## Statistical analysis of the Polish civil liability insurance market for healthcare entities

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## Abstract

Healthcare entities perform a very important social and economic function. They directly influence the safety of citizens, as well as their comfort, health and life through the provision of medical services. Medical activities are subject to the risk of adverse events occurring during the treatment process. According to WHO data, approximately 134 million adverse events occur each year in low- and middle-income countries, resulting in approximately 2.6 million deaths each year. The medical errors can have severe, and even disrupt the financial stability in case of the need to pay high compensation. To prevent this, healthcare entities may enter into appropriate civil liability insurance. The main aim of the dissertation is to examine the Polish civil liability insurance market for healthcare entities, both from the perspective of the insured (hospitals) and insurers (insurance companies).

Civil liability insurance for medical activities is the most important insurance for healthcare entities. The decision to choose insurance, in particular the appropriate limit of the guarantee sum, is important from a management point of view. Due to the structure of the time scope of coverage in civil liability insurance, the decision to take out insurance may have significant impact even for the following decades of a healthcare entity's operation, because the policy is triggered by damages whose underlying cause (primary cause) occurred during the period of the policy's validity – trigger act committed. Experience from analyzing the market for this type of insurance clearly shows that years may pass between the occurrence of the cause of the damage, then the damage, its disclosure and finally the claim (e.g. lawsuit). Adding the time of the litigation and taking into consideration the fact that jurisprudence has changed over the years, the importance of the decision on appropriate insurance coverage is of great importance.

Another worth mentioning problem related to the discussed issue is an adequate and reliable risk assessment process, including the assessment of claims history due to the legal environment, applicable practices and the very long period of insurer's liability. The work indicates the main risk factors influencing the process of determining the insurance premium, proposes a set of questions (insurance risk assessment questionnaire) giving a general view of the activities of a healthcare entity, and proposes directions of development that may contribute to improving both the functioning of healthcare entities in the future and the assessment of insurance risk related to medical industry.

The dissertation analyzes the systems of registers of adverse events operating in various countries and the problem of recording such incidents in Poland. A detailed analysis of the loss ratio of hospitals was also carried out, including data at both the aggregate level (judicial system) and the individual level (healthcare entity). The part of the work devoted to empirical research highlights the role of underwriting in the insurance risk assessment process and presents a statistical analysis of civil liability insurance contracts concluded by healthcare entities in Poland. Insurance contracts may be concluded under the terms of the Public Procurement Law or as part of membership in a mutual insurance company. The advantages and disadvantages of both forms of concluding an insurance contract were discussed. The analysis of concluded insurance contracts provides answers to questions regarding the average values of insurance contracts, the number of insurance companies offering the insurance in question, market trends over recent years and conclusions regarding the types of insurance contracts concluded. A thorough assessment of the damage situation was carried out based on selected examples and modeling of the insurance premium amount was proposed. It has been indicated indicated that the best fit in the current market situation can be obtained by determining the trend function.

Based on the conducted research and analyses, the following conclusions and recommendations were formulated. Firstly, insurance for hospitals is a niche market, hence an individual approach to risk assessment is necessary for each examined entity. Secondly, the analysis of claims and premiums shows high product profitability. Moreover, the analysis of premiums indicates the significant importance of factors other than those related to the entity's insurance risk in determining the gross premium (e.g. the existence of competition among insurers). Thirdly, it is very difficult to estimate the amount of the premium due to the dependence on judicial practice, which changes over the years, frequent changes in the level of reserves and the long period of insurer's liability resulting from the construction of the trigger (act committed). This affects both the problem of estimating the loss ratio and the small number of insurers offering this insurance. Another conclusion concerns the cost of the additional insurance policy. It is low compared to the cost of compulsory insurance. It is therefore justified to purchase surplus insurance, and thus transfer the insurance risk to the insurance company and increase the limit of the guarantee sums. It is recommended to conduct national statistics on the occurrence of adverse events and to consider changing the trigger from act committed to claims made, which could have a positive impact on the amount of insurance premiums offered

by the market, including by opening up the possibility of reinsurance, making the guarantee sums, premiums and periods more realistic. insurer's liability. However, such a change would be a serious organizational undertaking on a national scale.

The subject matter of this work was approached in a holistic manner, pointing to interpenetrating and inseparable issues in many fields, in particular: insurance, statistics, law and the quality of providing health services.

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