## Chapter 2

# The Pharmaceutical Industry in Canada: A Historical Overview

As in many countries in the world, the roots of the pharmaceutical industry in Canada extend back to the latter part of the 19th century. For example, Charles E. Frosst established one of the first pharmaceutical firms in Montreal in 1899. It is, however, the more recent period that concerns this Report, and therefore the historical review of the growth and development of the industry in Canada is focused on the last two decades or so.

This chapter examines the growth in the number of establishments in the pharmaceutical industry and the distribution amongst these establishments, classified by size, of the value of factory shipments for the period 1961 to 1982. Several principal statistics that characterize the pharmaceutical industry are then presented and discussed. These statistics cover the following items: employment, wages and salaries, value of factory shipments, net fixed and total assets, imports and exports, foreign ownership, and research and development expenditures. With regard to each of these statistics the trend from 1967 to 1982 is presented. Similar historical data for chemicals and chemical products, all manufacturing, and all industries are also examined in order to provide a framework against which the pharmaceutical industry can be assessed.

In a final section these principal statistics describing the growth and development of the pharmaceutical industry in Canada are compared with similar statistics for the pharmaceutical industry in the United States.

In addition to the principal objective of describing the overall growth and development of the pharmaceutical industry in Canada, there is a second equally important objective: the consideration of the possible impact of the changes in compulsory licensing introduced in 1969. Thus, a prime focus is on the detection of any changes after 1969 in the historical trend that would be consistent with expectations about the impact of the change in compulsory licensing.

## The Number and Size of Establishments

Information on the trend in the number of establishments in the pharmaceutical industry from 1961 to 1982 is presented in Table 2.1. Though

## Table 2.1

### Number of Establishments and Percentage Distribution of the Value of Factory Shipments in the Pharmaceutical Industry: Canada, 1961-82

| Number of Employees | Year | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
| 0 - 49 | | | | | | | | | | | | | | | | | | | | | | |
| Establishments # | 127 | 118 | 124 | 124 | 112 | 113 | 103 | | 93 | 90 | 92 | 79 | 81 | 73 | 73 | 77 | 71 | 84 | 87 | 78 | 72 | 74 |
| *Value of F.S. % | 12.4 | 11.9 | 11.7 | 10.6 | 10.1 | 12.0 | 11.3 | n.a. | 11.6 | 11.9 | 10.9 | 8.0 | 8.0 | 8.3 | 8.8 | 9.7 | 7.9 | 6.6 | 7.8 | 7.9 | 6.6 | 7.4 |
| 50 - 99 | | | | | | | | | | | | | | | | | | | | | | |
| Establishments # | 19 | 22 | 22 | 22 | 19 | 18 | 19 | | 21 | 18 | 19 | 22 | 23 | 22 | 21 | 14 | 15 | 22 | 17 | 18 | 21 | 17 |
| Value of F.S. % | 16.0 | 16.8 | 18.8 | 16.7 | 15.0 | 11.8 | 9.5 | n.a. | 10.9 | 9.5 | 9.2 | 10.4 | 11.2 | 11.8 | 11.8 | 9.1 | 10.0 | 12.7 | 11.5 | 11.5 | 11.4 | 11.0 |
| 100 - 199 | | | | | | | | | | | | | | | | | | | | | | |
| Establishments # | 16 | 14 | 14 | 16 | 17 | 17 | 18 | | 14 | 14 | 17 | 18 | 16 | 16 | 17 | 15 | 19 | 18 | 18 | 18 | 17 | 17 |
| Value of F.S. % | 27.9 | 24.6 | 23.8 | 27.6 | 28.7 | 23.8 | 23.5 | n.a. | 16.2 | 15.6 | 17.8 | 17.2 | 17.0 | 16.3 | 22.3 | 15.3 | 19.2 | 23.6 | 23.4 | 17.4 | 17.8 | 18.3 |
| 200 - 499 | | | | | | | | | | | | | | | | | | | | | | |
| Establishments # | 9 | 10 | 10 | 10 | 11 | 14 | 14 | | 18 | 19 | 17 | 15 | 17 | 20 | 19 | 21 | 17 | 15 | 16 | 18 | 18 | 18 |
| Value of F.S. % | 30.3 | 31.9 | 32.3 | 31.9 | 33.5 | 36.7 | 33.9 | n.a. | 42.5 | 43.9 | 40.0 | 37.0 | 39.8 | 44.9 | 41.1 | 45.2 | 40.9 | 31.3 | 34.2 | 39.9 | 39.6 | 42.6 |
| 500 and Over | | | | | | | | | | | | | | | | | | | | | | |
| Establishments # | 3 | 3 | 3 | 3 | 3 | 3 | 4 | | 4 | 4 | 5 | 7 | 6 | 5 | 4 | 5 | 5 | 7 | 6 | 6 | 6 | 5 |
| Value of F.S. % | 13.3 | 14.9 | 13.4 | 13.1 | 12.9 | 15.9 | 21.7 | n.a. | 18.9 | 19.3 | 22.1 | 27.3 | 23.9 | 18.8 | 16.1 | 20.7 | 22.0 | 25.8 | 23.0 | 23.3 | 24.5 | 20.6 |
| Totals | | | | | | | | | | | | | | | | | | | | | | |
| Establishments # | 174 | 167 | 173 | 175 | 162 | 165 | 158 | 151 | 150 | 145 | 150 | 141 | 143 | 136 | 134 | 132 | 127 | 146 | 144 | 138 | 134 | 131 |
| **Value of F.S. % | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

* Value of Factory Shipments.
** The Total Value of Factory Shipments may not add up to 100.0 because of rounding.

Source: Statistics Canada, *Manufacturers of Pharmaceuticals and Medicines* (Catalogue 46-209) and *Pharmaceuticals, Cleaning Compounds and Toilet Preparations* (Catalogue 46-223).

the year-to-year figures fluctuate considerably, there has been a general downward trend in the total number of establishments from 174 in 1961 to 131 in 1982.[1]

When establishments are classified by size, as determined by the number of employees (see also Table 2.1), it is clear that nearly all of this decline in the number of establishments is accounted for by the smallest firms, i.e., those with less than 50 employees. In 1961, there were 127 such establishments; in 1982, there were only 74. In contrast, firms with 200-499 employees and 500 employees and over are characterized by substantial growth. Medium-sized firms, on the other hand, show remarkable stability throughout the period.

Table 2.1 also presents information on the value of factory shipments accounted for by firms in each size classification. As with the number of establishments, there is a marked decline in the percentage share accounted for by the smallest firms (those with less than 50 employees) from 12.4 per cent in 1961 to 7.4 per cent in 1982. However, the decline in this size classification is no greater than that experienced by medium-sized firms with 50-99 and 100-199 employees. The two largest size classifications are characterized by considerable growth in their percentage share of the value of factory shipments. For firms with 200-499 employees there is an increase from 30.3 per cent to 42.6 per cent; for firms with over 500 employees, the gain is from 13.3 per cent to 20.6 per cent.

Competitive market pressures generally lead firms to use and ultimately build the most efficient sizes of establishment. Since such pressures are thought to exist in the pharmaceutical industry (see Chapter 4), the information on the size distribution of firms is consistent with the proposition that the larger firms are slowly demonstrating their relative efficiency over smaller firms.

## Manufacturers of Pharmaceuticals and Medicines: Specialization and Coverage

Set out in Table 2.2 is information on the historical trend of the shipments of pharmaceuticals and medicines in Canada from all industries. Included in these data therefore are not only the shipments of pharmaceutical products from the establishments that are classified as manufacturers of pharmaceuticals and medicines but also the shipments of pharmaceuticals and medicines from all other industries whose establishments are classified to another industry group. Also set out in Table 2.2 is information on the value of factory shipments of all products produced by the manufacturers classified to pharmaceuticals and medicines.

[1] Information of the kind presented in Table 2.1 is subject to some instability from two distinct sources. The first is the movement of firms to and from a given size class. The second is the possible movement of firms to and from the industry. The latter relates to the procedures used by Statistics Canada in classifying a firm or establishment in a particular industrial class; this is done according to which of the firm's products produced in the year account for the largest percentage of its overall output. Detailed information on the exit and entry of firms of different sizes in the pharmaceutical industry is provided in Tables A2.1 and A2.2 in the Appendix.

Table 2.2

**Shipments of Pharmaceuticals and Medicines by All Industries Including Shipments of Establishments Classified to Other Industries: Canada, 1967-82**

| Year | Shipments of Pharmaceuticals and Medicines from All Industries | | All Shipments from Manufacturers of Pharmaceuticals and Medicines | |
|---|---|---|---|---|
| | ($000) | Index | ($000) | Index |
| 1982 | 1,436,739 | 494.2 | 1,456,453 | 492.7 |
| 1981 | 1,319,309 | 453.8 | 1,327,421 | 449.1 |
| 1980 | 1,080,952 | 371.9 | 1,144,271 | 387.1 |
| 1979 | 938,365 | 322.8 | 1,030,201 | 348.5 |
| 1978 | 818,584 | 281.6 | 910,481 | 308.0 |
| 1977 | 685,558 | 235.8 | 758,415 | 256.6 |
| 1976 | 642,087 | 220.9 | 698,789 | 236.4 |
| 1975 | 600,033 | 206.4 | 654,447 | 221.4 |
| 1974 | 534,741 | 183.9 | 579,840 | 196.1 |
| 1973 | 500,638 | 172.2 | 518,811 | 175.5 |
| 1972 | 442,068 | 152.1 | 463,176 | 156.7 |
| 1971 | 405,289 | 139.4 | 414,061 | 140.1 |
| 1970 | 368,760 | 126.9 | 386,727 | 130.8 |
| 1969 | 346,058 | 119.1 | 356,585 | 120.6 |
| 1968 | 313,785 | 107.9 | 325,611 | 110.2 |
| 1967 | 290,678 | 100.0 | 295,640 | 100.0 |

Source: Statistics Canada, *Manufacturers of Pharmaceuticals and Medicines* (Catalogue 46-209), and *Pharmaceuticals, Cleaning Compounds and Toilet Preparations* (Catalogue 46-223).

### The Coverage Ratio

Establishments classified as manufacturers of pharmaceuticals and medicines had a total value of factory shipments in 1982 of $1.456 billion; of this total, some $1.333 billion were actually pharmaceuticals and medicines. These are defined in the Industrial Classification Code (ICC) to include feed supplements and veterinary pharmaceuticals and medicines as well as pharmaceuticals and medicines for human use. In turn, this $1.333 billion accounted for 92.8 per cent of the value of factory shipments of pharmaceutical and medicines produced by all industries in Canada. This 92.8 per cent represents the "coverage ratio" for this industry.

Just over 2.0 per cent or $29.2 million worth of shipments of pharmaceuticals and medicines was produced by those establishments classified as manufacturers of toilet preparations. In turn this $29.2 million accounted for 4.5 per cent of total value of all factory shipments by the manufacturers of toilet preparations. Since this is the principal industry other than the manufacturers of pharmaceuticals and medicines that has produced pharmaceuticals and medicines over the last two decades, information on its output of these is presented in Table A2.3 of the Appendix.

In addition to the manufacturers of toilet preparations, some seven other classes of manufacturers together account for some 5.2 per cent of the total value of factory shipments of pharmaceuticals and medicines. These are feed manufacturers, confectionary manufacturers, miscellaneous food processors (not elsewhere specified), plastic fabricating manufacturers n.e.s., miscellaneous chemical manufacturers, manufacturers of instruments of related products, and broom, brush and mop manufacturers.

Interestingly, the absolute totals presented in Table 2.2 are roughly similar to one another in each year. Thus, the total value of goods other than pharmaceuticals and medicines produced by the establishments classified as manufacturers of these is roughly offset by the value of pharmaceuticals and medicines produced by establishments that are classified to some other industry. Moreover, this appears to hold for the entire period because the growth, as shown by the indices, is approximately the same for both quantities.

### The Specialization Ratio

The broad categories of products produced by the manufacturers of pharmaceuticals and medicines are shown in Table 2.3. The principal product class, pharmaceuticals and medicines for human use, accounted for 90.2 per cent of the value of factory shipments in 1982; feed supplements, etc., for 0.7 per cent; and veterinary medicines, for 2.7 per cent. Thus all pharmaceuticals and medicines so defined accounted for 93.6 per cent of the total value of factory shipments. This figure is the "specialization ratio," indicating the extent to which the principal products of the industry class are produced by firms in that class. All other products, including toilet preparations, other medical supplies, opthalmic goods, orthopaedic appliances, and all other products accounted for the remaining 6.4 per cent.

The picture for 1982 is similar to that for 1966.[2] Then, pharmaceuticals and medicines for human use accounted for 83.4 per cent of factory shipments, feed supplements 2.4 per cent, veterinary medicines 4.2 per cent, and other products 10.1 per cent. The specialization ratio for all pharmaceuticals and medicines has thus increased over the period. It first fell, however, to 86.1 per cent in 1973 before rising to its present peak.

## Employment, Wages and Salaries, and the Value of Factory Shipments

Presented in Chart 2.1 is the trend in employment, wages and salaries, and factory shipments of the manufacturers of pharmaceuticals and medicines relative to all manufacturing industries.

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[2] Set out in the Appendix is detailed information on the percentage distribution of products produced by the establishments classified as manufacturers of pharmaceuticals and medicines: in Table A2.4 for the period 1966 to 1971 and in Table A2.5 for the period 1972 to 1982. The percentage of the value of factory shipments accounted for by veterinary medicines seems to have fallen slightly since 1966 from some 4.0 per cent plus to something in the order of 3.0 per cent of the value of factory shipments.

## Table 2.3

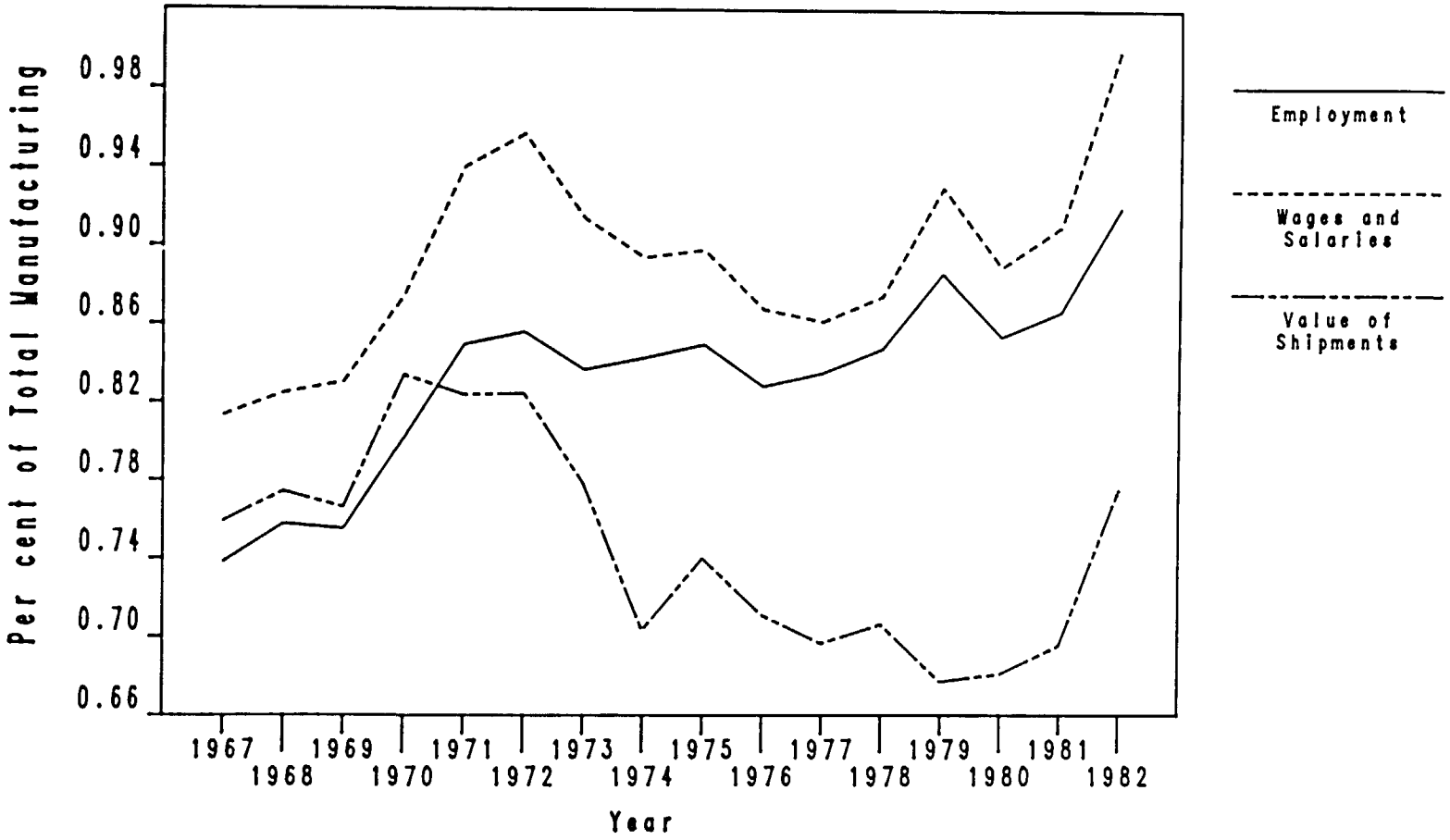
### Distribution of the Percentage Value of Factory Shipments by Manufacturers of Pharmaceuticals and Medicines Amongst Product Classes: Canada, 1966-82

| | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Medicinal and Pharmaceutical Products: | 90.0 | 90.0 | 89.5 | 89.5 | 87.9 | 88.0 | 87.2 | 86.1 | 87.8 | 86.9 | 90.3 | 89.6 | 89.5 | 90.3 | 89.7 | 94.6 | 93.6 |
| Medicinal and Pharmaceutical Products for Human Use | 83.4 | 83.4 | 83.6 | 84.1 | 82.3 | 82.2 | 81.1 | 79.7 | 80.5 | 81.8 | 84.2 | 84.2 | 84.3 | 84.1 | 85.0 | 90.8 | 90.2 |
| Feed Supplements, etc. | 2.4 | 2.5 | 2.4 | 2.1 | 2.6 | 2.8 | 2.3 | 2.1 | 2.3 | 1.8 | 2.4 | 1.8 | 2.0 | 2.4 | 0.7 | 0.5 | 0.7 |
| Veterinary Medicines | 4.2 | 4.1 | 3.5 | 3.3 | 3.0 | 3.0 | 3.8 | 4.3 | 5.0 | 3.3 | 3.7 | 3.6 | 3.2 | 3.8 | 4.0 | 3.3 | 2.7 |
| Other Products including Toilet Preparations, Other Medical Supplies | 10.1 | 10.0 | 10.5 | 10.5 | 12.3 | 12.0 | 13.1 | 13.9 | 12.2 | 13.1 | 9.8 | 10.3 | 10.5 | 9.7 | 10.3 | 5.4 | 6.4 |
| TOTAL | 100.1 | 100.0 | 100.0 | 100.0 | 100.2 | 100.0 | 100.3 | 100.0 | 100.0 | 100.0 | 100.1 | 99.9 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Statistics Canada, *Manufacturers of Pharmaceuticals and Medicines* (Catalogue 46-209) and *Pharmaceuticals, Cleaning Compounds and Toilet Preparations* (Catalogue 46-223).

Chart-2.1

**Pharmaceutical Industry as a Proportion of Total Manufacturing Industry—Percentage of Total Employment, Wages and Salaries and Value of Shipments: Canada, 1967-82**



Pharmaceuticals and medicines are characterized by relatively sharp growth from 1967 to 1972. After 1972, however, the trend is downward with respect to both the value of factory shipments and the sum of wages and salaries. It is, however, still upward with regard to employment but at a slower rate than during the first five years of the overall period.

Of these trends, those for employment and wages and salaries are probably more clearly indicative of the relative growth than is that for the value of factory shipments. This follows from the distinctly different trends in prices for pharmaceuticals and medicines compared with other commodities (see discussion in Chapter 6). Price changes for pharmaceuticals and medicines over almost all of the period under consideration were significantly lower than those for all commodities. Accordingly, the trend in the value of factory shipments is a composite of changes in real growth and differential changes in prices.

As shown in Table 2.4, the number of employees in the pharmaceutical industry grew from 12,199 in 1967 to 15,707 in 1982. This growth represents an increase of 28.8 per cent. In contrast, the growth rate for employment in all manufacturing over the same period was 3.4 per cent. At the same time, it should be noted that the recession of the early years of the 1980s was more discernible throughout almost all of manufacturing than it was in the pharmaceutical industry.

The overall visual impression of the information portrayed in Chart 2.1 is that a break in the trend may well have occurred sometime in the early 1970s. Though this can be associated chronologically with the time at which the impact of the 1969 change in compulsory licensing would have been felt, the underlying reasons for any change are less clear. Production employment would have begun to shift from patent-holding firms to generic firms, and the latter may have proved to be more efficient. Moreover, the increasing emphasis on price competition would be expected to have lessened the value of sales promotion employees and led to a reduction in their numbers. With regard to the value of factory shipments, an expected impact of the change in compulsory licensing was a reduction in prices. If these had begun to fall, a direct downward pressure on the value of factory shipments would have been exerted. The changes in the historical trends just discussed are thus consistent with the above stated expectations about the impact of changes in compulsory licensing.

## Real Gross Domestic Product

With the information on real gross domestic product summarized in Chart 2.2, it is possible to account for any differential changes in the prices of pharmaceuticals and medicines relative to all manufacturing commodities. The resulting picture of real growth in the pharmaceutical industry, having adjusted the value of output to account for changes in prices, is distinctly different from the one provided by the current dollar comparisons of the value of shipments portrayed in Chart 2.1 above. It is clear that the real value of output of the pharmaceutical industry has increased much more rapidly than the overall economy.

## Table 2.4

**Employment, Wages and Salaries, and Value of Factory Shipments for Pharmaceuticals and Medicines and All Manufacturing: Canada, Selected Years, 1967-82**

| | 1967 | 1972 | 1977 | 1982 |
|---|---|---|---|---|
| Employment: | | | | |
| Pharmaceuticals and Medicines | 12,199 | 14,345 | 14,231 | 15,707 |
| Index | 100.00 | 117.60 | 116.70 | 128.70 |
| All Manufacturing | 1,652,827 | 1,676,130 | 1,704,583 | 1,708,850 |
| Index | 100.00 | 101.40 | 103.10 | 103.40 |
| Ratio* | .74 | .86 | .84 | .92 |
| Wages and Salaries: | | | | |
| Pharmaceuticals and Medicines | 75,257 | 128,313 | 203,162 | 377,834 |
| Index | 100.00 | 170.50 | 346.40 | 644.20 |
| All Manufacturing | 9,254,190 | 13,414,609 | 23,595,238 | 37,695,397 |
| Index | 100.00 | 144.90 | 254.90 | 407.30 |
| Ratio* | .81 | .96 | .86 | 1.00 |
| Value of Factory Shipments: | | | | |
| Pharmaceuticals and Medicines | 295,640 | 463,176 | 758,415 | 1,456,453 |
| Index | 100.00 | 156.70 | 256.50 | 492.60 |
| All Manufacturing | 38,955 | 56,191 | 108,882 | 187,933 |
| Index | 100.00 | 144.20 | 279.50 | 482.40 |
| Ratio* | .76 | .82 | .70 | .78 |

* Ratio of Pharmaceuticals and Medicines to All Manufacturing.

Source: Statistics Canada, *Manufacturers of Pharmaceuticals and Medicines* (Catalogue 46-209); *Pharmaceuticals, Cleaning Compounds and Toilet Preparations* (Catalogue 46-223); and *Census of Manufacturers* (Catalogue 31-203), selected years.

## Table 2.5

**Real Gross Domestic Product (1971 Constant Dollars) for Pharmaceuticals and Medicines and All Manufacturing: Canada, Selected Years, 1967-82**

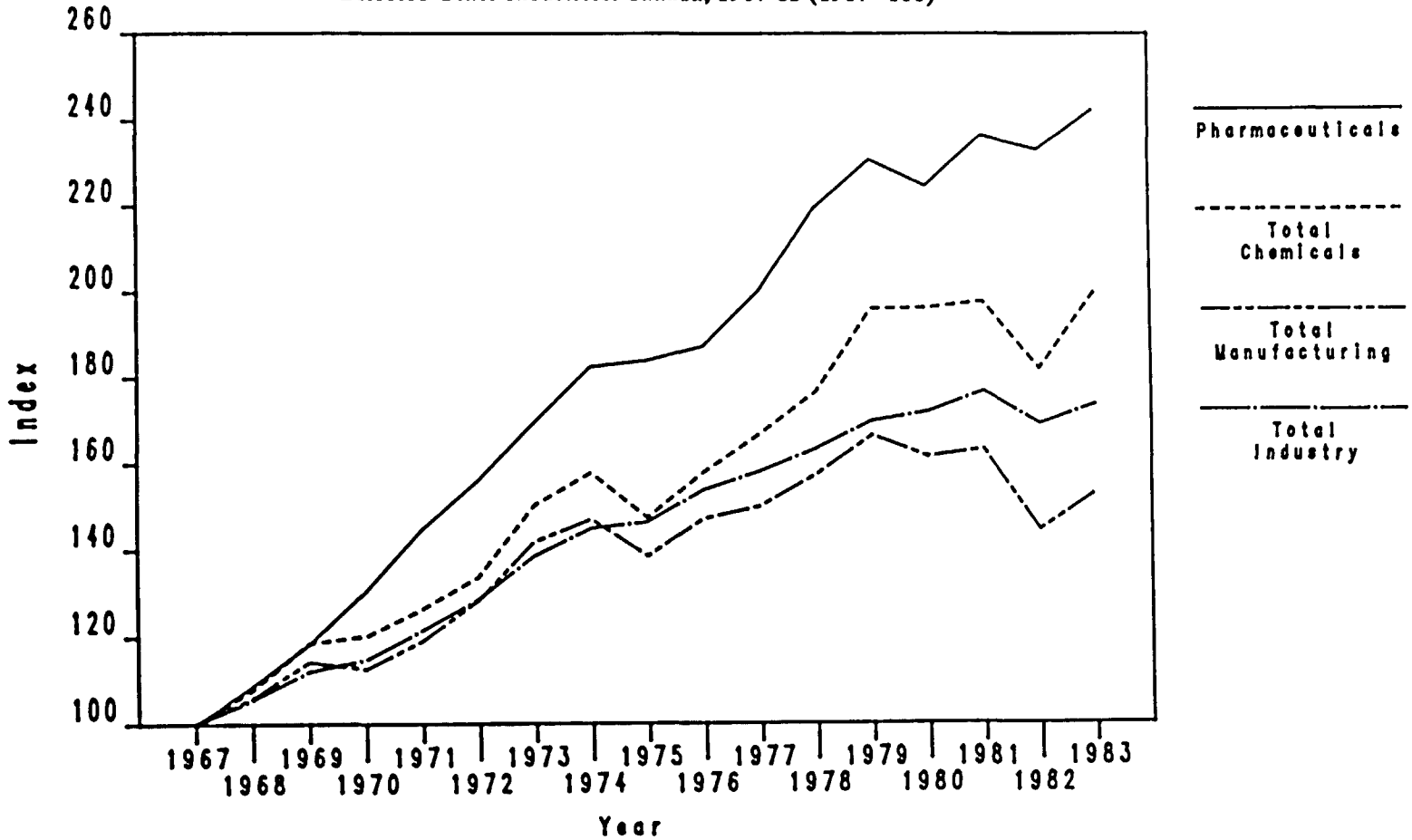
| | 1967 | 1972 | 1977 | 1982 |
|---|---|---|---|---|
| Pharmaceuticals and Medicines ($MM) | 145.90 | 227.60 | 291.90 | 340.00 |
| Index | 100.00 | 156.00 | 200.10 | 233.00 |
| All Manufacturing($MM) | 15,984.5 | 20,516.3 | 23,968.8 | 23,103.4 |
| Index | 100.00 | 128.40 | 150.00 | 144.50 |
| Ratio* | 0.91 | 1.11 | 1.22 | 1.47 |

* Ratio of Pharmaceuticals and Medicines to All Manufacturing.

Source: Statistics Canada, *Gross Domestic Product by Industry* (Catalogue 61-213), selected years.

**Chart 2.2**

**Index of Real Gross Domestic Product in the Pharmaceutical Industry and Selected Other Industries: Canada, 1967-83 (1967=100)**



Indeed, the increase from $145.9 million to $340.0 million, both figures in constant 1971 dollars, as shown in Table 2.5, represents an overall increase of 133 per cent. The comparable figure for the real output of chemicals and chemical products is some 81.9 per cent over the period, for all manufacturing commodities is 44.5 per cent, and for all industries is 69.1 per cent.

A visual review of the gross domestic product trend for pharmaceuticals and medicines indicates steady growth through to 1974, a small break, and then a resumption of growth. In general, the growth of real gross domestic product of the pharmaceutical industry is fairly steadily positive over the entire period.

## Net Fixed Assets and Total Assets

Yet other principal statistics describing the growth and development of the pharmaceutical industry in Canada are those for net fixed assets and total assets. Detailed data on net fixed assets are summarized in Table 2.6 and Chart 2.3.

For the pharmaceutical industry net fixed assets grew from $71.7 million in 1967 to $327 million in 1982. This growth represented an increase of 342 per cent, compared with growth of 348.5 per cent for all manufacturing. The slower growth in the pharmaceutical industry is clearly shown in Chart 2.3.

It is not at all clear from visual inspection of Chart 2.3 that there is a break in the historical trend in the growth of net fixed assets in pharmaceuticals that is related to the change in compulsory licensing in 1969. The rate of growth appears to slow after 1973, but subsequently increases after 1978 and increases yet again after 1980.

With regard to total assets, the growth from $255.6 million in 1967 to $1.3 billion in 1982, as shown in Table 2.6, represents an increase of 410 per cent for the pharmaceutical industry. This growth can be compared with the growth of 351 per cent for all manufacturing.

The historical trend in growth of total assets for pharmaceuticals, chemicals, all manufacturing, and all industries, displayed in Chart 2.4, suggests a growth rate for pharmaceuticals and medicines similar to the other industry groupings. Once again no break in the historical trend is visually distinguishable for pharmaceuticals in relation to the 1969 change in compulsory licensing.

## Imports and Exports

Detailed information on imports, exports, and the relation of each of these in the total value of factory shipments is presented in Chart 2.5 and summarized in Table 2.7. It is clear from a visual inspection of Chart 2.5 that the

## Table 2.6

### Net Fixed Assets and Total Assets for Pharmaceuticals and Medicines and All Manufacturing: Canada, Selected Years, 1967-82

| | 1967 | 1972 | 1977 | 1982 |
|---|---|---|---|---|
| Net Fixed Assets: | | | | |
| Pharmaceuticals and Medicines ($MM) | 71.70 | 131.30 | 181.10 | 327.60 |
| Index | 100.00 | 183.10 | 252.60 | 442.00 |
| All Manufacturing ($MM) | 14,332.20 | 20,672.80 | 34,734.30 | 64,027.40 |
| Index | 100.00 | 144.90 | 243.30 | 448.50 |
| Ratio* | .50 | .64 | .52 | .51 |
| Total Assets: | | | | |
| Pharmaceuticals and Medicines ($MM) | 255.60 | 421.10 | 736.60 | 1,302.80 |
| Index | 100.00 | 164.70 | 288.20 | 509.70 |
| All Manufacturing ($MM) | 37,749.20 | 53,346.00 | 96,020.10 | 170,168.50 |
| Index | 100.00 | 141.30 | 254.40 | 450.80 |
| Ratio* | .68 | .79 | .77 | .77 |

* Ratio of Pharmaceuticals and Medicines to All Manufacturing.

Source: Statistics Canada, *Corporation Financial Statistics* (Catalogue 61-207), selected years.

## Table 2.7

### Imports, Exports and Ratio of Each to Value of Factory Shipments for Pharmaceuticals and Medicines: Canada, Selected Years, 1967-82

| | 1967 | 1972 | 1977 | 1982 |
|---|---|---|---|---|
| Imports ($000's) | $ 51,837 | $ 94,472 | $244,319 | $440,779 |
| Index | 100.00 | 182.20 | 432.70 | 850.30 |
| Ratio* | 17.50 | 20.40 | 29.60 | 30.30 |
| Exports ($000's) | $ 17,579 | $ 29,322 | $ 64,590 | $118,180 |
| Index | 100.00 | 166.80 | 367.40 | 672.30 |
| Ratio** | 5.90 | 6.30 | 8.50 | 8.10 |
| Ratio of Imports to Exports | 3.00 | 3.20 | 3.50 | 3.70 |

* Ratio of Imports to Value of Factory Shipments.
** Ratio of Exports to Value of Factory Shipments.

Source: Statistics Canada, *Summary of External Trade* (Catalogue 65-001), selected years.

