

**Macdonald, Angus; Pritchard, Delme**

**Genetics, Alzheimer's disease, and long-term care insurance.** (English) Zbl 1083.62537  
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Summary: This paper applies a model of Alzheimer's disease (AD) developed by Macdonald and Pritchard (2000) to the question of the potential for adverse selection in long-term care (LTC) insurance introduced by the existence of DNA tests for variants of the ApoE gene, the e4 allele of which is known to predispose one to earlier onset of AD. It computes the expected present values (EPVs) of model LTC benefits with respect to AD for each of five ApoE genotypes, weighted average EPVs with and without adverse selection, and sample underwriting ratings. The paper concludes that adverse selection could increase costs significantly in a small LTC insurance market only if current population genetic risk is not much smaller than that observed in case-based studies, and if carriers of the e4 allele are very much more likely to buy LTC insurance. Finally, the paper considers the cost of a combined retirement package, providing both pension and LTC insurance, and shows that it can reduce adverse selection.

**MSC:**

- [62P05](#) Applications of statistics to actuarial sciences and financial mathematics
- [62P10](#) Applications of statistics to biology and medical sciences; meta analysis
- [92D10](#) Genetics and epigenetics

Cited in **12** Documents

**Full Text:** [DOI](#)

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