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Original Research

Identifying early prescribers of Cycloxygenase-2 Inhibitors (COX-2s) in Nova Scotia, Canada: Considerations for targeted academic detailing

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Abstract

Background: Expenditures on prescribed drugs in Canada are now well past those for all services provided by outpatient physicians ($26.9 billion vs. $21.5 billion in 2007). Government has the opportunity to dedicate resources to continuing medical education of physicians, and effective profiling would assist in the allocation of these educational resources.
Objective: The purpose of this study was to evaluate physician prescribing patterns and establish criteria by which various prescribing profiles may be segmented and identified, so as to better target detailing and continuing medical education resources.
Methods: A sample of 925 physicians practicing in Nova Scotia (NS) was characterized by age, sex, rural/urban nature of their practice and specialty. They were subsequently evaluated relative to all prescriptions filled by their patients who were beneficiaries of the NS Department of Health's senior's Pharmacare drug insurance program. The adoption of COX-2 inhibitors (eg, Vioxx® and Celebrex®) and their substitution for NS-NSAIDs (non-specific non-steroidal anti-inflammatory drugs, eg, Motrin®) from 1999 to 2003 were examined.
Results: This analysis established the profiles of 2 key groups of physicians. The first consisted of those most likely to comprise the early, high volume COX-2-prescribing universe (profiles based on the absolute number of prescriptions written over a given period). These individuals were likely to be older, more experienced, male general practitioners operating in a rural practice. The second group consisted of those most likely to comprise the early, high-relative, COX-2-prescribing universe (prescribing of COX-2s relative to non-selective, non-steroidal anti-inflammatory drugs (NS-NSAIDs)). These individuals were likely to be younger, less experienced female general practitioners, operating in an urban practice.
Conclusion: This research moves us closer to identifying unique physician segments that account for either the largest volume of prescriptions for new drugs, or the largest relative volume of prescriptions. Use of

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these physician groups can help continuing medical education providers target specific prescribers with information to assist them in examining and improving their prescribing.

Keywords: Drug utilization; Diffusion of innovation; Prescribing; Adoption; Prescribing behavior; New drugs

Introduction

Drugs have been one of the fastest growing components of total health expenditure in Canada. From 1985 to 2005, total health spending grew at an average annual rate of 6.5%. During this period, total drug expenditure increased at an average annual rate of 9.5%. In Canada in 2007, spending on drugs (including both prescribed and non-prescribed medications) was expected to account for 16.8% of health care spending ($26.9 billion), up from 14.5% in 1997, and 8.8% in 1975.[1] If drug costs continue to rise rapidly, provincial, territorial and federal budgets will be impacted, resulting in (but not limited to):

(1) a reassignment of resources from other sectors to cover health shortfalls;
(2) increased taxes;
(3) physician and health care provider shortfalls;
(4) increases in private sector charges including insurance premiums and co-payments;
(5) potential decreases in broader access to health care.

One way to counter the inappropriate increase in drug prescribing is through academic detailing to physicians that are likely to be most responsive to the message. The purpose of this study was to identify physician prescribing patterns, and establish criteria by which those physicians likely to be the most responsive to the message may be identified. To develop these profiles, the authors considered the COX-2 and NS-NSAID prescribing activity of 925 Nova Scotia physicians, and assessed the relationship between the physicians' characteristics and their prescribing activity.

Adoption

Typically, adoption is considered within the context of selection and use of a product or service over a given period of time. Specifically, the individual adopter is considered someone who interacts purposefully and creatively with a complex innovation, and plays a critical role in the diffusion of innovations, both within health service organizations, and the medical community at large.[2] While there have been a number of models proposed to classify the category and level of adoption,[3-8] the intention here is to associate the adoption of innovations with Rogers model,[9] where adopters have been categorized as innovators, early adopters, early majority, late majority and laggards (Fig. 1). None of these models, however, recognizes the potential for 2 types of early adopters, as is proposed in this study.

The acknowledgment of 2 types of adopters is important within the context of communicating to early prescribers. A high volume prescriber, important in the context of total prescriptions written, is unique and entirely different for insurers/payers compared to a high-relative prescriber (small total prescription volume, but one brand or category accounts for the majority of their writing for a given disease state). Additionally, if the profiles for each of these categories are different, it may suggest that they will be responsive to differential messaging.

Methodology

Data

In Canada, administrative claims databases provide data on drugs dispensed to those eligible to participate in a public drug insurance program. In the Canadian province of Nova Scotia, this data may be accessed through the Population Health Research Unit (PHRU), housed within Dalhousie University's Department of Community Health and Epidemiology. The data available includes the drug prescribed, quantity, days dispensed, cost of medication and the pharmacist's professional fee. The Nova Scotia Pharmacare program subsidizes the cost of medication for residents under the Community Support Services of the income assistance program and those 65 years and older who do not already have private prescription drug coverage or who are not covered by other plans. Senior patients paid yearly premium and a co-payment of 33% of the total cost (to a maximum of CAD $30) per prescription during this time period, and lower amounts for low income seniors.[11] The data extracted specifically for this research include the Nova Scotia