it does – as understood by the insurance industry – only to molecular genetic and cytogenetic tests. For this reason, the moratorium allows proposers to refrain from disclosing to insurers that they have

an increased risk of illness due to genetic factors if they know this from a molecular genetic or cytogenetic test. However, according to the principle of parity of knowledge, they must disclose such information if they have obtained it by another method, such as, for example, a biochemical test at gene product level, or if they have inferred it from the occurrence of a disorder in their family. To avoid this differential treatment, the moratorium should be extended to predictive genetic information obtained by proposers otherwise than by a molecular genetic or cytogenetic test.

14. If proposers are required, when concluding an insurance contract, to disclose all information about their state of health that is known to them, this may induce them to avoid undergoing medical examinations as a precaution. This may be problematic particularly where preventable or treatable disorders are consequently not detected in good time. However, this is a general problem, which is inseparably bound up with the principles of risk equivalence and of parity of knowledge in the conclusion of private personal insurance contracts.

## Medical reports

15. In practice, proposers are frequently asked whether they have undergone medical examinations or treatments within a specified past period. Consequent general questioning of doctors about the results of examinations or treatments encroaches on proposers' personal rights and is therefore impermissible. Insurance companies may require proposers to release doctors from their duty of secrecy in order to answer enquiries only where the information given by the proposer results in the concrete indication of a disorder or the risk of a disorder. The release from the duty of secrecy and the information given by the attending physician must relate to

the specific situation about which the insurer may demand information for the purposes of risk assessment. Permission to inspect patients' medical records as a whole must be neither demanded nor granted.

## Medical examinations and tests

16. It is an appreciable encroachment on a proposer's private sphere if an insurer, for the purposes of concluding a contract, requires him to undergo medical examinations or tests for the purpose of verifying the information he has given or of determining what other disorders or risks of disorders he has. In certain circumstances such examinations or tests might make the proposer aware of a disorder or of the future onset of a disorder about which he did not wish to know. Forcing such knowledge on a proposer is distressing, particularly if disorders that are neither avoidable nor treatable are diagnosed or predicted. Such knowledge may adversely affect the self-conception of the individual concerned, his future behaviour and possibly the planning of the entire course of his life.
17. It should not be permissible, for the purposes of an insurer's risk assessment, to require medical examinations and tests directed towards the identification of risks unknown to the proposer himself. These constitute a disproportionate encroachment on the proposer's personal rights; in particular, they call into question his right to ignorance. This right is supposed to protect proposers from acquiring knowledge about themselves against their will. For this reason, the following are also impermissible: health examinations and tests to screen for indicators of future pathology, and diagnoses to establish whether a proposer might already be suffering from a disease of which he is hitherto unaware.
18. Another consequence of this principle is that the taking of a familial history is also impermissible. This might be stipulated, for instance, in a proposal form containing questions to be answered by proposers before conclusion of a contract. Questioning about disorders in the family constitutes screening for indications of a hereditary disorder that might be present or can be expected at a future date in the proposer. Like questions about specific symptoms in medical consultations, the familial history is a form of medical examination of the proposer. It should be banned in the same way as other medical examinations and tests conducted in the context of risk assessment with a view to detecting risk factors hitherto unknown to the proposer.
19. Medical examinations and tests conducted for the purpose not of screening for risk factors unknown to the proposer but of the diagnostic confirmation of specific risk indications resulting from the medical history information given by the proposer or from his current state of health should remain permissible without limitation. For this diagnosis, the appointed medical practitioner should be able to apply all medically indicated methods of examination and testing, including where applicable genetic testing or the taking of the familial history.
20. The waiving of a requirement for medical examinations and tests to screen for disorders or the risk of disorders not known to the proposer himself already substantially corresponds to the current practice of risk assessment. As a general rule, insurance companies require proposers to undergo a medical examination only if the sum insured is unusually high. Practical experience shows that, in the "standard" situation, companies can manifestly perform the premium calculation necessary for the business of private insurance without in this way obtaining information on proposers'

state of health and risks of illness. Nor does the justified interest of insurers in protecting themselves from the possibility that proposers might use their own knowledge of existing risk factors to take undue advantage of them call for an extension of the right of insurers to require examinations. To protect the interests of insurance companies, it is sufficient for them to have the right to refuse to meet a claim or to withdraw from the contract if the proposer has concealed circumstances relevant to the risk.