**Index of Net Fixed Assets in the Pharmaceutical Industry and Selected Other Industries: Canada, 1967-82 (1967=100)**

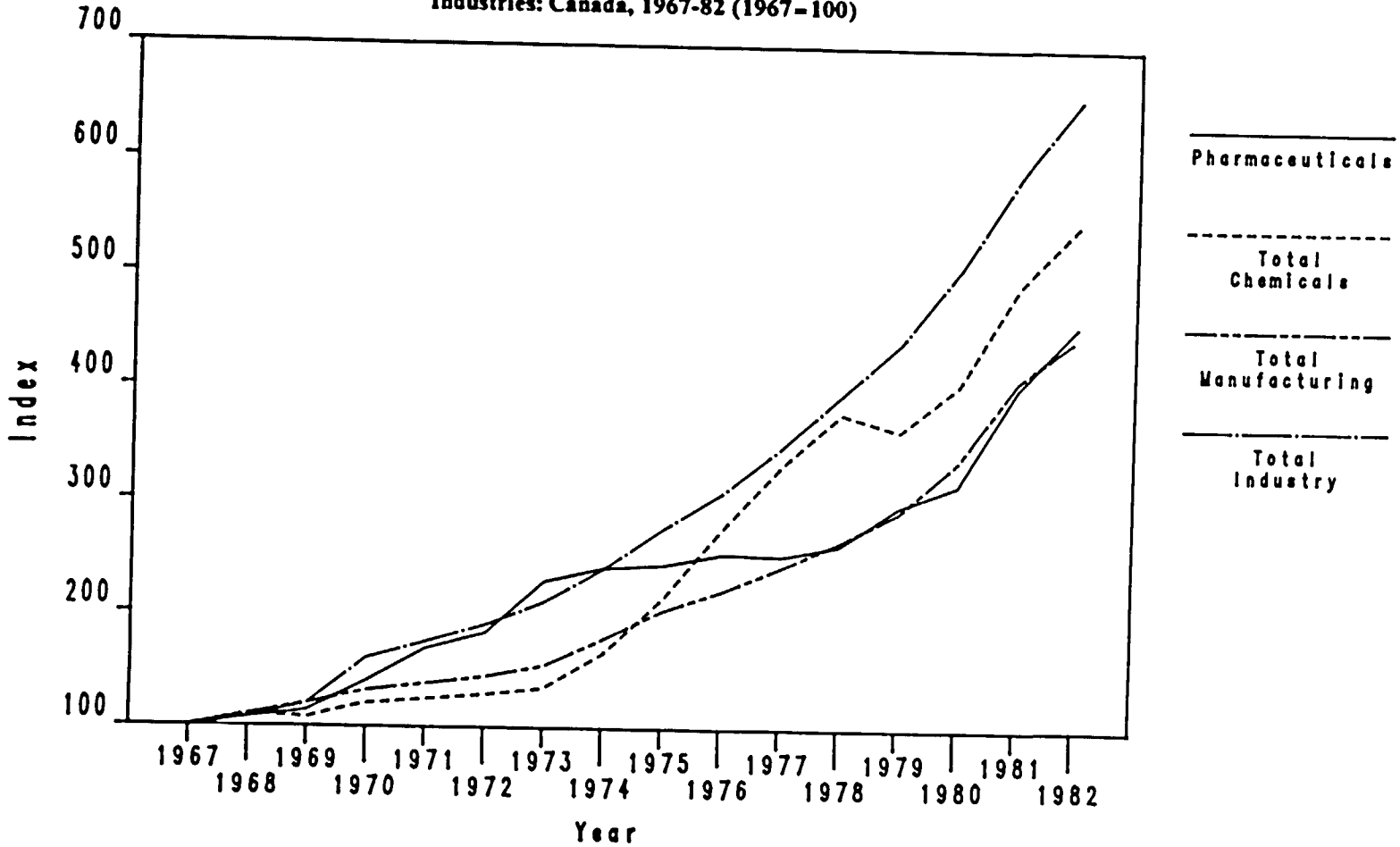


**Chart 2.4**

**Index of Total Assets in the Pharmaceutical Industry and Selected Other Industries: Canada, 1967-82 (1967=100)**

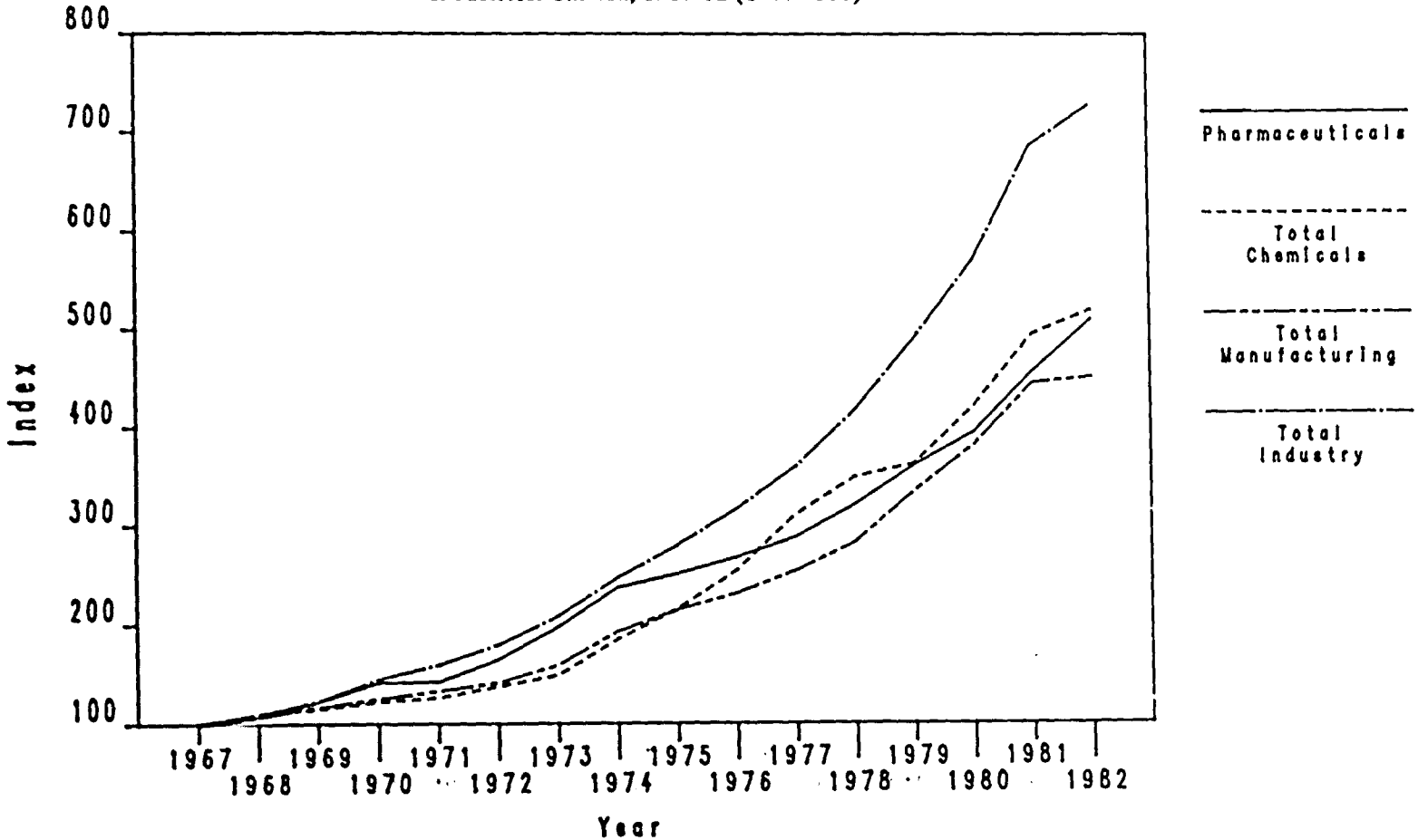
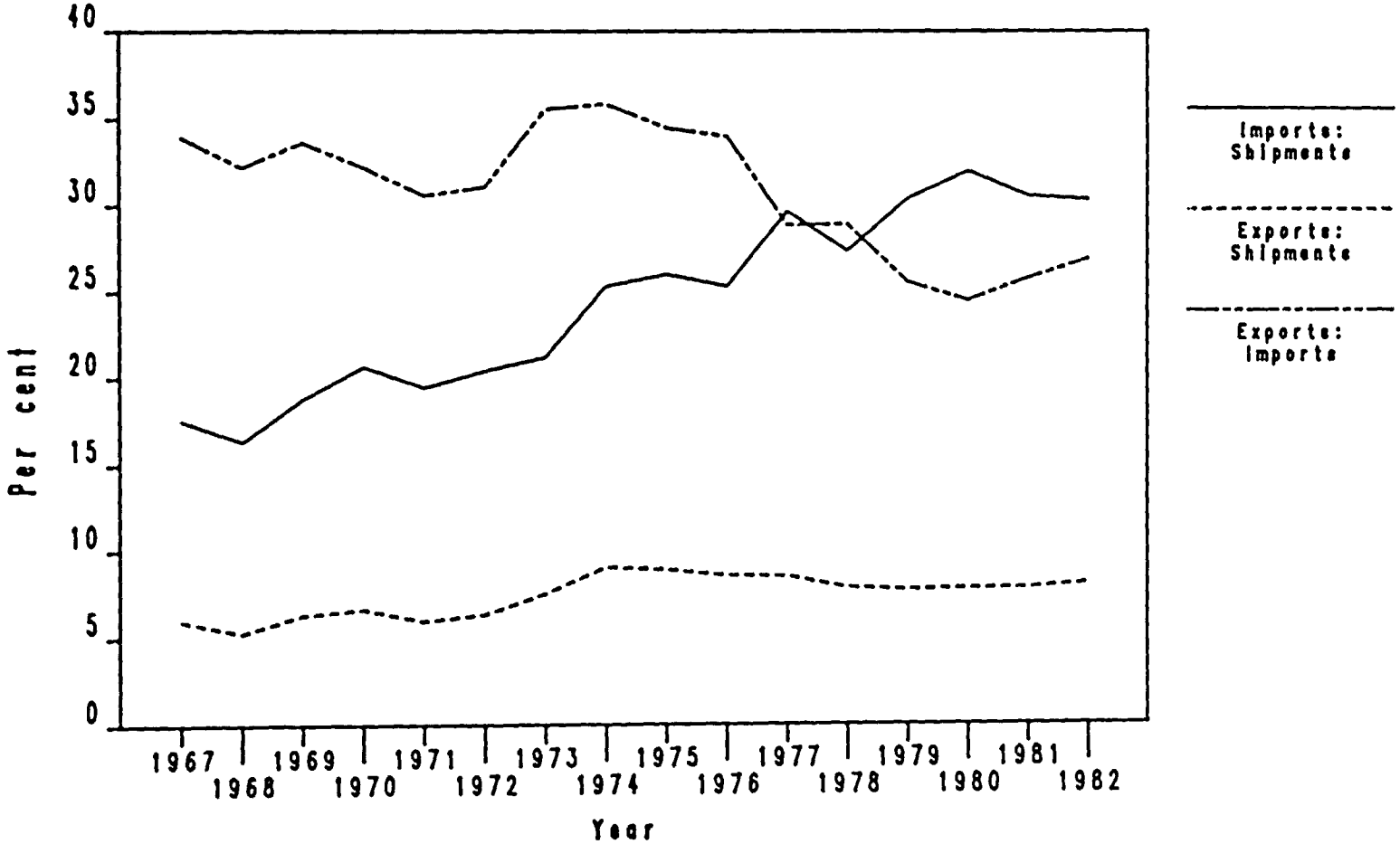


Chart 2.5

**Pharmaceutical Industry Trade Ratios—Imports and Exports and the Ratios of Each to the Value of Factory Shipments and to Each Other: Canada, 1967-82**



ratio of imports to the value of factory shipments has been growing fairly steadily since 1967. In that year, as shown in Table 2.7, imports accounted for 17.5 per cent of the value of factory shipments; in 1982 the comparable figure was 30.3 per cent.

Given that almost all active ingredients used by all pharmaceutical firms in Canada have been and are currently produced elsewhere, their import value is strongly affected by international exchange rates and especially that for the U.S. dollar. A large part of the increased value of imports over the period may thus reflect little more than the combination of increased real volume associated with the general growth in the market for pharmaceuticals and medicines and the declining value of the Canadian dollar relative to the U.S. dollar over the last decade or so.

There also appears to be some growth over the period in exports as a percentage of the total value of factory shipments. The relative size of exports grew sharply from 1971 to 1974, but since 1974 has generally followed a downward trend. However, whereas exports accounted for 5.9 per cent of the value of factory shipments in 1967, by 1982 they accounted for 8.1 per cent.

Also portrayed in Chart 2.5 is information on the ratio of exports to imports. It is difficult to discern any change in the trend of this ratio that could be directly related to the year of the expected impact of the change in compulsory licensing. A similar result follows a visual inspection of the trends in ratios of each of imports and exports to the value of factory shipments. This may well be the result of roughly similar imports to value of shipments ratios for both the patent-holding and generic firms.

## Foreign Ownership

As determined by Statistics Canada, the extent of foreign ownership in the pharmaceutical industry,[3] described in detail in Tables A2.6 and A2.7 in the Appendix, is summarized in Charts 2.6 to 2.11. As shown in Chart 2.6, some 60 per cent of all enterprises in the pharmaceutical industry are Canadian owned. On the other hand, these Canadian-owned firms account for less than 20 per cent of overall employment in the pharmaceutical industry, as shown in Chart 2.7, and they account for less than 16 per cent of the value of factory shipments, as shown in Chart 2.8. At the same time, there appears to be growth, albeit small, in the relevant share of value of shipments (and value added) by Canadian firms over the ten years from 1970.

[3] Foreign ownership is determined by Statistics Canada through an examination of the distribution of voting shares of companies. Interestingly, the data assembled by IMS Canada on the distribution of output according to company appear to generate a higher level of foreign ownership than the Statistics Canada data.

**Chart 2.6**

**Ownership of Pharmaceutical Enterprises: Canada, Selected Years, 1970-80**

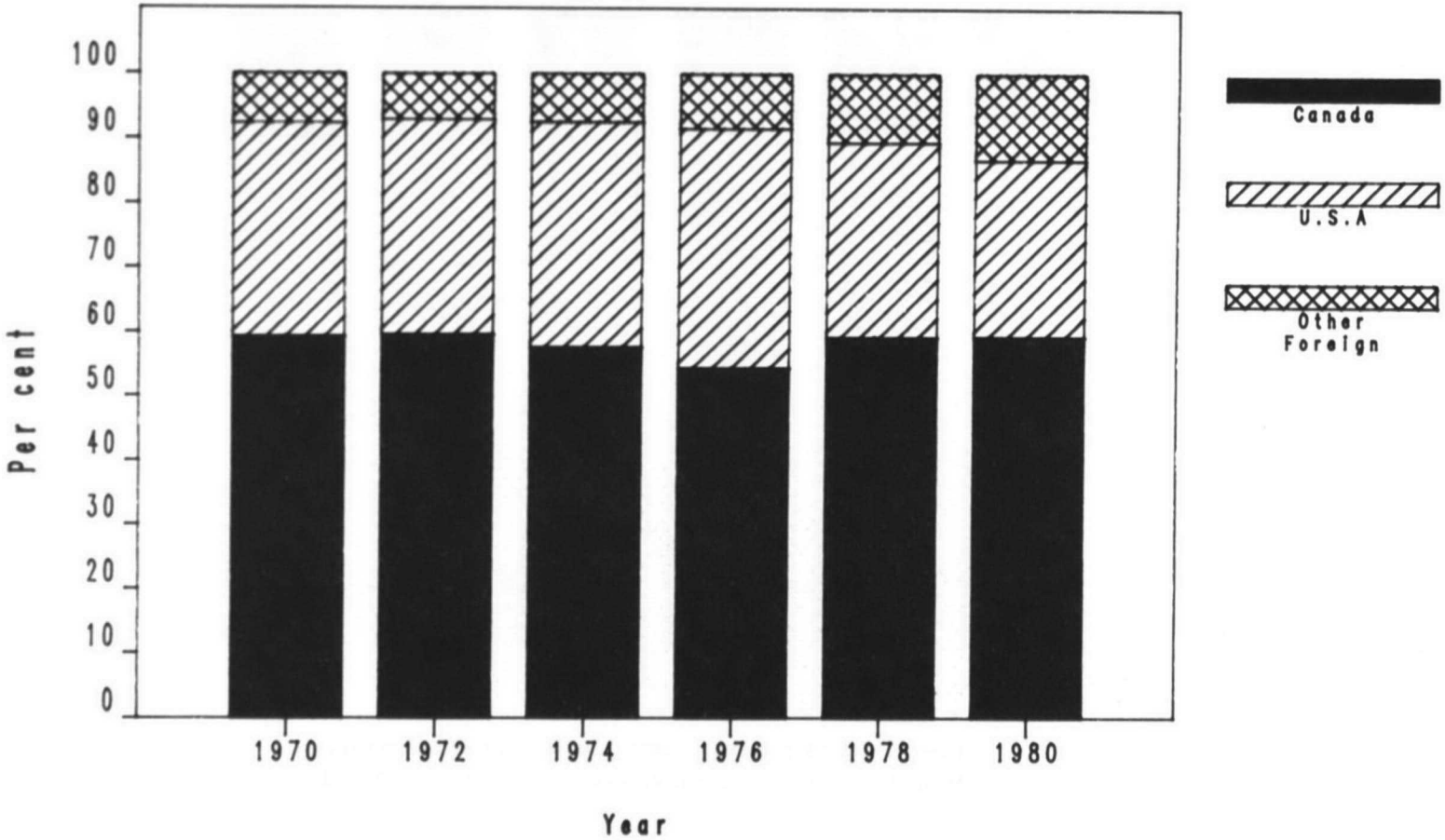


**Chart 2.7**

**Proportion of Total Employment in the Pharmaceutical Industry by Ownership of Enterprise: Canada, Selected Years, 1970-80**

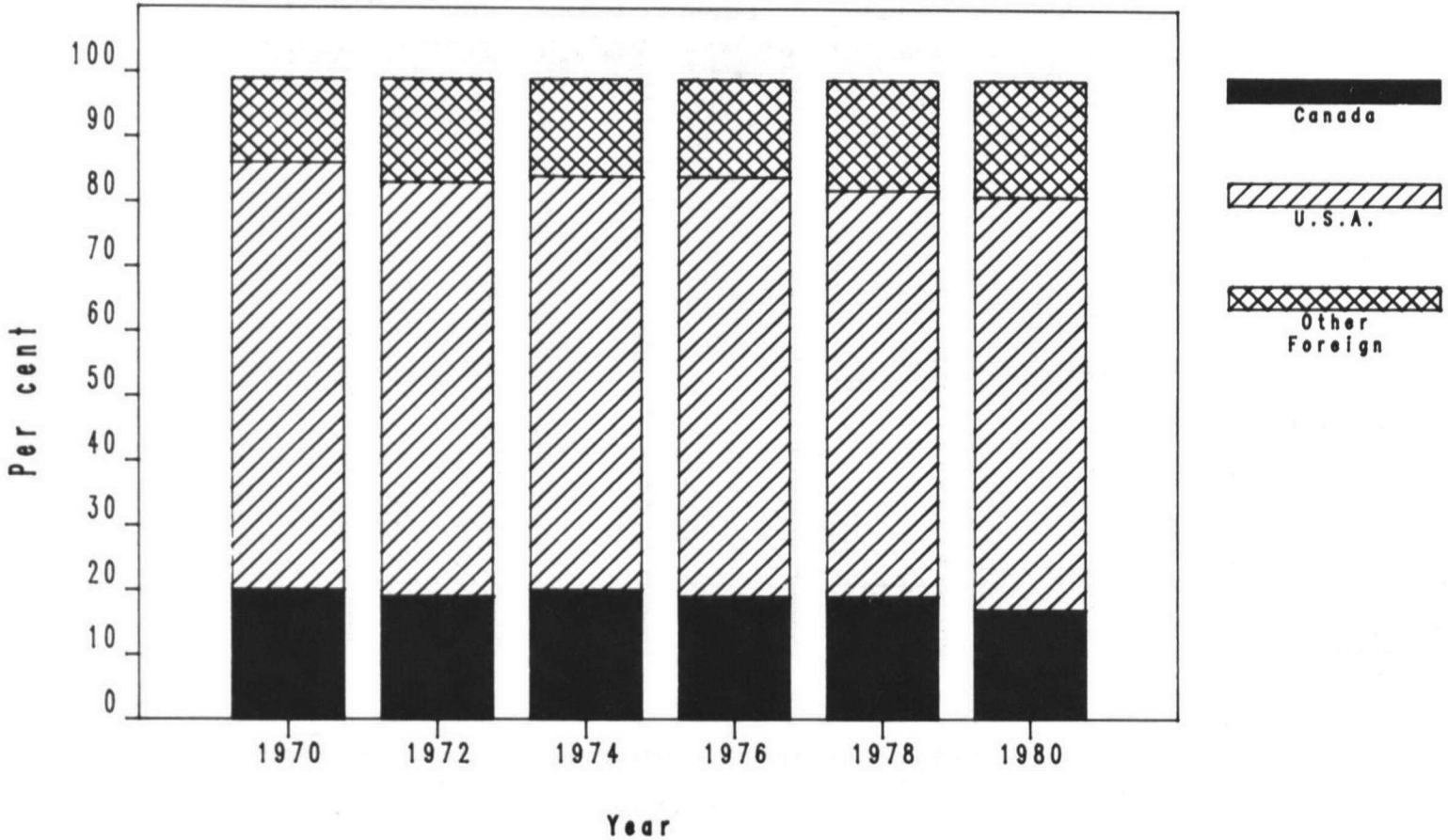


Chart 2.8

**Proportion of Value of Factory Shipments in the Pharmaceutical Industry by Ownership of Enterprise: Canada, Selected Years, 1970-80**

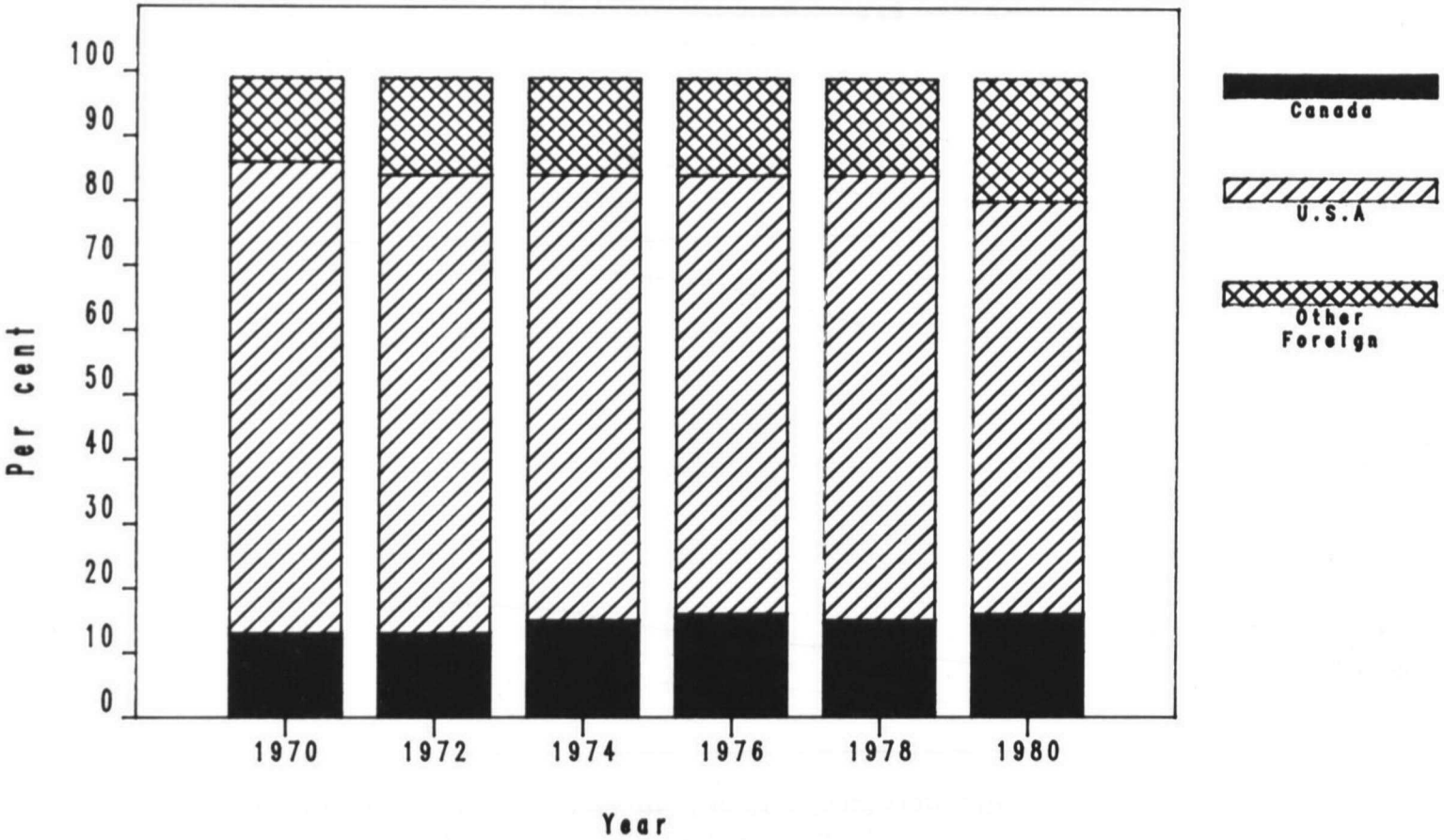


Chart 2.9

**Proportion of Employment by Canadian-owned Enterprises in the Pharmaceutical Industry and Selected Other Industries: Canada, Selected Years, 1970-80**

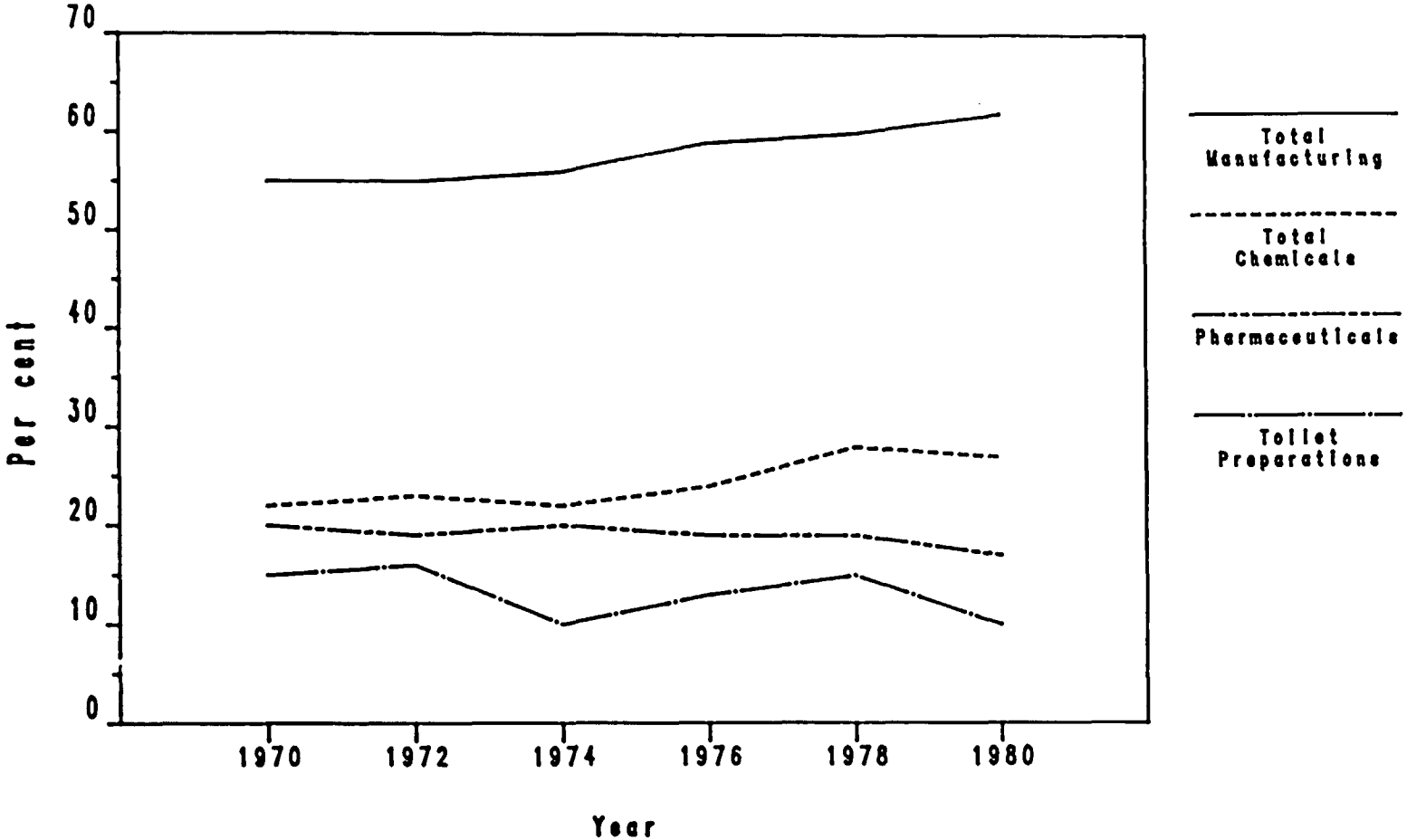


Chart 2.10

**Average Employment per Establishment in the Pharmaceutical Industry, Comparison by Ownership of Enterprise: Canada, Selected Years, 1970-80**

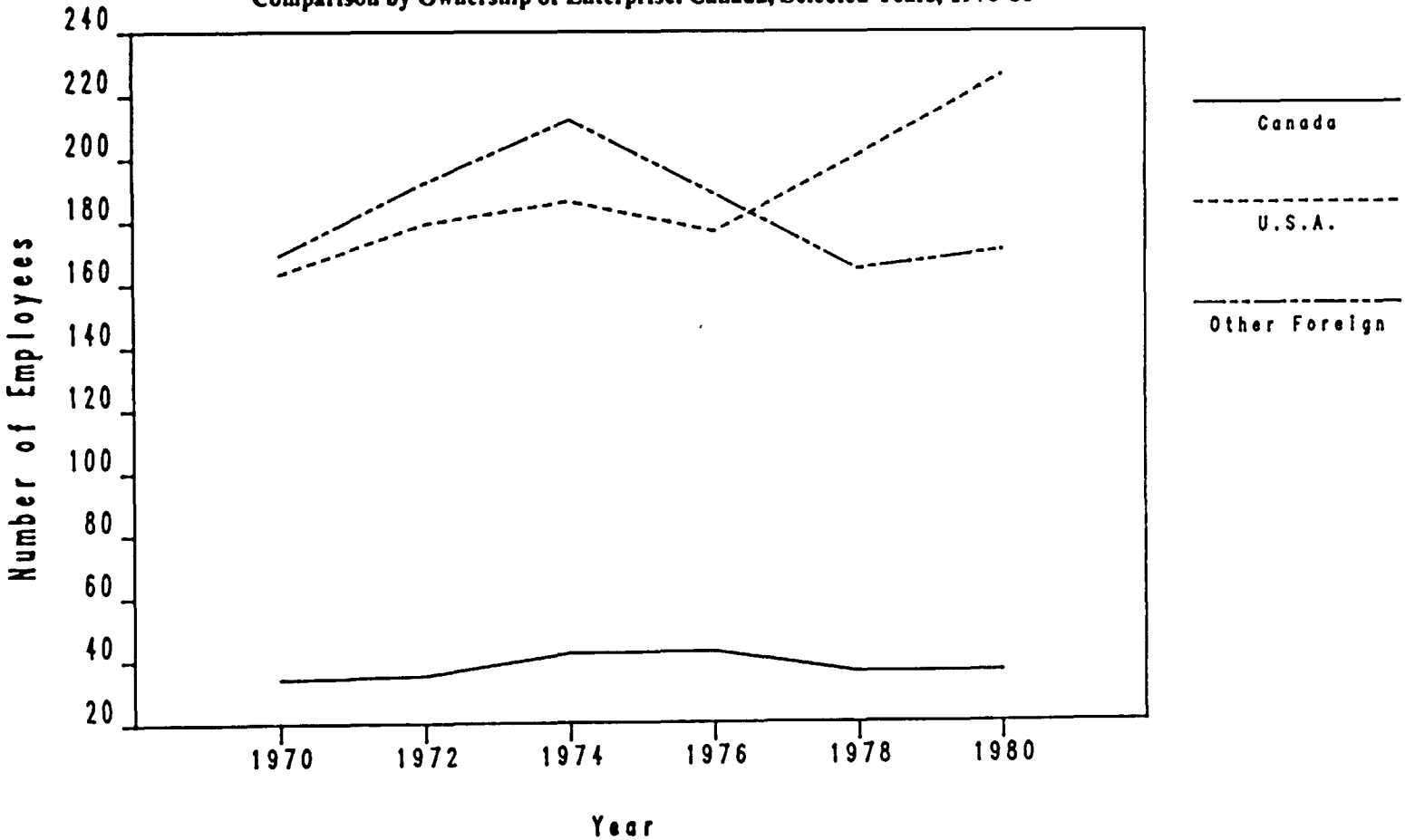
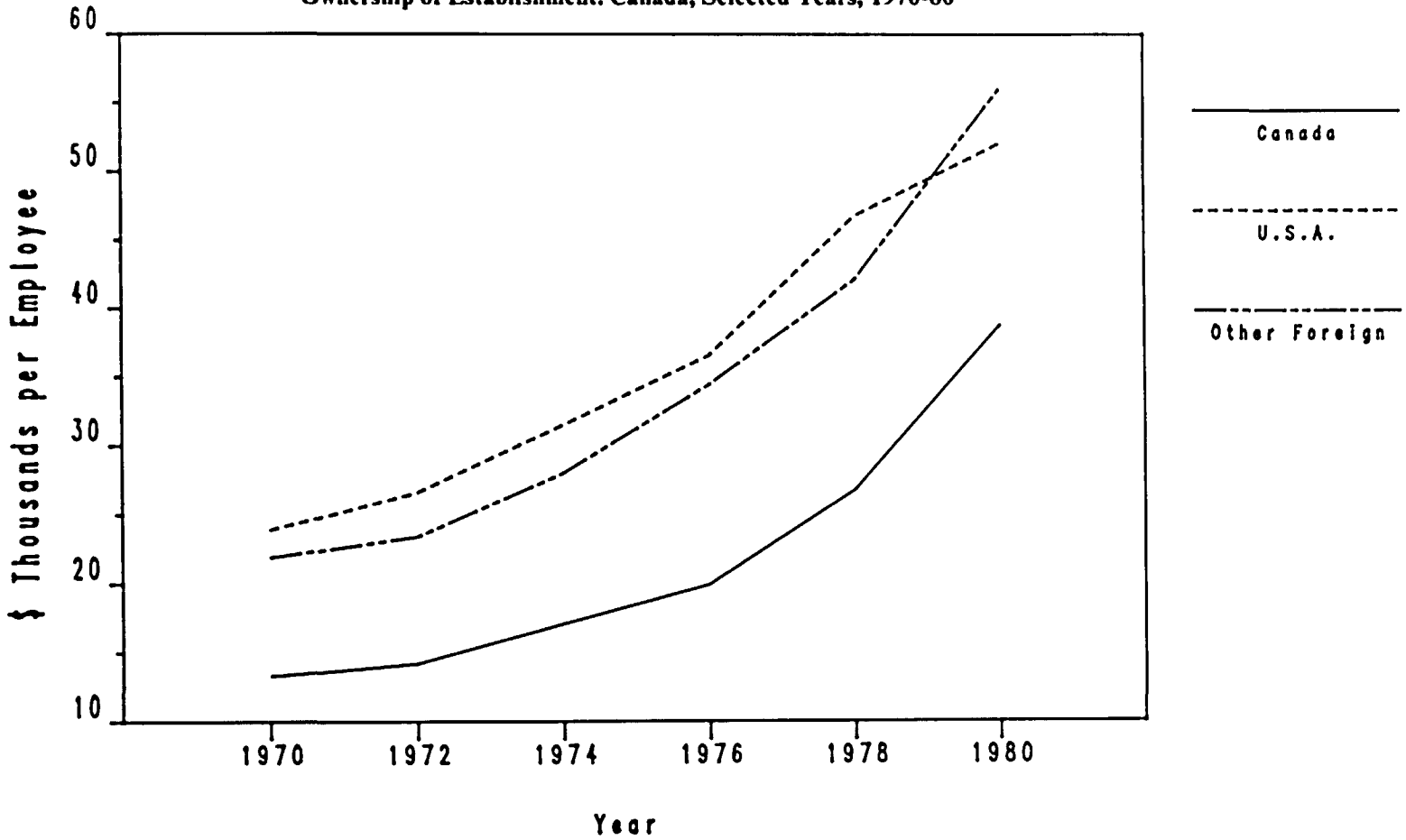


**Chart 2.11**

**Value Added per Employee in the Pharmaceutical Industry, Comparison by Ownership of Establishment: Canada, Selected Years, 1970-80**



Shown in Chart 2.9 is the percentage of total employment accounted for by Canadian-owned firms both in the pharmaceutical industry and in toiletries, all chemicals, and all manufacturing. It is clearly seen that the share of employment accounted for by Canadian-owned firms is much higher in all manufacturing than in the three industry groups shown. Moreover, this share is steadily increasing. All chemicals show a similar increase in percentage share, though at a much lower level. In contrast, the share of employment accounted for by pharmaceuticals is slowly decreasing.

Information on the number of employees per establishment for pharmaceuticals and medicines according to their ownership is presented in Chart 2.10. The size of Canadian-owned firms is clearly seen to be sharply lower than that of foreign-owned firms. For example, in 1980, the average number of employees for foreign establishments was 211 persons; for Canadian establishments it was 36 persons. Moreover, the ratio of the number of employees per estabishment for Canadian-owned firms to the number of employees per establishment for all foreign-owned firms (including the U.S. and others) has been falling over the last four years. The relative smallness of Canadian-owned pharmaceutical firms compared to the foreign-owned firms is not altogether dissimilar to the picture for all manufacturing industries (as indicated by the detailed data provided in Table A2.7). With regard to all manufacturing, the number of employees per establishment in Canadian-owned firms is but 20 per cent of the level for foreign-owned firms.

Information on value added per establishment, shown in Appendix Table A2.7, also indicates that Canadian-owned firms are relatively small. The value added per establishment of Canadian-owned firms was $1.4 million in 1980. This was equivalent to just over 12 per cent of the $11.1 million of value added per establishment of foreign-owned firms. The comparable figure for all manufacturing industries was 14.7 per cent in 1980. Thus Canadian-owned pharmaceutical firms are seen to be relatively somewhat smaller compared to all foreign-owned firms than is the case for all manufacturing.

The value added per employee, also set out in Table A2.7, is summarized in Chart 2.11. The value added per employee in Canadian-owned firms rises over the ten-year period. More importantly, however, it is rising relative to that for all foreign-owned firms. In 1970, value added per employee in Canadian-owned firms was some 56 per cent as high as that in foreign-owned firms. By 1980, it had risen to 73 per cent. This level is similar to the corresponding figure for all manufacturing industries. Throughout the period, value added per employee in Canadian-owned firms for all of manufacturing was approximately 72 per cent of the value added per employee in foreign-owned firms.

## Research and Development Expenditures

Yet another important characteristic of the pharmaceutical industry in Canada is the level of its expenditures on intramural research and development. Set out in Table 2.8 and summarized in Chart 2.12 is information on

Table 2.8

**Total Intramural Expenditures on Research and Development in Pharmaceuticals and Medicines, All Chemicals and All Manufacturing: Canada, Selected Years, 1967-82**

| | 1967 | 1972 | 1977 | 1982 |
|---|---|---|---|---|
| Pharmaceuticals and Medicines ($MM) | 10.40 | 18.00 | 28.00 | 57.00 |
| Index | 100.00 | 173.10 | 269.20 | 548.10 |
| All Chemicals ($MM) | 46.20 | 50.00 | 77.00 | 188.00 |
| Index | 100.00 | 108.20 | 166.70 | 406.90 |
| All Manufacturing ($MM) | 310.60 | 387.00 | 668.00 | 1,908.00 |
| Index | 100.00 | 124.60 | 215.10 | 614.30 |

Source: Statistics Canada, *Industrial Research and Development Statistics of Science and Technology Statistics Division, 1985* (Catalogue 88-202) and revised data supplied by M. Boucher.

total intramural expenditures, defined as the sum of current intramural plus capital expenditures on research and development.[4] Estimated at $10.4 million in 1967, they had grown to $57 million by 1982, an increase of 448 per cent. This growth can be compared with that for all chemicals of 307 per cent, and that for all manufacturing of 514 per cent.

