The dissertation can be viewed at as a contribution to the discussion about using genetic information in the insurance industry. The debate is fully being held in the United Kingdom and other countries. It is only a matter of time when the discussion will be launched in the Czech Republic. Macdonald's and Pritchard's model (2000) of Alzheimer's disease in long-term care insurance is applied to the Czech pattern of mortality. A calculation of the expected present value of benefits is shown on an illustrative example of long-term care insurance. A quantification of adverse selection which is perceived as a reason for differentiation of ratings depending on the genetic profile of a policy applicant is a mathematical conclusion of the study. The appendix deals with the broader ethic and economical matter of the problem discussed.