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Medical Progress and Age-specific Expenditure on Health Care

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Aging, medical progress, age-specific expenditure on health care.

Summary

This paper investigates the impact of population aging, driven by medical progress, upon age-specific expenditure on health care. In a model set up in discrete time, individuals at each age may catch a lethal disease which, upon receiving appropriate medical treatment, nevertheless involves a mortality risk. The incidence of lethal diseases, the associated survival probability conditional upon treatment, and health care expenditure conditional upon health status may all depend on an individual's history of health status in the past.

Medical progress is taken to involve an increase in the survival probability of a specified lethal disease. First, this produces a direct effect on age-specific health care expenditure to the extent that progress affects the cost of treatment of the disease. Second, indirect effects may also arise relating to individuals who, having survived the disease at some prior age, change the structure of individuals alive at current age. Specifically, these "new survivors" may influence age-specific expenditure either through changes in the incidence of lethal diseases or in the associated treatment cost. The sign of an indirect effect crucially depends on health care expenditure for "new survivors" *relative* to their peers.

The analysis yields a number of general results with respect to the impact of medical progress on the age profile of health care expenditure. For example, both compression of morbidity and expansion of morbidity are hypotheses which relate to "new survivors" such that they fail to account for the total effect of progress on age-specific expenditure.