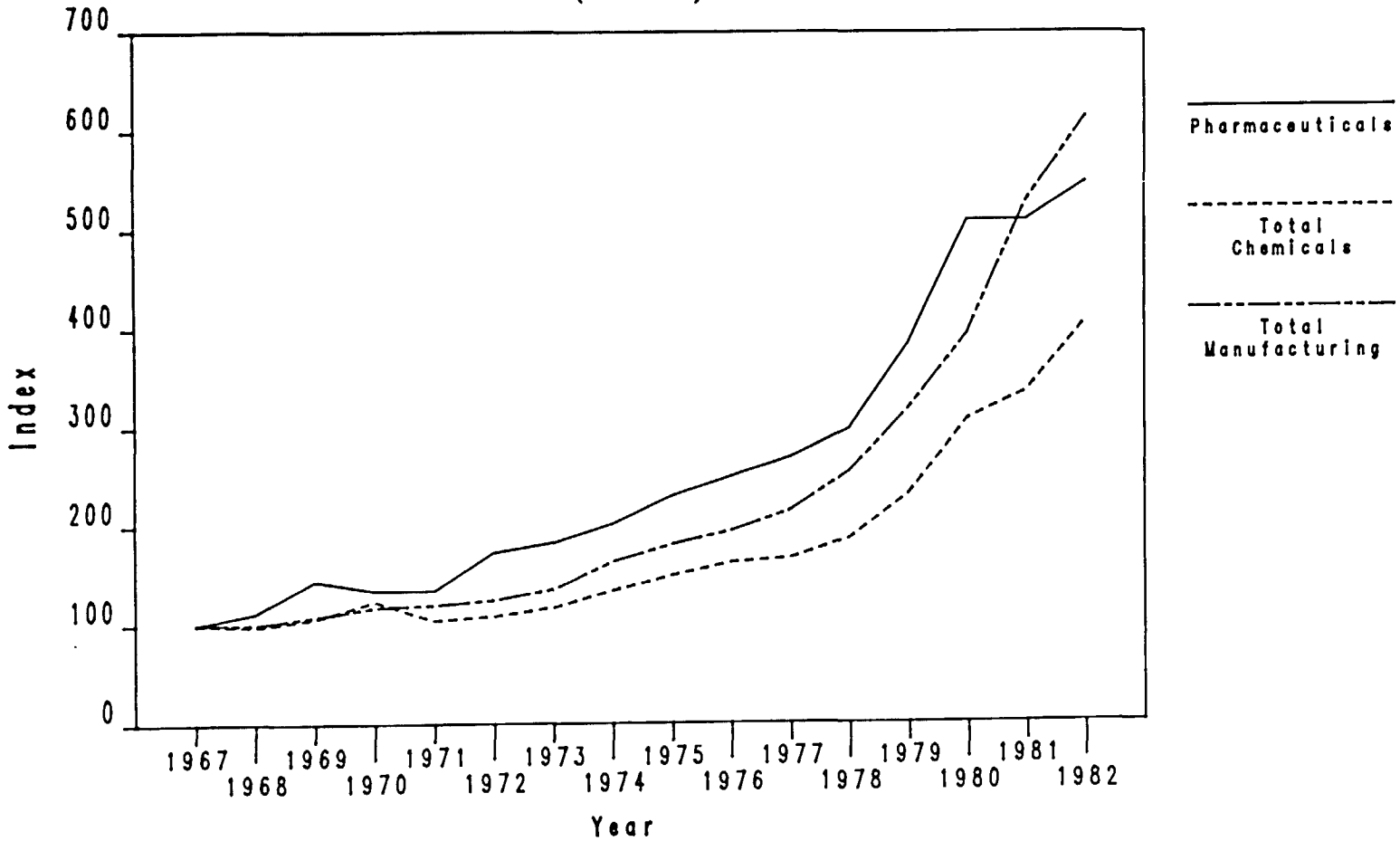
Total expenditures on intramural research and development for the pharmaceutical industry were equivalent to 3.5 per cent of the value of factory shipments in 1967 and 3.8 per cent in 1982. Indeed, throughout the period this percentage is in the range of 3.5 to 4.8 per cent. The corresponding figure for all chemicals is approximately 1.9 per cent for the earlier years and falls to some 1.5 per cent in 1982. The level of total expenditures on intramural research and development in the pharmaceutical industry thus appears to have at least kept pace with that in other industries and indeed to have surpassed that of many including all chemicals.

From the information presented in Chart 2.12, it is difficult to detect a major change in the trend that could be associated with the date of any impact of changes in compulsory licensing. The trend for pharmaceuticals is clearly similar to that for all chemicals and all manufacturing.

[4] Statistics Canada data on research and development expenditures for particular industries are assembled on the basis of information for entire companies and all their production activities rather than by establishment. This tends to generate underestimates of these expenditures for the pharmaceutical industry since research related to pharmaceuticals is significantly larger than for other products produced by pharmaceutical firms.

Chart 2.12

**Index of Total Intramural Research and Development Expenditures in the Pharmaceutical Industry and Selected Other Industries: Canada, 1967-82 (1967=100)**



## Principal Statistics of the Pharmaceutical Industry in Canada and the United States

An alternative framework is to compare the performance of the industry in Canada with that of the pharmaceutical industry in the United States.

Several of the principal statistics described in the preceding sections are presented in Table 2.9 in summary form for both Canada and the United States. An index number is constructed for each 1982 statistic on the assumption that the absolute level obtained in 1967 equals 100. For example, the number of establishments fell in Canada by nearly 17 per cent so that the index number in 1982 was 82.9. The decline was even greater, however, in the United States. A decline of over 21 per cent occurred with the result that the index number in 1982 for the number of establishments in United States is 78.4.

**Table 2.9**

**Principal Statistics for the Pharmaceutical Industry in Canada and the United States: Comparison of Indices for 1982 (1967 = 100)**

| | | | Indexed Statistic 1982 |
|---|---|---|---|
| Number of Establishments: | | Canada | 82.9 |
| | | United States | 78.4 |
| Employment: | Total: | Canada | 128.8 |
| | | United States | 122.6 |
| | Production: | Canada | 129.9 |
| | | United States | 113.2 |
| Wages and Salaries: | Total: | Canada | 502.1 |
| | | United States | 373.4 |
| | Production: | Canada | 561.3 |
| | | United States | 344.6 |
| Value Added in Manufactures: | | Canada | 445.2 |
| | | United States | 324.1 |
| Value of Shipments: | | Canada | 492.6 |
| | | United States | 405.9 |
| Net Fixed Assets: | | Canada | 318.4 |
| | | United States | 341.5 |
| Total Assets: | | Canada | 509.7 |
| | | United States | 335.2 |
| Intramural R & D: | | Canada | 538.5 |
| | | United States | 746.6 |

Source: Canada: See individual tables and charts in this chapter; United States: Bureau of the Census, *Preliminary Reports of the Census of Manufacturers 1982.*

An overall summary of the comparison of the growth and development of the pharmaceutical industry in Canada relative to that of the United States yields the straightforward conclusion that growth has been more buoyant in Canada than it has been in the United States since 1967. Several of the principal statistics described in Table 2.9, such as wages and salaries, value added, value of factory shipments, net fixed assets, total assets, and total intramural research and development expenditures, however, are influenced by differential rates of inflation as well as changes in the real volume or level of activity. On the other hand, the change in the level of employment is not subject to this problem. Increases in both the total number of employees and production and related workers only has been greater in Canada than in the United States. Though these differences in growth since 1967 are relatively small, they are indicative of a more buoyant market for pharmaceuticals and medicines in Canada than in the United States.

The discussion of this chapter leads to the general conclusion that the pharmaceutical industry in Canada has been growing fairly steadily. Any negative impacts of the changes to the Patent Act in 1969 appear to have been more than offset by other factors like especially strong growth in demand. This last observation follows from a visual inspection of the several charts presented in this chapter. It also is supported by a simple statistical analysis of the time trend of each of the principal statistics.[5]

[5] The results of this statistical analysis are presented in Table A2.8 in the Appendix. In addition to the time trend, the impact of compulsory licensing, hypothesized to have been felt in either 1971 or 1973, is analysed.

## Notes to Tables A2.1 and A2.2

### Exit and Entry in the Pharmaceutical Industry, 1972-82

Tables A2.1 and A2.2 show the entry and exit of establishments and enterprises of the Pharmaceutical Manufacturers Industry, SIC 374, over the period 1972-82. These tables take into account only the establishments existing in 1972 or in 1982. Any which entered the industry after 1972 and exited before 1982 are not taken into account by these tabulations.

Each unit has been classified according to its status in 1972 and in 1982. These categories are given down the side of the tables for 1972 and along the top for 1982. Table A2.1 shows the changing status of establishments over the period, while Table A2.2 deals with enterprises. For example, in Table A2.1, the second row provides data for the 25 establishments which ranked between 26 and 50 in 1972. From the column headings, it can be seen that 11 remained in the same rank group in 1982. Five had increased their relative size enough to put them in the top rank group in 1982, while four had dropped down to the next rank group. One was reclassified to another manufacturing industry and, finally, four were deaths.

### Table A2.1

### Changes in Establishment Status, 1972-82
### Pharmaceuticals Manufacturers
### SIC 374, as Classified by Status in 1972 and 1982

| | Status in 1982 | | | | | | |
|---|---|---|---|---|---|---|---|
| | Active in SIC 374 Shipments Rank | | | | Reclassified[a] | Deaths[b] | Total |
| Status in 1972 | 1-25 | 26-50 | 51-100 | 101+ | | | |
| 1 - 25 | 19 | 2 | 0 | 0 | 3 | 1 | 25 |
| 26 - 50 | 5 | 11 | 4 | 0 | 1 | 4 | 25 |
| 51 - 100 | 0 | 7 | 15 | 0 | 8 | 20 | 50 |
| 101+ | 0 | 0 | 4 | 12 | 1 | 24 | 41 |
| Births[c] | 1 | 5 | 27 | 19 | — | — | 52 |
| Total | 25 | 25 | 50 | 31 | 13 | 49 | — |

[a] Establishments classified to SIC 374 in 1972 which were reclassified to another manufacturing industry by 1982.

[b] Includes establishments reclassified to the wholesaling industry, as well as "true" deaths.

[c] Includes an establishment reclassified from another manufacturing industry as well as "true" births; may possibly include establishments reclassified from non-manufacturing industries.

Source: Statistics Canada, Industry Division, unpublished data supplied by Mr. K. Young, 1985.

## Notes to Tables A2.1 and A2.2 (continued)

The data in Table A2.2 showing changes in enterprise status are presented in a similar way. The table has an additional category for exits, i.e., "acquired." These are enterprises which ceased to exist (at least in SIC 374) because their establishments were acquired by another enterprise.

The data base does not enable a distinction to be made between establishments which went out of business and those which were reclassified to a non-manufacturing industry. This breakdown is available for 1981-82, over which there were 14 "deaths." Of these, 12 actually ceased operations while two were reclassified as wholesaling establishments.

Most of the 13 establishments reclassified from SIC 374 to another manufacturing industry went to SICs 106 and 377.

Acquisitions in which both the acquirer and the acquired enterprises were foreign-controlled have been ignored. This left five, two involving the acquisition of Canadian-controlled enterprises by other Canadian-controlled enterprises. The other three were acquisitions of Canadian-controlled by foreign-controlled enterprises.

### Table A2.2

### Changes in Enterprise Status, 1972-82
### Pharmaceuticals Manufacturers
### SIC 374, as Classified by Status in 1972 and 1982

| | Status in 1982 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Active in SIC 374 Shipments Rank | | | | Acquired | Reclassified[a] | Deaths[b] | Total |
| Status in 1972 | 1-25 | 26-50 | 51-100 | 101+ | | | | |
| 1 - 25 | 20 | 1 | 0 | 0 | 0 | 3 | 1 | 25 |
| 26 - 50 | 5 | 10 | 2 | 0 | 3 | 2 | 3 | 25 |
| 51 - 100 | 0 | 5 | 14 | 0 | 2 | 5 | 24 | 50 |
| 101+ | 0 | 0 | 3 | 6 | 0 | 0 | 15 | 24 |
| Births[c] | 0 | 9 | 31 | 8 | — | — | — | — |
| Total | 25 | 25 | 50 | 14 | 5 | 10 | 43 | — |

[a] Enterprises whose entire operations classified to SIC 374 in 1972 were reclassified to another manufacturing industry by 1982.

[b] Includes enterprises whose entire operations were reclassified to the wholesaling industry, as well as "true" deaths.

[c] Includes two enterprises which came into existence by acquiring the existing operating units in SIC 374 of other enterprises.

Source: Statistics Canada, Industry Division, unpublished data supplied by Mr. K. Young, 1985.

## Table A2.3

**The Value of Shipments of Medicinal and Pharmaceutical Preparations by Manufacturers of Toilet Preparations as a Percentage of the Value of All Their Shipments: Canada, 1965-82**

| Year | (1) Value of Shipments of Medicinal and Pharmaceutical Preparations | | (1) as a % of the Value of All Shipments |
|---|---|---|---|
| | ($000) | Index | % |
| 1982 | 29,242 | 534.0 | 4.5 |
| 1981 | 21,981 | 401.4 | 3.7 |
| 1980 | 12,401 | 226.4 | 2.5 |
| 1979 | 11,893 | 217.2 | 2.8 |
| 1978 | 10,553 | 192.7 | 2.9 |
| 1977 | 6,635 | 121.2 | 2.0 |
| 1976 | 6,507 | 118.8 | 2.1 |
| 1975 | 6,113 | 111.6 | 2.2 |
| 1974 | 5,556 | 101.5 | 2.3 |
| 1973 | 3,255 | 59.4 | 1.6 |
| 1972 | 4,693 | 85.7 | 2.6 |
| 1971 | 5,485 | 100.2 | 3.4 |
| 1970 | 6,212 | 113.4 | 4.0 |
| 1969 | 6,824 | 124.6 | 4.6 |
| 1968 | 6,067 | 110.8 | 4.8 |
| 1967 | 5,477 | 100.0 | 4.7 |
| 1966 | 5,207 | 95.1 | 4.7 |
| 1965 | 5,107 | 93.3 | 4.9 |

Source: Statistics Canada, *Manufacturers of Toilet Preparations* (Catalogue 46-215), selected years.

## Table A2.4

### Shipments of Goods by Manufacturers of Pharmaceuticals and Medicines: Percentage Distribution, Canada, 1966-71

| Description | 1971 | 1970 | 1969 | 1968 | 1967 | 1966 |
|---|---|---|---|---|---|---|
| Large establishments reporting detail | | | | | | |
| Products: | | | | | | |
| Medicines and pharmaceuticals: Registered as patent medicines and sold without all ingredients declared | 10.5 | 11.0 | 11.7 | 12.1 | 12.0 | 13.6 |
| Antibiotics and preparations: | | | | | | |
| Penicillin, bulk; Penicillin preparations (injectable vials and other dosage forms) | 4.4 | 4.9 | 4.7 | 4.8 | 4.9 | 4.5 |
| Streptomycin and dihydrostreptomycin, dosage forms | 0.1 | | | | 0.1 | 0.1 |
| Penicillin-streptomycin combinations, bulk; Penicillin-streptomycin combinations, dosage forms | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 |
| Other antibiotics, bulk | 0.9 | 0.7 | 0.5 | 4.9 | 4.9 | 6.0 |
| Other antibiotics, dosage forms | 3.9 | 4.1 | 4.1 | | | |
| Sulphonamide (sulpha) preparations with or without other active ingredients | 1.0 | 1.0 | 1.1 | 1.0 | 1.0 | 1.2 |
| Vitamins and preparations: | | | | | | |
| Vitamins in bulk | 0.1 | 0.1 | 0.1 | 0.1 | 0.5 | 0.7 |
| Vitamin preparations in which the principal active ingredients are vitamins | 4.4 | 4.3 | 4.4 | 4.5 | 4.8 | 4.9 |
| Biologicals and vaccines, excluding sex hormones | 2.2 | 2.8 | 2.0 | 1.5 | 1.9 | 1.8 |
| Sex hormones | 5.5 | 5.6 | 6.6 | 7.0 | 7.1 | 5.7 |
| Oral antiseptics | 2.2 | 2.0 | 1.8 | 1.7 | 1.6 | 1.3 |
| Ethical preparations for human use, not elsewhere specified | 39.4 | 38.5 | 40.2 | 41.4 | 39.8 | 39.9 |
| All other human medicines | 7.3 | 7.7 | 7.7 | 4.9 | 5.6 | 4.4 |
| Inorganic and organic medicinal chemicals | 0.5 | 0.7 | 0.6 | 0.7 | 1.0 | 0.8 |
| Feed supplements and their ingredients | 2.8 | 2.6 | 2.1 | 2.4 | 2.5 | 2.4 |
| Veterinary medicines: | | | | | | |
| Biologicals and vaccines | 0.5 | 0.6 | 0.5 | 0.6 | 0.6 | 0.7 |
| Antibiotic preparations and combinations | 1.0 | 1.1 | 1.1 | 1.1 | 1.0 | 1.4 |
| Sulphonamide preparations | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Vitamins and vitamin combinations | 0.4 | 0.4 | 0.6 | 0.7 | 0.7 | 0.6 |
| All other veterinary medicines | 1.0 | 0.8 | 1.0 | 1.0 | 1.8 | 1.5 |

## Table A2.4 (continued)

### Shipments of Goods by Manufacturers of Pharmaceuticals and Medicines: Percentage Distribution, Canada, 1966-71

| Description | 1971 | 1970 | 1969 | 1968 | 1967 | 1966 |
|---|---|---|---|---|---|---|
| Toilet preparations: | | | | | | |
| Bath salts and bath oils | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 |
| Creams of all kinds, except medicinal type: | | | | | | |
| Cleansing | 0.1 | | | | 0.1 | |
| Night | | | | | | |
| Other | | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 |
| Other toilet preparations | 3.9 | 3.9 | | | | |
| Miscellaneous: | | | | | | |
| Dessert powders | | | | | | |
| Deodorants (except personal) | | | | | | |
| Disinfectants | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 |
| Flavouring extracts | | | 0.1 | | 0.1 | 0.1 |
| Insecticides: | | | | | | |
| Fly spray | | | | | | |
| Rat and mouse poison | | | | | | |
| Other household and industrial insecticides | 0.2 | | | | | |
| Livestock sprays and powders | | 0.1 | | | 0.1 | 0.1 |
| Shaving cream: | | | | | | |
| Aerosol | | | | 0.1 | 0.1 | 0.1 |
| Brushless | 0.1 | 0.1 | | | | |
| Lather | | | 0.1 | 0.1 | 0.1 | 0.1 |
| All other products | 7.2 | 7.9 | 10.1 | 10.1 | 9.3 | 9.4 |
| Amount received in payment for work done on materials and products owned by others | 1.3 | 0.5 | 0.9 | 1.0 | 1.0 | 1.1 |
| Less adjustment for value of sales taxes, excise duties and outward transportation charges which could not be deducted from individual commodity items described above | −2.3 | −2.7 | −2.6 | −2.2 | −3.2 | −3.0 |
| Small establishments not reporting detail | 0.7 | 0.8 | | | | |
| % | 99.9 | 100.2 | 100 | 100 | 99.9 | 100.2 |

Source: Statistics Canada, *Manufacturers of Pharmaceuticals and Medicines* (Catalogue 46-209).

## Table A2.5

### Shipments of Goods by Manufacturers of Pharmaceuticals and Medicines: Percentage Distribution, Canada, 1972-82

| Description | 1982 | 1981 | 1980 | 1979 | 1978 | 1977 | 1976 | 1975 | 1974 | 1973 | 1972 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Medicinal and pharmaceutical products for human use: | | | | | | | | | | | |
| Bacteriological products (vaccines, etc.) | | | | | | | | | 2.2 | 2.0 | |
| Biological products for human use | | 0.5 | 1.1 | 1.1 | 1.2 | 1.4 | 1.3 | 1.5 | 1.8 | 1.7 | |
| Drugs acting on the cardiovascular and respiratory systems (cardiac agents, hemotological agents, anti-histamines, cough and cold preparations, etc.) | 13.5 | 13.5 | 13.5 | 13.2 | 13.1 | 12.0 | 11.8 | 10.8 | 10.8 | 11.0 | |
| Drugs acting on the central nervous system and the sense organs (internal analgesics, anti-depressants, tranquillizers, sedatives psychodelics, etc.) | 22.4 | 21.1 | 17.3 | 15.2 | 14.3 | 15.5 | 14.9 | 14.9 | 14.8 | 14.9 | |
| Drugs acting on the digestive and genito-urinary systems (antacids, laxatives, diuretics, etc.) | 11.0 | 10.9 | 11.6 | 9.7 | 9.0 | 8.6 | 7.9 | 6.7 | 6.4 | 6.0 | |
| Drugs affecting neoplasms, the endocrine system and metabolic diseases (hormones, oral contraceptives, etc.) | 10.8 | 10.0 | 9.7 | 9.8 | 9.4 | 10.9 | 10.4 | 10.7 | 9.8 | 8.6 | |
| Drugs affecting parasitic and infective diseases (anti-infectives, antibiotics, sulphonamides, antiseptics, disinfectants, anti-bacterials, etc.) | 9.3 | 10.7 | 11.6 | 11.4 | 10.4 | 11.5 | 11.7 | 11.8 | 13.3 | 11.9 | |
| Vitamins, nutrients and hematinics: | | | | | | | | | | | |
| Vitamins in bulk | } 5.4 | 0.1 | 0.3 | | 0.5 | | 0.4 | 0.6 | 0.4 | 0.3 | 0.1 |
| Vitamin preparations | | 4.4 | 5.1 | 4.5 | 3.9 | 3.5 | 4.1 | 4.3 | 5.3 | 5.4 | 5.4 |
| Nutrient preparations, therapeutic | 3.7 | 4.0 | 1.5 | 3.2 | 3.7 | 1.9 | 1.6 | 1.5 | 1.1 | 1.2 | |
| Hematinic preparations | 0.2 | 0.3 | 0.5 | 0.1 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | 0.2 | |
| Dermatological preparations | 1.5 | 1.4 | 1.0 | | | | | | | | |
| Diagnostic aids | 1.2 | 1.8 | 1.4 | | | } 6.2 | 17.5 | 16.1 | 14.7 | 16.2 | 75.8 |
| Other medicinal and pharmaceutical products for human use | 9.9 | 10.3 | 8.9 | 14.5 | 16.1 | | | | | | |
| Micro-premixes, macro-premixes and feed supplements: | 0.7 | 0.5 | 0.7 | 2.4 | 2.0 | 1.7 | 2.4 | 1.8 | 2.3 | 2.1 | 2.3 |

## Table A2.5 (continued)

### Shipments of Goods by Manufacturers of Pharmaceuticals and Medicines: Percentage Distribution, Canada, 1972-82

| Description | 1982 | 1981 | 1980 | 1979 | 1978 | 1977 | 1976 | 1975 | 1974 | 1973 | 1972 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Veterinary medicines: | | | | | | | | | | | |
| Antibiotics | 0.9 | 1.0 | 1.3 | | | | | | | | |
| Biological products | 0.3 | 0.5 | 0.5 | | | | | | | | |
| Coccidiostats | | | | | | | | | | | |
| Drugs affecting parasitic and infective diseases | 0.5 | 0.7 | 0.6 | | 3.1 | 3.5 | 3.6 | 3.2 | 5.0 | 4.3 | 3.8 |
| Therapeutic vitamin preparations | 0.2 | 0.2 | 0.4 | | | | | | | | |
| Other veterinary medicines (incl. pharmaceutical and medicinal chemical products for use in feed supplements) | 0.8 | 0.9 | 1.1 | 3.7 | | | | | | | |
| Toilet preparations: | | | | | | | | | | | |
| Creams and lotions | 0.2 | 0.7 | 0.7 | | | | 0.5 | 0.6 | 0.5 | 0.7 | 0.7 |
| Hair preparations | 0.8 | 0.5 | 0.7 | | 1.7 | | 2.1 | 2.0 | 2.2 | 2.4 | 2.3 |
| Dentifrices and oral preparations, non-medicinal | 0.7 | 1.1 | 1.5 | | | | 1.2 | 2.6 | 3.1 | 3.9 | 1.0 |
| All other toilet preparations and cosmetics | | | 0.2 | 2.7 | | | | | | | |
| Other medical supplies, ophthalmic goods and orthopaedic appliances: | 2.8 | 0.8 | 3.1 | | | | | | | | |
| All other products: | 1.8 | 2.2 | 3.9 | 6.8 | 8.5 | 10.0 | 5.7 | 7.5 | 6.5 | 6.9 | 9.1 |
| Amount received in payment for work done on materials and products owned by others: | 0.2 | 0.5 | 0.6 | 0.4 | 0.3 | 0.3 | 1.2 | 1.3 | 1.3 | 1.3 | 1.3 |
| Less adjustment for value of sales taxes, excise duties and outward transportation charges which could not be deducted from individual commodity items described above: | −1.4 | −1.8 | −1.7 | −1.3 | −1.5 | −1.4 | −1.8 | −2.2 | −2.4 | −2.1 | −2.4 |
| Small establishments not reporting detail: | 2.7 | 3.3 | 3.0 | 2.6 | 4.0 | 3.9 | 3.3 | 3.9 | 0.6 | 1.2 | 0.9 |
| % | 100.1 | 100.1 | 100.1 | 100.0 | 100.0 | 99.8 | 100.1 | 100.0 | 100.0 | 100.1 | 100.3 |

Source: Statistics Canada, *Manufacturers of Pharmaceuticals and Medicines* (Catalogue 46-209) and *Pharmaceuticals, Cleaning Compounds and Toilet Preparations* (Catalogue 46-223).

## Table A2.6

### Comparative Statistics on Foreign Ownership in the Pharmaceutical, Toiletries, Chemical and All Manufacturing Industries: Percentage Distributions, Canada, Selected Years, 1970-80

| | Number of Enterprises | | | | | | Number of Establishments | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1970 | 1972 | 1974 | 1976 | 1978 | 1980 | 1970 | 1972 | 1974 | 1976 | 1978 | 1980 |
| All Manufacturing Industries: | | | | | | | | | | | | |
| United States | 5 | 5 | 5 | 5 | 5 | 4 | 9 | 9 | 9 | 10 | 9 | 8 |
| Other Foreign | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 3 | 3 |
| Canada | 94 | 94 | 94 | 94 | 94 | 95 | 88 | 88 | 87 | 87 | 88 | 89 |
| Chemicals and Chemical Products: | | | | | | | | | | | | |
| United States | 25 | 25 | 27 | 30 | 24 | 23 | 35 | 35 | 38 | 40 | 33 | 32 |
| Other Foreign | 6 | 6 | 6 | 7 | 6 | 7 | 13 | 14 | 14 | 13 | 13 | 14 |
| Canada | 69 | 69 | 66 | 63 | 70 | 70 | 53 | 52 | 48 | 47 | 54 | 54 |
| Pharmaceuticals and Medicines: | | | | | | | | | | | | |
| United States | 33 | 33 | 35 | 37 | 30 | 28 | 37 | 37 | 38 | 40 | 33 | 33 |
| Other Foreign | 8 | 7 | 8 | 8 | 11 | 13 | 8 | 9 | 8 | 9 | 11 | 12 |
| Canada | 59 | 60 | 58 | 54 | 59 | 59 | 55 | 55 | 54 | 51 | 56 | 55 |
| Toilet Preparations: | | | | | | | | | | | | |
| United States | 47 | 44 | 48 | 48 | 37 | 38 | 48 | 45 | 50 | 48 | 37 | 39 |
| Other Foreign | 9 | 7 | 10 | 10 | 7 | 6 | 9 | 7 | 10 | 9 | 7 | 6 |
| Canada | 44 | 49 | 41 | 43 | 55 | 56 | 43 | 48 | 40 | 42 | 55 | 55 |

Source: Statistics Canada, *Domestic and Foreign Control: Manufacturing Industries* (Catalogue 31-401).

| Value of Shipments | | | | | | Value Added | | | | | | Employment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1970 | 1972 | 1974 | 1976 | 1978 | 1980 | 1970 | 1972 | 1974 | 1976 | 1978 | 1980 | 1970 | 1972 | 1974 | 1976 | 1978 | 1980 |
| 42 | 41 | 40 | 41 | 40 | 36 | 42 | 41 | 40 | 39 | 38 | 35 | 35 | 34 | 34 | 33 | 32 | 29 |
| 9 | 10 | 10 | 10 | 9 | 10 | 9 | 10 | 11 | 9 | 9 | 10 | 8 | 8 | 9 | 7 | 7 | 8 |
| 48 | 48 | 48 | 49 | 49 | 53 | 47 | 48 | 48 | 50 | 52 | 54 | 55 | 55 | 56 | 59 | 60 | 62 |
| 60 | 60 | 60 | 60 | 59 | 58 | 62 | 62 | 62 | 64 | 59 | 59 | 55 | 54 | 55 | 56 | 54 | 55 |
| 21 | 21 | 20 | 17 | 15 | 16 | 22 | 22 | 21 | 18 | 17 | 17 | 22 | 22 | 21 | 19 | 17 | 16 |
| 18 | 18 | 19 | 22 | 24 | 25 | 15 | 15 | 16 | 17 | 23 | 22 | 22 | 23 | 22 | 24 | 28 | 27 |
| 72 | 71 | 68 | 68 | 69 | 64 | 74 | 72 | 72 | 71 | 70 | 66 | 66 | 64 | 64 | 64 | 63 | 64 |
| 13 | 15 | 15 | 15 | 15 | 19 | 13 | 15 | 15 | 16 | 17 | 20 | 13 | 16 | 15 | 15 | 17 | 18 |
| 13 | 13 | 15 | 16 | 15 | 16 | 11 | 11 | 12 | 11 | 12 | 13 | 20 | 19 | 20 | 19 | 19 | 17 |
| 76 | 79 | 77 | 75 | 76 | 82 | 76 | 78 | 77 | 74 | 75 | 81 | 69 | 71 | 74 | 71 | 71 | 78 |
| 15 | 12 | 15 | 14 | 12 | 10 | 15 | 12 | 17 | 17 | 14 | 14 | 15 | 12 | 15 | 15 | 12 | 11 |
| 8 | 8 | 7 | 10 | 11 | 7 | 8 | 8 | 5 | 8 | 10 | 4 | 15 | 16 | 10 | 13 | 15 | 10 |

## Table A2.7

### Comparative Statistics on Foreign Ownership in the Pharmaceutical, Chemical and All Manufacturing Industries: Canada, Selected Years, 1970-80

| | Employees per Establishment | | | | | | Percentage Distribution of Value Added | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1970 | 1972 | 1974 | 1976 | 1978 | 1980 | 1970 | 1972 | 1974 | 1976 | 1978 | 1980 |
| | | | | | | | (%) | | | | | |
| Pharmaceuticals and Medicines: | | | | | | | | | | | | |
| United States | 163 | 179 | 186 | 176 | 200 | 226 | 74.8 | 73.4 | 71.8 | 71.7 | 70.4 | 66.4 |
| Other Foreign | 169 | 192 | 212 | 188 | 164 | 170 | 11.9 | 14.8 | 15.1 | 16.4 | 17.3 | 20.3 |
| Total Foreign | 164 | 182 | 190 | 178 | 191 | 211 | 86.7 | 88.2 | 86.9 | 88.1 | 87.7 | 86.7 |
| Canada | 34 | 35 | 42 | 42 | 36 | 36 | 13.3 | 11.8 | 13.1 | 11.9 | 12.3 | 13.3 |
| Total | 90 | 102 | 111 | 109 | 104 | 114 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Ratio Canada/Foreign | 20.7 | 19.2 | 22.1 | 23.7 | 18.7 | 17.1 | | | | | | |
| Chemicals and Chemical Products: | | | | | | | | | | | | |
| United States | 112 | 105 | 109 | 109 | 117 | 125 | 62.8 | 62.7 | 62.0 | 64.1 | 59.4 | 59.4 |
| Other Foreign | 126 | 107 | 116 | 111 | 95 | 87 | 21.6 | 21.4 | 21.2 | 18.3 | 17.3 | 17.3 |
| Total Foreign | 115 | 105 | 111 | 109 | 94 | 113 | 84.3 | 84.1 | 83.2 | 82.4 | 76.7 | 76.7 |
| Canada | 30 | 30 | 35 | 39 | 37 | 37 | 15.7 | 15.9 | 16.9 | 17.6 | 23.3 | 23.3 |
| Total | 70 | 66 | 74 | 76 | 66 | 72 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Ratio Canada/Foreign | 26.1 | 28.6 | 31.5 | 35.8 | 39.8 | 32.9 | | | | | | |
| All Manufacturing Industries: | | | | | | | | | | | | |
| United States | 200 | 192 | 204 | 194 | 200 | 194 | 42.5 | 39.8 | 38.1 | 39.4 | 38.4 | 35.4 |
| Other Foreign | 160 | 157 | 165 | 149 | 129 | 139 | 9.9 | 10.2 | 11.1 | 9.2 | 9.2 | 10.2 |
| Total Foreign | 191 | 184 | 195 | 184 | 182 | 179 | 52.4 | 50.0 | 49.2 | 48.6 | 47.6 | 45.6 |
| Canada | 32 | 35 | 37 | 41 | 39 | 37 | 47.6 | 50.0 | 50.7 | 51.4 | 52.4 | 54.4 |
| Total | 51 | 53 | 57 | 60 | 56 | 52 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Ratio Canada/Foreign | 16.8 | 19.0 | 19.0 | 22.3 | 21.2 | 20.4 | | | | | | |

Source: Statistics Canada, *Domestic and Foreign Control: Manufacturing Industries* (Catalogue 31-401).

| Value Added per Establishment | | | | | | Value Added per Employee | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1970 | 1972 | 1974 | 1976 | 1978 | 1980 | 1970 | 1972 | 1974 | 1976 | 1978 | 1980 |
| | | ($000s) | | | | | | ($000s) | | | |
| 3,891 | 4,480 | 5,392 | 6,437 | 9,360 | 11,753 | 23.9 | 26.6 | 31.5 | 36.5 | 46.7 | 52.0 |
| 3,708 | 3,908 | 5,364 | 6,483 | 6,900 | 9,512 | 21.9 | 23.4 | 28.0 | 34.4 | 42.1 | 56.0 |
| 3,865 | 4,373 | 5,387 | 6,445 | 8,745 | 11,139 | 23.6 | 25.9 | 30.8 | 36.1 | 45.7 | 52.9 |
| 457 | 488 | 704 | 845 | 957 | 1,393 | 13.3 | 14.2 | 17.1 | 20.0 | 26.8 | 38.7 |
| 1,938 | 2,252 | 2,874 | 3,603 | 4,371 | 5,772 | 21.4 | 23.7 | 28.1 | 32.9 | 42.1 | 50.4 |
| 11.8 | 11.2 | 13.1 | 13.1 | 10.9 | 12.5 | 56.4 | 54.8 | 55.5 | 55.3 | 58.6 | 73.3 |
| 2,404 | 2,448 | 3,580 | 4,422 | 5,705 | 8,184 | 21.5 | 25.6 | 36.3 | 40.5 | 48.8 | 65.6 |
| 2,350 | 2,108 | 3,291 | 3,772 | 4,240 | 5,519 | 18.6 | 22.1 | 31.4 | 34.1 | 44.7 | 63.4 |
| 2,390 | 2,352 | 3,502 | 4,259 | 4,475 | 7,380 | 20.7 | 24.6 | 34.9 | 38.9 | 47.8 | 65.1 |
| 390 | 418 | 767 | 1,022 | 1,370 | 1,907 | 12.8 | 15.3 | 23.5 | 26.1 | 36.8 | 51.1 |
| 1,324 | 1,355 | 2,186 | 2,735 | 2,928 | 4,422 | 18.9 | 22.4 | 32.3 | 35.8 | 44.7 | 61.2 |
| 16.3 | 17.8 | 21.9 | 24.0 | 30.6 | 25.8 | 61.8 | 62.2 | 67.3 | 67.0 | 77.0 | 78.5 |
| 3,120 | 3,246 | 4,480 | 5,643 | 7,197 | 8,821 | 15.6 | 18.8 | 24.7 | 29.0 | 36.0 | 45.5 |
| 2,393 | 2,608 | 4,034 | 4,237 | 5,008 | 6,547 | 15.0 | 17.5 | 25.9 | 28.5 | 38.8 | 47.0 |
| 2,951 | 3,090 | 4,370 | 5,310 | 6,637 | 8,185 | 15.5 | 18.5 | 25.0 | 28.9 | 36.5 | 45.8 |
| 363 | 439 | 645 | 869 | 1,016 | 1,203 | 11.2 | 13.2 | 18.1 | 21.3 | 26.4 | 32.9 |
| 671 | 769 | 1,113 | 1,465 | 1,703 | 1,969 | 13.1 | 15.5 | 21.1 | 24.4 | 30.4 | 37.8 |
| 12.3 | 14.2 | 14.8 | 16.4 | 15.3 | 14.7 | 72.3 | 71.4 | 72.4 | 73.5 | 72.2 | 71.9 |

## Table A2.8

### Statistical Analysis of Various Economic Indicators: Pharmaceutical Industry in Canada

| Dependent Variable | Year of Change of Dummy Variable | Year | | Dummy | | | |
|---|---|---|---|---|---|---|---|
| | | Estimated Reg. Coef. | T. Statistic | Reg. Coef. | T. Statistic | R. Squared | D.W. |
| Net Fixed Assets | 1971 | 0.00016* | -3.900 | 0.0023* | 4.978 | 0.6200 | 1.310 |
| (1965-82)** | 1973 | 0.00009 | -1.266 | 0.0012 | 1.585 | 0.1500 | 0.320 |
| Total Assets | 1971 | 0.00004 | -1.101 | 0.0011* | 2.762 | 0.4400 | 1.520 |
| (1965-82) | 1973 | 0.00003 | -0.622 | 8.5000* | 1.782 | 0.3000 | 0.650 |
| Total Intramural Research | 1971 | 0.00037 | -1.064 | 0.0083* | 2.032 | 0.2513 | 1.160 |
| (1963-82) | 1973 | 0.00003 | 0.077 | 0.0026 | 0.565 | 0.0870 | 0.823 |
| Employment | 1971 | 0.00005* | 3.615 | 0.0006* | 3.534 | 0.9078 | 1.170 |
| (1961-82) | 1973 | 0.00010* | 5.591 | -0.0001 | -0.447 | 0.8487 | 0.756 |
| Wages and Salaries | 1971 | 0.00002 | 1.060 | 7.0800* | 2.408 | 0.7010 | 0.884 |
| (1961-82) | 1973 | 0.00010* | 4.139 | -0.0005 | -1.442 | 0.6480 | 0.761 |
| Value Added | 1971 | 0.00006 | 0.821 | -0.0010 | -1.104 | 0.0640 | 1.340 |
| Factory Shipments | 1973 | 0.00010* | 2.031 | -0.0020* | -2.530 | 0.2540 | 1.750 |
| (1961-82) | | | | | | | |
| Added Value | 1971 | 0.00030 | 0.425 | 9.5400 | 0.108 | 0.0530 | 0.670 |
| (1961-82) | 1973 | 0.00020* | 3.494 | -0.0020* | -3.300 | 0.3970 | 1.070 |
| Real GDP | 1971 | 0.00030 | 11.570 | 0.0003 | 0.883 | 0.9670 | 1.490 |
| (1961-83) | 1973 | 0.00030 | 12.670 | -0.0003 | -0.768 | 0.9670 | 1.440 |
| Imports to Shipments | 1971 | -0.00090 | -0.661 | 0.0780* | 3.290 | 0.4860 | 0.520 |
| (1952-82) | 1973 | -0.00160 | -0.175* | 0.1032* | 5.740 | 0.6720 | 0.870 |
| Exports to Shipments | 1971 | 0.00070 | 2.09* | 0.1500* | 2.530 | 0.7090 | 1.280 |
| (1952-82) | 1973 | 0.00050 | 1.91* | 0.0200* | 4.200 | 0.7810 | 1.370 |
| Imports to Exports | 1971 | -0.07200* | -2.650 | 0.6500 | 1.310 | 0.2630 | 0.961 |
| (1952-82) | 1973 | -0.07500* | -3.090 | 0.7830 | 1.690 | 0.2900 | 1.070 |

* Indicates a significant regression coefficient.
** Time period for which the regression analysis was run.