21. The rules proposed here signify in practice that insurers' right to require proposers to undergo a medical examination for the purposes of risk assessment must be appreciably restricted. Examinations or tests and the collection of information for the determination of existing disorders and risks of disorders which are not known to the proposer and for which there are no concrete indications in the medical history or from the proposer's current state should in all cases be prohibited for "standard" insurance contracts, which constitute the main body of insurance business. The same applies to the taking of a familial history.

## Private health insurance

22. The purpose of health insurance is to cover the cost of medical treatment and other therapeutic measures in the event of illness. The insured is covered for the financial consequences of illness; however, he cannot profit financially from the insurance. Except where unusually high benefits are agreed, health insurance constitutes the "standard" situation whereby financial security is provided in respect of an elementary necessity of life. Proposers have a justified interest in access to such insurance and in protection of their personal rights. It does not have a counterpart in the form of an equivalent interest on the part of the insurer. The insurer does not de-

pend, in assessment of the risk, on determining whether disorders or the risk of disorders unknown to the proposer himself are present in the proposer. For this reason, insurers should waive the requirement of medical examinations and tests conducted for the purposes of such thoroughgoing scrutiny. Examinations and tests directed towards the diagnostic confirmation of concrete indications accruing from the information given by the proposer about his medical history or current state of health should remain permissible.

23. In accordance with this rule, the collection and use of health information concerning existing disorders or risks of disorder known to the proposer should remain permissible. Persons who are ill or who know that they can expect an illness to become manifest at some future date must continue to pay increased premiums or else not have access to private health insurance. This differentiation is a matter of the functional principles of private insurance. The disadvantages thereby accruing to those concerned may constitute a social problem. However, they are not lacking in justification in a system of private insurance.

24. In the debate about reform of the healthcare system in Germany, models that preclude risk assessment in the field of private as well as statutory health insurance are proposed. These models constitute a departure from the principle of risk-equivalent premium setting. In addition, universal compulsory health insurance is proposed.

Such steps raise far-reaching issues concerning the structures of social security, which cannot be answered, as it were in passing, in the context of this Opinion on the use and collection of predictive health information in private insurance.

## Life insurance

25. In the case of life insurance too, the insurer's interest in the setting of a risk-equivalent premium must be weighed against the proposer's interest in being spared measures that encroach on his personal rights. Unlike the situation in health insurance, life insurers are aware of the maximum financial liability they may face, since a specific sum insured is contractually agreed. In most insurance contracts up to a given sum insured, insurers have hitherto not required examinations or the communication of information for the identification of existing disorders and risks of disorder that are not known to the proposer and for which his medical history or current state do not afford concrete indications; this indicates that differentiation of premiums on the basis of such information is not of decisive importance. In balancing the interests of the two parties, it is acceptable and justifiable in such cases for protection of proposers' personal rights to take precedence and for the collection of such information to be prohibited.

The insurance industry's moratorium provides a plausible indication of the sum insured above which the limit of a "standard" contract is exceeded. It provides that, in the case of claims under contracts involving a sum insured of less than 250 000 euro or annuities of less than 30 000 euro, companies will not make use of results of genetic tests that are in themselves relevant to the risk even if these are known to the proposer himself.

## Pension and permanent disability insurance

26. Lastly, "standard" insurance contracts, the conclusion of which must not be made dependent on the collection of health information not specifically required on the basis of the details furnished by the proposer on his medical history or current

state of health, should be deemed also to include contracts in which the benefit consists of an old-age pension, a pension for occupational incapacity or permanent disability or a dependency annuity up to a specified level. Here too, the limits set out in the moratorium constitute a guide to the boundary between standard cover and special situations.

