Volume 11 • Number 7 • 2008
VALUE IN HEALTH

"Price Management" and Its Impact on Hospital Pharmaceutical Expenditure and the Availability of Medicines in New Zealand Hospitals

June M. Tordoff, MPharm, PhD, MRPharmS, MPS, RegPharmNZ, Pauline T. Norris, MA(Hons), PhD, David M. Reith, FRACP, MMedSc, PhD

University of Otago, Dunedin, New Zealand

[Correction added after online publication 16-May-2006: The headings for Table 4 have been changed]

ABSTRACT

Objectives: In 2002, the Pharmaceutical Management Agency (PHARMAC) began negotiating new price contracts for 90% of hospital pharmaceuticals on behalf of all New Zealand (NZ) public hospitals ("price management" [PM]). The present study was undertaken to examine the impact of 3 years of PM on hospital pharmaceutical expenditure, and the impact of the new contracts on the availability of medicines.

Methods: Annual savings for 29 major public hospitals (financial years 2003/4 to 2005/6) were calculated from the data from 11 hospitals and data from PHARMAC. Inpatient and total hospital pharmaceutical expenditure (IPE, THPE) (2000/1 to 2005/6) were calculated from the data from 23 hospitals. Hospital pharmaceutical expenditure (2000/1 to 2005/6) was compared with community pharmaceutical expenditure (CPE) in NZ, and with THPE in the UK, Canada, Norway, and Sweden. Surveys were undertaken (2004, 2005) to examine any changes in medicine availability resulting from the new contracts.

Results: Annual savings were NZ$7.84 million (m) to NZ$13.45m (2003/4 to 2005/6). Growth in IPE slowed for all hospitals in 2003 to 2004. Mean growth was higher for IPE and THPE than for CPE (8.8%, 9.7% vs. 1.9%). Mean growth in THPE appeared slightly lower in NZ (9.6%) and Norway (7.3%) than in the UK 14%, Sweden 12.5%, or Canada 10.2%. Some availability problems occurred with new contract items ("out-of-stocks"; products perceived as inferior). Problems were usually resolved in weeks, but some took more than a year.

Conclusion: PM was moderately successful saving NZ$8m to NZ$13m (6–8%) in 2003/4 to 2005/6 and slowing growth in IPE in 2003/4. Further research should examine whether the favorable economic effects can be sustained while unfavorable effects are minimized.

Keywords: budget impact analysis, cost, economics, hospital, pharmaceuticals.

Introduction

Pharmaceutical expenditure in primary care and hospitals has risen steadily as a share of Gross Domestic Product (GDP) in recent years, averaging 15% of annual health-care expenditure in the Organization for Economic Cooperation and Development countries (1970–1996) [1]. Drivers of growth are considered to be an increase in the average price of medicines (as new medicines are substituted for older cheaper medicines, and new medicines become available to treat previously untreatable disease) and an increase in the utilization of medicines (as populations increase in age and size) [2–4]. Countries and organizations have used "supply-side" and "demand-side" measures to curb this growth [5,6]. Supply-side measures focus on negotiations with vendors, e.g., price and/or profit control, pooled procurement, rebates, reference pricing, expenditure ceilings, and positive or negative lists. Demand-side measures focus on decreasing or managing the utilization of pharmaceuticals by prescribers and patients, e.g., educational campaigns, prescribing guidelines, patient copayments, and switching prescription medicines to over-the-counter availability.

Growth in pharmaceutical expenditure in hospitals has been a particular concern in recent years as many new expensive medicines are initiated in this setting [7]. In 2002 to 2003, publicly funded hospital pharmaceutical expenditure comprised 20% to 26% of the total pharmaceutical expenditure in New Zealand (NZ), the UK, Australia, and the United States [8–11]. Hospital pharmaceutical procurement systems vary from country to country with mainly local procurement by individual hospitals in the UK, Sweden, and Australia but with a proportion of medicines (mainly generics) procured nationally, regionally, or statewide

Address correspondence to: June M. Tordoff, School of Pharmacy, University of Otago, PO Box 913, Dunedin, New Zealand. E-mail: june.tordoff@stonebow.otago.ac.nz

10.1111/j.1524-4733.2008.00353.x

  1098-3015/08/1214 1214–1226

[12–14]. In Canada, hospitals use group procurement for pharmaceuticals [15]. Both local and group procurement occur in hospitals in the United States [16]. Norway has had a national scheme for the procurement of hospital pharmaceuticals since 1995 [17]. Before 2002, pharmaceutical procurement in NZ was undertaken by individual hospitals, apart from a short period of group purchasing in the 1980s [18].