## Chapter 3

# The Pharmaceutical Industry in Canada: A Market Profile

Two broad classes of information are considered in this chapter. The first is used to describe the size and growth of expenditures on pharmaceuticals and medicines relative to total expenditures in the health care sector and relative to gross national product. Also of concern is the size of the pharmaceutical industry as indicated by the value of shipments from all manufacturers of pharmaceuticals and medicines on the one hand and the level of expenditures by final consumers on the other. In this latter regard, information is presented on the extent to which final consumers bear these costs directly.

The second major class of information concerns patterns of use of pharmaceutical products. These include utilization by age, by class of product, and by illness diagnosis. The importance of age leads to a consideration of recent and projected increases in the number of persons 65 years of age and over.

Though consumers may be considered sovereign decision-makers with regard to non-prescribed drugs, the same is not generally the case for prescribed drugs. Accordingly, information is presented on the supply of physicians and pharmacists who are, like manufacturers and consumers, the other principal economic agents in this market. With respect to both prescribed drugs and a significant proportion of non-prescribed drugs, the physician plays a principal role as the consumer's "agent" in directing that a particular medicine and/or pharmaceutical product be purchased.

Also considered in this second part is information describing the relationship between the number of visits to the physician and the number of drugs that are prescribed both in total and by broadly defined disease diagnosis.

This consideration of the nature of the market for pharmaceuticals and medicines is concluded with an assessment of its competitiveness.

## The Relative Size and Growth of Expenditures on Pharmaceuticals and Medicines

The first objective of this section is to reconcile information described in Chapter 2 on the value of shipments from manufacturers of pharmaceuticals

and medicines with information on the sales of these products to the consumer. Having accomplished what is possible in this regard given existing data sources, the relative size of expenditures at the level of final consumption is then examined in detail.

A third major consideration is the extent to which the costs of both non-prescribed and prescribed drugs are shared by the consumer on the one hand and third-party insurers on the other.

### Sales by Manufacturers Compared to Purchases by Drugstores, Pharmacies, and Hospitals

Set forth in Table 3.1 is information describing the purchases of pharmaceuticals and medicines by drugstores, pharmacies, and hospitals. These data are collected by the private company IMS Canada from periodic surveys of drugstores, pharmacies, and hospitals. The principal methodology used by IMS is that of examining invoices received by these purchasers from the selling manufacturers. This information thus provides a fairly accurate estimate of sales revenues based on actual transactions.

**Table 3.1**

**Purchases of Pharmaceuticals and Medicines by Drugstores, Pharmacies, and Hospitals: Canada, 1964-83**

| | Drugstores and Pharmacies | | | Hospitals | | | Combined | |
|---|---|---|---|---|---|---|---|---|
| Year | ($000) | Index 1967 = 100 | % of Combined | ($000) | Index 1967 = 100 | % of Combined | ($000) | Index 1967 = 100 |
| 1983 | 1460812 | 764.4 | 83.9 | 279701 | 479.4 | 16.1 | 1740513 | 697.8 |
| 1982 | 1181668 | 618.4 | 82.6 | 248965 | 426.7 | 17.4 | 1430633 | 573.6 |
| 1981 | 1034395 | 541.3 | 82.4 | 221273 | 379.3 | 17.6 | 1255668 | 503.4 |
| 1980 | 893552 | 467.6 | 82.5 | 189172 | 324.2 | 17.5 | 1082724 | 434.1 |
| 1979 | 755074 | 405.6 | 82.3 | 162260 | 278.1 | 17.7 | 917334 | 367.8 |
| 1978 | 641271 | 335.6 | 81.4 | 146066 | 250.4 | 18.6 | 787337 | 315.7 |
| 1977 | 549442 | 287.5 | 79.3 | 143560 | 246.1 | 20.7 | 693002 | 277.8 |
| 1976 | 508088 | 265.9 | 80.3 | 124615 | 213.6 | 19.7 | 632703 | 253.7 |
| 1975 | 446187 | 233.5 | 80.3 | 109345 | 187.4 | 19.7 | 555531 | 222.7 |
| 1974 | 399465 | 209.0 | 79.5 | 103115 | 176.7 | 20.5 | 502580 | 201.5 |
| 1973 | 356560 | 186.6 | 79.5 | 91886 | 157.5 | 20.5 | 448446 | 179.8 |
| 1972 | 332186 | 173.8 | 79.7 | 84541 | 144.9 | 20.3 | 416727 | 167.1 |
| 1971 | 306416 | 160.4 | 79.1 | 81055 | 138.9 | 20.9 | 387471 | 155.3 |
| 1970 | 250960 | 131.3 | 77.3 | 73714 | 126.3 | 22.7 | 324674 | 130.2 |
| 1969 | 236596 | 123.8 | 77.8 | 67551 | 115.8 | 22.2 | 304147 | 121.9 |
| 1968 | 223030 | 116.7 | 77.6 | 64360 | 110.3 | 22.4 | 287390 | 115.2 |
| 1967 | 191089 | 100.0 | 76.6 | 58342 | 100.0 | 23.4 | 249431 | 100.0 |
| 1966 | 186313 | 97.5 | 77.4 | 54284 | 93.0 | 22.6 | 240597 | 96.5 |
| 1965 | 157453 | 82.4 | 76.6 | 48219 | 82.6 | 23.4 | 205672 | 82.5 |
| 1964 | 147691 | 77.3 | 78.1 | 41434 | 71.0 | 21.9 | 189125 | 75.8 |

**Source:** IMS Canada.

The IMS data therefore differ somewhat from data on the value of factory shipments presented and discussed in Chapter 2. The latter come from the annual Statistics Canada survey of establishments throughout Canada and reflect the responses of individual firms as to what types of products they are shipping during the year and the value of these products.

These two sources of data yield quite similar results for the estimated size and growth of the value of all factory shipments of pharmaceuticals and medicines, as a comparison of the data presented in Table 2.2 (see Chapter 2) and Table 3.1 shows. For example, in 1982 the difference between the $1.437 billion of factory shipments estimated from the census of manufacturers and the $1.431 billion of sales to drugstores and hospitals as estimated by IMS Canada is substantially less than one per cent. In 1967, the corresponding figures from the two sources were $290.7 million and $249.4 million, respectively, a difference in the order of 15 per cent. Indeed, up to 1975 there was a difference of at least this order of magnitude. Thereafter, the relative size of the difference falls dramatically.

Inferences on the changing relative size of sales to drugstores and pharmacies on the one hand and to hospitals on the other can, however, be usefully drawn from the IMS data presented in Table 3.1. Quite clearly, hospitals are seen to account for a declining share of total purchases as measured by the dollar value of purchases; whereas they accounted for 23.4 per cent of purchases in 1967, they accounted for only 16.1 per cent in 1983. It should be noted that the growth of generic production may have differentially affected hospitals and therefore that information on their share of pharmaceuticals and medicines measured by volume would not reveal as substantial a decline as that indicated by their share of dollar purchases.

Further information drawn from IMS on the nature of the sales of pharmaceuticals and medicines to hospitals is provided in Table 3.2. Also presented is information from Statistics Canada on the expenditures by public hospitals on these products.

Included as public hospitals are public general and allied special hospitals and psychiatric and mental hospitals which together account for most of the hospitals in Canada. Though the absolute size of the expenditures on drugs has increased dramatically over the period, the size of the expenditures on drugs relative to all hospital expenditures has actually fallen. In 1967 it represented 3.34 per cent of all these expenditures, compared with 2.61 per cent in 1982.

The direct comparison between the Statistics Canada expenditure data and IMS data indicates a difference in the order of 20 per cent or more in recent years. In contrast, estimated hospital purchases in 1967 were all but identical according to the two sources. This difference is probably the result of the increasing extent to which hospitals rely on bulk purchases, which could lead to sampling error in the surveys conducted by IMS.

The division of pharmaceuticals and medicines as between "ethical" products on the one hand and "proprietary" products on the other is clearly

indicated by additional information provided in Table 3.2. In this context, ethical pharmaceuticals and medicines are those targeted on drugstores, pharmacies, and hospitals, to be sold either as a prescribed or non-prescribed, over-the-counter product, and generally under the overall guidance of a pharmacist. Proprietary drugs are those packaged by the manufacturer in a form that would permit direct selling to the consumer without the necessary intercession of a physician or pharmacist. The overwhelming majority of the products purchased by hospitals are of the kind described as ethical products. Such products represented some 99 per cent of all purchases of pharmaceuticals and medicines by hospitals in 1982. Moreover, this figure has changed little since 1967.

Set forth in Table 3.3 is information both on the estimated manufacturers' sales to drugstores and pharmacies and also on expenditures by final consumers on these drugs. Total manufacturers' sales to drugstores and pharmacies have been classified according to whether the products are ethical or proprietary. Quite clearly, ethical products account for an increasing percentage of the total volume of products and for the overwhelming percentage of the products sold to drugstores and pharmacies.

Expenditures by final consumers in drugstores and pharmacies have been broken down into two classes of pharmaceuticals and medicines, namely "prescribed" and "non-prescribed" drugs. A consideration of the relative size of expenditures of these two classes of drugs reveals a fairly stable pattern over the last two decades. Expenditures on prescribed drugs account for some 52 per cent of all final expenditures on drugs for almost the entire period.

It might be noted that the definitions of "prescribed" and "non-prescribed" drugs are fairly straightforward. In general, non-prescribed drugs are packaged for sale directly to the consumer, whereas use of prescribed drugs must be recommended and directed by a physician. However, the distinction between these two classes of drugs does vary somewhat from one province or from one country to another. In Canada, the distinction is fairly clear and consistent among all the provinces. International comparisons, on the other hand, are more difficult to make. This is because in some countries the method of determining eligibility for reimbursement at zero or reduced prices appears to be almost as important a factor in distinguishing between the two classes of drugs as the decision by the health authorities as to which drugs should be available on prescription from a qualified medical doctor.

A direct comparison of estimated manufacturers' sales to drugstores and pharmacies with estimated final consumer expenditures on these products shows that the overall cost of ingredients is less than 45 per cent of the total value of their sales to final consumers. The relative cost of the overall ingredients appears to be falling slightly over the last few years but to have risen slightly since 1965.

## Table 3.2

### Sales to, and Expenditures on, Pharmaceuticals and Medicines in Hospitals: Canada, 1964-82

| | Expenditures on Drugs by Public Hospitals[a] | | | Estimated Sales to Hospitals[b] | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Ethical | | Proprietary | | Total | |
| | ($000s) | Index | As % of All Hospital Expenditures | ($000s) | % of Total | ($000s) | % of Total | ($000s) | Index |
| 1983 | 355,382 | 608.5 | 2.65 | 277,156 | 99.09 | 2,545 | 0.91 | 279,701 | 479.4 |
| 1982 | 314,075 | 537.7 | 2.61 | 246,752 | 99.11 | 2,213 | 0.89 | 248,965 | 426.7 |
| 1981 | 256,770 | 439.6 | 2.38 | 218,975 | 98.96 | 2,298 | 1.04 | 221,273 | 379.3 |
| 1980 | 217,472 | 372.3 | 2.31 | 187,075 | 98.89 | 2,098 | 1.11 | 189,173 | 324.3 |
| 1979 | 186,905 | 320.0 | 2.32 | 160,477 | 98.90 | 1,783 | 1.10 | 162,260 | 278.1 |
| 1978 | 161,326 | 276.2 | 2.19 | 144,322 | 98.81 | 1,744 | 1.19 | 146,066 | 250.4 |
| 1977 | 143,680 | 246.0 | 2.16 | 141,597 | 98.63 | 1,963 | 1.37 | 143,560 | 246.1 |
| 1976 | 128,550 | 220.1 | 2.04 | 123,010 | 98.71 | 1,605 | 1.29 | 124,615 | 213.6 |
| 1975 | 113,018 | 193.5 | 2.10 | 108,001 | 98.77 | 1,344 | 1.23 | 109,345 | 187.4 |
| 1974 | 97,381 | 166.7 | 2.19 | 102,085 | 99.00 | 1,031 | 1.00 | 103,116 | 176.7 |
| 1973 | 87,254 | 149.4 | 2.39 | 91,038 | 99.08 | 848 | 0.92 | 91,886 | 157.5 |
| 1972 | 82,920 | 142.0 | 2.55 | 83,727 | 99.04 | 814 | 0.96 | 84,541 | 144.9 |
| 1971 | 80,167 | 137.3 | 2.72 | 80,276 | 99.04 | 779 | 0.96 | 81,055 | 138.9 |
| 1970 | 76,302 | 130.6 | 2.88 | 72,921 | 98.92 | 793 | 1.08 | 73,714 | 126.4 |
| 1969 | 70,656 | 121.0 | 3.05 | 66,867 | 98.99 | 683 | 1.01 | 67,550 | 115.8 |
| 1968 | 64,263 | 110.0 | 3.17 | 63,700 | 98.97 | 660 | 1.03 | 64,360 | 110.3 |
| 1967 | 58,406 | 100.0 | 3.34 | 57,777 | 99.03 | 564 | 0.97 | 58,341 | 100.0 |
| 1966 | | | | 53,729 | 98.98 | 555 | 1.02 | 54,284 | 93.0 |
| 1965 | | | | 47,685 | 98.89 | 534 | 1.11 | 48,219 | 82.7 |
| 1964 | | | | 40,909 | 98.73 | 525 | 1.27 | 41,434 | 71.0 |

**Source:** [a] Statistics Canada, *Hospital Statistics* (Catalogue 83-232). [b] IMS Canada.

## Table 3.3

### Sales to, and Expenditures on, Pharmaceuticals and Medicines in Drugstores and Pharmacies: Canada, 1964-82

| | Estimated Manufacturers Sales to (i.e. Expenditures on Ingredients by) Drugstores and Pharmacies[a] | | | | | Estimated Expenditures on Prescribed and Non-prescribed Drugs in (i.e. Sales from) Drugstores and Pharmacies[b] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Ethical | | Proprietary | | Total | Prescribed | | Non-prescribed | | Total |
| | ($M) | % of Total | ($M) | % of Total | ($M) | ($M) | % of Total | ($M) | % of Total | ($M) |
| 1982 | 1,073.3 | 90.8 | 108.4 | 9.2 | 1,181.7 | 1,473.4 | 52.0 | 1,357.7 | 48.0 | 2,831.1 |
| 1981 | 929.3 | 89.8 | 105.1 | 10.2 | 1,034.4 | 1,205.0 | 52.1 | 1,109.9 | 47.9 | 2,314.9 |
| 1980 | 803.9 | 90.0 | 89.7 | 10.0 | 893.6 | 1,011.2 | 52.1 | 928.6 | 47.9 | 1,939.8 |
| 1979 | 678.8 | 89.9 | 76.3 | 10.1 | 755.1 | 918.2 | 52.1 | 845.4 | 47.9 | 1,763.6 |
| 1978 | 573.0 | 89.4 | 68.2 | 10.6 | 641.2 | 822.2 | 52.0 | 759.6 | 48.0 | 1,581.8 |
| 1977 | 486.8 | 88.6 | 62.7 | 11.4 | 549.5 | 746.0 | 52.0 | 689.4 | 48.0 | 1,435.4 |
| 1976 | 447.5 | 88.1 | 60.6 | 11.9 | 508.1 | 667.1 | 51.9 | 617.7 | 48.1 | 1,284.8 |
| 1975 | 391.3 | 87.7 | 54.9 | 12.3 | 446.2 | 578.7 | 51.9 | 536.8 | 48.1 | 1,115.5 |
| 1974 | 341.3 | 85.5 | 58.1 | 14.5 | 399.4 | 498.0 | 52.0 | 459.5 | 48.0 | 957.5 |
| 1973 | 305.0 | 85.5 | 51.6 | 14.5 | 356.6 | 466.9 | 52.4 | 424.8 | 47.6 | 891.7 |
| 1972 | 279.9 | 84.3 | 52.3 | 15.7 | 332.2 | 421.1 | 52.6 | 379.9 | 47.4 | 801.0 |
| 1971 | 255.0 | 83.2 | 51.4 | 16.8 | 306.4 | 402.5 | 52.7 | 361.6 | 47.3 | 764.1 |
| 1970 | 210.1 | 83.7 | 40.8 | 16.3 | 250.9 | 368.7 | 52.8 | 329.4 | 47.2 | 698.1 |
| 1969 | 194.6 | 82.2 | 42.0 | 17.8 | 236.6 | 331.8 | 53.3 | 290.4 | 46.7 | 622.2 |
| 1968 | 183.4 | 82.2 | 39.6 | 17.8 | 223.0 | 297.3 | 53.3 | 260.5 | 46.7 | 557.8 |
| 1967 | 158.1 | 82.7 | 33.0 | 17.3 | 191.1 | 265.5 | 52.7 | 238.7 | 47.3 | 504.2 |
| 1966 | 152.9 | 82.1 | 33.4 | 17.9 | 186.3 | 232.0 | 52.1 | 213.5 | 47.9 | 445.5 |
| 1965 | 130.1 | 82.7 | 27.3 | 17.3 | 157.4 | 211.5 | 51.5 | 199.5 | 48.5 | 411.0 |
| 1964 | 119.9 | 81.1 | 28.0 | 18.9 | 147.9 | 178.6 | 50.2 | 177.0 | 49.8 | 355.6 |

Source: [a] IMS Canada. [b] Health and Welfare Canada, *National Health Expenditures in Canada, 1970-82* and revision of data for 1964-69.

**Relative Size and Growth of Expenditures on Pharmaceuticals and Medicines**

A broad overview of the relative size of the major components of the health care sector in Canada is provided by the information contained in Table 3.4. The relative size of expenditures on drugs —that is, a combination of prescribed and non-prescribed drugs—is seen to represent less than 10 per cent of overall expenditures in the health care sector for the period since 1975; for the 15 years prior to 1975 it constituted as much as 13.2 per cent of overall expenditures on health care. There appears, however, to be a reversal of this trend towards falling expenditures on drugs relative to overall expenditures. Since 1980, when the lowest figures were recorded (8.8 per cent for prescribed and non-prescribed drugs combined), expenditures on drugs have risen relative to overall health care expenditures. This is true for both prescribed and non-prescribed drugs.

Much the same picture is revealed by information on the expenditures on each of the several different components of the health care sector expressed as a percentage of gross national product in Canada over the period since 1960. This information, provided in Table A3.1 in the Appendix, reveals that the overall size of the health care sector in Canada has remained fairly stable since 1970 with the exception of the last year or so when it has appeared to rise sharply. This increase may well be explained more in terms of a decrease in the level of gross national product at large rather than in a substantial real increase in the level of expenditures on health care. The proportion of gross national product devoted to prescribed and non-prescribed drugs has similarly remained fairly stable over the last decade or more.

Provincial variations, presented in Tables A3.2 to A3.5 in the Appendix, are fairly substantial. The percentage of total expenditures accounted for by those on prescribed drugs ranges from a high of 9.61 per cent in Newfoundland to a low of 4.28 per cent for Manitoba. The overall Canadian average is 5.77 per cent. For non-prescribed drugs, much the same pattern is revealed. Saskatchewan and the four Atlantic provinces have relatively high levels of expenditures. The range is almost as wide as for prescribed drugs, moving from 9.56 per cent at the upper end for Newfoundland to 4.73 per cent at the lower end for Alberta.

Moreover, the relative size of expenditures on prescribed drugs and non-prescribed drugs is fairly consistent with information on actual per capita expenditures on these two classes of drugs in the provinces. As shown in Tables 3.5 and 3.6, Quebec, Ontario, Manitoba, Alberta, and British Columbia have the lowest per capita expenditures on the combination of prescribed and non-prescribed drugs. At the other extreme the four Atlantic provinces and Saskatchewan are seen to have the highest levels. For prescribed drugs, as shown in Table 3.5, the range in 1982 is from $92.78 per capita in New Brunswick to a low of $45.40 per capita in Manitoba and $41.73 in the Territories. The overall Canadian average in that year was $59.75. For non-prescribed drugs, as presented in Table 3.6, the range is of a similar magnitude. Expenditures per capita in 1982 are lowest in Alberta at $48.67

## Table 3.4

### Percentage Distribution of National Health Expenditures: Canada, Selected Years, 1960-82

| Component | 1960 | 1965 | 1970 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Institutional Care: | 43.9 | 47.9 | 52.2 | 56.1 | 56.6 | 55.8 | 55.5 | 55.2 | 55.0 | 55.3 | 55.1 |
| Hospitals | 41.6 | 45.3 | 45.0 | 46.9 | 46.4 | 44.6 | 43.7 | 43.3 | 42.8 | 41.6 | 41.4 |
| Nursing Homes | 2.3 | 2.5 | 7.2 | 9.2 | 10.2 | 11.2 | 11.7 | 12.0 | 12.2 | 13.7 | 13.7 |
| Professional Services: | 25.5 | 24.1 | 22.5 | 21.7 | 21.2 | 21.6 | 21.9 | 22.2 | 22.1 | 21.8 | 21.8 |
| Physicians | 17.5 | 16.9 | 16.6 | 15.5 | 14.9 | 14.9 | 14.9 | 14.9 | 14.8 | 14.5 | 14.7 |
| Dentists | 5.4 | 5.0 | 4.2 | 4.8 | 4.9 | 5.3 | 5.6 | 5.8 | 5.8 | 5.8 | 5.6 |
| Others | 2.7 | 2.3 | 1.6 | 1.3 | 1.3 | 1.5 | 1.4 | 1.5 | 1.5 | 1.6 | 1.6 |
| Drugs and Appliances: | 14.9 | 14.2 | 12.5 | 10.5 | 10.5 | 10.8 | 10.8 | 10.8 | 10.2 | 10.4 | 10.9 |
| Prescribed Drugs | 6.5 | 6.6 | 6.0 | 4.7 | 4.7 | 4.8 | 4.8 | 4.8 | 4.6 | 4.7 | 4.9 |
| Non-prescribed Drugs | 6.7 | 6.4 | 5.3 | 4.3 | 4.4 | 4.4 | 4.4 | 4.4 | 4.2 | 4.3 | 4.5 |
| Appliances | 1.7 | 1.2 | 1.5 | 1.5 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.4 | 1.5 |
| Total Personal Health Care: | 84.3 | 86.2 | 87.2 | 88.3 | 88.3 | 88.2 | 88.2 | 88.2 | 87.3 | 87.5 | 87.8 |
| Other Health Expenditures: | 15.7 | 13.8 | 12.8 | 11.7 | 11.7 | 11.8 | 11.8 | 11.8 | 12.7 | 12.5 | 12.2 |
| Prepayment and Administration | 2.0 | 2.2 | 1.6 | 1.7 | 1.5 | 1.7 | 1.5 | 1.4 | 1.4 | 1.6 | 1.5 |
| Public Health | 4.1 | 3.6 | 3.2 | 3.0 | 3.4 | 3.5 | 3.5 | 3.7 | 3.4 | 3.4 | 3.2 |
| Other Services | 0.5 | 0.4 | 1.1 | 1.1 | 1.2 | 1.2 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 |
| Research | 0.5 | 0.8 | 1.1 | 1.0 | 1.0 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| Capital Expenditures | 8.7 | 6.8 | 5.8 | 4.9 | 4.6 | 4.3 | 4.5 | 4.3 | 5.5 | 5.2 | 5.3 |
| Total Health Care Expenditures: | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

**Source:** Health and Welfare Canada, *National Health Expenditures in Canada, 1970-82* and previous editions.

## Table 3.5

### Canadian Health Expenditures, Prescribed Drugs
### (Dollars Per Capita)

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Newfoundland | 12.10 | 12.30 | 12.30 | 14.60 | 16.20 | 22.10 | 33.30 | 46.80 | 53.70 | 57.50 | 63.30 | 77.90 | 89.70 |
| P.E.I. | 15.80 | 15.90 | 18.30 | 22.30 | 22.60 | 22.70 | 19.50 | 18.30 | 25.00 | 32.10 | 39.40 | 53.80 | 72.80 |
| Nova Scotia | 12.90 | 15.60 | 17.40 | 20.30 | 20.80 | 24.40 | 28.40 | 35.00 | 44.00 | 53.90 | 60.70 | 72.30 | 90.30 |
| New Brunswick | 20.00 | 22.40 | 22.20 | 26.00 | 23.10 | 19.80 | 23.70 | 30.60 | 33.10 | 41.70 | 52.70 | 74.00 | 92.80 |
| Quebec | 15.90 | 17.50 | 18.70 | 20.20 | 20.40 | 20.50 | 21.40 | 23.50 | 24.10 | 26.00 | 27.30 | 37.60 | 53.40 |
| Ontario | 18.20 | 19.10 | 20.10 | 21.70 | 23.70 | 29.40 | 34.60 | 37.70 | 42.50 | 45.30 | 46.60 | 48.90 | 56.50 |
| Manitoba | 18.11 | 18.29 | 17.91 | 18.72 | 19.69 | 21.98 | 22.70 | 23.93 | 24.87 | 29.33 | 35.53 | 41.82 | 45.40 |
| Saskatchewan | 15.36 | 16.16 | 16.42 | 17.61 | 20.12 | 30.65 | 33.95 | 34.49 | 35.29 | 35.26 | 38.35 | 61.04 | 71.24 |
| Alberta | 18.58 | 19.52 | 19.49 | 21.88 | 23.77 | 25.02 | 27.65 | 29.81 | 31.42 | 35.92 | 40.40 | 46.73 | 54.80 |
| British Columbia | 19.71 | 22.41 | 21.43 | 24.00 | 24.78 | 27.58 | 32.30 | 35.88 | 37.56 | 45.90 | 54.95 | 60.98 | 66.20 |
| Territories | 17.08 | 19.46 | 18.61 | 20.82 | 17.69 | 20.26 | 23.41 | 19.15 | 18.29 | 18.75 | 24.11 | 35.35 | 41.73 |
| Canada | 17.29 | 18.64 | 19.30 | 21.15 | 22.24 | 25.46 | 28.98 | 32.02 | 34.94 | 38.63 | 42.01 | 49.46 | 59.75 |

**Source:** Health and Welfare Canada, *National Health Expenditures in Canada, 1970-82.*

Table 3.6

**Canadian Health Expenditures, Non-prescribed Drugs**
**(Dollars Per Capita)**

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Newfoundland | 11.14 | 11.39 | 11.52 | 14.23 | 16.10 | 21.96 | 33.06 | 46.44 | 53.34 | 57.04 | 62.81 | 77.33 | 89.05 |
| P.E.I. | 18.42 | 18.36 | 19.47 | 21.48 | 21.51 | 21.60 | 18.56 | 17.43 | 23.74 | 30.52 | 37.47 | 51.16 | 69.25 |
| Nova Scotia | 12.98 | 15.57 | 17.31 | 20.05 | 20.54 | 24.09 | 28.09 | 34.62 | 43.51 | 53.27 | 60.00 | 71.39 | 89.19 |
| New Brunswick | 12.31 | 13.97 | 13.80 | 16.34 | 14.42 | 12.41 | 14.84 | 19.12 | 20.69 | 26.06 | 32.93 | 46.28 | 58.02 |
| Quebec | 14.05 | 15.79 | 17.18 | 18.94 | 19.13 | 19.25 | 20.09 | 22.06 | 22.67 | 24.41 | 25.67 | 35.30 | 50.21 |
| Ontario | 16.88 | 17.70 | 18.55 | 19.98 | 21.67 | 26.95 | 31.72 | 34.49 | 38.94 | 41.45 | 42.68 | 44.84 | 51.76 |
| Manitoba | 18.76 | 19.29 | 18.49 | 20.39 | 22.76 | 25.41 | 26.25 | 27.67 | 28.76 | 33.92 | 41.08 | 48.35 | 52.50 |
| Saskatchewan | 11.12 | 13.02 | 13.34 | 16.60 | 24.17 | 36.82 | 40.79 | 41.44 | 42.40 | 42.36 | 46.08 | 73.34 | 85.59 |
| Alberta | 15.70 | 16.70 | 16.71 | 19.16 | 21.11 | 22.22 | 24.56 | 26.48 | 27.91 | 31.90 | 35.89 | 41.51 | 48.67 |
| British Columbia | 17.43 | 19.12 | 18.37 | 19.97 | 20.36 | 22.66 | 26.53 | 29.48 | 30.85 | 37.71 | 45.14 | 50.09 | 54.39 |
| Territories | 7.82 | 8.36 | 7.94 | 8.46 | 7.54 | 8.63 | 9.97 | 8.15 | 7.79 | 7.98 | 10.27 | 15.05 | 17.76 |
| Canada | 15.45 | 16.75 | 17.41 | 19.24 | 20.52 | 23.62 | 26.83 | 29.60 | 32.27 | 35.57 | 38.58 | 45.55 | 55.06 |

**Source:** Health and Welfare Canada, *National Health Expenditures in Canada, 1970-82.*

(after the Territories at $17.76), and highest in Nova Scotia at $89.19. The overall average for Canada in the same year was $55.06.

The relative size of expenditures on pharmaceuticals and medicines in Canada can be compared fairly easily with that in the United States. Information presented in Table A3.4 in the Appendix indicates that expenditures on drugs in the United States have been slowly falling relative to overall expenditures on health care over the last 13 years. Whereas in 1970 they represented 10.7 per cent of total health care expenditures, by 1982 they represented only 6.9 per cent. The comparable figure for Canada in 1982 was 9.4 per cent. These percentages are for expenditures on prescribed and non-prescribed drugs combined.

Information on expenditures on prescribed and non-prescribed drugs as a percentage of gross national product in the United States reveals a similar picture for both the trend and the relative size, as shown by the information presented in Table A3.5 in the Appendix. Again, expenditures on drugs are seen to fall as a percentage of gross national product over the last 13 years from .81 per cent in 1970 to .73 per cent in 1982. The .73 per cent of GNP can be directly compared to the .8 per cent for Canada in the same year. With gross national product per capita somewhat higher in the United States than in Canada the information just described probably indicates that expenditures on prescribed and non-prescribed drugs are fairly similar in the two countries.

Per capita expenditures on drugs in the United States, set out in Table A3.6, were $94.83 in 1982. The comparable figure in Canadian dollars for Canada was $104.81. Given the current exchange rate and the somewhat broader class of drugs and medical sundries for which information is readily available for the United States, per capita expenditures are probably roughly similar in the United States and Canada.

Further comparisons with other countries in the world can be made with the information presented in Table 3.7 on per capita expenditures on drugs. The information is for ethical pharmaceuticals and has been drawn together from a number of sources by the U.K. brokerage firm of deZote and Bevan. Though the expected problems of choosing an appropriate exchange rate and of finding similar definitions of manufacturers' prices and information to support these definitions, as well as difficulty in securing comprehensive data on sales to hospitals, were encountered, the estimates are believed to be broadly comparable.

That expenditures in Canada are roughly similar to those in the United States is confirmed by the information presented in Table 3.7; this is the case both for per capita expenditures and for expenditures as a percentage of gross national product.

Expenditures in Canada in per capita dollar terms are in general higher than they are in European countries. The exceptions are West Germany, France, and Switzerland whose expenditures are seen to be significantly higher

## Table 3.7

**Expenditures on Drugs Per Capita and as a Percentage of GNP: Selected Countries, 1982**

| Market | D/Mkt.[a] ($ millions) | Per Cap.[b] Exp. ($) | GNP ($ billions) | D/Mkt[c] % of GNP |
|---|---|---|---|---|
| North America | | | | |
| USA | 15,000 | 66.70 | 3025 | 0.50 |
| Canada | 1,500 | 62.50 | 291 | 0.51 |
| | **16,500** | **66.25** | — | — |
| Europe | | | | |
| West Germany | 5,500 | 89.45 | 660 | 0.83 |
| France | 4,500 | 83.35 | 539 | 0.83 |
| Italy | 2,600 | 45.60 | 345 | 0.75 |
| UK | 2,500 | 44.60 | 471 | 0.53 |
| Spain | 1,400 | 36.85 | 179 | 0.78 |
| Benelux | 1,000 | 40.80 | 224 | 0.45 |
| Scandinavia | 900 | 40.90 | 259 | 0.35 |
| Austria | 350 | 46.70 | 67 | 0.52 |
| Switzerland | 500 | 76.90 | 96 | 0.52 |
| Portugal | 200 | 20.00 | 23 | 0.87 |
| Others | 550 | 42.30 | n.a. | n.a. |
| | **20,000** | **57.00** | — | — |
| Asia & Australasia | | | | |
| Japan | 10,000 | 84.00 | 1100 | 0.91 |
| India | 800 | 1.15 | 163 | 0.49 |
| Australia | 600 | 40.00 | 158 | 0.38 |
| South Korea | 500 | 12.80 | 57 | 0.88 |
| Pakistan | 350 | 4.15 | 26 | 1.35 |
| Indonesia | 300 | 2.00 | 65 | 0.46 |
| Singapore/Malaysia | 300 | 17.65 | 30 | 1.00 |
| Hong Kong | 150 | 30.00 | 20 | 0.75 |
| Others | 1,000 | 3.15 | n.a. | n.a. |
| | **14,000** | **10.00** | — | — |
| Africa & Middle East | | | | |
| Middle East | 2,500 | 29.75 | 285 | 0.88 |
| South Africa | 700 | 23.35 | 80 | 0.87 |
| Nigeria | 400 | 4.80 | 55 | 0.73 |
| Rest of Africa | 900 | 6.00 | n.a. | n.a. |
| | **4,500** | **4.30** | — | — |
| Latin America | | | | |
| Brazil | 1,500 | 12.20 | 275 | 0.55 |
| Mexico | 1,300 | 17.95 | 149 | 0.87 |
| Argentina | 550 | 20.15 | 30 | 1.83 |
| Columbia | 400 | 15.40 | 30 | 1.33 |
| Venezuela | 350 | 24.20 | 65 | 0.54 |
| Peru | 180 | 10.60 | 15 | 1.20 |
| Central America | 370 | 18.50 | n.a. | n.a. |
| Others | 350 | 17.50 | n.a. | n.a. |
| | **5,000** | **15.60** | — | — |

[a] Drug market at manufacturers' selling prices. [b] Per capita spending on drugs.

[c] Drug market as a percentage of GNP.

Source: de Zoete and Bevan Brokers, U.K. as printed in *Scrip*, No. 844 (Nov. 7, 1983), p. 13.

than those in Canada. In terms of the expenditures on ethical pharmaceuticals as a percentage of GNP, however, the level found in Canada is seen to be generally lower than that found in the several European countries considered. Only in the Benelux countries and Scandinavia is a lower portion of gross national product devoted to expenditures on ethical pharmaceuticals.

### Coverage of the Population by Third-party Pharmicare Insurance

Information on the coverage of the Canadian population by third-party insurance programs for pharmaceuticals and medicines must be assembled from a variety of sources. Roughly 85 per cent of the population is now said to be covered by one plan or another. Persons aged 65 and over and those receiving welfare payments are generally covered by government pharmicare plans in each province. In addition three provinces now have government-funded pharmicare plans for the entire population.

In the remaining seven provinces, substantial numbers of the population are covered by third-party private insurance programs for prescribed drugs and in some cases for a substantial proportion of non-prescribed drugs.

An alternative framework for considering the proportion of expenditures on pharmaceutical products that are still borne directly by individuals is information on family expenditures on such products relative to the total estimated per capita expenditures on these drugs in Canada. This information, set out in Table 3.8, excludes all third-party insurance related payments, whether by government or by private insurance companies. It is obtained from a series of surveys of national expenditures carried out over the last 15 years or so; the most recent of these was completed in 1982.

