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Do guidelines create uniformity in medical practice?

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ABSTRACT

This article aimed to test the general hypothesis that guidelines create uniformity, or reduce variation, in medical practice. Medical practice variation has policy interest and is one of the reasons for developing guidelines. The development and implementation of guidelines was considered in the broader context of processes of rationalization. We focused on the influence of voluntary guidelines developed by the professional organization for family physicians in the Netherlands on variation in drug prescription.

Data were used from the First and Second Dutch National Survey of General Practice (DNSGP1 and DNSGP2), collected in 1987 and 2001 respectively. DNSGP1 consisted of 103 practices and 161 GPs serving 335.000 patients. DNSGP2 consisted of 104 practices and 195 GPs serving 390.000 patients. Two groups of diagnoses were created, one containing all diagnoses for which guidelines were introduced and one containing all other diagnoses. For both groups a measure of concentration, Herfindahl-Hirschman Index (HHI), was used to represent variation. This measure of concentration was compared between both groups using multilevel analysis.

Results showed that although there was an overall increase in variation (a significantly lower HHI) in prescription, the increase was less in the cases of diagnoses for which guidelines were introduced. Guidelines, primarily, had an effect on variations in single-handed practices. The overall conclusion is that the introduction of guidelines, although it probably tempered the increase in variation, did not reduce variation.

Introduction

In the classical conception of medicine as a profession, medical practice is largely uniform through the shared body of (theoretical) knowledge. Variation originates from the necessity to apply this theoretical knowledge to individual patients. However, when clinical variables and patient characteristics are taken into account, there is variation left. Whatever the origin of this part of variation, it is striking that this variation has been found to show clear patterns by country, region, hospital and practice. Explanations for variation are sought in differences in opinions or enthusiasm for certain procedures between individual physicians, and in differences in constraints and social influences for groups of physicians (Chassin, 1993; de Jong, 2008; Landon, Reschovsky, Reed, & Blumenthal, 2001; Wennberg & Gittelsohn, 1975; Westert & Groenewegen, 1999). Variation in medical practice is not a bad thing by definition; without variation there probably will be no progress. However, it is the downside of variation that attracts attention from third parties. Evidence of variations in medical practice suggests the possibility of inappropriate servicing, wasting of resources and even actual harm to patients (Evans, 1990). The existence of variation has policy interest and is one of the reasons, besides rising health care costs, for developing guidelines. The use of clinical guidelines that give recommendations about appropriate health care is a way of reducing variation and maintaining, or improving, the quality of health care (Grilli, Magrini, Penna, Mura, & Liberati, 2000; Hutchinson, McIntosh, Cox, & Gilbert, 2003; Langley, Faulkner, Ch. Watkins, Gray, & Harvey, 1998; Lomas et al., 1989). A wide variety of guidelines has been developed in the last decades for hospitals and physicians (Grimshaw et al., 2004; Hibble, Kanka, Pencheon, & Pooles, 1998). In this article guidelines for family physicians in the Netherlands will be studied.

In The Netherlands guidelines are developed for family physicians by the Dutch College of General Practitioners. The first appeared in 1989 and over 80 guidelines for different diagnoses

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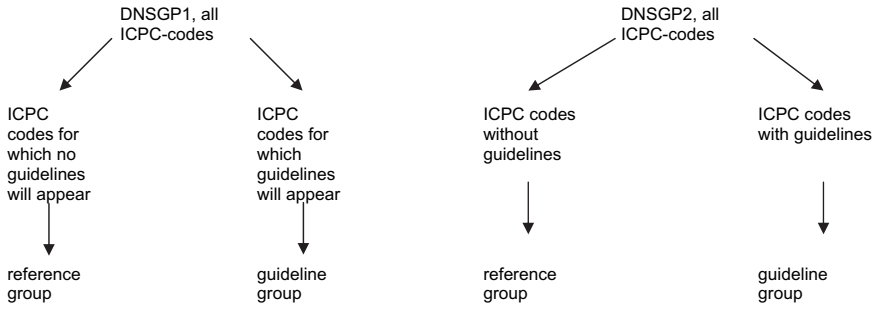

Fig. 1. Creating the guideline and the reference group.

have appeared ever since. While several studies examined the adherence to guidelines (e.g. Grol, 2001; Hermens, Hak, Hulscher, Braspenning, & Grol, 2001; Schers, Braspenning, Drijver, Wensing, & Grol, 2000; Tiemeier et al., 2002; Groenhof, Bettink, van Dijk, van der Veen, & Meyboom-de Jong, 2006), the impact on variation among physicians is hardly ever studied (e.g. Mourad et al., 2008; Verstappen et al., 2003).