Since 1993, PHARMAC, the government's Pharmaceutical Management Agency, has successfully managed pharmaceutical expenditure in primary care mainly through supply-side measures [19,20]. In 2001, the government authorized PHARMAC to manage the pharmaceutical expenditure in public hospitals, and in 2002, they launched a three-part National Hospital Pharmaceutical Strategy for this purpose. PHARMAC's main initiatives were to 1) negotiate new national, as opposed to current local contracts for around 90% of hospital pharmaceuticals (price management [PM]); 2) provide economic assessments of new hospital medicines (assessment of new medicines [ANM]); and 3) coordinate activities for improving the use of medicines in hospitals (quality use of medicines [QUM]) [21]. Pharmacists and other health professionals were concerned about the possible impact of these initiatives, and the impact of the strategy's new contracts on the availability of medicines [21]. Earlier studies examined the impact of PM (first year only), and the ANM and QUM initiatives [22–25]. The aim of the present study was to examine the impact of 3 years of PM on hospital pharmaceutical expenditure, and the impact of new contracts on the availability of medicines.

Methods

Data were sought from chief pharmacists at all hospitals employing a pharmacist in NZ, the major public hospitals, 30 hospitals in 2002, and 29 hospitals thereafter. The hospitals were classified into three types for analysis, with assistance from the Ministry of Health. Tertiary hospitals were those with all specialties on-site including a renal unit. Secondary hospitals were those with most specialties on-site but with some visiting specialists. Rural/special hospitals were small hospitals with only visiting specialists or hospitals for a special group of patients (e.g., psychiatric). Three investigations were developed for the present study: two to examine the economic impact of PM, and one to investigate the effects of the new contracts on the availability of those medicines.

Top 150 Analysis

The aim of this investigation was to determine the impact of price changes resulting from PHARMAC's strategy from 3 years of PM. The Top 150 method was initially discussed and the first year results were reported in an earlier article [23].

The Top 150 method involved the chief pharmacists at 11 NZ hospitals calculating a projected saving (or cost) for their Top 150 items of pharmaceutical expenditure for year two (financial year 2003/4), three, and four from price changes, and volumes used in year one (2002/3), two, and three. Exact calculations were not possible because prestrategy prices between the suppliers of pharmaceuticals and the hospitals were confidential. Therefore, 13 hospitals, representing the three types of hospitals and different geographic localities, were approached, and 11 hospitals provided the data. Projections were for 2003/4 to 2005/6 (July 1–June 30). Net adjustments were added, calculated from the figures obtained from PHARMAC, i.e., additional savings from any rebates, bonuses, and discounts on invoices, minus the cost of compensation payments. PHARMAC estimated the compensation payments from the wholesalers' and suppliers' information. (Compensation payments were amounts paid by a hospital to a pharmaceutical supplier of an item on a new contract, for purchasing a noncontract brand in excess of agreed limits, i.e., discretionary variance (DV) limits. Limits were usually 0% to 5% of the total expenditure on that item). Compensation payments were $5000 per breach in 2003/4 to 2004/5, and NZ$1000 per breach in 2005/6. An assumption was made that projected savings from price changes in year one would continue similarly in subsequent years. Projected savings and net adjustments were used to estimate the annual savings for 2003/4 to 2005/6 using the formulae in Table 1.

Some accuracy checks were made. Chief pharmacists were asked to recalculate the savings 1) for items where new contract prices (not confidential) were incorrectly listed and 2) for items with "outlier results" (showing substantial savings or costs compared with other hospitals). Items with new contracts were called "section H items" because they are listed in section H of NZ's pharmaceutical schedule.

Median savings per hospital bed (or per bed-day) were used to calculate the projected savings for 29 hospitals from the projected savings for 11 hospitals (data were not normally distributed). The chief pharmacists provided information on bed numbers, and the Ministry of Health on bed-days [26]. Median savings per bed (or bed-day) for each type of hospital were multiplied by the number of missing beds (or bed-days) and added to known values to give an estimate of the projected savings for 29 hospitals. (Missing beds/bed-days were the total number of beds/bed-days from the 18 hospitals that were not providing data). A sensitivity analysis was undertaken. The lowest and highest savings per bed (or bed-day) for each type of hospital were multiplied by the missing beds (or bed-days) and added to known values to give an upper and lower limit