

Brøgan, Tom
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**DRUG COST DIFFERENTIAL
BETWEEN CANADA AND U.S.A.**

by

Tom Brogan, Mario Deschamps and Guy Roberge

Bureau of Policy Coordination
Consumer and Corporate Affairs
Canada

May 1983

Ce document est aussi disponible en français.

INTRODUCTION

A major component of the policy review of Section 41(4) of the Patent Act is the measurement of its impact on drug costs in Canada. A widely used methodology to assess cost impact of a specific Canadian policy is to compare Canadian prices with those in the United States. The two economies have a sufficient number of common characteristics to make this methodology professionally acceptable. For the pharmaceutical industry particularly, the availability of data and the existence of a similar range of drug products and dosage formats allows the methodology to be carried out.

The basic assumption underlying the chosen methodology is that, in the absence of the compulsory licensing permitted under Section 41(4), prices in Canada would be the same as those in the USA. In order to test this assumption the costs of single source drugs, (i.e. those not facing competition from generics) are compared.

The Discussion Paper "Review of Section 41(4) of the Patent Act (Compulsory Licences to Import Pharmaceuticals)" summarizes the results of a comparison between US list prices and Canadian transactional or actual prices. However, it does not present the comparisons of actual prices in the 2 countries. The purpose of this paper is to:

1. present the detailed results of the Canadian and US price comparisons for 29 compulsory licensed drugs in Canada using

both list and actual prices (US actual prices were obtained subsequent to the preparation of the Discussion Paper and were not available for inclusion in that document)

2. present Canadian-US price comparisons, using actual prices for 53 single source drugs.

METHODOLOGY

Two groups of drugs were selected to perform the cost differential calculations. The first was the Canadian compulsory licensed drug group. It consisted of 29 drugs that a CCAC survey¹ of generic manufacturers had identified as facing generic competition and for which licence royalties were paid in 1982. Those products are listed in Table 1.

The second group of drugs was selected from products for which no generic competition existed in Canada. A sample of 53 single source drugs listed in Table 2 was chosen from the largest selling drugs in Canada and was limited to drugs which were also available in the U.S.

Sales differentials on the 29 licensed drugs and on the 53 un-
licensed drugs were calculated using U.S.A. list and actual selling

1. Survey of Generic Manufacturers; Consumer and Corporate Affairs Canada, May 1983

prices. All US prices figures have been converted to Canadian currency using the average exchange rate during the year 1982.

For the 29 licensed drugs, differentials have been calculated for both the sales of patentees (or voluntary licencees) and the sales of licencees having paid royalties in 1982. Sales of drugs under compulsory licences for which patents expired prior to 1982 (and hence royalties were not paid in that year) were excluded.

Sales by patent-holders of each dosage format (eg. tablets 5, 10 or 50 mg., capsules 5, 10 or 50 mg. ...) of the drugs from both samples were calculated from the IMS data base.² Sales values by licencees for the 29 licensed drugs were taken from the CCAC survey of pharmaceutical manufacturers.

U.S. list prices for each dosage format were provided by the January 1982 publication of the "REDBOOK drug topics"³.

RESULTS

The detailed results are presented in Tables 1 and 2. Table 1 pro-

2. Canadian Pharmaceutical Market, IMS of Canada, December, 1982. IMS sales are projected from a survey of major Canadian drug stores and hospitals. IMS surveys approximately 4% of drug stores and 6% of hospitals but in term of sales values, these proportions are higher since the samples include larger outlets. The drug store sample is controlled by size of urban area and region (regions are: Atlantic provinces, Quebec, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia). The hospital sample is controlled by type, size and region.

3. REDBOOK drug topics, Annual Pharmacist reference, Medical Economics Company Inc. 1982

vides cost differentials for licensed drugs using both list and actual prices. Table 2 does the same for single source products.

