Prescribing, prescription costs and adherence to formulary committee recommendations: long-term differences between physicians in public and private care

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Abstract Background: In southern Sweden, many general practitioners (GPs) participate in an extensive postgraduate drug education programme, and many health centres are also fed back crude local drug statistics from pharmacists in the area. Private physicians and hospital physicians have not participated in these programmes.

Objective: The drug prescribing habits and costs of GPs, hospital physicians and private physicians were compared.

Methods: Each March, from 1990 to 1997, all prescriptions dispensed at the eight pharmacies in Växjö, a city and municipality in southern Sweden, were registered, specifying drug(s) prescribed, price, patient’s age, sex and area of residence, and prescriber’s place of work and category.

Results: Overall, the costs of prescribed drugs increased with time, even in 1997 when the prescribing volume was reduced due to changes in the reimbursement system. The cost increase was caused by increased prescribing of newer, more expensive drug alternatives. However, within each of the eleven major drug groups, the drugs prescribed by GPs were less expensive than those prescribed by hospital physicians and, particularly, private physicians. Moreover, even though GPs prescribed more and a wider range of drugs, they also had a higher degree of adherence to the recommendations by the formulary committee.

Conclusion: GPs prescribed less expensive drugs and had a higher degree of adherence to the recommendations by the formulary committee than other categories of physicians. One reason for these differences may be that the GPs participated in regional and local educational activities aimed at the rationalisation of drug prescribing.

Key words Adherence · Drug cost · Drug prescribing · General practice

Introduction

Educational programmes on drug prescribing directed to general practitioners (GPs) have been shown to improve attitudes and prescribing habits, and to reduce prescribing costs [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12].

Increasingly, Swedish GPs arrange their own postgraduate education on drug prescribing and, particularly in southern Sweden, they also participate in seminars and workshops on drug issues. This educational programme has been shown to influence drug prescribing habits among GPs [1]. Recently, a thesis from Stockholm showed that a local educational programme, involving both a pharmacist and a GP trained in clinical pharmacology, had the desired influence on the prescribing of drugs against urinary tract infections, but not on that of bronchial asthma [2].

In addition to these programmes, pharmacists in some communities periodically compile statistics on drug prescribing and distribute the results to the GPs. It has been shown that such activities may reduce the costs of drug prescribing [3]. Similar effects on prescription costs were seen in Britain following employment of pharmacists in some general practices [4].

Studies on antibiotics prescribing indicated that GPs in southern Sweden prescribed more rationally than hospital physicians did, both from a medical and an economic point of view [1, 5]. In addition, in Sweden benzodiazepines are prescribed less often by GPs than by private practitioners [13].
In Växjö, a city and municipality in southern Sweden, GPs have participated in educational programmes on drug issues during the 1980s and 1990s. Once a year for eight years, pharmacists have made prescription surveys, and the results have been distributed to the GPs. This made an analysis of differences in prescribing habits and costs between GPs, hospital physicians and private physicians possible. A corresponding analysis of adherence to recommendations by the formulary committee was also carried out.

Materials and methods

Catchment area and time period of study

The city and municipality of Växjö is the capital and largest community in the Kronoberg county in southern Sweden. It had about 70,000 inhabitants during the study period of 1990–1997. About 50,000 people reside in Växjö city and the remaining 20,000 lived in the surrounding countryside of the municipality.

In Sweden, GPs are trained specialists in family medicine, and, like most hospital physicians, are usually publicly employed by the county, which are responsible for most of the health and medical care.

There were 27 (1990) to 31 (1997) GPs at five (Växjö city) plus four (Växjö countryside) health centres; that is, there were about 2500 inhabitants per GP in the city and slightly below 2000 inhabitants per GP in the countryside.

In the city, about 130 and 20 hospital specialists were employed at the Central Hospital and the Mental Hospital, respectively. The largest departments at the Central Hospital were, and are, those of Internal Medicine and General Surgery, but there were also departments of Dermatology, Infectious Diseases, Obstetrics and Gynaecology, Ophthalmology, Orthopaedics, Otorhinolaryngology, and Paediatrics.

