How to improve information provision in patient referrals?*

Jeannette Brosig-Koch† Malte Griebenow‡ Mathias Kifmann‡ Franziska Then§

Abstract

When patients are referred from one physician to another, the provision of information by the referring physician is important for medical decision making. The referring physician has already made an assessment of the patient's health and has therefore information which can help to treat the patient better or to reduce costs for the receiving physician. However, the information flow between physicians does not seem to be optimal. Many referrals do not include a transfer of information and, if they do, the provided information is often insufficient for medical decision making (Bodenheimer 2008, Mehrotra et al. 2011). We therefore study under which circumstances bonus payments for information provision can improve the information flow.

We first present a theoretical model which provides an explanation for insufficient information provision in patient referrals. Our model is based on altruistic primary care physicians (PCPs) who can transfer no, low or high quality information. We take into account that either the patient or the receiving physician can benefit from information provision and that this benefit may vary. As a remedy for underprovision of information, we consider a bonus payment for information provision. Furthermore, we consider that PCPs' preferences exhibit loss aversion. Based on this model, we develop hypotheses relating the information transfer to the benefit generated and the bonus payment. We predict how information transfers change if the payment exceeds thresholds relating to the cost of low and high quality information provision. PCPs can be expected to provide more low- and high-quality information as the bonus payment increases.

We test our theoretical predictions in a controlled laboratory experiment. In the experiment, subjects in the role of PCPs decide on passing on information to subjects in the role of specialists

* We thank Maximilian Zinn, Denise Drabas, and Annika Gauda for their help in conducting the lab experiments and their excellent research assistance. Financial support by the German Federal Ministry of Education and Research (grant: 01EH1602A & 01EH1601A) is gratefully acknowledged.

† Otto-von-Guericke-Universität Magdeburg, Chair of Behavioral Social Policy, Universitätsplatz 2, 39106 Magdeburg, Germany.

‡ Universität Hamburg, Department of Socioeconomics and Hamburg Center for Health Economics, Esplanade 36, 20354 Hamburg, Germany.

§ Universität Duisburg-Essen and Health Economics Research Center (CINCH) Essen, Berliner Platz 6-8, 45127 Essen, Germany.

while referring a patient. The monetary value of patient benefit is transferred to the German branch of Doctors of the World (Ärzte der Welt e.V., 80807 Munich, Germany). Experimental conditions vary with regard to who benefits from information provision (patient vs. specialist), who has higher earnings (PCP vs. specialist/patient), and, whether the bonus payment is introduced cost neutrally (yes vs. no). The experiment was programmed with z-Tree (Fischbacher 2007) and conducted at the Essen Laboratory for Experimental Economics (elfe). We used ORSEE (Greiner 2015) to recruit participants.

As predicted by our model, PCPs in the experiment pass on more low- and high-quality information as the bonus payment increases. If the bonus payment is at least as high as the costs for the provision of high-quality information, PCPs provide less low-quality information and more high-quality information than in decision tasks with lower bonus payments. This behavioral pattern is in line with our model considering loss aversion in addition to altruism. Moreover, we observe that PCPs' reactions to increases in the bonus payment are similar regardless of whether the bonus payment is introduced cost neutrally or not. If specialists benefit from information provision, PCPs mainly focus on their own profit and provide less high-quality information than if patients benefit from information provision. However, this effect depends on the relative earnings of PCPs and specialists.

Our theoretical model and experimental observations reveal that a bonus payment for information provision can improve the information flow between physicians in patient referrals. However, low as well as high quality information can be induced by such a payment. It is therefore not clear whether a bonus payment is welfare increasing. The case for the introduction of a payment is strongest if it can be implemented cost neutrally. Yet, this may also be the most difficult way to implement a bonus payment.