The information on expenditures unrelated to third-party insurance coverage may thus be compared to the estimated per capita expenditures on prescribed and non-prescribed drugs that was considered above and that is presented for selected years in Table 3.8. The percentage of total expenditures on drugs borne directly by individuals is seen to fall over the period during which these surveys have been carried out. Some 36 per cent of expenditures on all prescribed and non-prescribed drugs appear to be borne directly by individuals without subsidy by government or a third-party insurance firm. The percentage for prescribed drugs is somewhat higher at just under 40 per cent and the percentage for non-prescribed drugs somewhat lower at just above 25 per cent. It should be stressed that these expenditures are for drugs used outside of the hospital setting.

The apparent relatively large size of expenditures on prescribed drugs still borne directly by individuals is explicable in terms of the detailed characteristics of several of the private insurance plans and indeed some of the government plans that are "major risk" type insurance programs and thus involve a substantial co-payment by the consumer/patient or some form of deductible.

## Table 3.8

### Estimated Expenditures on Pharmaceuticals and Medicines Borne Directly by Consumer: Canada, Selected Years, 1967-82

| Year | Estimated Total Sales and Estimated Expenditures Per Capita | | | Estimated Expenditures on Drugs Borne Directly by Individuals (Excl. 3rd Party Exp) Per Capita | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Prescribed $ | Non-prescribed $ | All Drugs $ | Prescribed $ | % | Non-prescribed $ | % | Total $ | % |
| 1982 | 59.75 | 55.06 | 114.81 | 23.66 | 39.6 | 13.86 | 25.2 | 37.50 | 32.7 |
| 1978 | 34.94 | 32.27 | 67.21 | 15.75 | 45.1 | 6.62 | 20.5 | 22.32 | 33.2 |
| 1976[a] | 28.98 | 26.83 | 55.81 | 13.50 | 46.6 | 5.80 | 21.6 | 19.30 | 34.6 |
| 1974[b] | 22.24 | 20.52 | 42.76 | 14.63 | 65.8 | 5.74 | 28.0 | 20.37 | 47.6 |
| 1972 | 19.30 | 17.41 | 36.71 | 15.12 | 78.3 | 4.98 | 28.6 | 20.10 | 54.8 |
| 1969 | 15.94[c] | 13.94[c] | 29.87 | 14.30 | 89.7 | 4.72 | 33.6 | 19.02 | 63.7 |
| 1967 | 13.0[c] | 11.5[c] | 24.47 | 13.03 | 100.0 | 4.45 | 38.5 | 17.48 | 71.4 |

[a] Eight cities.

[b] Fourteen cities.

[c] These values are interpolated from 1965-70 per capita expenditures by applying growth rate of total expenditures less the population growth rate for the period in question.

Source: Statistics Canada, *Family Expenditures on Canada*, selected years; and Health and Welfare Canada, *National Health Expenditures in Canada, 1970-82.*

Interestingly, the coverage of the U.S. population by the combination of private and government-supported pharmicare programs appears to be roughly similar. Coverage of persons by private health insurance is approximately 60 per cent of the population of the United States. Some part of the drug purchases of an additional 15 per cent is covered by Medicare and yet another 8.5 per cent or so is covered by Medicaid. The total covered by some third-party insurance is thus in the order of the portion of the Canadian population so covered.

The situation in other well-developed countries is much the same. Substantial portions, if not all, of their populations are covered by government funded or non-profit pharmicare. In the majority of the countries, however, some form of deductible and/or co-payment is required on receipt of a prescribed and/or non-prescribed drug.

Information on the size of expenditures on pharmaceutical products in the England for the last decade or so, as presented in Table A3.7 of the Appendix, reveals that these expenditures are roughly of the same size as those found in Canada. They ranged from 7.8 per cent of all expenditures under the National Health Service in 1976/77 to 9.1 per cent in 1978/79. In general, however, they were somewhat over 8 per cent of all expenditures under the National Health Service.

Information available for England as presented in Table A3.7 indicates the steadily increasing proportion of all prescriptions that are provided in England exempt from all charges. Whereas in 1969 approximately half of all prescriptions were so exempt, by 1981 the proportion had risen to almost 75 per cent. The remaining prescriptions are ones for which the consumer currently faces a prescription charge of £1.60. In spite of the changing status of prescriptions as to whether the consumer faces a charge or not, the average number of prescriptions per person in England has not changed a great deal over the period since 1969, again as shown in Table A3.7. Consumers in England received 5.5 prescriptions on average in 1969; though this number had grown to 6.51 prescriptions per person by 1981, its growth was substantially less than the increase of 50 per cent in the number of prescriptions that were wholly exempt from charges on the consumer.

Much the same story could be unfolded with respect to each of several European countries. An especially interesting study on the responsiveness of consumption to changes in the payment made directly by patients has recently been completed for Sweden (see Table A3.8). Briefly, the current situation in Sweden is one in which the patient pays 16.8 per cent of the total cost of prescription medicines. This figure was 18.1 per cent in 1982, which in turn was down from the 22.1 per cent paid in 1981. This fairly consistent trend since 1981 is related to the newly introduced reimbursement system in Sweden in 1981. This system requires most patients to pay no more than a maximum fee per prescription. On the other hand, chronically ill patients are provided with their prescriptions free of charge. The study referred to involves consideration of changes over the period since 1975 in the percentage of total drug costs paid

by the patient and the level of consumption of medicines. Almost without exception changes in the proportion of drug costs paid by patients are matched by changes in the opposite direction in the level of consumption of medicines.[1]

## Patterns of Use of Pharmaceutical Products

In this section, several characteristics of the patterns of use of pharmaceutical products are considered. First examined are utilization patterns by age and sex. The second issue considered is that of changing age distribution of the population and the relationship this bears on trends in the consumption of pharmaceutical products.

Considered next are the numbers of the principal economic agents, namely physicians, who prescribe in the first instance, and pharmacists, who sharply modify in the second instance, the consumption of pharmaceutical products by consumers/patients. Also examined in this subsection is information on the number of prescriptions written out per physician visit.

A further subsection involves a consideration of information on the use of pharmaceuticals and medicines for each of several diagnostic illness episodes.

### Utilization Patterns by Age and Sex

Information on utilization patterns by age and sex, such as that set out in Table 3.9, reveals the very strong relationship between age and drug use. Persons under the age of five and over the age of 65 are by far the heaviest users of pharmaceuticals and medicines. For example, with regard to males, 58 per cent of those less than age five had consumed a drug in the two-day period examined. Similarly with regard to males aged 65 and over, 66.4 per cent had consumed at least one drug in the two-day period. The analagous figures for females were 59.9 per cent of those under age five and 77 per cent for those aged 65 and over.

Also clearly spelled out in Table 3.9 is the use by individuals of more than one drug. For example for those individuals 65 years of age and over, 13.1 per cent of males and 25.0 per cent of females used three or more varieties of drugs in the two-day period examined. For the entire population, the corresponding figures for the use of three or more drugs were 4.2 per cent for males and 8.9 per cent for females. Drug use is thus again revealed to be especially heavy for persons aged 65 and over.

Different patterns of use by males and females are also clearly revealed in Table 3.9. For example, whereas some 40.8 per cent of males used one or more drugs in the two-day period, the corresponding figure for females was 54.8 per cent. In general, females are heavier consumers of drugs than males.

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[1] *Scrip*, No. 924 (August 20, 1984), p. 6.

## Table 3.9

### Population by Variety of Drugs Taken, by Age and Sex: Canada, 1978-79

| | | Total | No Drugs | One Drug Variety | Two Drug Variety | Three Drug Variety |
|---|---|---|---|---|---|---|
| All Ages | | | | | | |
| Both Sexes | No. | 23,023 | 12,002 | 6,740 | 2,769 | 1,512 |
| | % | 100.0 | 52.1 | 29.3 | 12.0 | 6.6 |
| Male | No. | 11,417 | 6,759 | 3,081 | 1,100 | 476 |
| | % | 100.0 | 59.2 | 27.0 | 9.6 | 4.2 |
| Female | No. | 11,606 | 5,243 | 3,659 | 1,669 | 1,035 |
| | % | 100.0 | 45.2 | 31.5 | 14.4 | 8.9 |
| Less than 5 | | | | | | |
| Male | No. | 880 | 370 | 314 | 147 | 49 |
| | % | 100.0 | 42.0 | 35.7 | 16.7 | 5.6 |
| Female | No. | 838 | 336 | 350 | 110 | 42 |
| | % | 100.0 | 40.1 | 41.7 | 13.2 | 5.0 |
| 5-9 | | | | | | |
| Male | No. | 914 | 516 | 295 | 70 | 33 |
| | % | 100.0 | 56.5 | 32.3 | 7.6 | 3.6 |
| Female | No. | 868 | 519 | 256 | 71 | 22 |
| | % | 100.0 | 59.8 | 29.4 | 8.2 | 2.5 |
| 10-14 | | | | | | |
| Male | No. | 1,038 | 690 | 272 | 58 | 19 |
| | % | 100.0 | 66.4 | 26.2 | 5.6 | 1.8 |
| Female | No. | 992 | 622 | 275 | 71 | 24 |
| | % | 100.0 | 62.7 | 27.7 | 7.2 | 2.5 |
| 15-19 | | | | | | |
| Male | No. | 1,187 | 848 | 257 | 60 | 23 |
| | % | 100.0 | 71.4 | 21.7 | 5.0 | 1.9 |
| Female | No. | 1,146 | 696 | 305 | 117 | 28 |
| | % | 100.0 | 60.7 | 26.6 | 10.2 | 2.4 |
| 20-24 | | | | | | |
| Male | No. | 1,106 | 790 | 231 | 62 | 23 |
| | % | 100.0 | 71.4 | 20.9 | 5.6 | 2.1 |
| Female | No. | 1,108 | 551 | 350 | 153 | 55 |
| | % | 100.0 | 49.7 | 31.6 | 13.8 | 4.9 |
| 25-44 | | | | | | |
| Male | No. | 3,230 | 2,131 | 788 | 241 | 70 |
| | % | 100.0 | 66.0 | 24.4 | 7.5 | 2.2 |
| Female | No. | 3,242 | 1,509 | 1,038 | 465 | 230 |
| | % | 100.0 | 46.5 | 32.0 | 14.3 | 7.1 |
| 45-64 | | | | | | |
| Male | No. | 2,174 | 1,117 | 640 | 274 | 143 |
| | % | 100.0 | 51.4 | 29.5 | 12.6 | 6.6 |
| Female | No. | 2,279 | 751 | 751 | 426 | 352 |
| | % | 100.0 | 32.9 | 32.9 | 18.7 | 15.4 |
| 65 and Over | | | | | | |
| Male | No. | 887 | 298 | 284 | 188 | 117 |
| | % | 100.0 | 33.6 | 32.0 | 21.2 | 13.1 |
| Female | No. | 1,132 | 260 | 335 | 255 | 283 |
| | % | 100.0 | 23.0 | 29.6 | 22.5 | 25.0 |

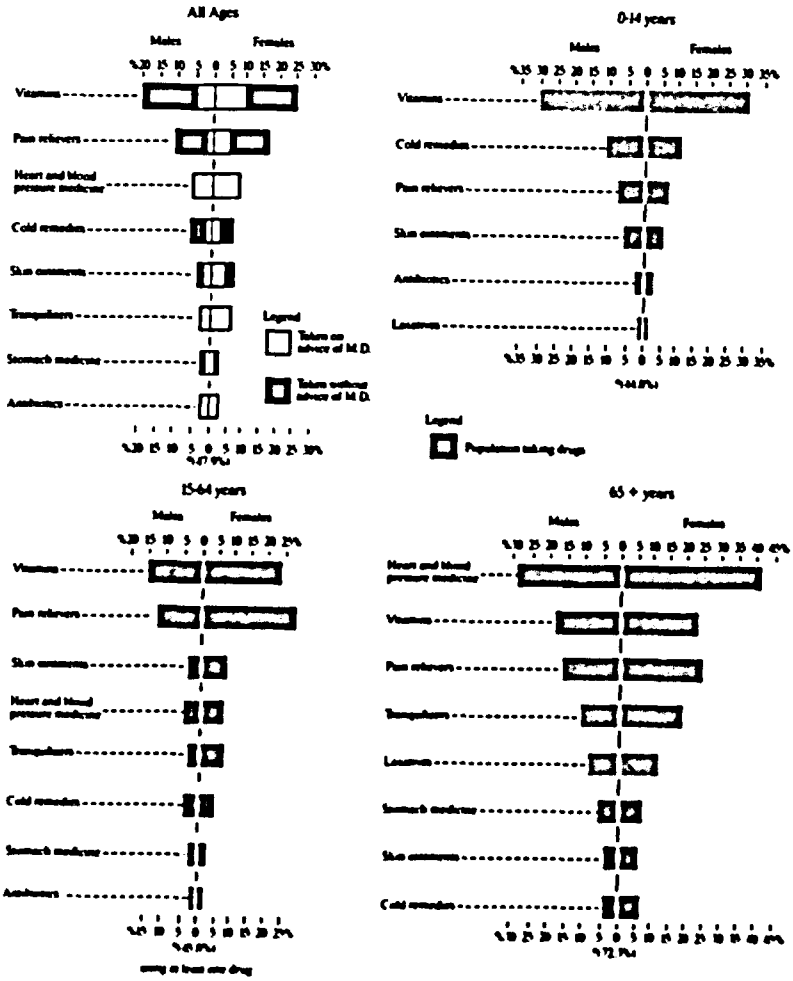
Note: All population numbers are in thousands.

Source: Statistics Canada, *The Health of Canadians: A Report of the Canada Health Survey* (Catalogue 82-538E), p. 180.

The relationship between drug use, age, sex, and type of drug used is set out in Figure 3.1. Once again the heavier use of drugs by females is clearly in evidence for each of several different classes of drugs as is the heavy use of drugs by persons aged 65 and over, whether they are male or female.

**Figure 3.1**

**Proportion of Population Taking Drugs by Class of Drug and Sex, for Selected Age Groups: Canada, 1978/79**




Source: Statistics Canada, *The Health of Canadians: A Report of the Canada Health Survey* (Catalogue 82-538E), p. 166.

The changing mix of drugs used by the different age groups is also clearly revealed by the information set out in Figure 3.1. For example, vitamins are seen to be fairly prominent in consumption patterns regardless of age. However, for persons aged 65 and over, drugs for heart and blood pressure take over first position in terms of overall use and vitamins fall into second place. Similarly, pain relievers are amongst the top three classes of drugs used by all age groups. In contrast, cold remedies, which occupy the second rank for

individuals 0 to 14 years of age, actually occupy the eighth rank for individuals aged 65 and over. For all ages combined, vitamins and pain relievers are by far the most commonly used drugs.[2]

Information on the use of drugs according to whether the use resulted from medical advice or not is presented in Table 3.10. The information is presented for each of the several different classes of drugs. With regard to vitamins, which constitute the class of drugs taken by the largest number of persons, the majority of vitamins are taken without medical advice. Some 73.1 per cent of males who use vitamins do so without medical advice and some 63 per cent of females do the same. With regard to pain relievers, which on average represent the second largest category of drugs according to use, the same picture is seen, with some 73.2 per cent of males and 70.5 per cent of females using these drugs without medical advice. With regard to the third class of drugs ranked according to the percentage of the population using them, namely heart or blood pressure medicines, the reverse is the case. Almost all use of these drugs is done on medical advice. The same is true of antibiotics.

This information on the use of drugs according to whether medical advice dictates use or not is clearly very much related to whether the drugs in question are available only through prescription or whether they are classed as non-prescribed drugs. This information on use according to medical advice must thus be interpreted along with the information discussed earlier on overall levels of expenditures on prescribed and non-prescribed drugs.

The information discussed above on utilization patterns by age and sex for Canada is similar to information describing utilization patterns in other countries. For example, information on the number of prescriptions for 1,000 patients per year in the United States, set out in Table 3.11, reveals an exceptionally strong relationship between age and use of drugs whether they be the cardiovascular drugs described in detail in part one of this table or the other broad classes of drugs described in part two. Interestingly, however, this positive relationship between drug use and age does not appear to extend beyond the age of 65 as strongly as it does for the age groups below 65 years. Indeed use of several classes of drugs, especially those other than the cardiovascular drugs used by persons aged 75 or more, is seen to be less than that for persons aged 65 to 74 years of age. This information is of course consistent with the possibility that persons aged 75 or more are amongst the healthiest and best genetically endowed.

### The Age Distribution of the Population

Having established the very strong relationship between age and drug use, it is of interest to consider variations in the percentage of the population over

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[2] Detailed data on the percentage distribution of the consumers/patients of prescribed drugs by age are presented in Table A3.9 for each of several therapeutic classes of pharmaceuticals and medicines.

## Table 3.10

## Population Using Drugs by Medical Advice, by Class of Drugs and Sex: Canada, 1978-79

| Class of Drug | | Medical Advice | | | |
|---|---|---|---|---|---|
| | | Total | No Drugs On Advice | At Least One Drug On Advice | Unknown |
| Pain Relievers | | | | | |
| Male | No. | 1,180 | 864 | 306 | |
| | % | 100.0 | 73.2 | 25.9 | |
| Female | No. | 1,958 | 1,380 | 569 | |
| | % | 100.0 | 70.5 | 29.0 | |
| Tranquillizers or Sleeping Pills | | | | | |
| Male | No. | 347 | 8 | 337 | — |
| | % | 100.0 | 2.4 | 97.0 | — |
| Female | No. | 749 | 16 | 732 | 7 |
| | % | 100.0 | 2.13 | 97.6 | .34 |
| Heart or Blood Pressure | | | | | |
| Male | No. | 614 | — | 608 | 2 |
| | % | 100.0 | — | 98.9 | .47 |
| Female | No. | 950 | — | 946 | 2 |
| | % | 100.0 | — | 99.6 | .20 |
| Antibiotics | | | | | |
| Male | No. | 264 | — | 259 | — |
| | % | 100.0 | — | 98.0 | — |
| Female | No. | 347 | 3 | 343 | — |
| | % | 100.0 | .78 | 98.9 | — |
| Stomach | | | | | |
| Male | No. | 332 | 144 | 186 | — |
| | % | 100.0 | 43.2 | 56.0 | — |
| Female | No. | 372 | 126 | 242 | — |
| | % | 100.0 | 33.9 | 64.9 | — |
| Laxatives | | | | | |
| Male | No. | 154 | 72 | 82 | — |
| | % | 100.0 | 46.9 | 52.9 | — |
| Female | No. | 369 | 184 | 183 | — |
| | % | 100.0 | 50.0 | 49.7 | — |
| Cold Remedies | | | | | |
| Male | No. | 655 | 416 | 238 | — |
| | % | 100.0 | 63.4 | 36.3 | — |
| Female | No. | 743 | 458 | 282 | — |
| | % | 100.0 | 61.7 | 38.0 | — |
| Skin Ointments | | | | | |
| Male | No. | 481 | 168 | 309 | — |
| | % | 100.0 | 35.0 | 64.1 | — |
| Female | No. | 756 | 227 | 523 | — |
| | % | 100.0 | 30.0 | 69.2 | — |
| Vitamins | | | | | |
| Male | No. | 2,156 | 1,576 | 570 | 9 |
| | % | 100.0 | 73.1 | 26.4 | .43 |
| Female | No. | 2,804 | 1,768 | 1,027 | — |
| | % | 100.0 | 63.0 | 36.6 | — |
| Other | | | | | |
| Male | No. | 529 | 25 | 498 | — |
| | % | 100.0 | 4.7 | 94.1 | — |
| Female | No. | 1,064 | 31 | 1,028 | — |
| | % | 100.0 | 3.0 | 96.5 | — |

Note: All population numbers are in thousands.

Source: Statistics Canada, *The Health of Canadians: A Report of the Canada Health Survey*, (Catalogue 82-538E), pp. 181-82.

## Table 3.11

### Number of Prescription per 1,000 Patients per Year by Age of Patient and by Type of Drug: United States

### Part I: Cardiovascular Drugs

**Scripts[a] per 1,000 patients per year**

| Category/Age Groups | 0-44 | 45-54 | 55-64 | 65-74 | 75+ |
|---|---|---|---|---|---|
| Beta-blockers | 53 | 415 | 676 | 800 | 638 |
| Thiazide Diuretics | 36 | 295 | 496 | 679 | 693 |
| Digitalis | 6 | 56 | 191 | 521 | 1,071 |
| K-Sparing Diuretics | 31 | 281 | 460 | 628 | 774 |
| Other Oral Diuretics | 15 | 106 | 249 | 521 | 880 |
| Other Anti-hypertensives | 18 | 194 | 371 | 495 | 501 |
| Nitrites/Nitrates | 7 | 140 | 348 | 589 | 739 |

### Part II: Other Broad Classes of Drugs

**Scripts[a] per 1,000 patients per year**

| Category/Age Groups | 0-44 | 45-54 | 55-64 | 65-74 | 75+ |
|---|---|---|---|---|---|
| Syst Anti-arthritics | 113 | 419 | 590 | 747 | 785 |
| Benzodiazepines | 144 | 491 | 488 | 494 | 420 |
| Oral Diabetes Therapy | 7 | 98 | 201 | 340 | 327 |
| Oral Codeine and Combs | 199 | 371 | 411 | 407 | 368 |
| Oral Corticoids (Plain) | 42 | 86 | 111 | 156 | 132 |
| Xanthine Bronchodilators | 60 | 87 | 170 | 276 | 231 |
| Insulin Therapy | 14 | 63 | 112 | 164 | 113 |
| Tricyclic Anti-depressants | 54 | 160 | 145 | 136 | 114 |

[a] Dispensed through retail pharamacies.

Source: FDA, United States as reported in *Scrip*, No. 880 (March 19, 1984), p. 13.

age 65, since this will facilitate an explanation of the variations in drug use in a country over time or amongst countries at a particular juncture. Such information, presented in Table 3.12, clearly indicates for Canada the increasing absolute numbers and relative size of the population aged 65 and over. The increase in this age group over the past decade or so has, however, been relatively mild compared to the expected increase over the next two or three decades. Given the strong relationship between drug use and the size of the population aged 65 and over, it is clear that the overall market for prescribed and non-prescribed drugs in Canada will not only grow more buoyant but will likely do so at a fairly sharp pace.

Table 3.12

**Population 65 Years and Over — Numbers (000's) and Percentage of Total: Canada and Selected Countries, 1970 and 1980 and Projections for 1990, 2000 and 2010**

| Country | | 1970 | 1980 | 1990 | 2000 | 2010 |
|---|---|---|---|---|---|---|
| Canada | No. | 1,683 | 2,184 | 2,773 | 3,280 | 3,775 |
| | % | 7.9 | 8.9 | 9.8 | 10.4 | 11.4 |
| | Index | 77.1 | 100.0 | 127.0 | 150.2 | 172.9 |
| United States | No. | 20,107 | 25,714 | 31,799 | 35,036 | n.a. |
| | % | 9.8 | 11.3 | 12.7 | 13.1 | n.a. |
| | Index | 78.2 | 100.0 | 127.7 | 136.3 | n.a. |
| Japan | No. | 7,371 | 10,345 | 13,473 | 18,798 | 23,077 |
| | % | 7.1 | 8.9 | 10.9 | 14.9 | 17.4 |
| | Index | 71.3 | 100.0 | 130.3 | 181.8 | 223.2 |
| France | No. | 6,522 | 7,347 | 7,255 | 8,205 | 8,195 |
| | % | 12.9 | 13.7 | 13.2 | 14.6 | 14.4 |
| | Index | 88.8 | 100.0 | 98.7 | 111.7 | 111.5 |
| W. Germany | No. | 8,003 | 9,165 | 8,425 | 9,082 | 10,625 |
| | % | 13.2 | 15.0 | 14.1 | 15.4 | 18.7 |
| | Index | 87.3 | 100.0 | 91.9 | 99.1 | 115.9 |
| Sweden | No. | 1,099 | 1,339 | 1,438 | 1,351 | 1,423 |
| | % | 13.7 | 16.2 | 17.5 | 16.7 | 18.0 |
| | Index | 82.1 | 100.0 | 107.4 | 100.9 | 106.3 |
| U. K. | No. | 7,178 | 8,302 | 8,618 | 8,468 | 8,516 |
| | % | 12.9 | 14.9 | 15.5 | 15.3 | 15.6 |
| | Index | 86.5 | 100.0 | 103.8 | 102.0 | 102.6 |
| Europe | No. | 52,414 | 62,960 | 65,658 | 74,454 | 79,309 |
| | % | 11.4 | 13.0 | 13.2 | 14.5 | 15.3 |
| | Index | 83.2 | 100.0 | 104.3 | 118.2 | 125.9 |
| World | No. | 202,650 | 259,453 | 316,514 | 402,823 | 491,782 |
| | % | 5.5 | 5.9 | 6.0 | 6.6 | 7.0 |
| | Index | 78.1 | 100.0 | 122.0 | 155.2 | 189.5 |

Source: United Nations, *Demographic Indicators of Countries: Estimates and Projections as Assessed in 1980* (New York: United Nations, 1982).

These changes in the age distribution of the Canadian population are of course very strongly dependent on the likely levels of immigration into Canada over the next two or three decades. If immigration is not to rise sharply, then the slow but sure aging process of those born during the post-war baby boom years of 1947 to 1962 will generate sharply increased per capita levels of demand for pharmaceuticals and medicines.

Since the United States also experienced a post-war baby boom, its age distribution is not dissimilar to the Canadian one with the minor qualification that the post-war baby boom ended two or three years earlier in the United States than it did in Canada. It is therefore of interest to note that the

percentage of the population aged 65 and over currently is nearly two percentage points higher in the United States than it is in Canada. As in Canada, however, in the United States the proportion of individuals aged 65 and over is growing steadily.

Projections of the U.S. population aged 65 and over to the end of the century reveal much the same picture as the corresponding projections for Canada.

Information on several European countries reveals a distinctly different picture. For example, the proportion of the population 65 years of age and over in the United Kingdom has been substantially higher for much of the last decade as shown by the information presented in Table 3.12. It has also been rising. In 1970, the proportion was some 12.9 per cent; in 1980, it was 14.9 per cent.

Projections of the U.K. population aged 65 and over into the future again reveal a dissimilar pattern to that found in Canada and the United States. It appears that the relative size of the population aged 65 and over is roughly stable and will remain at approximately 15.5 per cent for at least the next three decades.

Similar information to that described for individual countries has been accumulated for the world and is also presented in Table 3.12. Projections of the world population aged 65 and over to the end of the century reveal a pattern similar to that described above for Canada and the United States. The current percentage of 5.8 is projected to grow slowly to a level of 6.65 per cent by the end of the century. Accordingly, given the very strong relationship between age and drug use, the demand side of the market for pharmaceuticals and medicines world-wide is likely to be an ever more buoyant one.

These trends in the relative size of the population aged 65 and over are likely important determinants of changes in the overall demand for pharmaceuticals and medicines in particular countries. In a similar way, they are likely important determinants of differences in the overall level of drug use amongst the different countries. For example, the relatively heavy use of pharmaceuticals and medicines in each of several European countries compared to the use found in Canada, as described in Table 3.7 above, is probably explicable in part by distinctly larger relative sizes of the population aged 65 and over. Whereas that percentage for Canada is currently less than 10 per cent, for countries such as England, West Germany, Sweden, and Switzerland the comparable figure is 15 per cent or more.

### Principal Economic Agents on the Demand Side

It is clear that there are economic agents other than the individual consumer/patient whose decision-making bears directly on the use of pharmaceuticals and medicines. This is especially so with regard to prescribed medicines. Even in the case of non-prescribed medicines, the possibility of a

decision to use being influenced by the physician and/or the pharmacist is fairly high.

The relationship between the use of prescribed drugs and visits to a physician is a fairly strong one. With regard to such visits outside of hospital, information for the United States reveals that, on average, each such visit to a physician results in at least one prescription. This type of information for patients classified by age and sex is presented in Table 3.13 for the United States in 1980. Without delving too deeply into the intricacies of whether the demand for physician visits is driven by consumers/patients on the one hand or at least in part by the supply of physicians on the other, it is likely the case that the latter factor is not unimportant in the number of physician visits recorded. Accordingly, to the extent that each such visit results in at least one prescription, it is worth noting that the overall supply of physicians relative to the overall Canadian population has been slowly but steadily increasing since 1967 as shown in the data presented in Table 3.14. There is a similar increase in the relative numbers of pharmacists.

**Table 3.13**

**Utilization Patterns of Prescriptions by Age and Sex for Health Care Provided Outside of Hospitals: United States, 1980**

| | % of All Prescripts | Prescripts /Visit | Prescripts/ Person/Yr. |
|---|---|---|---|
| Patient Sex | | | |
| Male | 40 | 1.09 | 3.26 |
| Female | 60 | 1.09 | 4.49 |
| Patient Age | | | |
| 0 - 2 | 5 | 0.83 | 4.92 |
| 3 - 9 | 5 | 0.89 | 2.09 |
| 10 - 19 | 7 | 0.82 | 1.70 |
| 20 - 39 | 22 | 0.89 | 2.78 |
| 40 - 59 | 22 | 1.14 | 4.52 |
| 60 - 64 | 8 | 1.32 | 7.02 |
| 65+ | 31 | 1.46 | 11.08 |

Source: *Scrip*, No. 794 (May 16, 1983), p. 15.

For the future there is currently no strong indication that the supply of either physicians or pharmacists will be curtailed relative to the expected growth in the population. It seems clear therefore that changes in the real underlying demand for pharmaceuticals and medicines that are related to the health status of the Canadian population on the one hand and in particular to the age distribution of this population on the other are not likely to be frustrated by limitations in the supply of physicians to prescribe drugs and pharmacists to dispense them. This confirms the earlier conclusion that the future of the market for pharmaceuticals and medicines was likely to be buoyant at least as seen from the demand side.

## Table 3.14

### The Supply of Active Civilian Physicians and Licensed Pharmacists Relative to Population in Canada, 1968-82

| Year | Active Civilian Physicians | | | | Licensed Pharmacists | | | |
|---|---|---|---|---|---|---|---|---|
| | Number | Index | Population Per Physician | Index | Number | Index | Population Per Pharmacist | Index |
| 1982 | 47,384 | 168.0 | 523 | 70.7 | 17,569 | 169.2 | 1,411 | 70.2 |
| 1981 | 45,542 | 161.4 | 538 | 72.7 | 17,039 | 164.1 | 1,439 | 70.6 |
| 1980 | 44,275 | 157.0 | 547 | 73.9 | 16,588 | 159.8 | 1,460 | 72.6 |
| 1979 | 43,192 | 153.1 | 554 | 74.8 | 16,052 | 154.6 | 1,490 | 74.1 |
| 1978 | 42,238 | 149.7 | 560 | 75.7 | 15,709 | 151.3 | 1,505 | 74.9 |
| 1977 | 41,398 | 146.8 | 566 | 76.5 | 15,328 | 147.6 | 1,528 | 76.0 |
| 1976 | 40,130 | 142.3 | 577 | 78.0 | 14,687 | 141.4 | 1,577 | 78.5 |
| 1975 | 39,104 | 138.6 | 585 | 79.0 | 13,872 | 133.6 | 1,650 | 82.1 |
| 1974 | 37,297 | 132.2 | 605 | 81.7 | 13,267 | 127.8 | 1,701 | 84.6 |
| 1973 | 35,923 | 127.3 | 619 | 83.6 | 11,779 | 113.4 | 1,888 | 93.9 |
| 1972 | 34,508 | 122.3 | 636 | 85.9 | 11,629 | 112.0 | 1,887 | 93.9 |
| 1971 | 32,942 | 116.8 | 659 | 89.0 | 11,330 | 109.1 | 1,916 | 95.3 |
| 1970 | 31,166 | 110.5 | 689 | 93.1 | 11,084 | 106.7 | 1,937 | 96.4 |
| 1969 | 29,659 | 105.1 | 714 | 96.5 | 10,587 | 102.0 | 2,001 | 99.5 |
| 1968 | 28,209 | 100.0 | 740 | 100.0 | 10,390 | 100.0 | 2,010 | 100.0 |

**Source:** Health and Welfare Canada, *Canada Health Manpower Inventory*, various years through 1983.

### Drug Utilization by Illness Episode

The relationship between drug use and the illness episode that is experienced by the consumer/patient in Canada is provided in Table 3.15. Once again the relationship between a physician visit and a prescription drug is seen generally to be fairly high. Indeed, for most of the broadly defined classes of diseases, 60 per cent or more of the visits to physicians result in a drug prescription. Moreover, because more than one drug is frequently prescribed at a visit, the overall average number of drugs prescribed per visit is without exception more than one. Indeed, with respect to the more narrowly defined diagnoses, for which detailed information is presented in Table A3.10, there are several instances in which an average of more than two drugs are prescribed per physician visit.

Variations amongst provinces in the use of drugs classified by therapeutic class are indicated by the information presented in Table A3.11 of the Appendix. For example, while vitamins account for 2.3 per cent of all ethical drugs in the four Atlantic provinces, they account for 5.0 per cent of the total in Ontario. In contrast, psychotherapeutic drugs account for 7.4 per cent of all drugs in the four Atlantic provinces and only 4.1 per cent in Ontario.

These interprovincial variations, however, are small compared to variations amongst counties. A recently completed study of European patterns of diagnosis and prescribing documents substantial variations amongst France, West Germany, Italy, Spain, and the United Kingdom in the rank, order, and size of both leading diagnoses and leading types of prescription drugs and also in the types of drugs used for particular diagnoses. Such variations are probably a result of a number of factors including not only the age distribution of the population and the genetic endowment, life styles, and general physical environment of the national populations, but also different social attitudes of people and their physicians as to what constitutes an illness and in turn what is the appropriate remedy for it.[3]

## The Competitive Nature of the Final Market

A fundamental characteristic of health care markets is the strong dependence of the consumer/patient on the decision-making of physicians and of other health care professionals as well. This heavy reliance on an economic agent distinguishes health care markets from most other markets for economic goods and services.

A further limitation on the role of the consumer/patient in exerting demand-side pressures on the prices and quantities of different pharmaceuticals and medicines is the almost comprehensive coverage of the population by third-party insurance. Though some of the plans organized by governments and

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[3] B. O'Brien, *Patterns of European Diagnoses and Prescribing* (London: Office of Health Economics, 1984).

## Table 3.15

### Distribution of Prescribed Drugs by Broadly Defined Illness Diagnosis: Canada, 1982

| CDTI Class | Diagnosis | # of Visits as % of Total Visits | % of Visits Where Drugs Prescribed | # of Drugs Prescribed Per Visit (Where Drug Prescribed) |
|---|---|---|---|---|
| 01 | Infective and parasitic diseases | 3.71 | 68.2 | 1.20 |
| 02 | Neoplasms | 3.03 | 49.7 | 1.67 |
| 35-38 | Endocrine, nutritional and metabolic diseases | 4.23 | 62.1 | 1.22 |
| 04 | Diseases of blood and blood-forming organs | 0.93 | 69.8 | 1.11 |
| 05 | Mental disorders | 8.27 | 61.1 | 1.57 |
| 06 | Diseases of nervous system and sense organs | 7.67 | 61.2 | 1.33 |
| 07 | Diseases of circulating system | 11.20 | 77.5 | 1.67 |
| 08 | Diseases of respiratory system | 12.42 | 82.1 | 1.38 |
| 09 | Diseases of digestive system | 6.11 | 63.6 | 1.40 |
| 10 | Diseases of genito-urinary tract | 6.23 | 61.1 | 1.23 |
| 11 | Complications of pregnancy, childbirth and puerperium | 0.75 | 53.9 | 1.57 |
| 12 | Diseases of skin and subcutaneous tissue | 5.76 | 77.3 | 1.31 |
| 13 | Diseases of musculo-skeletal system and connective tissue | 5.57 | 68.4 | 1.23 |
| 14 | Congenital malformations | 0.55 | 28.4 | 1.67 |
| 16 | Symptoms and ill-defined conditions | 6.94 | 47.5 | 1.25 |
| 17 | Accidents, poisoning and violence | 6.70 | 40.5 | 1.22 |
| 18 | Special conditions without sickness | 9.40 | 39.9 | 1.13 |

Source: IMS Canada. See also Table A3.10.

many of those run by private insurance companies involve some co-payment and/or deductible arrangements, generally sensitivity to price of an individual consumer/patient of pharmaceuticals and medicines is substantially reduced. As described earlier, probably less than 15 per cent of the population actually bears directly the full cost of pharmaceuticals and medicines.

Coupled with the lack of direct financial incentives that face either the consumer/patient or the physician is the smallness of the expenditures on pharmaceuticals and medicines relative to the overall costs of the entire treatment for given illnesses. As described above, expenditures on pharmaceuticals and medicines relative to all health care expenditures are in the range of 8 to 9 per cent. The overall sensitivity of consumers and patients even if they were to bear a much larger proportion of the cost of pharmaceuticals and medicines would likely be not too great because of the small size of expenditures on these products.

A general inference that can be drawn therefore from a discussion of the nature of the final market for pharmaceuticals and medicines is that there are relatively few financial incentives that bear directly on the prices and types of products that are prescribed for and/or purchased by individual consumers/patients.

