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Optimal health insurance: the case of observable, severe illness

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Abstract

We explore optimal cost-sharing provisions for insurance contracts when individuals have observable, severe diseases with a discrete number of medically appropriate treatment options. Variation in preferences for alternative treatments is unobserved by the insurer and non-contractible. Interest in such situations is increasingly common, exemplified by disease carve-out programs and shared decision-making (SDM) tools. We demonstrate that optimal insurance charges a copay to patients choosing the high-cost treatment and provides consumers of the low-cost treatment a cash payment. A simulation of the effect of such a policy, based on prostate cancer, indicates a substantial reduction in moral hazard.

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1. Introduction

Many health plans have carved out ‘disease management programs’ for specific diseases that have expensive treatment options, such as cancer, heart disease, and

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musculoskeletal conditions (LaPensee, 1997). These initiatives recognize that in many clinical situations, there are several alternative treatment paths that are medically acceptable. In some cases, shared decision-making (SDM) programs are employed to facilitate integration of patient preferences into the decision-making process.[1] Virtually no theoretical work has been done to examine the optimal manner in which economic incentives might be incorporated into decision making in these situations.

Examination of this issue is timely for several reasons. First, interest in facilitating (and managing) treatment choices in specific disease areas has been growing, as evidenced by growth in carve-out insurance designs and development of decision assistance tools for specific disease areas. Second, advances in medical and health services research have provided much greater information regarding the clinical and economic effects of treatment alternatives than previously existed. Third, many studies suggest that adoption and diffusion of new medical technology are the driving force behind rising health care costs (Newhouse, 1993; Cutler and McClellan, 1996; Chernew et al., 1998). New technologies typically present a choice between established treatment paths and those using the innovative approach. Patient preferences often are important determinants of treatment choices in these situations. Efficient allocation of resources is often not an issue of whether anybody gets the new treatment, but instead, it is an issue of who gets the new treatment (Cutler and Richardson, 1999). Cost sharing may thus facilitate efficient resource allocation in cases when the new technology is applicable to serious diseases (such as bone marrow transplantation for breast cancer, cryosurgery for prostate cancer, minimally invasive open heart surgery, or stenting for coronary artery disease).

We allow contracting based on broadly defined disease state. Such contracting is consistent with the existence of disease-specific insurance carve outs and the use of SDM tools for allocating resources. We assume that within these disease states, expenditures have a lower bound corresponding to the cost of the least expensive, medically appropriate alternative; i.e., given the presence of the broadly defined disease state, all consumers will spend at least this minimum amount on medical care. Thus, there exists a non-discretionary component of expenditures (which may be quite large in absolute terms for certain serious disease states) to which it will not be optimal to apply any cost sharing because cost sharing would force the consumer to bear risk without any offsetting improvement in incentives. However, expenditures above the minimum are discretionary and result in considerable variation in spending because some patients opt for more expensive treatment paths. We emphasize heterogeneity of preferences for alternative medically acceptable treatments as the cause of spending variation. We explicitly allow the insurance contract to base copayments on the patient's choice of treatment option.

[1] For a review of SDM, see Kasper et. al. (1992).