## Contracts with high sums insured

27. The limitations on insurers' right to question and to require examinations here demanded for the "standard" insurance situation should not apply where benefits far exceeding the usual levels are agreed. In these cases, insurers face unusually high risks. They have a justified interest in protecting themselves by a more thoroughgoing risk assessment from losses identifiable at an early stage and from the possibility of proposers' taking undue advantage of them. This is not offset by any equivalent interest on the part of the proposer. No one is "dependent" on an unusually high level of cover. Proposers are free not to conclude a contract if they are not prepared to accept thoroughgoing scrutiny by the insurer. For this reason, more far-reaching examinations and tests for the purposes of risk assessment should be permissible in the case of particularly high sums insured. The amounts mentioned in the German Insurance Association's moratorium indicate appropriate levels for the boundary between "standard" insurance contracts and special situations.

## Implementation of the proposed restrictions

28. A comprehensive statutory framework is not necessarily required for implementing the restrictions recommended in this Opinion on the collection and use of predictive health

information in the conclusion of private personal insurance contracts. The courts can make judgements consistent with the recommendations by appropriate interpretation of existing law. The insurance industry too can implement the recommendations on a de facto basis and ensure that they can be relied upon by means of specimen contractual conditions and voluntary formal commitments.

## References

- Bartholomé, Y.; Maarse, H.** (2006). Health Insurance Reform in the Netherlands. *Eurohealth* 12(2): 7–9.
- Billings, P. R. et al.** (1992). Discrimination as a Consequence of Genetic Testing. *American Journal of Human Genetics* 50: 476–482.
- Brandt-Rauf, S. I. et al.** (2006). Ashkenazi Jews and Breast Cancer: The Consequences of Linking Ethnic Identity to Genetic Disease. *American Journal of Public Health* 96: 1979–1988.
- Breyer, F.; Bürger, J.** (2005). Genetische Differenzierung in der Privatversicherung. W. van den Daele (ed.). *Biopolitik*. Wiesbaden: 71–96.
- European Observatory on Health Care Systems** (2000). Health Care Systems in Transition. Switzerland. <http://www.euro.who.int/document/e68670.pdf>
- Gesamtverband der Deutschen Versicherungsunternehmen e. V. (GDV)** (2004). Freiwillige Selbstverpflichtungserklärung der Mitgliedsunternehmen des Gesamtverbandes der Deutschen Versicherungsunternehmen e. V. (GDV) vom 7. Oktober 2004. [Voluntary formal commitment of the member companies of the German Insurance Association of 7 October 2004.] Die deutsche Versicherungsgesellschaft. Köln.
- Gesamtverband der Deutschen Versicherungsunternehmen e. V. (GDV)** (2006). Jahrbuch 2006. Die deutsche Versicherungsgesellschaft. Köln.
- Hellman, D.** (2003). What Makes Genetic Discrimination Exceptional? *American Journal of Law and Medicine* 29: 77–116.
- Lemke, T.; Lohkamp, C.** (2005). Formen und Felder genetischer Diskriminierung. Ein Überblick über empirische Studien und aktuelle Fälle. W. van den Daele (ed.). *Biopolitik*. Wiesbaden: 45–70.
- Münchener Rückversicherungs-Gesellschaft** (2001). Experimentelle Risiken. Stark erhöhte Risiken – Seltene Risiken – Neue Risiken. München.
- Nationaler Ethikrat** (2005). Prädiktive Gesundheitsinformationen bei Einstellungsuntersuchungen. Möglichkeiten und Grenzen der Nutzung des Wissens über Erkrankungsrisiken. Opinion of 16 August 2005. Berlin.
- Regenauer, A.** (2001). Kein Interesse am gläsernen Patienten. *Deutsches Ärzteblatt* 98: A 593–596.
- Wadman, M.** (1998). Jewish Leaders Meet NIH Chiefs on Genetic Stigmatization Fears. *Nature* 392: 851.

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