## Table A3.1

### National Health Expenditures as a Percentage of Gross National Product: Canada, Selected Years, 1960-82

| Component | 1960 | 1965 | 1970 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Institutional Care: | 2.3 | 2.8 | 3.8 | 4.2 | 4.2 | 4.1 | 4.1 | 4.0 | 4.1 | 4.2 | 4.7 |
| Hospitals | 2.2 | 2.6 | 3.3 | 3.5 | 3.4 | 3.3 | 3.2 | 3.1 | 3.2 | 3.2 | 3.5 |
| Nursing Homes | 0.1 | 0.1 | 0.5 | 0.7 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 | 1.0 | 1.2 |
| Professional Services: | 1.4 | 1.4 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.7 | 1.7 | 1.8 |
| Physicians | 0.9 | 1.0 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.2 |
| Dentists | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 |
| Other | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.1 |
| Drugs and Appliances: | 0.8 | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 |
| Prescribed Drugs | 0.3 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| Non-prescribed Drugs | 0.4 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 |
| Appliances | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Total Personal Health Care: | 4.5 | 5.0 | 6.4 | 6.6 | 6.5 | 6.5 | 6.5 | 6.4 | 6.5 | 6.7 | 7.4 |
| Other Health Expenditures: | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 1.0 | 1.0 | 1.0 |
| Prepayment Admin. | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Public Health | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| Other Services | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Research | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Capital Expenditures | 0.5 | 0.4 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 |
| Total Health Care: | 5.3 | 5.8 | 7.3 | 7.5 | 7.4 | 7.4 | 7.4 | 7.2 | 7.5 | 7.6 | 8.4 |

**Source:** Health and Welfare Canada, *National Health Expenditures in Canada, 1970-82* and unpublished revised data for 1960-69.

## Table A3.2

**Expenditure on Prescribed Drugs as Percentage of Total Expenditures on Institutional Care, Physicians and Dentists, Prescribed and Non-prescribed Drugs by Province, 1960-82**

| | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada | 8.59 | 7.92 | 7.58 | 7.38 | 7.12 | 7.17 | 6.62 | 6.69 | 6.38 | 6.29 | 7.00 |
| Newfoundland | 5.31 | 7.17 | 8.46 | 7.72 | 6.71 | 7.37 | 6.43 | 6.37 | 6.16 | 6.64 | 7.70 |
| P.E.I. | 5.56 | 7.50 | 7.14 | 7.61 | 7.00 | 8.11 | 7.20 | 8.16 | 9.70 | 8.47 | 8.25 |
| Nova Scotia | 6.15 | 6.24 | 6.08 | 6.44 | 6.73 | 8.01 | 7.99 | 7.38 | 5.71 | 6.24 | 6.04 |
| New Brunswick | 11.36 | 8.73 | 8.25 | 8.16 | 7.96 | 8.98 | 8.31 | 8.16 | 9.53 | 10.45 | 10.39 |
| Quebec | 8.75 | 7.93 | 7.69 | 6.97 | 7.42 | 7.77 | 7.76 | 7.78 | 7.11 | 6.48 | 6.56 |
| Ontario | 7.44 | 6.61 | 6.35 | 6.72 | 6.71 | 7.13 | 6.99 | 6.98 | 7.39 | 7.33 | 6.73 |
| Manitoba | 8.90 | 8.23 | 8.53 | 9.31 | 9.08 | 9.05 | 8.24 | 7.43 | 7.81 | 7.55 | 7.37 |
| Saskatchewan | 7.66 | 8.13 | 8.67 | 8.61 | 8.19 | 8.34 | 7.56 | 8.42 | 8.35 | 7.36 | 7.22 |
| Alberta | 9.08 | 8.21 | 8.40 | 8.88 | 8.04 | 8.64 | 8.10 | 7.23 | 7.47 | 8.04 | 7.28 |
| British Columbia | 6.79 | 6.30 | 6.06 | 6.32 | 6.10 | 6.42 | 6.49 | 7.88 | 6.37 | 7.16 | 8.10 |

| | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada | 6.71 | 6.38 | 6.31 | 5.73 | 5.48 | 5.51 | 5.63 | 5.64 | 5.65 | 5.41 | 5.53 | 5.77 |
| Newfoundland | 7.25 | 6.65 | 6.84 | 6.28 | 6.87 | 8.57 | 9.79 | 9.97 | 9.52 | 9.22 | 9.86 | 9.61 |
| P.E.I. | 7.35 | 7.66 | 8.04 | 6.86 | 6.38 | 4.81 | 4.19 | 5.11 | 5.83 | 6.30 | 7.47 | 8.42 |
| Nova Scotia | 6.44 | 6.51 | 6.83 | 6.08 | 5.85 | 5.93 | 6.38 | 7.21 | 7.82 | 7.77 | 7.83 | 8.20 |
| New Brunswick | 10.11 | 9.03 | 9.55 | 7.67 | 5.63 | 5.99 | 6.56 | 6.50 | 7.41 | 8.10 | 9.26 | 9.58 |
| Quebec | 6.19 | 6.00 | 5.76 | 4.99 | 4.29 | 3.94 | 4.12 | 3.93 | 3.79 | 3.44 | 4.18 | 5.22 |
| Ontario | 6.36 | 6.16 | 6.11 | 5.82 | 6.04 | 6.30 | 6.32 | 6.56 | 6.41 | 5.96 | 5.46 | 5.42 |
| Manitoba | 6.79 | 6.03 | 5.64 | 5.26 | 4.81 | 4.32 | 4.24 | 4.11 | 4.33 | 4.59 | 4.52 | 4.28 |
| Saskatchewan | 6.96 | 6.41 | 6.17 | 5.93 | 7.34 | 7.04 | 6.53 | 6.20 | 5.72 | 5.40 | 7.03 | 7.06 |
| Alberta | 7.02 | 6.54 | 6.69 | 6.45 | 5.44 | 5.46 | 5.53 | 5.34 | 5.46 | 5.30 | 5.39 | 5.33 |
| British Columbia | 8.41 | 7.50 | 7.60 | 6.43 | 5.84 | 6.16 | 6.23 | 5.86 | 6.47 | 6.68 | 6.46 | 6.17 |

Source: Health and Welfare Canada, *National Health Expenditures in Canada, 1970-82* and unpublished revised data for 1960-69.

Table A3.3

**Expenditure on Non-prescribed Drugs as Percentage of Total Expenditures on Institutional Care, Physicians and Dentists, Prescribed and Non-prescribed Drugs by Province, 1960-82**

| | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada | 8.59 | 7.92 | 7.58 | 7.38 | 7.12 | 7.17 | 6.62 | 6.69 | 6.38 | 6.29 | 6.25 |
| Newfoundland | 6.64 | 7.17 | 7.35 | 6.71 | 6.10 | 6.05 | 5.48 | 5.18 | 4.70 | 5.65 | 7.20 |
| P.E.I. | 11.11 | 10.00 | 9.52 | 9.78 | 10.00 | 9.91 | 9.60 | 10.20 | 11.52 | 10.58 | 9.71 |
| Nova Scotia | 7.82 | 7.06 | 6.84 | 7.14 | 7.23 | 8.23 | 8.09 | 7.38 | 5.87 | 6.31 | 6.10 |
| New Brunswick | 6.69 | 6.00 | 5.67 | 5.49 | 5.31 | 5.71 | 5.37 | 5.22 | 5.76 | 6.36 | 6.40 |
| Quebec | 10.71 | 9.55 | 8.88 | 7.91 | 7.63 | 7.29 | 6.80 | 6.55 | 5.93 | 5.45 | 5.78 |
| Ontario | 8.38 | 7.69 | 7.31 | 7.34 | 7.17 | 7.30 | 7.03 | 6.81 | 6.93 | 6.83 | 6.26 |
| Manitoba | 7.58 | 7.16 | 7.17 | 7.38 | 7.17 | 6.93 | 6.42 | 5.81 | 5.83 | 6.69 | 7.62 |
| Saskatchewan | 6.70 | 6.63 | 6.88 | 6.48 | 6.13 | 6.09 | 5.48 | 5.85 | 5.63 | 3.82 | 5.26 |
| Alberta | 8.06 | 7.78 | 7.76 | 7.93 | 7.12 | 7.39 | 6.83 | 6.06 | 6.04 | 6.77 | 6.15 |
| British Columbia | 7.35 | 6.81 | 6.56 | 6.74 | 6.53 | 6.82 | 6.87 | 8.26 | 6.64 | 6.80 | 7.15 |

| | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada | 6.03 | 5.75 | 5.74 | 5.29 | 5.08 | 5.11 | 5.21 | 5.21 | 5.20 | 4.96 | 5.09 | 5.32 |
| Newfoundland | 6.80 | 6.24 | 6.58 | 6.21 | 6.81 | 8.48 | 9.72 | 9.90 | 9.46 | 9.17 | 9.79 | 9.56 |
| P.E.I. | 8.57 | 8.03 | 7.72 | 6.60 | 5.91 | 4.60 | 4.00 | 4.94 | 5.53 | 6.04 | 7.13 | 8.04 |
| Nova Scotia | 6.44 | 6.51 | 6.74 | 6.01 | 5.80 | 5.85 | 6.32 | 7.11 | 7.72 | 7.68 | 7.74 | 8.10 |
| New Brunswick | 6.33 | 5.60 | 6.02 | 4.78 | 3.54 | 3.76 | 4.11 | 4.05 | 4.63 | 5.07 | 5.78 | 5.99 |
| Quebec | 5.59 | 5.52 | 5.40 | 4.69 | 4.03 | 3.70 | 3.87 | 3.69 | 3.57 | 3.24 | 3.93 | 4.91 |
| Ontario | 5.89 | 5.69 | 5.62 | 5.33 | 5.53 | 5.77 | 5.79 | 6.01 | 5.87 | 5.46 | 5.00 | 4.97 |
| Manitoba | 7.17 | 6.20 | 6.12 | 6.09 | 5.56 | 4.99 | 4.89 | 4.75 | 5.02 | 5.31 | 5.23 | 4.95 |
| Saskatchewan | 5.61 | 5.21 | 5.83 | 7.14 | 8.82 | 8.46 | 7.85 | 7.45 | 6.86 | 6.48 | 8.44 | 8.49 |
| Alberta | 6.00 | 5.61 | 5.86 | 5.73 | 4.83 | 4.85 | 4.91 | 4.74 | 4.85 | 4.71 | 4.79 | 4.73 |
| British Columbia | 7.17 | 6.42 | 6.32 | 5.28 | 4.80 | 5.06 | 5.12 | 4.81 | 5.32 | 5.49 | 5.30 | 5.07 |

Source: Health and Welfare Canada, *National Health Expenditures in Canada, 1970-82* and unpublished revised data for 1960-69.

## Table A3.4

### Total Health Expenditures, United States, by Category, 1970-82
### (Percentage Distribution)

| Category | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Health Expenditures | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| All Institutions | 43.5 | 43.7 | 44.3 | 44.4 | 45.8 | 46.9 | 47.6 | 47.9 | 48.0 | 48.2 | 48.6 | 49.6 | 50.5 |
| Hospitals | 37.2 | 37.0 | 37.3 | 37.5 | 38.5 | 39.3 | 40.0 | 40.1 | 40.0 | 40.0 | 40.3 | 41.2 | 42.0 |
| Homes for Special Care | 6.3 | 6.7 | 7.0 | 6.9 | 7.3 | 7.6 | 7.6 | 7.8 | 8.0 | 8.2 | 8.3 | 8.4 | 8.5 |
| All Professional Services | 27.6 | 27.1 | 26.3 | 26.7 | 26.5 | 26.9 | 26.9 | 27.2 | 27.3 | 27.1 | 27.2 | 27.4 | 27.4 |
| Physicians | 19.1 | 19.1 | 18.4 | 18.5 | 18.2 | 18.8 | 18.4 | 18.9 | 18.9 | 18.7 | 18.8 | 19.1 | 19.2 |
| Dentists | 6.3 | 6.1 | 6.0 | 6.3 | 6.4 | 6.2 | 6.3 | 6.2 | 6.2 | 6.2 | 6.2 | 6.0 | 6.0 |
| Other Professional | 2.1 | 2.0 | 1.9 | 1.9 | 1.9 | 2.0 | 2.1 | 2.1 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| All Drugs and Appliances | 13.3 | 12.7 | 12.4 | 12.2 | 11.9 | 11.4 | 11.0 | 10.5 | 10.3 | 10.1 | 9.8 | 9.5 | 8.7 |
| Drugs and Medical Sundries | 10.7 | 10.3 | 10.0 | 9.8 | 9.5 | 9.0 | 8.7 | 8.3 | 8.1 | 8.0 | 7.8 | 7.5 | 6.9 |
| Eyeglasses and Appliances | 2.5 | 2.4 | 2.5 | 2.4 | 2.4 | 2.4 | 2.3 | 2.2 | 2.2 | 2.1 | 2.0 | 2.0 | 1.8 |
| All Other Health Costs | 15.5 | 16.3 | 17.0 | 16.6 | 15.9 | 14.8 | 14.4 | 14.6 | 14.3 | 14.5 | 14.3 | 13.6 | 13.3 |
| Prepayment Administration | 3.6 | 4.1 | 5.0 | 5.2 | 4.5 | 3.3 | 3.3 | 4.2 | 4.0 | 4.3 | 4.3 | 3.9 | 3.9 |
| Public Health | 1.9 | 2.2 | 2.1 | 2.1 | 2.3 | 2.4 | 2.5 | 2.5 | 2.8 | 2.9 | 2.8 | 2.5 | 2.7 |
| Capital Expenditures | 4.6 | 4.8 | 4.5 | 4.2 | 4.0 | 3.8 | 3.5 | 3.1 | 2.8 | 2.7 | 2.6 | 2.6 | 2.5 |
| Health Research | 2.7 | 2.5 | 2.6 | 2.4 | 2.4 | 2.5 | 2.5 | 2.3 | 2.3 | 2.2 | 2.1 | 2.0 | 1.8 |
| Miscellaneous Health Costs | 2.8 | 2.8 | 2.8 | 2.6 | 2.7 | 2.8 | 2.5 | 2.4 | 2.4 | 2.4 | 2.4 | 2.5 | 2.4 |

Source: Health and Welfare Canada, *National Health Expenditures in Canada, 1970-82.*

## Table A3.5

### Total Health Expenditures, United States, by Category, 1970-82
### (Percentage of Gross National Product)

| Category | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Health Expenditures | 7.52 | 7.73 | 7.88 | 7.78 | 8.12 | 8.57 | 8.71 | 8.82 | 8.75 | 8.89 | 9.46 | 9.70 | 10.49 |
| All Institutions | 3.27 | 3.38 | 3.49 | 3.45 | 3.72 | 4.01 | 4.15 | 4.22 | 4.20 | 4.29 | 4.61 | 4.81 | 5.30 |
| Hospitals | 2.80 | 2.86 | 2.94 | 2.92 | 3.12 | 3.36 | 3.49 | 3.53 | 3.50 | 3.56 | 3.82 | 3.99 | 4.41 |
| Homes for Special Care | .47 | .52 | .55 | .54 | .59 | .65 | .66 | .69 | .70 | .73 | .78 | .82 | .89 |
| All Professional Services | 2.18 | 2.10 | 2.07 | 2.08 | 2.15 | 2.30 | 2.34 | 2.40 | 2.39 | 2.41 | 2.58 | 2.66 | 2.88 |
| Physicians | 1.44 | 1.48 | 1.45 | 1.44 | 1.48 | 1.61 | 1.61 | 1.66 | 1.65 | 1.66 | 1.78 | 1.86 | 2.01 |
| Dentists | .47 | .47 | .47 | .49 | .52 | .53 | .55 | .55 | .55 | .55 | .59 | .59 | .63 |
| Other Professional | .16 | .15 | .15 | .15 | .15 | .17 | .19 | .19 | .19 | .19 | .21 | .22 | .23 |
| All Drugs and Appliances | 1.00 | .98 | .98 | .95 | .96 | .97 | .95 | .93 | .90 | .90 | .93 | .92 | .91 |
| Drugs and Medical Sundries | .81 | .80 | .78 | .76 | .77 | .77 | .76 | .74 | .71 | .71 | .73 | .72 | .73 |
| Eyeglasses and Appliances | .19 | .19 | .19 | .19 | .20 | .21 | .20 | .19 | .19 | .19 | .19 | .19 | .19 |
| All Other Health Costs | 1.17 | 1.26 | 1.34 | 1.29 | 1.29 | 1.27 | 1.26 | 1.29 | 1.25 | 1.29 | 1.35 | 1.32 | 1.40 |
| Prepayment Administration | .27 | .31 | .40 | .41 | .36 | .28 | .29 | .37 | .35 | .39 | .41 | .38 | .41 |
| Public Health | .14 | .17 | .17 | .17 | .19 | .21 | .22 | .22 | .24 | .26 | .27 | .25 | .28 |
| Capital Expenditures | .34 | .37 | .35 | .32 | .33 | .33 | .31 | .28 | .24 | .24 | .25 | .25 | .27 |
| Health Research | .20 | .19 | .20 | .19 | .20 | .21 | .22 | .20 | .20 | .20 | .20 | .19 | .19 |
| Miscellaneous Health Costs | .21 | .21 | .22 | .20 | .22 | .24 | .22 | .21 | .21 | .21 | .23 | .24 | .25 |
| Gross National Product ($ Billions) | 992.7 | 1077.6 | 1185.9 | 1326.4 | 1434.2 | 1549.2 | 1718.0 | 1918.3 | 2163.9 | 2417.8 | 2631.7 | 2954.1 | 3073.0 |

Source: Health and Welfare Canada, *National Health Expenditures in Canada, 1970-82.*

## Table A3.6

### Total Health Expenditures, United States, by Category, 1970-82
### (Dollars Per Person)

| Category | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Health Expenditures | 358.08 | 394.30 | 437.79 | 478.51 | 534.72 | 603.48 | 674.34 | 754.59 | 835.45 | 938.61 | 1074.76 | 1224.85 | 1364.94 |
| All Institutions | 155.79 | 172.30 | 193.84 | 212.36 | 244.85 | 282.86 | 321.18 | 361.24 | 401.17 | 452.72 | 522.27 | 607.72 | 689.25 |
| Hospitals | 133.26 | 145.79 | 163.41 | 179.44 | 205.80 | 236.93 | 269.82 | 302.37 | 334.09 | 375.88 | 433.36 | 504.30 | 573.67 |
| Homes for Special Care | 22.52 | 26.50 | 30.43 | 32.92 | 39.04 | 45.93 | 51.35 | 58.86 | 67.08 | 76.84 | 88.92 | 103.42 | 115.58 |
| All Professional Services | 98.74 | 106.97 | 115.18 | 127.97 | 141.49 | 162.35 | 181.08 | 205.15 | 228.17 | 254.08 | 292.65 | 335.49 | 374.26 |
| Physicians | 68.54 | 75.26 | 80.53 | 88.56 | 97.38 | 113.23 | 124.32 | 142.26 | 157.99 | 175.50 | 202.00 | 234.20 | 261.64 |
| Dentists | 22.52 | 24.14 | 26.22 | 30.13 | 33.99 | 37.29 | 42.34 | 46.82 | 52.07 | 58.06 | 66.47 | 73.94 | 82.56 |
| Other Professional | 7.66 | 7.57 | 8.42 | 9.27 | 10.10 | 11.82 | 14.41 | 16.05 | 18.09 | 20.52 | 24.17 | 27.35 | 30.06 |
| All Drugs and Appliances | 47.45 | 50.17 | 54.31 | 58.42 | 63.39 | 68.67 | 73.87 | 79.38 | 86.06 | 95.17 | 105.32 | 115.82 | 118.97 |
| Drugs and Medical Sundries | 38.34 | 40.70 | 43.54 | 46.83 | 50.53 | 54.11 | 58.56 | 62.88 | 67.96 | 75.09 | 83.30 | 91.46 | 94.83 |
| Eyeglasses and Appliances | 9.10 | 9.46 | 10.76 | 11.59 | 12.86 | 14.55 | 15.31 | 16.50 | 18.09 | 20.08 | 22.01 | 24.36 | 24.13 |
| All Other Health Costs | 55.60 | 64.37 | 74.44 | 79.28 | 64.98 | 89.59 | 97.30 | 110.15 | 119.16 | 135.77 | 153.23 | 166.25 | 182.05 |
| Prepayment Administration | 12.94 | 16.09 | 22.00 | 25.03 | 23.88 | 20.01 | 22.52 | 31.66 | 33.10 | 40.60 | 46.18 | 47.87 | 53.77 |
| Public Health | 6.71 | 8.52 | 9.36 | 10.20 | 12.40 | 14.55 | 17.11 | 19.17 | 23.39 | 27.07 | 30.21 | 31.20 | 36.41 |
| Capital Expenditures | 16.29 | 18.93 | 19.66 | 19.93 | 21.59 | 23.19 | 23.87 | 23.63 | 23.39 | 24.88 | 28.06 | 32.05 | 34.72 |
| Health Research | 9.58 | 9.94 | 11.23 | 11.59 | 12.86 | 15.00 | 16.66 | 17.39 | 19.41 | 20.95 | 22.88 | 24.36 | 24.98 |
| Miscellaneous Health Costs | 10.06 | 10.88 | 12.17 | 12.51 | 14.24 | 16.82 | 17.11 | 18.28 | 19.86 | 22.26 | 25.90 | 30.77 | 32.18 |
| Population (Millions) | 208.6 | 211.3 | 213.6 | 215.7 | 217.7 | 219.9 | 222.0 | 224.2 | 226.6 | 229.1 | 231.7 | 234.0 | 236.2 |

**Source:** Health and Welfare Canada, *National Health Expenditures in Canada, 1970-82.*

## Table A3.7

### Principal Statistics on Pharmaceutical Services: England, Selected Years, 1949-81

### Part I: Number and Cost of Prescription

| | Unit | 1949 | 1959 | 1969 | 1977 | 1978 | 1979 | 1980 | 1981 |
|---|---|---|---|---|---|---|---|---|---|
| Number of prescriptions | Thousands | 188,543 | 199,463 | 245,539 | 295,656 | 307,097 | 304,556 | 303,334 | 299,973 |
| Chargeable | Thousands | — | — | 118,422 | 108,464 | 113,061 | 107,275 | 90,284 | 76,198 |
| Exempt* | Thousands | — | — | 127,192 | 187,192 | 194,036 | 197,281 | 213,050 | 223,775 |
| Exempt prescriptions as a percentage of all prescriptions | Per Cent | — | — | 51.8 | 63.3 | 63.2 | 64.8 | 70.2 | 74.6 |
| Total cost | £ thousand | 28,175 | 67,732 | 151,062 | 553,705 | 657,549 | 739,288 | 898,099 | 1,026,335 |
| Net ingredient cost | £ thousand | 12,844 | 43,328 | 112,016 | 434,411 | 517,643 | 592,088 | 715,988 | 834,376 |
| Average cost per prescriptions | | | | | | | | | |
| Total cost | £'s | 0.149 | 0.340 | 0.615 | 1.873 | 2.141 | 2.427 | 2.961 | 3.421 |
| Net ingredient cost | £'s | 0.068 | 0.217 | 0.456 | 1.469 | 1.686 | 1.944 | 2.360 | 2.782 |
| Persons on N.H.S. prescribing lists | Thousands | 36,449 | 40,157 | 44,568 | 45,707 | 45,780 | 45,884 | 46,073 | 46,101 |
| Average per person on list | | | | | | | | | |
| Prescriptions | Number | 5.17 | 4.97 | 5.51 | 6.47 | 6.71 | 6.64 | 6.58 | 6.51 |
| Net ingredient cost | £'s | 0.352 | 1.079 | 2.513 | 9,504 | 11.307 | 12.904 | 15.540 | 18.099 |

* Exempt prescriptions include prescriptions for people with pre-payment certificates. In 1980 there were 15 million such prescriptions.

## Table A3.7 (continued)

### Principal Statistics on Pharmaceutical Services: England, Selected Years, 1949-81

### Part II: The Cost of Pharmaceuticals as a Percentage of Total Expenditures on National Health and Personal Social Services

| | 1970/71 | 1976/77 | 1980/81 |
|---|---|---|---|
| Per Cent | 8.8 | 7.8 | 8.2 |

**Source:** United Kingdom, Department of Health and Social Security, *Health and Personal Social Services Statistics for England, 1982* (London: HMSO, 1984), Tables 2.1 and 5.9.

## Table A3.8

### Consumption of Medicines and Consumer/Patient Co-payment: Sweden, 1970-83

### Part I: Consumption of Prescription Medicines by Level of Reimbursement

| Year | Wholly Reim-bursable | High Cost Provision | Partially Reimbursable | | | | | Grand Total |
|---|---|---|---|---|---|---|---|---|
| | | | Paid by State | Paid by Patient | | Total | | |
| | $* | $* | $* | $* | % | $* | % | $* |
| 1981 | 567 | 11 | 1,599 | 617 | 27.8 | 2,216 | 22.1 | 2,794 |
| 1982 | 677 | 260 | 1,704 | 585 | 25.6 | 2,289 | 18.1 | 3,226 |
| 1983 | 780 | 305 | 1,941 | 609 | 23.9 | 2,550 | 16.8 | 3,635 |

*SKR millions.

### Part II: Relation of Changes in Consumption of Prescribed Medicines to Changes in Payments by Patient

| Year | Percentage Change in Payments by Patient | Percentage Change in Consumption |
|---|---|---|
| 1970 | −8.1 | 1.0 |
| 1971 | 29.2 | −6.1 |
| 1972 | −18.1 | 2.1 |
| 1973 | −7.1 | 2.3 |
| 1976 | 9.4 | −1.7 |
| 1977 | −12.4 | 0.5 |
| 1978 | 8.7 | −2.2 |
| 1979 | −6.5 | −0.5 |

**Source:** *Scrip*, No. 924 (August 20, 1984), p. 6.

## Table A3.9

### Distribution of Consumers of Prescribed Drugs by Age and Major Therapeutic Class, 1982

| Therapeutic Class | Ethical Analgesics | | | | Anti-arthritics and Gout | | | | Anti-infectives, System. | | | | Anti-spasmodics, Anti-secretives | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 000's | % | 000's | % | 000's | % | 000's | % | 000's | % | 000's | % | 000's | % | 000's | % |
| Age | Male | | Female | | Male | | Female | | Male | | Female | | Male | | Female | |
| Total | 6,445 | 100 | 8,953 | 100 | 3,021 | 100 | 3,513 | 100 | 10,022 | 100 | 12,447 | 100 | 1,849 | 100 | 2,210 | 100 |
| 2 & under | 238 | 4 | 250 | 3 | 0 | 0 | 0 | 0 | 1,329 | 13 | 1,036 | 8 | 23 | 1 | 44 | 2 |
| 3-9 | 317 | 5 | 279 | 3 | 4 | 0 | 0 | 0 | 1,627 | 16 | 1,549 | 12 | 25 | 1 | 32 | 1 |
| 10-19 | 557 | 9 | 936 | 10 | 95 | 3 | 103 | 3 | 1,311 | 13 | 1,715 | 14 | 67 | 4 | 96 | 4 |
| 20-39 | 1,725 | 27 | 3,098 | 35 | 727 | 24 | 676 | 19 | 2,197 | 22 | 4,212 | 34 | 455 | 25 | 541 | 24 |
| 40-59 | 1,457 | 23 | 1,824 | 20 | 1,088 | 36 | 1,106 | 31 | 1,527 | 15 | 2,072 | 17 | 616 | 33 | 705 | 32 |
| 60-64 | 574 | 9 | 520 | 6 | 282 | 9 | 312 | 9 | 430 | 4 | 379 | 3 | 164 | 9 | 195 | 9 |
| 65+ | 1,577 | 24 | 2,046 | 23 | 826 | 27 | 1,317 | 37 | 1,601 | 16 | 1.484 | 12 | 500 | 27 | 597 | 27 |
| Unspecified | 36 | — | 86 | — | 21 | — | 28 | — | 53 | — | 95 | — | 4 | — | 25 | — |
| Total No. of Patients | 15,538 | | | | 6,644 | | | | 22,904 | | | | 4,141 | | | |

## Table A3.9 (continued)

## Distribution of Consumers of Prescribed Drugs by Age and Major Therapeutic Class, 1982

| Therapeutic Class | Bronchial Therapy | | | | Cardiovascular Therapy | | | | Contraceptives | | | | Cough and Cold Preparations | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 000's | % | 000's | % | 000's | % | 000's | % | 000's | % | 000's | % | 000's | % | 000's | % |
| Age | Male | | Female | | Male | | Female | | Male | | Female | | Male | | Female | |
| Total | 2,543 | 100 | 2,129 | 100 | 7,266 | 100 | 7,751 | 100 | 0 | — | 3,077 | 100 | 3,646 | 100 | 4,445 | 100 |
| 2 & under | 121 | 5 | 66 | 3 | 31 | 0 | 4 | 0 | — | — | — | 0 | 562 | 15 | 467 | 11 |
| 3-9 | 291 | 11 | 190 | 9 | 17 | 0 | 19 | 0 | — | — | 0 | 0 | 828 | 23 | 689 | 15 |
| 10-19 | 205 | 8 | 161 | 8 | 7 | 0 | 36 | 0 | — | — | 0 | 23 | 457 | 13 | 558 | 13 |
| 20-39 | 178 | 7 | 368 | 17 | 323 | 4 | 403 | 5 | — | — | 715 | 75 | 1,014 | 28 | 1,573 | 35 |
| 40-59 | 409 | 16 | 541 | 25 | 2,219 | 31 | 1,913 | 25 | — | — | 49 | 2 | 500 | 14 | 672 | 15 |
| 60-64 | 237 | 9 | 165 | 8 | 1,062 | 15 | 195 | 10 | — | — | 0 | 0 | 82 | 2 | 162 | 4 |
| 65+ | 1,101 | 43 | 637 | 30 | 3,608 | 50 | 4,581 | 59 | — | — | 4 | 0 | 203 | 6 | 325 | 7 |
| Unspecified | | — | | — | 31 | — | 46 | — | — | — | 29 | — | 17 | — | 21 | — |
| Total No. of Patients | 4,754 | | | | 15,290 | | | | 3,095 | | | | 8,231 | | | |

## Table A3.9 (continued)

## Distribution of Consumers of Prescribed Drugs by Age and Major Therapeutic Class, 1982

| Therapeutic Class | Dermatologicals | | | | Diuretics | | | | Hormones | | | | Ethical Laxatives | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 000's | % | 000's | % | 000's | % | 000's | % | 000's | % | 000's | % | 000's | % | 000's | % |
| Age | Male | | Female | | Male | | Female | | Male | | Female | | Male | | Female | |
| Total | 2,016 | 100 | 3,498 | 100 | 3,823 | 100 | 5,632 | 100 | 3,388 | 100 | 5,612 | 100 | 653 | 100 | 1,161 | 100 |
| 2 & under | 214 | 11 | 273 | 8 | 26 | 1 | 9 | 0 | 222 | 7 | 244 | 4 | 42 | 6 | 38 | 3 |
| 3-9 | 225 | 11 | 175 | 5 | 7 | 0 | 7 | 0 | 225 | 7 | 225 | 4 | 34 | 5 | 34 | 3 |
| 10-19 | 396 | 20 | 555 | 16 | 0 | 0 | 7 | 0 | 351 | 10 | 486 | 9 | 25 | 4 | 81 | 7 |
| 20-39 | 649 | 32 | 1,720 | 49 | 230 | 6 | 409 | 7 | 869 | 26 | 1,947 | 35 | 100 | 15 | 288 | 25 |
| 40-59 | 233 | 12 | 409 | 12 | 1,096 | 29 | 1,479 | 26 | 714 | 21 | 1,519 | 27 | 151 | 23 | 287 | 25 |
| 60-64 | 64 | 3 | 81 | 2 | 469 | 12 | 628 | 11 | 179 | 5 | 350 | 6 | 65 | 10 | 60 | 5 |
| 65+ | 235 | 12 | 285 | 8 | 1,995 | 52 | 3,093 | 55 | 828 | 24 | 841 | 15 | 236 | 36 | 374 | 32 |
| Unspecified | 3 | — | 19 | — | 17 | — | 53 | — | 7 | — | 24 | — | 0 | — | 4 | — |
| Total No. of Patients | 5,623 | | | | 9,645 | | | | 9,118 | | | | 1,836 | | | |

## Table A3.9 (continued)

### Distribution of Consumers of Prescribed Drugs by Age and Major Therapeutic Class, 1982

| Therapeutic Class | Nutrients and Supplements | | | | Opthalmic Preparations | | | | Psychotherapeutic Drugs | | | | Vitamins | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 000's 14 | % | 000's | % | 000's 35 | % | 000's | % | 000's 189 | % | 000's | % | 000's 53 | % | 000's | % |
| Age | Male | | Female | | Male | | Female | | Male | | Female | | Male | | Female | |
| Total | 551 | 100 | 994 | 100 | 1,069 | 100 | 1,297 | 100 | 5,203 | 100 | 8,246 | 100 | 789 | 100 | 2,917 | 100 |
| 2 & under | 10 | 2 | 13 | 1 | 74 | 7 | 96 | 7 | 10 | 0 | 27 | 0 | 161 | 20 | 113 | 4 |
| 3-9 | 0 | 0 | 3 | 0 | 85 | 8 | 73 | 6 | 71 | 1 | 69 | 1 | 29 | 4 | 23 | 1 |
| 10-19 | 6 | 1 | 7 | 0 | 114 | 11 | 142 | 11 | 186 | 4 | 156 | 2 | 28 | 4 | 190 | 7 |
| 20-39 | 20 | 4 | 64 | 6 | 204 | 19 | 261 | 20 | 1,736 | 33 | 2,681 | 33 | 124 | 16 | 1,928 | 66 |
| 40-59 | 139 | 25 | 211 | 21 | 253 | 24 | 200 | 15 | 1,802 | 35 | 2,820 | 34 | 203 | 26 | 207 | 7 |
| 60-64 | 52 | 9 | 76 | 8 | 73 | 7 | 127 | 10 | 368 | 7 | 709 | 9 | 51 | 7 | 93 | 3 |
| 65+ | 325 | 59 | 622 | 63 | 266 | 25 | 399 | 31 | 1,030 | 20 | 1,784 | 22 | 192 | 24 | 363 | 12 |
| Unspecified | 0 | — | 4 | — | 14 | — | 3 | — | 30 | — | 35 | — | 0 | — | 39 | — |
| Total No. of Patients | 1,564 | | | | 2,396 | | | | 13,555 | | | | 3,758 | | | |

Source: IMS Canada.