There were about 20 private physicians, and there were 10 occupational health physicians, mainly involved in preventive work. Most of the private physicians were dermatologists, gynaecologists, ophthalmologists, and otolaryngologists, but there were also some internists, psychiatrists, and surgeons, as well as one GP.

In Sweden, GPs have no official gatekeeper function, that is, a patient can go directly to a specialist, especially a private specialist, but also a hospital specialist, without referral from a GP. This means that those specialists to a large extent see patients with rather uncomplicated problems. In Kronoberg county, as in Sweden as a whole, GPs see less than 50% of all outpatients.

Eight pharmacies served the entire municipality, one of them at the Central Hospital.

Registration and analysis of prescriptions

In Sweden, all pharmacies are owned by Apoteket AB (formerly Apoteksbolaget AB; the National Corporation of Pharmacies). This corporation, which is owned by the Swedish Government, collects, stores and compiles statistics on all drug sales in Sweden, and data are available at the national, regional and county levels. On special request, data may also be obtained at the municipality level. Data are available on prescriptions, prescribed items, costs and volumes. Use of the pharmacy computer system during drug dispensing allows prescription patterns to be elucidated.

Each month of March from 1990 through 1997, all prescriptions dispensed at the eight pharmacies in Växjö municipality were registered; specified were drug(s) prescribed, price, patient’s age, sex and area of residence, and prescriber’s place of work and category. The categories comprised (publicly employed) GPs, hospital physicians (including psychiatrists) and private physicians. A small number of prescriptions (2.5%) emanating from physicians in occupational medicine were excluded from the analyses. So were also prescriptions from dentists, veterinarians, nurses, midwives, and physicians outside the county.

The prescribing of the main drug groups as defined by the ATC (Anatomical-Therapeutic-Chemical) system [14] was analysed. Drug volumes were expressed in number of drug items, and in number of defined daily doses (DDD) [14, 15].

During 1990–1997, the number and proportion of GPs increased, and the county council also made an effort to have more patients visit GPs rather than hospital physicians.

Reimbursement system

The reimbursement system for prescription drugs in Sweden was changed by the Swedish Parliament in 1996, valid from January 1, 1997. This signified that patients in general had to pay a larger share of the price at the pharmacy desk after this date. An impact of this change on prescribing habits was expected and was hence studied. In both the old and the new system, the patient had to pay the same share of the price irrespective of the speciality or the employment status of the prescribing physician.

Adherence

The degree of adherence to the recommendations of the formulary committee of the area was assessed by comparison of drugs actually prescribed and dispensed with the committee’s list of recommended drugs. As this list is amended every one or two years, the prescribing of each year was compared with the list of each preceding year. The formulary committee consists of both GPs and other specialists, and its recommendations deal with drugs prescribed for common diseases seen in both general and hospital practice.

Educational programme

In southern Sweden, GPs participate in seminars and workshops jointly organised and sponsored by the government-owned National Corporation of Pharmacies, the county councils and the Department of Community Medicine at Malmö University Hospital. This programme has been active since 1984. It is based on one- to two-day long expert-led seminars for groups of 20–25 GPs, the same seminar theme being repeated until all GPs in the region have had the opportunity to participate. The themes of the seminars are suggested by the participants themselves [1].

Results

Number of prescriptions over time

For March 1990 to 1995, the total number of prescribed and dispensed drug items increased from 26,000 to 32,000 (24% increase). Subsequently, the number decreased to about 24,000 in 1997, that is, below the level of 1990 (26% decrease). Nationwide, there was a corresponding increase from 1990 to 1995 and a corresponding decrease in 1997 in the mean number of dispensed DDD.

Proportions of prescriptions from different prescriber categories

From 1990 to 1997, the proportion of drug items prescribed by GPs increased from 47% to 54%, whilst