1. Price comparisons of the 29 drugs facing competition from compulsory licensed generic products in 1982 were performed using Canadian actual selling price and U.S. list and actual prices. The main results are:
 - a- total Canadian sales of these 29 products was \$191 million in 1982
 - b- i) if US list prices were in effect in Canada the total sales value would have been \$365 million
ii) the differential is \$174 million or 91%
 - c- i) if US actual prices were in effect in Canada the total sales value would have been \$358 million
ii) the differential is \$167 million or 87%
2. To assess whether similar prices would be expected to prevail in the two countries in the absence of compulsory licensing, a price comparison was made using 53 single source drugs. The main results are:
 - a- total Canadian sales of these 53 products was \$187 million in 1982

- b- i) if US list prices were in effect in Canada the total sales value would have been \$233 million
- ii) the differential is \$45 million or 24%

- c- i) if US actual prices were in effect in Canada the total sales value would have been \$224 million
- ii) the differential is \$36 million or 20%

CONCLUSION

1. In 1982, it appears that the price impact of 29 compulsory licensed generic products approached \$200 million. Since these results included markets where the generic products were only recently introduced, it can be expected that generic sales would increase over time and exert a greater influence on price.

2. It appears that there is a general tendency for drug prices to be higher in the US than in Canada, as the unlicensed drug price comparisons illustrate. However, this is not universally true, as 12 of 53 drugs in the sample displayed lower U.S. prices than in Canada. The almost \$40 million total differential for these single

source drugs may reflect the bulk purchasing power of public hospitals in Canada and the power that provincial formulary administrators may have over the price of even single source drugs in Canada.

3. In an aggregate sense, the cost differential calculations give similar results whether list or actual prices are used. Since actual prices are more close to real transaction prices, those are preferred.

Table 1

COST DIFFERENTIALS ON LICENSED DRUGS⁴

| Generic Drug Name | U.S. List | Using |
|--------------------------------|-----------|--|
| | Prices | Actual U.S. Selling Prices (\$000 Can) |
| Allopurinol* | 2531 | 1980 |
| Amitriptyline* | 7751 | 6798 |
| Amoxicillin | 3329 | - 416 |
| Ampicillin Trihydrate* | 1318 | - 572 |
| Betamethasone Valerate | 2170 | 16978 |
| Cephalexin | 7503 | 7169 |
| Chlorthalidone* | 2101 | 2221 |
| Cimetidine | 22505 | 20064 |
| Clofibrate | 575 | 859 |
| Cloxacillin* | 15969 | 14730 |
| Diazepam | 10246 | 9142 |
| Erythromycin Estolate* | 2238 | 1595 |
| Ethambutol | 131 | 124 |
| Fluocinolone Acetonide* | 280 | 500 |
| Flurazepam | 7798 | 7664 |
| Furosemide* | 5161 | 4237 |
| Hydrochlorothiazide* | 3363 | 2822 |
| Indomethacin | 7137 | 5848 |
| Methyldopa | 11861 | 9111 |
| Methyldopa/Hydrochlorothiazide | 2190 | 1716 |
| Naproxen | 4991 | 5580 |
| Oxazepam | 16077 | 14316 |

Table 1 (cont'd)

COST DIFFERENTIALS ON LICENSED DRUGS⁴

| Generic Drug Name | U.S. List | Using |
|---------------------------------|-----------|--|
| | Prices | Actual U.S. Selling Prices (\$000 Can) |
| Perphenazine | 2378 | 2612 |
| Propranolol | 10668 | 14691 |
| Rifampin | 358 | 67 |
| Thioridazine | 5058 | 5107 |
| Triamcinolone Acetonide* | 1402 | -252 |
| Triamterene/Hydrochlorothiazide | 10466 | 9494 |
| Trimethoprim/Sulfamethoxazole* | 5958 | 2810 |

TOTAL DIFFERENTIAL 173613 166995

TOTAL CANADIAN SALES 191349

**COST DIFFERENTIAL AS A
% OF CANADIAN SALES** 91% 87%

* Drug with generic competition in the U.S.

4. The Table displays the difference between actual Canadian sales value and two hypothetical U.S. price value of Canadian sales on each drug. A negative magnitude means that the drug is sold at a lower price in U.S.A.