## Table A3.10

### Distribution of Drugs Prescribed by Illness Diagnosis, 1982

| CDTI Class | Diagnosis | Total Number of Visits | Number of Visits Where Drug Prescribed | Percentage of Visits Where Drug Prescribed | Total Drugs Prescribed | No. of Drugs Per Visit Where Drug Prescribed |
|---|---|---|---|---|---|---|
| 01 | Infective and parasitic diseases | 7,282 | 4,967 | 68.2 | 5,976 | 1.20 |
| 1,1 | Intestinal infective diseases | 2,049 | 1,201 | 58.6 | 1,411 | 1.17 |
| 1,2 | Tuberculosis | 61 | 36 | 59.0 | 68 | 1.89 |
| 01.3 | Venereal diseases | 368 | 283 | 76.9 | 351 | 1.24 |
| 01.4 | Heminthiases | 37 | 35 | 94.6 | 35 | 1.00 |
| 02 | Neoplasms | 5,937 | 2,948 | 49.7 | 4,930 | 1.67 |
| 02,1 | Malignant neoplasms | 4,442 | 2,530 | 57.0 | 4,318 | 1.71 |
| | Mal. neo. of large intestine | 296 | 174 | 58.8 | 256 | 1.47 |
| | Mal. neo. of bronchus lung | 540 | 297 | 55.0 | 488 | 1.64 |
| | Mal. neo. of breast | 565 | 337 | 59.6 | 640 | 1.90 |
| | Mal. neo. of prostate | 273 | 192 | 70.3 | 313 | 1.08 |
| 02,2 | Benign neoplasms | 1,171 | 290 | 24.8 | 424 | 1.46 |
| 35-38 | Endocrine, nutritional and metabolic diseases | 8,281 | 5,139 | 62.1 | 6,284 | 1.22 |
| 35 | Thyroid disorders | 948 | 746 | 78.7 | 767 | 1.03 |
| 36 | Diabetes mellitus | 3,745 | 2,944 | 78.6 | 3,795 | 1.29 |
| 37 | Endocrine gland disorder | 3,210 | 1,238 | 38.6 | 1,477 | 1.19 |
| 38 | Metabolic disorders | 378 | 211 | 55.8 | 245 | 1.16 |
| 04 | Diseases of the blood and blood-forming organs | 1,829 | 1,276 | 69.8 | 1,415 | 1.11 |
| 04,1 | Anemia | 1,276 | 981 | 76.9 | 1,089 | 1.11 |

Table A3.10 (continued)

Distribution of Drugs Prescribed by Illness Diagnosis, 1982

| CDTI Class | Diagnosis | Total Number of Visits | Number of Visits Where Drug Prescribed | Percentage of Visits Where Drug Prescribed | Total Drugs Prescribed | No. of Drugs Per Visit Where Drug Prescribed |
|---|---|---|---|---|---|---|
| 05 | Mental disorders | 16,214 | 9,908 | 61.1 | 15,551 | 1.57 |
| 05.1 | Psychoses | 3,005 | 2,464 | 82.0 | 5,556 | 2.25 |
| 05.2 | Neuroses, personality disorders and other psychotic mental disorders | 13,209 | 7,444 | 56.4 | 9,985 | 1.34 |
| 06 | Diseases of the nervous system and sense organs | 15,037 | 9,201 | 61.2 | 12,262 | 1.33 |
| | Conjunctivitis opthalm | 1,319 | 1,150 | 87.2 | 1,284 | 1.12 |
| | Other diseases of the eye | 503 | 207 | 41.2 | 266 | 1.29 |
| | Otitis externa | 765 | 666 | 87.1 | 843 | 1.27 |
| 06.1 | Epilepsy | 587 | 533 | 90.8 | 877 | 1.65 |
| 06.2 | Other diseases of the central nervous system | 1,887 | 1,173 | 62.2 | 1,675 | 1.43 |
| 06.3 | Neuritis and neuralgia | 685 | 469 | 68.5 | 627 | 1.34 |
| 06.4 | Otitis media | 4,045 | 3,169 | 78.3 | 4,213 | 1.33 |
| 07 | Diseases of the circulatory system | 22,956 | 17,784 | 77.5 | 29,711 | 1.67 |
| | Peripheral vascular disease, unspec. | 367 | 88 | 24.0 | 120 | 1.36 |
| 07.1 | Heart disease | 8,723 | 6,798 | 77.9 | 13,459 | 1.98 |
| | Acute myocardial infarction w/o hypertension | 686 | 538 | 78.4 | 1,181 | 2.20 |
| | Chronic ischaemic heart disease w/o | 2,109 | 1,282 | 60.8 | 2,468 | 1.93 |
| | hypertension | 1,334 | 1,213 | 90.9 | 2,260 | 1.86 |
| | Congestive heart failure | 1,327 | 1,229 | 92.6 | 2,572 | 2.09 |
| | Heart rhythm, other disorders | 1,103 | 847 | 76.8 | 1,228 | 1.45 |
| 07.2 | Hypertension | 8,690 | 7,621 | 87.7 | 11,338 | 1.49 |

Table A3.10 (continued)

Distribution of Drugs Prescribed by Illness Diagnosis, 1982

| CDTI Class | Diagnosis | Total Number of Visits | Number of Visits Where Drug Prescribed | Percentage of Visits Where Drug Prescribed | Total Drugs Prescribed | No. of Drugs Per Visit Where Drug Prescribed |
|---|---|---|---|---|---|---|
| 07,3 | Hypertensive heart disease | 173 | 173 | 100.0 | 447 | 2.58 |
| 07,4 | Cerebrovascular disease | 1,672 | 888 | 54.8 | 1,351 | 1.52 |
| 07,5 | Varicose veins | 1,732 | 1,239 | 71.5 | 1,621 | 1.31 |
| 08 | Diseases of the respiratory system | 24,344 | 19,975 | 82.1 | 27,638 | 1.38 |
| | Acute pharyngitis | 2,062 | 1,653 | 80.2 | 1,924 | 1.16 |
| | Acute tonsilitis | 1,613 | 1,455 | 90.2 | 1,684 | 1.16 |
| | Acute uri. multiple or unspec. site | 4,045 | 3,170 | 78.4 | 3,836 | 1.21 |
| | Asthma | 1,727 | 1,593 | 92.2 | 2,874 | 1.80 |
| | Hay fever | 2,160 | 1,899 | 87.9 | 2,215 | 1.17 |
| | Pulmonary congestion hypostasis | 917 | 666 | 72.6 | 1,256 | 1.89 |
| 08,1 | Sinusitis | 1,450 | 1,306 | 90.1 | 2,039 | 1.56 |
| 08,2 | Influenza | 1,227 | 891 | 72.6 | 1,144 | 1.28 |
| 08,3 | Pneumonia | 1,269 | 1,118 | 88.1 | 1,671 | 1.49 |
| 08,4 | Bronchitis | 4,190 | 3,769 | 90.0 | 5,603 | 1.49 |
| 09 | Diseases of the digestive system | 11,983 | 7,617 | 63.6 | 10,671 | 1.40 |
| | Gastritis and duodenitis | 789 | 648 | 82.1 | 821 | 1.27 |
| | Constipation | 758 | 619 | 81.7 | 788 | 1.27 |
| | Choletithiasis | 765 | 324 | 42.4 | 479 | 1.48 |
| 09 | Ulcer | 1,396 | 1,189 | 85.2 | 1,642 | 1.38 |
| 09,2 | Appendicitis | 400 | 212 | 53.0 | 318 | 1.50 |
| 09,3 | Hernia | 1,370 | 593 | 43.3 | 963 | 1.62 |

Table A3.10 (continued)

Distribution of Drugs Prescribed by Illness Diagnosis, 1982

| CDTI Class | Diagnosis | Total Number of Visits | Number of Visits Where Drug Prescribed | Percentage of Visits Where Drug Prescribed | Total Drugs Prescribed | No. of Drugs Per Visit Where Drug Prescribed |
|---|---|---|---|---|---|---|
| 10 | Diseases of the genito-urinary tract | 12,217 | 7,459 | 61.1 | 9,161 | 1.23 |
| | Cystitis | 1,033 | 891 | 86.3 | 996 | 1.08 |
| | Urinary tract disorder, other | 1,080 | 988 | 83.7 | 1,067 | 1.08 |
| | Menopausal symptoms | 780 | 635 | 81.4 | 732 | 1.15 |
| 10.1 | Nephritis and nephrosis | 144 | 97 | 67.4 | 171 | 1.76 |
| 10.2 | Kidney infections | 271 | 243 | 89.7 | 318 | 1.31 |
| 10.3 | Salingitis and oophoritis | 88 | 81 | 92.0 | 123 | 1.52 |
| 10.4 | Uterus, vagina and vulva infections | 1,546 | 1,243 | 80.4 | 1,396 | 1.12 |
| 10.5 | Menstrual disorders | 2,438 | 1,101 | 45.2 | 1,357 | 1.23 |
| 11 | Complications of pregnancy, childbirth and the puerperium | 1,478 | 796 | 53.9 | 1,249 | 1.57 |
| | Abortion | 151 | 64 | 42.4 | 106 | 1.66 |
| 11.2 | Delivery | 542 | 301 | 55.5 | 542 | 1.80 |
| 12 | Diseases of the skin and | 11,290 | 8,727 | 77.3 | 11,461 | 1.31 |
| | Subcutaneous cyst | 685 | 174 | 25.4 | 185 | 1.06 |
| 12.1 | Boil and carbuncle | 155 | 115 | 74.2 | 124 | 1.08 |
| 12.2 | Cellulitis | 833 | 653 | 78.4 | 776 | 1.19 |
| 12.3 | Dermatitis and eczema | 4,414 | 4,050 | 91.8 | 4,700 | 1.16 |
| 12.4 | Psoriasis | 443 | 354 | 79.9 | 660 | 1.86 |
| 12.5 | Pruritis | 369 | 284 | 77.0 | 375 | 1.32 |
| 12.6 | Urticaria | 395 | 349 | 88.4 | 433 | 1.24 |

Table A3.10 (continued)

Distribution of Drugs Prescribed by Illness Diagnosis, 1982

| CDTI Class | Diagnosis | Total Number of Visits | Number of Visits Where Drug Prescribed | Percentage of Visits Where Drug Prescribed | Total Drugs Prescribed | No. of Drugs Per Visit Where Drug Prescribed |
|---|---|---|---|---|---|---|
| 13 | Diseases of the musculo-skeletal system and connective tissue | 10,918 | 7,473 | 68.4 | 9,195 | 1.23 |
| | Lumbalgia | 625 | 345 | 55.2 | 391 | 1.13 |
| 13.1 | Arthritis | 4,441 | 3,811 | 85.8 | 4,686 | 1.23 |
| 13.2 | Rheumatism | 958 | 686 | 71.6 | 826 | 1.20 |
| 13.3 | Bursitis and synovitis | 1,627 | 1,065 | 65.5 | 1,211 | 1.14 |
| 14 | Congenital malformations | 1,076 | 306 | 28.4 | 512 | 1.67 |
| 16 | Symptoms and ill-defined conditions | 13,611 | 6,459 | 47.5 | 8,078 | 1.25 |
| | Pain in chest | 908 | 335 | 36.9 | 409 | 1.22 |
| | Abdominal pain | 2,182 | 844 | 38.7 | 1,052 | 1.25 |
| 16.1 | Headache | 736 | 464 | 63.0 | 500 | 1.08 |
| 17 | Accidents, poisonings and violence | 13,128 | 5,323 | 40.5 | 6,512 | 1.22 |
| | Fractures | 2,582 | 928 | 35.9 | 1,303 | 1.40 |
| | Sprains and strains | 3,037 | 1,466 | 48.3 | 1,702 | 1.16 |
| | Lacerations, open wounds | 2,285 | 831 | 36.4 | 957 | 1.15 |
| | Contusion, crushing | 1,353 | 363 | 26.8 | 395 | 1.09 |
| | Effect of medicine and poison | 693 | 267 | 38.5 | 346 | 1.30 |
| 18 | Special conditions without sickness | 18,418 | 7,349 | 39.9 | 8,325 | 1.13 |
| | Prophylactic innoculation of vaccines | 996 | 975 | 97.9 | 1,204 | 1.23 |
| | Family planning | 3,618 | 3,099 | 85.7 | 3,155 | 1.02 |
| | Prenatal care and observation | 4,438 | 1,993 | 44.9 | 2,049 | 1.03 |
| | Post-partum obstetrics without abnormal symptoms | 1,487 | 606 | 40.8 | 1,041 | 1.72 |

Source: IMS Canada.

## Table A3.11

### Share of Ethical Drugstore Market by Region and Therapeutic Class, 1982

| | Total | Atlantic Provinces | Quebec | Ontario | Manitoba | Saskat-chewan | Alberta | B.C. |
|---|---|---|---|---|---|---|---|---|
| Ethical Market ($000's) | 1,092,191 | 96,466 | 253,428 | 396,032 | 49,761 | 56,884 | 86,534 | 153,037 |
| | % | % | % | % | % | % | % | % |
| Ethical analgesics | 6.0 | 5.4 | 4.4 | 6.6 | 7.1 | 4.8 | 6.2 | 7.7 |
| Anti-arthritics and gout | 9.9 | 11.9 | 9.0 | 10.1 | 6.9 | 14.4 | 9.4 | 9.2 |
| Anti-infectives, system. | 5.9 | 6.3 | 5.2 | 6.0 | 5.1 | 6.6 | 8.7 | 5.1 |
| Anti-spasmodics, anti-secretives | 4.8 | 6.4 | 4.2 | 4.8 | 2.8 | 4.6 | 5.9 | 4.8 |
| Bronchial therapy | 3.6 | 4.2 | 3.5 | 3.5 | 3.8 | 3.8 | 3.1 | 4.0 |
| Cardiovascular therapy | 11.3 | 12.8 | 10.5 | 11.4 | 11.0 | 10.3 | 9.5 | 12.6 |
| Contraceptives | 5.8 | 3.9 | 7.0 | 5.9 | 6.8 | 4.0 | 6.2 | 4.8 |
| Cough and cold preparations | 5.0 | 3.9 | 5.3 | 5.2 | 6.7 | 4.2 | 4.9 | 4.6 |
| Dermatologicals | 4.3 | 3.0 | 5.4 | 4.5 | 5.0 | 3.1 | 4.0 | 3.4 |
| Diuretics | 2.9 | 4.1 | 3.0 | 2.7 | 1.5 | 2.9 | 2.8 | 3.1 |
| Hormones | 5.0 | 4.5 | 5.3 | 4.7 | 6.4 | 5.6 | 5.5 | 4.5 |
| Ethical laxatives | 2.0 | 1.5 | 1.8 | 2.4 | 1.9 | 3.1 | 2.1 | 1.4 |
| Nutrients and supplements | 2.0 | 1.7 | 1.7 | 2.2 | 1.5 | 2.5 | 1.4 | 2.3 |
| Opthalmic preparations | 3.0 | 2.4 | 3.1 | 3.0 | 4.4 | 3.1 | 2.7 | 2.9 |
| Psycotherapeutic drugs | 5.4 | 7.4 | 7.0 | 4.1 | 5.4 | 5.0 | 5.0 | 5.4 |
| Vitamins | 4.3 | 2.3 | 3.2 | 5.0 | 4.7 | 4.5 | 4.9 | 4.9 |
| Other | 18.8 | 18.3 | 20.4 | 17.9 | 19.0 | 17.5 | 17.7 | 19.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: IMS Canada.

# Chapter 4

# The Market Structure

Two fundamental characteristics of the pharmaceutical industry in Canada are examined in the chapter. These are the extent to which output is concentrated in the hands of a few manufacturers and the stability of market shares. Together these features reflect the nature and degree of competition that exists in this industry. Other elements of market structure considered are the extent of economies of scale and the concentration of output on the demand/buying side of the market and the nature of generic firms.

## Concentration of Output

### Overall Market Concentration

Described in Figure 4.1 is the overall concentration of the sales in 1982 of ethical pharmaceuticals and medicines in the hands of different numbers of firms ranked from the four largest firms onwards.[1] The four largest firms account for just under one quarter of the total ethical market. The 12 largest firms account for half of the total ethical market and the 30 largest firms for over 80 per cent.

Similar information based on the number of prescriptions is provided in Figure 4.2.[2] Somewhat higher levels of concentration are shown by these data. For example, the four largest firms account for 28.7 per cent of prescriptions whereas they accounted for only 23.4 per cent of total sales.

More detailed information on seller concentration, not only in the overall ethical market but also for each of its two components, hospitals and drugstores/pharmacies, is presented in Table 4.1 for the period 1964 to 1984.[3]

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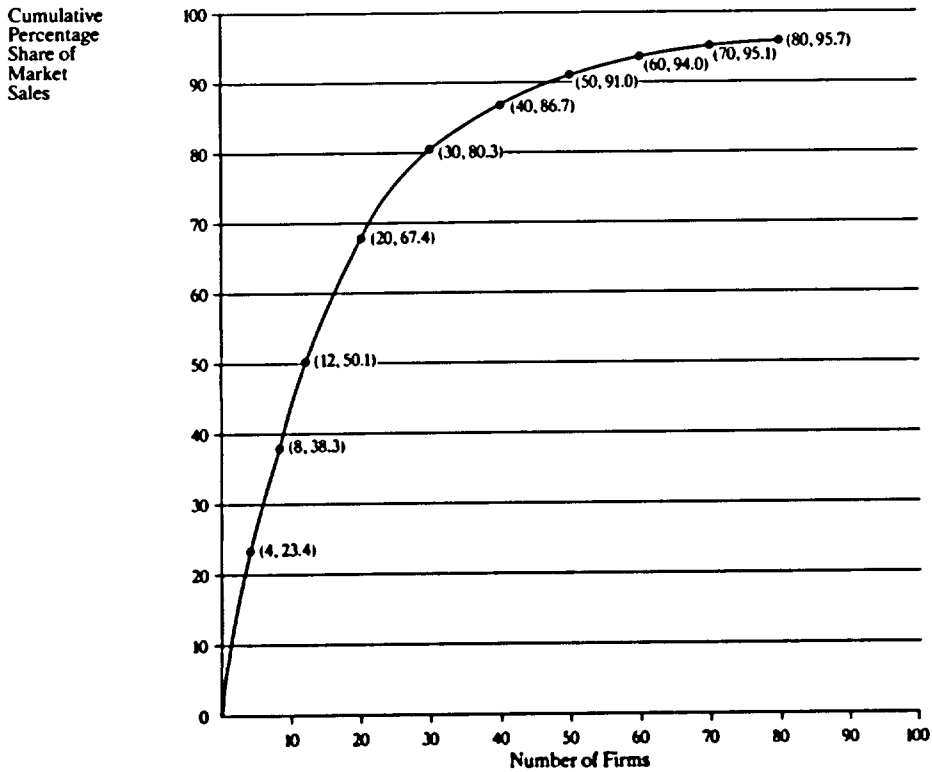
[1] The detailed data in market shares from which Figure 4.1 is derived are presented in Table A4.1 in the Appendix. In addition to data on market shares for the ethical market, information on market shares for the proprietary market and for the combined ethical and proprietary market is presented in Table A4.1. Concentration in the proprietary market is seen to be significantly higher than in the ethical market and therefore concentration in the combined market is higher than in the ethical market taken by itself.

[2] Table A4.2 contains the detailed data from which Figure 4.2 is drawn.

[3] Detailed data for the market share of the 10 leading firms in each of the drugstore market, the hospital market, and the market for the two combined, are presented in Tables A4.3, A4.4, and A4.5, respectively, for 1979 to 1984.

Figure 4.1

**Canadian Pharmaceutical Industry Concentration Curve (in Terms of Sales), Total Ethical Market, 1982**




Source: IMS Canada.

Concentration levels in the drugstore market are lower than in the hospital market. This is so regardless of which of the three measures of concentration are examined: the concentration of output in the hands of the four largest firms (C4), concentration in the eight largest firms (C8), or the Herfindahl Index (H), which measures concentration by assessing the market share of all firms in the industry.[4] Higher levels of concentration in the hospital market may well reflect the impact of substantially fewer "buyers," of bulk purchases that cover many drugs, many months' supply, and many hospitals, and similar hospital purchasing practices.

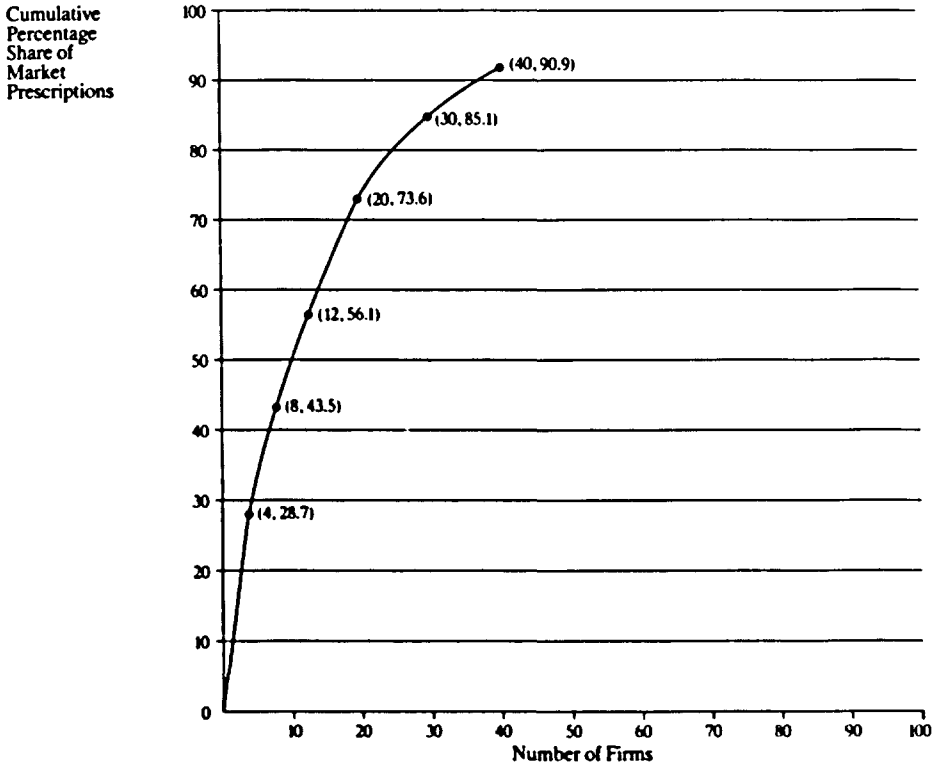
[4] The Herfindahl Index is a measure of concentration that varies from 0 to 1. It is defined as the sum of the squares of the market share of each firm:

$$H = \sum_{i=1}^{n} (s_i)^2$$

where $s_i$ is the market share of the $i^{th}$ firm. It is 1 when a single firm's output constitutes the entire output; it approximates 0 when a large number of firms have identical market shares.

**Figure 4.2**

**Canadian Pharmaceutical Industry Concentration Curve (in Terms of Number of Prescriptions), Total Ethical Market, 1982**




Source: IMS Canada.

Concentration in the drugstore market seems to have increased up to the early 1970s and then to have declined. This is indicated by each of the three alternative measures of concentration. Concentration in the hospital market also seems to have increased in the period up to the early 1970s and then to have stabilized.

### Concentration Compared to Other Industries

Information on concentration can be more readily interpreted if it is evaluated not only over time but also in relation to concentration in other industries. In Table 4.2, concentration in the four and eight largest firms, respectively, for the period 1965 to 1980, is provided for all sub-components of chemicals and chemical products, as well as for industries that have consistently been characterized by either high levels or low levels of concentration.

The trend for pharmaceuticals and medicines revealed by these data, compiled from the Statistics Canada annual census of manufacturers, is similar

Table 4.1

**Seller Concentration in the Overall Ethical Drug Market and for the Drugstore and Hospital Markets Separately: Canada, 1964-84**

| Year | Drugstore | | | Hospital | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | C4 | C8 | H | C4 | C8 | H | C4 | C8 | H |
| 1964 | 21.6 | 34.7 | .026 | 25.3 | 40.0 | .033 | 21.2 | 33.4 | .026 |
| 1965 | 21.8 | 35.9 | .027 | 26.4 | 41.1 | .035 | 21.6 | 34.0 | .027 |
| 1966 | 23.5 | 37.7 | .028 | 25.9 | 40.9 | .035 | 22.9 | 35.4 | .027 |
| 1967 | 26.4 | 40.1 | .031 | 27.7 | 42.8 | .038 | 25.2 | 37.6 | .030 |
| 1968 | 26.5 | 41.8 | .032 | 28.4 | 43.7 | .038 | 26.3 | 40.3 | .032 |
| 1969 | 27.7 | 41.3 | .033 | 28.0 | 43.7 | .038 | 27.3 | 39.7 | .032 |
| 1970 | 29.5 | 42.6 | .035 | 28.5 | 43.4 | .039 | 28.3 | 40.5 | .033 |
| 1971 | 29.2 | 42.4 | .035 | 28.1 | 43.1 | .039 | 27.9 | 41.0 | .033 |
| 1972 | 29.4 | 43.5 | .036 | 28.8 | 43.6 | .039 | 27.3 | 41.3 | .034 |
| 1973 | 27.7 | 41.3 | .034 | 29.1 | 44.1 | .038 | 25.6 | 39.5 | .032 |
| 1974 | 27.2 | 41.3 | .033 | 28.4 | 43.2 | .037 | 24.9 | 39.0 | .031 |
| 1975 | 26.9 | 40.7 | .033 | 29.6 | 43.7 | .037 | 25.1 | 38.9 | .032 |
| 1976 | 26.9 | 39.8 | .033 | 29.6 | 44.1 | .037 | 24.8 | 38.2 | .031 |
| 1977 | 26.7 | 39.1 | | 29.8 | 43.3 | | 23.7 | 37.0 | |
| 1978 | 26.4 | 40.0 | | 30.5 | 43.8 | | 23.6 | 37.2 | |
| 1979 | 28.8 | 42.7 | | 27.1 | 43.2 | | 25.6 | 40.2 | |
| 1980 | 28.0 | 42.5 | | 29.5 | 44.1 | | 24.9 | 40.3 | |
| 1981 | 28.2 | 43.7 | | 32.0 | 46.8 | | 25.1 | 40.9 | |
| 1982 | 26.1 | 41.8 | | 32.9 | 49.3 | | 23.5 | 38.7 | |
| 1983 | 26.3 | 40.7 | | 30.6 | 48.2 | | 24.1 | 38.0 | |
| 1984 | 26.1 | 40.2 | | 31.1 | 47.9 | | 23.7 | 38.6 | |

Source: IMS Canada.

to that described earlier based on the information compiled by IMS. Increased levels of concentration in the latter half of the 1960s are followed by declining to stable concentration up to 1980. For the manufacturers of toilet preparations, also a sub-component of chemicals and chemical products, concentration was fairly stable up to 1972. Concentration reached a peak in 1974 and has since declined fairly steadily.

Examination of the Herfindahl Index, presented in Table 4.3, reveals a similar trend. For pharmaceuticals and medicines it rises from 1965 to 1970; thereafter it is fairly stable over the next decade. For the manufacturers of toilet preparations the Herfindahl Index is fairly stable from 1965 to 1974 and then begins to decline fairly sharply up to and including 1980.

### Concentration in Sub-markets Defined by Therapeutic Classes

The major question that must be considered, but for which there is no definitive answer, is whether the overall market for pharmaceuticals and medicines can be considered to be as homogeneous a market as that for the other industries considered in Tables 4.2 and 4.3. A common view is that there

## Table 4.2

### Concentration Ratios Based on Value of Shipments, Pharmaceuticals and Selected Other Industries: Canada, Selected Years, 1965-80

| Industries (1970 SIC Number) | 1965 | | 1968 | | 1970 | | 1972 | | 1974 | | 1976 | | 1978 | | 1980 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C4 | C8 | C4 | C8 | C4 | C8 | C4 | C8 | C4 | C8 | C4 | C8 | C4 | C8 | C4 | C8 |
| Industries with Low Degree of Concentration | | | | | | | | | | | | | | | | |
| 2441 Women's Clothing Factory | 6.4 | 10.0 | 7.7 | 11.5 | 8.0 | 11.7 | 8.2 | 12.3 | 7.5 | 11.5 | 7.3 | 11.8 | 6.3 | 10.9 | 6.4 | 11.9 |
| 2619 Household Furniture Mfrs. n.e.s. | 9.1 | 13.4 | 10.3 | 15.6 | 13.1 | 19.8 | 13.4 | 21.3 | 15.4 | 24.3 | 17.0 | 25.3 | 15.6 | 21.9 | 17.6 | 24.1 |
| 3080 Machine Shops | 8.3 | 13.0 | 6.7 | 11.3 | 7.2 | 11.9 | 7.3 | 11.9 | 8.3 | 13.6 | 9.3 | 15.2 | 10.0 | 15.7 | 6.4 | 11.8 |
| Chemicals and Chemical Products | | | | | | | | | | | | | | | | |
| 3720 Manufacturers of Mixed Fertilizers | 62.2 | 81.8 | 72.7 | 87.0 | 71.0 | 86.8 | 75.1 | 89.4 | 76.3 | 91.2 | 74.6 | 87.8 | 74.7 | 87.1 | 70.5 | 83.1 |
| 3730 Manufacturers of Plastics and Synthetic Resins | 61.7 | n.a. | 56.1 | 81.0 | 57.7 | 79.3 | 57.0 | 76.8 | 56.3 | 77.5 | 52.8 | 73.1 | 59.2 | 75.3 | 57.3 | 75.1 |
| 3740 Manufacturers of Pharmaceuticals and Medicines | 26.1 | 40.0 | 28.0 | 41.8 | 29.6 | 43.8 | 27.8 | 42.4 | 25.6 | 39.6 | 27.5 | 42.2 | 27.0 | 42.5 | 27.1 | 41.5 |
| 3750 Manufacturers of Paint and Varnish | 46.0 | 57.5 | 41.4 | 58.8 | 39.7 | 57.7 | 37.8 | 54.2 | 36.0 | 54.1 | 32.3 | 50.2 | 35.1 | 55.4 | 32.6 | 53.1 |
| 3760 Manufacturers of Soap and Cleaning Compounds | 79.0 | 86.6 | 77.7 | 85.8 | 75.8 | 84.5 | 72.5 | 82.3 | 68.9 | 82.3 | n.a. | 80.8 | 67.5 | 79.3 | 64.9 | 79.5 |
| 3770 Manufacturers of Toilet Preparations | 46.8 | 65.0 | 45.8 | 63.4 | 45.4 | 61.6 | 45.8 | 62.0 | 49.8 | 63.8 | 46.2 | 62.3 | 43.2 | 60.6 | 40.1 | 58.1 |
| 3780 Manufacturers of Industrial Chemicals | 41.3 | 65.0 | 34.2 | 56.7 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Industries with High Degree of Concentration | | | | | | | | | | | | | | | | |
| 1093 Breweries | 94.5 | 99.6 | 94.8 | n.a. | 94.0 | n.a. | 96.6 | n.a. | n.a. | n.a. | n.a. | 100.0 | 98.9 | 100.0 | 99.0 | 100.0 |
| 1530 Manufacturers of Tobacco Products | 91.3 | 99.9 | 95.8 | 99.7 | 96.9 | 99.7 | 97.2 | 99.8 | 97.7 | n.a. | n.a. | n.a. | 99.4 | 100.0 | 99.6 | n.a. |
| 3230 Motor Vehicle Manufacturers | 93.3 | 98.2 | 94.6 | 98.2 | 93.3 | 98.4 | n.a. | 98.2 | 90.1 | 98.2 | 93.4 | 98.3 | 93.6 | 98.8 | 93.7 | 98.0 |

**Source:** Statistics Canada, *Industrial Organization and Concentration in Manufacturing, Mining and Logging Industries* (Catalogue 31-402), various years.

**Table 4.3**

**Herfindahl Indices Based on Value of Shipments, Pharmaceuticals and Selected Other Industries: Canada, Selected Years, 1965-80**

| Industries (1970 SIC Number) | 1965 | 1968 | 1970 | 1972 | 1974 | 1976 | 1978 | 1980 |
|---|---|---|---|---|---|---|---|---|
| Industries with Low Degree of Concentration | | | | | | | | |
| 2441 Women's Clothing Factory | 0.0041 | 0.0047 | 0.0047 | 0.0048 | 0.0049 | 0.0051 | 0.0052 | 0.0055 |
| 2619 Household Furniture Mfrs, n.e.s. | 0.0056 | 0.0065 | 0.0095 | 0.0109 | 0.0118 | 0.0132 | 0.0114 | 0.0136 |
| 3080 Machine Shops | 0.0050 | 0.0039 | 0.0042 | 0.0047 | 0.0054 | 0.0063 | 0.0065 | 0.0042 |
| Chemicals and Chemical Products | | | | | | | | |
| 3720 Manufacturers of Mixed Fertilizers | 0.1212 | 0.1589 | 0.1544 | 0.1697 | 0.1695 | 0.1646 | 0.1587 | 0.1443 |
| 3730 Manufacturers of Plastics and Synthetic Resins | 0.1267 | 0.1049 | 0.1097 | 0.1066 | 0.1011 | 0.0911 | 0.1164 | 0.1137 |
| 3740 Manufacturers of Pharmaceuticals and Medicines | 0.0355 | 0.0379 | 0.0386 | 0.0364 | 0.0355 | 0.0385 | 0.0370 | 0.0361 |
| 3750 Manufacturers of Paint and Varnish | 0.0734 | 0.0630 | 0.0578 | 0.0533 | 0.0515 | 0.0455 | 0.0502 | 0.0464 |
| 3760 Manufacturers of Soap and Cleaning Compounds | 0.1959 | 0.1905 | 0.1841 | 0.1617 | 0.1564 | 0.1377 | 0.1607 | 0.1533 |
| 3770 Manufacturers of Toilet Preparations | 0.0791 | 0.0841 | 0.0734 | 0.0750 | 0.0792 | 0.0704 | 0.0640 | 0.0589 |
| 3780 Manufacturers of Industrial Chemicals | 0.0651 | 0.0517 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Industries with High Degree of Concentration | | | | | | | | |
| 1093 Breweries | 0.3088 | 0.2859 | 0.2800 | 0.2963 | n.a. | 0.3228 | 0.3172 | 0.3177 |
| 1530 Manufacturers of Tobacco Products | 0.3000 | 0.2882 | 0.2968 | 0.2743 | 0.2792 | 0.2895 | 0.3149 | 0.3364 |
| 3230 Motor Vehicle Manufacturers | 0.3196 | 0.2960 | 0.2970 | 0.2918 | n.a. | 0.3008 | 0.3357 | 0.3865 |

Source: Statistics Canada, *Industrial Organization and Concentration in the Manufacturing, Mining and Logging Industries* (Catalogue 31-402), various years.

are several distinct therapeutic classes of pharmaceuticals and medicines that do not compete directly with one another either because they are distinct classes of chemical compounds and/or because they are indicated for different illnesses. Accordingly, presented in Table 4.4 is information on the sales accounted for by the four leading firms in each one of 14 therapeutic classes of ethical drugs for selected years since 1964.[5] Figures are provided for the overall ethical market in each one of these therapeutic classes as well as for drugstores and hospitals taken separately.

**Table 4.4**

**Concentration of Sales Among the Four Largest Firms in Fourteen Major Therapeutic Classes of Ethical Drugs: Canada, 1964, 1974, and 1984**

| | Drugstore | | Hospital | | Combined | | |
|---|---|---|---|---|---|---|---|
| | 1964 | 1974 | 1964 | 1974 | 1964 | 1974 | 1984 |
| Ethical analgesics | 73.1 | 70.9 | 66.2 | 64.4 | 68.8 | 66.7 | 59.2 |
| Antibiotics: broad and medium spectrum | 58.1 | 50.7 | 52.6 | 67.7 | 55.7 | 54.7 | 49.4 |
| Antibiotics: oral and other penicillins | 75.6 | 86.2 | 90.6 | 93.1 | 78.8 | 87.4 | 85.1 |
| Ataractics | — | 68.5 | — | 76.6 | — | 67.0 | 59.1 |
| Bronchial dilators | 52.7 | 66.6 | 51.4 | 59.3 | 51.8 | 65.2 | 85.9 |
| Ethical cough and cold preparations | 43.0 | 52.1 | 47.1 | 51.6 | 42.9 | 52.0 | 51.3 |
| Hematinics | 36.1 | 37.9 | 39.7 | 44.4 | 34.0 | 35.5 | 43.8 |
| Sex hormones | 85.0 | 86.2 | 52.9 | 58.6 | 81.0 | 83.9 | 81.8 |
| Hormones: plain corticoids | 53.9 | 66.3 | 76.5 | 83.4 | 60.2 | 68.1 | 61.8 |
| Hormones: corticoid combinations | 59.3 | 63.5 | 58.4 | 61.5 | 59.3 | 63.1 | 55.7 |
| Other hypotensives | 86.4 | 97.0 | 87.4 | 92.2 | 86.7 | 95.8 | 81.1 |
| Ethical laxatives | — | 54.8 | — | 44.1 | — | 49.0 | 51.3 |
| Vitamins | 45.9 | 33.6 | 41.7 | 42.0 | 44.5 | 32.9 | 37.2 |
| Nutrients | 77.2 | 75.6 | 69.5 | 80.5 | 74.7 | 72.1 | 87.9 |

**Source:** IMS Canada.

[5] Detailed annual data for 1964-76, for each of the drugstore, hospital, and combined drugstore and hospital markets, for each of 14 therapeutic classes and for 4-firm and 8-firm concentration ratios and the Herfindahl Index are presented in Appendix Tables A4.6, A4.7, and A4.8, respectively. For 1979-84, information is presented in Table A4.9 on the shares of the total ethical market classified into 14 therapeutic classes, held by each of the 10 leading firms ranked by their sales in each of these classes in 1984. Table A4.10 contains information on market shares in each class and in drugstore, hospital, and combined markets in 1979 and 1984 for each of the four leading firms in each class in 1984.

It is immediately clear that concentration in several of the therapeutic classes is much higher than it is in the overall ethical market. For example, concentration exceeds 80 per cent for the "combined" market in five of the 14 classes. In several classes, concentration is near or below 50 per cent. These include broad and medium spectrum antibiotics, ethical cough and cold preparations, hematinics, ethical laxatives, and vitamins.

Very much the same picture is revealed by the data presented in Table 4.5 on market share as described by numbers of prescriptions in the total ethical market. Concentration in the four leading firms according to prescription data is higher in 11 therapeutic classes than it is when determined by data on value of sales. In three classes concentration actually exceeds 90 per cent.

Of special interest is the share and rank in terms of prescriptions attained by the generic producers. Whereas in terms of sales value they are one of the four leading firms in a therapeutic class in only three of 56 possibilities, as shown in Table A4.10, generic firms attain one of the four leading ranks in terms of prescriptions in 12 of 56 possibilities as shown in Table 4.5.