The development and implementation of clinical guidelines can be seen in the light of broader processes of rationalization, which occur everywhere in modern society. Processes of rationalization lead to more uniformity; guidelines introduced and followed by physicians create uniformity. Still, processes of rationalization do not lead to more uniformity in all respects. Although guidelines may specify for instance the therapeutic substances of drugs that are preferred for certain conditions, many different brands of drugs, containing the same therapeutic substances, can coexist.

This article focuses on the influence of guidelines on variation in drug prescription. It will not look at the contents of the guidelines, nor test whether guidelines are being followed, nor whether the quality of medical treatment is increased by the introduction of guidelines. It will test the general hypothesis that guidelines create uniformity. The general question addressed is: *Is variation reduced after guidelines are introduced?* In other words: *Do guidelines indeed create uniformity?*

Background and hypotheses

To answer this question we will discuss rationalization in medicine. Secondly, the subject of guidelines will be discussed. Thirdly, more information about family physicians and guidelines in the Netherlands will be given. Finally, hypotheses will be formulated on when to expect a decrease in variation after guidelines are introduced. More specific expectations can then follow.

Rationalization in medicine

Worldwide, the profession of medicine is increasingly subject to the influences of market competition, forcing it towards standardization (Hafferty & Light, 1995; Ritzer & Walczak, 1988). The production and diffusion of medical knowledge and technology are increasingly international. There is a change from professional dominance to managerial market orientation (Scott, Ruef, Mendel, & Caronna, 2000). The United States is in front but Europe is on its heels with the introduction of guidelines, protocols, diagnostic related groups or similar reimbursement systems that exert pressure to make more efficient use of health care resources. The profession is changing from being led by social values when making rational choices, to being controlled by rules and regulations (Ritzer & Walczak, 1988). The institutional changes in the health care sector that lead to increased formal rationality are expected to reduce variation in medical practice as physicians are increasingly operating in a predictable manner. Based on a literature review, Groenewegen and Westert (2004) concluded that there is indeed a downward trend in medical practice variation.

Guidelines can be developed by different stakeholders such as insurance companies and organizations of medical professionals. They are supposed to increase the quality of care, or reduce costs, depending on which body is producing the guideline. The source of the guidelines is important as this is related to their acceptance by physicians. It determines too whether they are normative, meaning that there are no formal sanctions when the guidelines are not followed, or regulative, including formal sanctions (Onion & Wally 1995; Tunis et al., 1994). For instance insurance companies can develop guidelines in order to reduce costs. This goal in itself limits the acceptance amongst physicians. These guidelines, however, may still be followed because insurance companies can exert regulative pressure using formal sanctions such as through the authorization and rules on reimbursement for hospitals, physicians and patients.

In this article guidelines developed by the professional organization for family physicians in the Netherlands will be studied. These guidelines are normative, or voluntary rules, thus in essence it is up to the individual physician whether they are followed.

The Netherlands

The role of family physicians in the Netherlands is described in Box 1. The Netherlands are a precursor in the development of clinical guidelines compared to other European countries. Guidelines are developed by the Dutch College of General Practitioners (NHG), they have developed and published guidelines since 1989. The guidelines were developed in order to improve the quality of family physicians' practice and can be used to support family physicians in their daily practice, protect them from mistakes and legitimize medical behavior. The guidelines relate to diagnostics, treatment, referral, and prescribing. The NHG aims to achieve evidence-based practical guidelines that are widely accepted. In order to increase acceptance, the target group is involved in their development (see Box 2). The idea is that guidelines are more readily accepted and acted upon if made and implemented by the profession itself (Brindis & Sennett, 2003; Francke, Smit, de Veer, & Mistiaen, 2008; Grol, 2001).

Why and when would variation be reduced by the introduction of guidelines?

Variation is expected to decrease when guidelines are followed. It is not certain that people will follow guidelines, for being different can be valued more than being similar (Brunsson & Jacobsson, 2000). Being different is important when people need to