Table 2

COST DIFFERENTIALS ON UNLICENSED DRUGS⁵

| Generic Drug Name | U.S. List | Using |
|--------------------------------------|-----------|----------------------------|
| | Prices | Actual U.S. Selling Prices |
| | (| \$000 Can) |
| Alprazolam | 163 | 90 |
| Amiloride HCL/Hydrochlorothiazide | 1090 | 270 |
| Amoxapine | 183 | 169 |
| Baclofen | -80 | -125 |
| Bromocriptine Mesylate | 615 | 393 |
| Captopril | 313 | 44 |
| Cefaclor | 434 | 476 |
| Cefotaxime Sodium | 261 | 87 |
| Cefoxitin Sodium | -272 | 416 |
| Cholestyramin Resin | 302 | 377 |
| Clonazepam | 80 | 72 |
| Clonidine HCL | 232 | 271 |
| Clotrimazole | -994 | -472 |
| Cyclobenzaprine HCL | 300 | 127 |
| Danazol | 527 | 450 |
| Dantrolene Sodium | 30 | 219 |
| Dipyridamole* | 748 | 574 |
| Disopyramide Phosphate | 315 | 453 |
| Doxepin HCL | 571 | 307 |
| Doxorubicin HCL | 1113 | 48 |
| Doxylamine Succinate/Pyridoxine HCL* | -60 | -143 |
| Fenoprofen Calcium | 288 | 339 |
| Fluocinonide | 306 | 421 |

Table 2 (cont'd)

COST DIFFERENTIALS ON UNLICENSED DRUGS⁵

| Generic Drug Name | U.S. List | Using |
|--|-----------|--|
| | Prices | Actual U.S. Selling Prices (\$000 Can) |
| Hydralazine HCL * | 265 | -293 |
| Isosorbide Dinitrate * | 7961 | 8061 |
| Isoxsuprine HCL * | 376 | 913 |
| Levodopa/Carbidopa | 1055 | 187 |
| Loperamide HCL | -113 | -18 |
| Lorazepam (pending C.L. appl.) | 10795 | 9099 |
| Maprotiline HCL | 557 | 437 |
| Methyprylone | 1225 | 1149 |
| Metolazone | 52 | 119 |
| Metoprolol Tartrate (pending C.L. appl.) | 4154 | 3741 |
| Minocycline HCL | 1229 | 952 |
| Minoxidil | 44 | 16 |
| Oxybutynin | -45 | -31 |
| Penicillamine | -146 | -210 |
| Pindolol | -1163 | -1035 |
| Piroxicam | 10927 | 9780 |
| Prazosin HCL | 681 | 406 |
| Sucralfate | 221 | 160 |
| Sulindac | 2805 | 1391 |
| Tamoxifen Citrate | -487 | -442 |
| Temazepam | 92 | 134 |
| Terbutaline Sulfate | 70 | 107 |

Table 2 (cont'd)

COST DIFFERENTIALS ON UNLICENSED DRUGS⁵

| Generic Drug Name | Using | |
|---|---------------------|--|
| | U.S. List Prices | Actual U.S. Selling Prices (\$000 Can) |
| Theophylline | -2883 | -2492 |
| Ticarcillin Disodium | -833 | -1470 |
| Timolol Maleate | 1026 | 25 |
| Timolol Maleate/Hydrochlorothiazide | 22 | 11 |
| Tolmetin Sodium | 296 | 244 |
| Valproic Acid | 158 | -18 |
| Verapamil HCL | -565 | -440 |
| Zomepirac Sodium | 1159 | 1103 |
| TOTAL DIFFERENTIAL | 45400 | 36451 |
| TOTAL CANADIAN SALES | 187225 | |
| COST DIFFERENTIAL AS A % OF CANADIAN SALES | 24% | 20% |

* Drug with generic competition in the U.S.

5. The Table displays the differences between actual Canadian sales value and two hypothetical U.S. price values of Canadian sales on each drug. A negative magnitude means that the drugs is sold at a lower price in U.S.A.