**Table 4.5**

**Concentration of Prescriptions Among the Four Leading Firms in Fourteen Major Therapeutic Classes of Ethical Drugs: Canada, 1982 and 1984**

| | 1982 | | 1984 | |
|---|---|---|---|---|
| | Number of Prescriptions | % | Number of Prescriptions | % |
| Ethical Market | 174,195 | 100.0 | 179,650 | 100.0 |
| Ethical Analgesics | 12,355 | 7.1 | 13,073 | 7.3 |
| Merck Frosst | 4,032 | 32.6 | 4,303 | 32.9 |
| J & J | 2,750 | 22.3 | 2,867 | 21.9 |
| Sandoz Canada Inc. | 1,286 | 10.4 | 1,241 | 9.5 |
| Carter Products | 511 | 4.1 | 656 | 5.0 |
| Leading 4 Firms (Total) | | 69.4 | | 69.3 |
| Antibiotics: Brd/Med. Spec. | 14,625 | 8.4 | 15,669 | 8.7 |
| Novopharm | 3,459 | 23.6 | 4,214 | 26.9 |
| American Home Prod. | 3,334 | 22.8 | 3,604 | 23.0 |
| Abbott | 1,568 | 10.7 | 1,488 | 9.5 |
| Lilly | 1,127 | 7.7 | 1,273 | 8.1 |
| Leading 4 Firms (Total) | | 64.8 | | 67.5 |
| Antibiotics: Oral/Other Penicillins | 3,419 | 2.0 | 3,417 | 1.9 |
| Novopharm | 1,024 | 29.9 | 1,319 | 38.6 |
| American Home Prod. | 821 | 24.0 | 833 | 24.4 |
| Merck Frosst | 957 | 28.0 | 758 | 22.2 |
| Rougier-Desbergers | 323 | 9.5 | 285 | 8.3 |
| Leading 4 Firms (Total) | | 91.8 | | 93.5 |

Table 4.5 (Cont'd)

| | 1982 | | 1984 | |
|---|---|---|---|---|
| | Number of Prescriptions | % | Number of Prescriptions | % |
| Ataractics | 12,579 | 7.2 | 13,181 | 7.3 |
| American Home Prod. | 3,025 | 24.0 | 3,943 | 29.9 |
| Apotex Inc. | 1,342 | 10.7 | 2,044 | 15.5 |
| Roche | 1,489 | 11.8 | 1,459 | 11.1 |
| Novopharm | 1,261 | 10.0 | 1,258 | 9.5 |
| Leading 4 Firms (Total) | | 56.5 | | 66.0 |
| Bronchial Dilators | 5,453 | 3.1 | 6,050 | 3.4 |
| Glaxo Canada Ltd. | 2,270 | 41.6 | 2,612 | 43.2 |
| Astra | 682 | 12.5 | 1,129 | 18.7 |
| Warner-Lambert | 1,168 | 21.4 | 802 | 13.3 |
| Boehringer | 377 | 6.9 | 530 | 8.8 |
| Leading 4 Firms (Total) | | 82.4 | | 84.0 |
| Eth. Cough & Cold Preps | 6,522 | 3.7 | 5,573 | 3.1 |
| Robins | 1,145 | 17.6 | 957 | 17.2 |
| Dow | 1,049 | 16.1 | 861 | 15.5 |
| B.W. | 837 | 12.8 | 675 | 12.1 |
| Glaxo Canada Ltd. | 844 | 5.3 | 410 | 7.4 |
| Leading 4 Firms (Total) | | 51.8 | | 52.2 |
| Hematinics | 1,294 | 0.7 | 1,289 | 0.7 |
| Novopharm | 325 | 25.1 | 266 | 20.7 |
| Beecham | 98 | 7.6 | 121 | 9.4 |
| Ciba-Geigy | 123 | 9.5 | 120 | 9.3 |
| Apotex Inc. | 50 | 3.9 | 118 | 9.2 |
| Leading 4 Firms (Total) | | 46.1 | | 48.6 |
| Sex Hormones | 12,722 | 7.3 | 12,506 | 7.0 |
| American Home Prod. | 6,289 | 49.4 | 6,610 | 52.6 |
| J & J | 3443 | 27.1 | 3361 | 26.9 |
| Syntex | 1,141 | 9.0 | 870 | 7.0 |
| Warner-Lambert | 605 | 4.8 | 410 | 3.3 |
| Leading 4 Firms (Total) | | 90.3 | | 90.1 |
| Hormones: Pl. Corticoids | 5,447 | 3.1 | 5,541 | 3.1 |
| Schering-Plough | 1,074 | 19.7 | 1,304 | 23.5 |
| Glaxo Canada Ltd. | 1,300 | 23.9 | 1,238 | 22.3 |
| Upjohn | 870 | 16.0 | 760 | 13.7 |
| Syntex | 486 | 8.9 | 381 | 6.9 |
| Leading 4 Firms (Total) | | 68.5 | | 66.4 |
| Hormones: Comb. Corticoids | 2,362 | 1.4 | 2,245 | 1.2 |
| Squibb Corp. | 438 | 18.6 | 416 | 18.5 |
| B.W. | 317 | 13.4 | 317 | 14.1 |
| Ciba-Geigy | 290 | 12.3 | 260 | 11.6 |
| Upjohn | 284 | 12.0 | 244 | 10.9 |
| Leading 4 Firms (Total) | | 56.3 | | 55.1 |

Table 4.5 (continued)

**Concentration of Prescriptions Among the Four Leading Firms in Fourteen Major Therapeutic Classes of Ethical Drugs: Canada, 1982 and 1984**

| | 1982 | | 1984 | |
|---|---|---|---|---|
| | Number of Prescriptions | % | Number of Prescriptions | % |
| Other Hypotensives | 3,213 | 1.8 | 3,209 | 1.8 |
| Ciba-Geigy | 634 | 19.7 | 678 | 21.1 |
| Merck Frosst | 830 | 25.8 | 610 | 19.0 |
| Apotex Inc. | 278 | 8.6 | 503 | 15.7 |
| Pfizer | 402 | 12.5 | 496 | 15.5 |
| Leading 4 Firms (Total) | | 66.6 | | 71.3 |
| Ethical Laxatives | 2,551 | 1.5 | 2,430 | 1.4 |
| Searle | 905 | 35.5 | 778 | 32.0 |
| Hoechst | 272 | 10.7 | 269 | 11.1 |
| Purdue Frederick | 242 | 9.5 | 215 | 8.8 |
| Bristol-Myers | 125 | 4.9 | 133 | 5.5 |
| Leading 4 Firms (Total) | | 60.6 | | 57.4 |
| Vitamins | 2,705 | 1.6 | 2,918 | 1.6 |
| Novopharm | 536 | 19.8 | 504 | 17.3 |
| American Home Prod. | 361 | 13.3 | 341 | 11.7 |
| Intl. Chem. and Nuclr. | 226 | 8.4 | 192 | 6.6 |
| Wampole | 154 | 5.7 | 181 | 6.2 |
| Leading 4 Firms (Total) | | 47.2 | | 41.8 |
| Nutrients | 46 | 0.0 | 55 | 0.0 |
| Abbott | 20 | 44.0 | 26 | 47.4 |
| Bristol-Myers | 9 | 20.5 | 13 | 23.2 |
| Sandoz Canada Inc. | 5 | 11.5 | 9 | 16.4 |
| Rougier-Desbergers | 3 | 6.4 | 4 | 6.7 |
| Leading 4 Firms (Total) | | 82.4 | | 93.7 |

Source: IMS Canada.

Levels of concentration as high as those shown in Tables 4.4 and 4.5 are thus similar to those described in Tables 4.2 and 4.3 for industries such as breweries, manufacturers of tobacco products, and motor vehicle manufacturers. These are characterized by the highest levels of concentration in the entire Canadian economy.

Concentration levels near or below 50 per cent as found in several therapeutic classes for the four largest firms, though higher than that for the overall market, are nevertheless moderate levels of concentration in relation to other industries in Canada. For example, concentration for manufacturers of paint and varnish, manufacturers of toilet preparations, and manufacturers of industrial chemicals, are in the range of 40 to 50 per cent.

Whether the comparison of concentration in a particular therapeutic class of ethical drugs with concentration in an entire industry involves a parallel treatment of the pharmaceutical industry with others is clearly open to question. For example, for the toilet preparations industry, it is in principle also possible to divide the market into distinct sub-classes and to consider the relative concentration in each of these. Shampoos are likely not direct competitors with shaving lotions in the same way that ethical laxatives, for example, do not directly compete with bronchial dilators.

### Concentration in Sub-markets Defined by Illness Diagnosis

An alternative framework for considering the degree to which the drugs of different therapeutic classes are in competition with one another is provided by the information presented in Table 4.6. For each one of 18 broadly defined illness categories of the International Classification of Disease (ICD), information is presented on the relative frequency with which drugs from the most frequently used therapeutic classes are prescribed for the particular illness diagnosis. For example, with respect to infective and parasitic diseases, drugs from the most frequently used therapeutic class accounted for 32.0 per cent of all drugs used for persons with these diseases; drugs chosen from the second most frequently used therapeutic class accounted for 10.5 per cent; and drugs from other than the four most important classes accounted for 44.7 per cent of all drugs prescribed.

Drugs from the two leading therapeutic classes account for the overwhelming percentage of all drugs prescribed for a few broadly defined illness categories. For example, with respect to mental disorders and diseases of the blood-forming organs, drugs from the two most important therapeutic classes account for 83.5 and 73.9 per cent respectively of all drugs prescribed for persons with these diagnoses. In general, however, drugs from the two leading therapeutic classes account for less than 50 per cent of all drugs prescribed.

Conversely, drugs from a wide range of therapeutic classes are used to treat a large proportion of illness categories, including infective and parasitic diseases, diseases of the central nervous system and sense organs, and diseases of the digestive system. In spite of the problem of multiple diseases characterizing given patients, it does seem that drugs from several therapeutic classes are commonly used to treat diseases of a given broadly defined illness diagnosis.

Yet another way of looking at the information just described is to consider the illness diagnosis to which drugs of a particular therapeutic class are targeted as provided by the information set out in Table 4.7. For example, 14.5 per cent of all ethical analgesics are prescribed for a single broadly defined illness category; 14.5 per cent for a second; 10.2 per cent for a third; and 9.3 per cent for a fourth illness category. Accordingly, some 48.5 per cent of all ethical analgesics are prescribed for four broadly defined illness categories only.

Table 4.6

The Distribution of Drugs from Different Therapeutic Classes for Use in Given Broadly Defined Illness Categories, 1982

| Broadly Defined Illness Categories CDTI | Percentage of Times Drugs from the Four Most Frequently Used Therapeutic Classes are Prescribed, Ranked in Order of Frequency: | | | | | |
|---|---|---|---|---|---|---|
| | Most Frequent | Second Most Frequent | Third Most Frequent | Fourth Most Frequent | Other Therapeutic Classes | Total |
| Infective and parasitic diseases | 32.0 | 10.5 | 8.7 | 4.1 | 44.7 | 100.0 |
| Neoplasms (cancer) | 28.4 | 21.7 | 6.4 | 4.5 | 39.0 | 100.0 |
| Endocrine, nut., and met. diseases | 56.3 | 11.5 | 8.2 | 6.7 | 17.3 | 100.0 |
| Diseases of blood and blood-forming organs | 68.4 | 5.5 | 3.7 | 2.8 | 19.6 | 100.0 |
| Mental disorders | 69.1 | 14.4 | 5.3 | 1.9 | 9.3 | 100.0 |
| Diseases of the nervous system and sense organs | 20.7 | 14.6 | 8.4 | 7.5 | 48.8 | 100.0 |
| Diseases of the circulatory system | 47.4 | 28.0 | 3.2 | 2.2 | 19.4 | 100.0 |
| Diseases of the respiratory system | 37.2 | 17.8 | 15.1 | 4.2 | 25.7 | 100.0 |
| Diseases of the digestive system | 25.9 | 12.7 | 8.6 | 8.0 | 44.8 | 100.0 |
| Diseases of the genito-urinary system | 36.4 | 8.9 | 7.9 | 4.9 | 41.9 | 100.0 |
| Complications of pregnancy and childbirth and puerperium | 20.0 | 15.7 | 8.5 | 7.6 | 48.2 | 100.0 |
| Diseases of the skin and subcutaneous tissue | 25.2 | 18.0 | 13.8 | 10.7 | 32.3 | 100.0 |
| Diseases of the musculo-skeletal and connective tissue | 51.4 | 23.1 | 5.7 | 4.1 | 15.7 | 100.0 |
| Congenital anomalies | 16.0 | 15.6 | 10.9 | 8.9 | 48.6 | 100.0 |
| Certain causes of perinatal morbidity and mortality | 19.4 | 14.6 | 12.6 | 12.6 | 40.8 | 100.0 |
| Symptoms and ill-defined conditions | 18.1 | 4.7 | 4.2 | 3.7 | 69.3 | 100.0 |
| Accidents, poisonings and violence | 31.8 | 10.3 | 7.0 | 6.0 | 44.9 | 100.0 |
| Specific conditions without sickness | 35.9 | 23.3 | 9.8 | 5.3 | 25.7 | 100.0 |

Source: IMS Canada.

Table 4.7

**The Distribution of Broadly Defined Illness Categories for which Drugs of Given Therapeutic Classes are Used: Canada, 1982**

| | Percentage of Times Broadly Defined Illness Categories are the Target of Drugs from a Given Therapeutic Class, Ranked in Order of Frequency: | | | | | |
|---|---|---|---|---|---|---|
| Therapeutic Class (16 Major Classes) | Most Frequent | Second Most Frequent | Third Most Frequent | Fourth Most Frequent | Other Illness Categories | Total |
| Analgesics | 14.5 | 14.5 | 10.2 | 9.3 | 51.5 | 100.0 |
| Anti-arthritics and gout | 68.4 | 10.3 | 6.2 | 5.2 | 9.9 | 100.0 |
| Anti-infectives, systemic | 45.5 | 16.0 | 12.6 | 8.3 | 17.6 | 100.0 |
| Anti-spasmodics/anti-secretion | 68.6 | 13.0 | 4.0 | 2.6 | 11.8 | 100.0 |
| Bronchial therapy | 94.0 | 1.9 | 1.5 | 1.0 | 1.6 | 100.0 |
| Cardiovascular therapy | 93.0 | 3.0 | 0.7 | 0.6 | 2.7 | 100.0 |
| Contraceptives | 89.8 | 9.3 | 0.3 | 0.2 | 0.4 | 100.0 |
| Cough and cold preparations | 80.5 | 13.0 | 4.0 | 0.6 | 1.9 | 100.0 |
| Dermatologicals | 38.2 | 34.2 | 9.6 | 8.9 | 9.1 | 100.0 |
| Diuretics | 84.9 | 5.9 | 2.7 | 1.6 | 4.9 | 100.0 |
| Hormones | 34.4 | 16.9 | 12.8 | 6.3 | 29.6 | 100.0 |
| Ethical laxatives | 59.0 | 10.9 | 5.8 | 5.6 | 18.7 | 100.0 |
| Nutrients and supplements | 59.8 | 12.9 | 6.5 | 4.1 | 16.7 | 100.0 |
| Opthalmic preparations | 86.3 | 7.8 | 1.8 | 1.3 | 2.8 | 100.0 |
| Psychotherapeutic drugs | 76.3 | 4.8 | 4.4 | 3.0 | 11.5 | 100.0 |
| Vitamins | 51.7 | 14.0 | 6.4 | 3.9 | 24.0 | 100.0 |

Source: IMS Canada.

The corresponding figures for several therapeutic classes are substantially higher. Indeed, in six classes over 80 per cent of the drugs of the class are targeted towards one major illness category.

The information presented in Table 4.7 is thus indicative of a stronger link between therapeutic class and broadly defined illness categories than was the information presented in Table 4.6. In spite of this, the link is not sufficiently close to lead to the conclusion that either therapeutic classes or broadly defined illness categories in general represent well-defined markets.

Information on the use of pharmaceuticals and medicines for particular illness categories can also be assembled in the nature of a four-firm concentration ratio. The interpretation of such a ratio by illness category is that the firms that account for the largest percentage of all drugs used for a given illness category account for a estimated percentage of all drugs prescribed for individuals in the particular illness category. According to the information set out in Table 4.8, in 1969 21.7 per cent of all drugs used by persons classified as having an infective or parasitic disease were produced by the four leading firms in that class. For complications of pregnancy, child birth, and the puerperium, the corresponding figure was 48.6 per cent. Information of the kind set out in Table 4.8 is suggestive of fairly low levels of concentration of firms in the provision of drugs for a particular broadly defined illness category.

It might be argued that the broadly defined illness categories set out in Table 4.8 are too broad and that more narrowly described illnesses would provide a better test of the degree of concentration of output in the hands of a few firms. Accordingly, presented in Table 4.9 is information for ten more narrowly defined diseases and, with respect to each, the degree to which drugs used by persons with these illnesses are accounted for by the four firms whose drugs are most frequently used for persons with these diseases. The concentration revealed by the information set out in Table 4.9 is higher in general than the levels described in Table 4.8. For example, with regard to hypertensive diseases, 57 per cent of all drugs used by persons with this disease in 1969 originated from the four firms whose products are most frequently used by persons with this disease.

In general, however, the four-firm concentration ratios for narrowly defined diseases are fairly low. There thus appears to be a substantial degree of substitution of one drug therapy for another with respect to persons said to have a particular disease.

### Concentration in the Pharmaceutical Industry in Canada Summarized

Concentration indicated by overall concentration in the ethical drug market is probably an inappropriately low estimate of actual concentration. On the other hand, estimates of concentration by therapeutic class are probably inappropriately high as far as such estimated concentration is descriptive of the degree to which output in a "well-defined market" is concentrated in the hands

## Table 4.8

### Four-firm Concentration Indices by Disease Category, 1969-76

| | Disease Category | % of Total Visits (1976) | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|---|---|---|---|---|---|---|---|---|---|---|
| 00-13 | Infective and Parasitic Diseases | 4.8 | 21.7 | 23.9 | 28.7 | 28.7 | 31.6 | 28.2 | 27.3 | 25.4 |
| 14-23 | Neoplasms | 2.0 | 26.9 | 25.8 | 23.7 | 26.0 | 32.1 | 48.4 | 57.9 | 53.1 |
| 24-27 | Endocrine, Nutritional and Metabolic Diseases | 4.2 | 31.4 | 36.0 | 29.9 | 24.5 | 29.0 | 30.5 | 26.3 | 28.7 |
| 28-28 | Diseases of the Blood and Blood-forming Organs | 1.3 | 19.8 | 25.4 | 29.9 | 30.5 | 26.5 | 29.3 | 29.3 | 27.1 |
| 29-31 | Mental Disorders | 9.5 | 49.4 | 55.3 | 53.3 | 52.1 | 52.7 | 51.1 | 51.5 | 48.6 |
| 32-38 | Diseases of the Nervous System and Sense Organs | 6.6 | 25.6 | 24.0 | 26.3 | 34.1 | 28.1 | 27.1 | 27.7 | 30.3 |
| 39-45 | Diseases of the Circulatory System | 10.5 | 32.5 | 36.3 | 39.2 | 42.8 | 45.9 | 48.1 | 49.3 | 49.1 |
| 46-51 | Diseases of the Respiratory System | 17.6 | 23.9 | 24.8 | 26.5 | 21.9 | 24.8 | 25.8 | 25.2 | 26.5 |
| 52-57 | Diseases of the Digestive System | 5.8 | 25.8 | 29.6 | 30.2 | 28.9 | 29.0 | 27.8 | 28.8 | 31.8 |
| 58-62 | Diseases of the Genito-urinary System | 8.6 | 38.2 | 35.9 | 43.0 | 42.6 | 42.8 | 41.4 | 42.3 | 39.8 |
| 63-67 | Complications of Pregnancy, Child-birth, and the Puerperium | .6 | 48.6 | 41.6 | 46.6 | 41.2 | 31.3 | 35.0 | 31.9 | 40.3 |
| 68-70 | Diseases of the Skin and Subcutaneous Tissue | 7.8 | 22.7 | 23.7 | 27.9 | 26.7 | 27.8 | 28.6 | 27.2 | 28.4 |

Table 4.8 (continued)

Four-firm Concentration Indices by Disease Category, 1969-76

| | Disease Category | % of Total Visits (1976) | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|---|---|---|---|---|---|---|---|---|---|---|
| 71-73 | Diseases of the Musculo-skeletal System and Connective Tissue | 6.3 | 42.3 | 49.5 | 52.1 | 54.2 | 49.7 | 53.4 | 52.3 | 58.3 |
| 74-75 | Congenital Anomalies | .3 | 33.4 | — | — | — | — | — | — | — |
| 76-77 | Certain Causes of Perinatal Morbidity and Mortality | 0.0 | — | — | — | — | — | — | 58.8 | — |
| 78-79 | Symptoms and Ill-defined Conditions | 8.4 | 28.0 | 29.2 | 28.8 | 29.7 | 31.2 | 29.5 | 30.2 | 28.3 |
| 90 | Unidentified Diagnoses | 0.0 | 20.7 | 10.5 | 17.2 | 16.1 | — | — | — | — |
| N8-N9 | Accidents, Poisonings and Violence | 4.2 | 31.2 | 36.1 | 44.1 | 41.3 | 38.7 | 39.6 | 38.6 | 39.5 |
| Y0-Y8 | Supplementary Classifications | 9.5 | 29.7 | 30.8 | 39.4 | 52.3 | 48.6 | 46.9 | 53.7 | 57.7 |
| | | 100.0 | | | | | | | | |

Source: IMS Canada.

Table 4.9

**Four-firm Concentration Indices by More Narrowly Defined Disease Category, 1969-76**

| | Disease Category | % of Total Visits (1976) | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|---|---|---|---|---|---|---|---|---|---|---|
| 30 | Neuroses, Personality Disorders and other Non-psychotic Mental Disorders | 8.7 | 49.5 | 56.8 | 56.3 | 54.6 | 55.5 | 53.1 | 53.4 | 51.0 |
| 38 | Diseases of Ear and Mastoid Process | 3.9 | 35.3 | 35.7 | 33.7 | 32.4 | 34.2 | 31.5 | 32.0 | 34.8 |
| 40 | Hypertensive Disease | 5.2 | 57.0 | 67.2 | 69.2 | 65.2 | 70.0 | 68.4 | 66.3 | 67.6 |
| 46 | Acute Respiratory Infections (except influenza) | 9.2 | 27.0 | 31.0 | 29.5 | 27.1 | 29.7 | 31.2 | 30.4 | 30.7 |
| 49 | Bronchitis, Emphysema and Asthma | 4.3 | 23.5 | 26.8 | 25.9 | 22.4 | 22.9 | 22.6 | 25.1 | 29.6 |
| 59 | Other Diseases of Urinary System | 2.5 | 53.5 | 45.2 | 53.6 | 54.3 | 56.1 | 51.7 | 47.9 | 48.0 |
| 62 | Diseases of Uterus and other Female Genital Organs | 4.8 | 38.9 | 45.2 | 50.5 | 46.8 | 49.2 | 47.2 | 53.9 | 52.6 |
| 69 | Other Inflammatory Conditions of Skin and Subcutaneous Tissue | 4.0 | 28.0 | 32.8 | 39.2 | 38.3 | 39.7 | 40.5 | 40.5 | 43.2 |
| 71 | Arthritis and Rheumatism, except Rheumatic Fever | 3.1 | 41.7 | 48.3 | 56.0 | 56.5 | 51.9 | 59.5 | 57.0 | 62.3 |
| 78 | Symptoms referable to Systems or Organs | 6.3 | 23.3 | 25.7 | 25.5 | 25.9 | 28.0 | 26.4 | 25.6 | 25.5 |
| | | 52.0 | | | | | | | | |

Source: IMS Canada.

of the largest firms. In general, a therapeutic class does not represent a well-defined market whose drugs are in direct competition with each other but not in competition with drugs of other therapeutic classes.

### International Comparisons of Concentration

The level of concentration in Canada can be readily compared with levels of concentration in other countries and especially the United States. Set out in Table 4.10 is information for the United States that corresponds to the data provided above in Table 4.2 for Canada. For manufacturers of pharmaceuticals and medicines, concentration in the United States seems to be lower than that in Canada when consideration is given to the output accounted for by the four largest firms. For example, in 1972 the four largest pharmaceutical firms in Canada accounted for 27.8 per cent of output, whereas in the United States they accounted for only 26 per cent of the output.

In comparing the percentage of output accounted for by the eight largest firms, it is not altogether clear that concentration is higher in Canada than it is in the United States. In 1972, output accounted for by the eight largest firms in Canada was 42.4 per cent, whereas the corresponding figure for the United States was 44 per cent.

The trend in concentration appears to be similar in Canada and the United States. In both countries, concentration increases over the mid to late 1960s and declines after 1972.

When concentration in other U.S. industries is considered, that in the pharmaceutical industry seems relatively low, as is also the case in Canada.

Similar information of the concentration of output in the hands of the largest pharmaceutical firms in world-wide markets, as represented by 21 countries, is provided in Table 4.11. The concentration of output in the 25 largest firms in the aggregate market of the 21 countries, including the United States, Japan, and Western Europe, is 48.5 per cent; for four countries it is less than that and for five, including Canada, it is higher. Of those five countries, Canada has the highest level of concentration. This result is in contrast to that for comparative concentration for the four or eight leading firms where levels of concentration in Canada are similar to those found in other countries.

## The Stability of Market Shares

### A Visual Consideration of the Stability of Market Shares

Considered in this section is the extent to which market shares, especially of the largest firms, remain stable from one year to the next. Chart 4.1 provides information on the rank of the top ten firms according to their share of the total ethical market in Canada from 1964 to 1976. For this period, the

Table 4.10

**Concentration Ratios Based on Value of Shipments, Pharmaceuticals and Selected Other Industries: United States, Selected Years, 1963-77**

| Industry Code | 1963 | | 1967 | | 1972 | | 1977 | |
|---|---|---|---|---|---|---|---|---|
| | C4 | C8 | C4 | C8 | C4 | C8 | C4 | C8 |
| Industries with Low Degree of Concentration | | | | | | | | |
| 2751 Commercial Printing (letterpress) | 13.0 | 19.0 | 14.0 | 21.0 | 14.0 | 19.0 | 14.0 | 19.0 |
| 2752 Commercial Printing (lithographic) | 6.0 | 10.0 | 5.0 | 8.0 | 4.0 | 8.0 | 6.0 | 10.0 |
| 2086 Bottled and Canned Soft Drinks | 12.0 | 17.0 | 13.0 | 20.0 | 14.0 | 21.0 | 15.0 | 22.0 |
| 2335 Women's and Girls Clothing | 6.0 | 9.0 | 7.0 | 9.0 | 9.0 | 13.0 | n.a. | n.a. |
| Chemicals and Chemical Products | | | | | | | | |
| 2821 Manufacturers of Plastics and Resins | n.a. | n.a. | n.a. | n.a. | 26.0 | 41.0 | 22.0 | 37.0 |
| 2834 Manufacturers of Pharmaceuticals and Medicines | 22.0 | 38.0 | 24.0 | 40.0 | 26.0 | 44.0 | 24.0 | 43.0 |
| 2851 Manufacturers of Paint and Varnish | 23.0 | 34.0 | 22.0 | 35.0 | 22.0 | 34.0 | n.a. | n.a. |
| 2841 Manufacturers of Soap and Cleaning Compounds | 72.0 | 80.0 | 70.0 | 78.0 | 62.0 | 74.0 | 59.0 | 71.0 |
| 2844 Manufacturers of Toilet Preparations | 38.0 | 52.0 | 38.0 | 52.0 | 38.0 | 53.0 | 40.0 | 56.0 |
| 2869 Manufacturers of Industrial Chemicals | 51.0 | 63.0 | 45.0 | 58.0 | 43.0 | 57.0 | n.a. | n.a. |
| Industries with High Degree of Concentration | | | | | | | | |
| 2874 Organic Fibres, noncellulosic | 94.0 | 99.0 | 84.0 | 94.0 | 74.0 | 91.0 | 78.0 | 90.0 |
| 3711 Motor Vehicles | n.a. | n.a. | 92.0 | 98.0 | 93.0 | 99.0 | 93.0 | 99.0 |
| 3861 Photographic Equipment | 63.0 | 76.0 | 69.0 | 81.0 | 74.0 | 85.0 | 72.0 | 86.0 |

Source: United States Department of Commerce, *Census of Manufacturers*, 1977.

Table 4.11

**Market Share of Top 25 Companies in the World-wide Pharmaceutical Industry**

**Part A: Aggregate Sales in 21 Countries, 1982**

| Rank | Company | Sales Index | Share % |
|---|---|---|---|
| 1 | Merck Sharp & Dohme | 100 | 3.4 |
| 2 | Ciba-Geigy (+Zyma etc) | 92 | 3.1 |
| 3 | Hoechst-Roussel | 89 | 3.0 |
| 4 | American Home Prod. | 88 | 3.0 |
| 5 | SmithKline | 82 | 2.7 |
| 6 | Pfizer | 82 | 2.7 |
| 7 | Eli Lilly | 75 | 2.5 |
| 8 | Johnson & Johnson | 72 | 2.4 |
| 9 | Roche | 67 | 2.3 |
| 10 | Bristol-Myers | 64 | 2.1 |
| | Total of 10 top cos: | | 27.1 |
| 11 | Sandoz | 62 | 2.1 |
| 12 | Boehringer | 58 | 1.9 |
| 13 | Warner/Parke-Davis | 57 | 1.9 |
| 14 | Bayer | 50 | 1.7 |
| 15 | Upjohn | 44 | 1.5 |
| 16 | Schering | 44 | 1.5 |
| 17 | Abbott | 43 | 1.5 |
| 18 | Takeda | 38 | 1.3 |
| 19 | Squibb | 36 | 1.2 |
| 20 | Beecham | 36 | 1.2 |
| | Total of 20 top cos: | | 42.8 |
| 21 | Lederle | 35 | 1.2 |
| 22 | Glaxo | 35 | 1.2 |
| 23 | Shionogi | 34 | 1.1 |
| 24 | ICI | 32 | 1.1 |
| 25 | Searle | 32 | 1.1 |
| | Total of 25 top cos: | | 48.5 |
| | Total mkt of 21 countries: | | 100.0 |

leading three firms consistently occupied the top three ranks with the exception of the firm in the third rank whose position slipped to fifth rank in the last year. In contrast, the remaining seven firms are characterized by fairly dramatic and constant shifts in their relative share of the overall ethical market.

Similar information for drugstores, the principal component of the ethical market, is provided in Chart 4.2. Again there is a fair degree of stability for the top three firms. The other firms, however, are once again characterized by substantial instability of their rank in terms of market share.

Table 4.11 (continued)

**Market Share of Top 25 Companies in the World-wide Pharmaceutical Industry**

**Part B: Total Market Share in Selected Countries, 1980**

| Country | Share % |
|---|---|
| France | 41.3 |
| West Germany | 42.0 |
| Italy | 42.0 |
| Spain | 43.0 |
| 21 Country Average | 48.5 |
| Switzerland | 51.7 |
| Belgium | 54.0 |
| Austria | 56.6 |
| U.K. | 63.0 |
| Canada | 74.8* |

* Based on 1982 data.

Source: Part A — Dr. Klans von Grebmer, Healthecon Inc., Basel, Switzerland as described in *Scrip*, No. 845 (November 9, 1983), p. 13.

Part B — *Scrip*, No. 865 (January 25, 1984), p. 7.

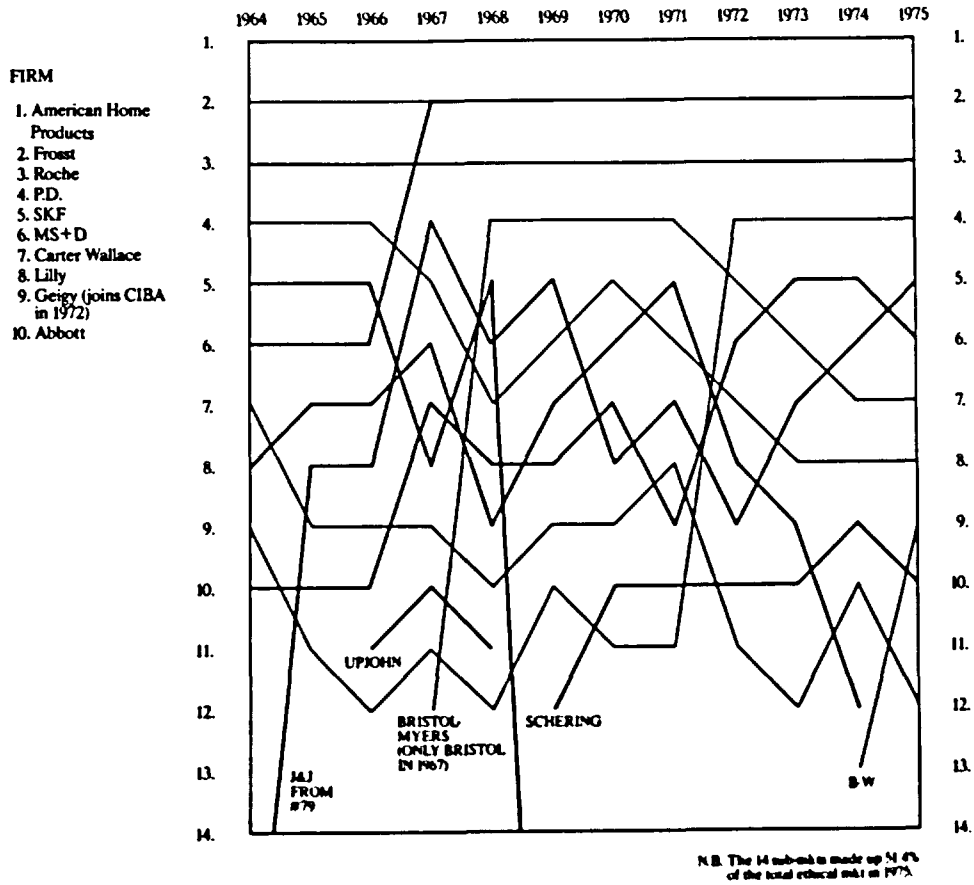
Information for that portion of the ethical market accounted for by hospitals is shown in Chart 4.3. In this case only the leading two firms are characterized by fairly stable ranks for the entire 13 years. Even with respect to these firms, however, some share instability appears in the last three years. The remaining eight firms exhibit a substantial degree of market instability from 1964 to 1976.

Just as consideration was given in the preceding section to individual therapeutic classes, so also market stability can be considered for individual therapeutic classes. Information presented in Appendix Charts A4.1 to A4.3 indicates that market shares for the total ethical market in particular therapeutic classes are somewhat more stable on visual inspection than was the case for the overall ethical market and for each of its two major components, drugstores and hospitals. Once again, however, the stability of market shares for the top two or three firms appears to be much greater than that for the remaining firms.

Information on share stability in the last six years, 1979-84, is presented in Table A4.11 in the Appendix. It confirms the picture for the years 1964-76. Shares of the leading two or three firms are generally stable; those for the remaining firms change a great deal. The changes in rank of the generic firms, though not always upwards, are consistent with the general slow increase in the market share held by these firms in aggregate.

## Chart 4.1

### Rank of Firms by Market Share, Total Ethical Market Combined, 1964-75



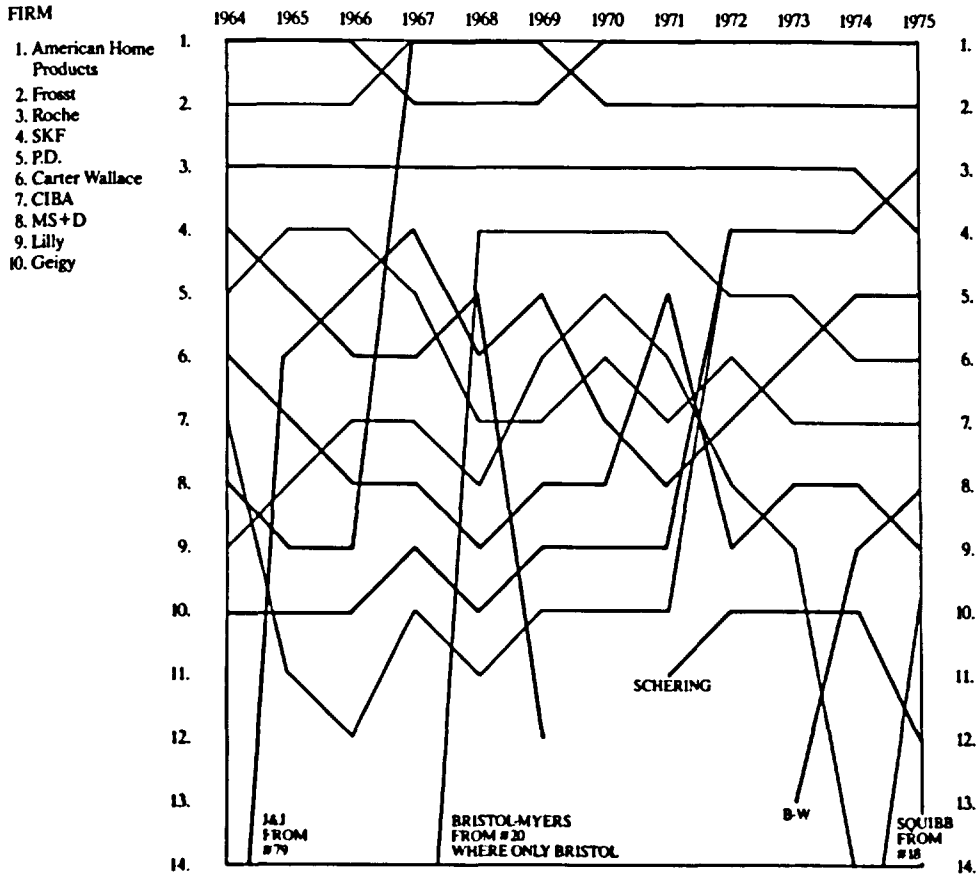

Source: IMS Canada.

### Instability Indices of Market Shares

The visual inspection of charts such as those considered above and those presented in the Appendix provides for a fairly quick assessment of relative stability from 1964 to 1976. It does not, however, permit comparisons between pharmaceuticals and medicines on the one hand and the products of other industries on the other. Such comparisons entail the use of a statistical measure of market share instability such as the instability index as set out in 1962 by S. Hymer and P. Pashigian. Instability indices of this kind for the overall ethical market and for each of 14 therapeutic classes are set out in Table 4.12 for the combined drugstore and hospital market as well as separately for the retail drugstore market on the one hand and the hospital market on the other. The indices are calculated for several periods within and over the years from 1964 to 1976.

## Chart 4.2

### Rank of Firms by Market Share, Total Ethical Market Drugstores, 1964-75




Source: IMS Canada.

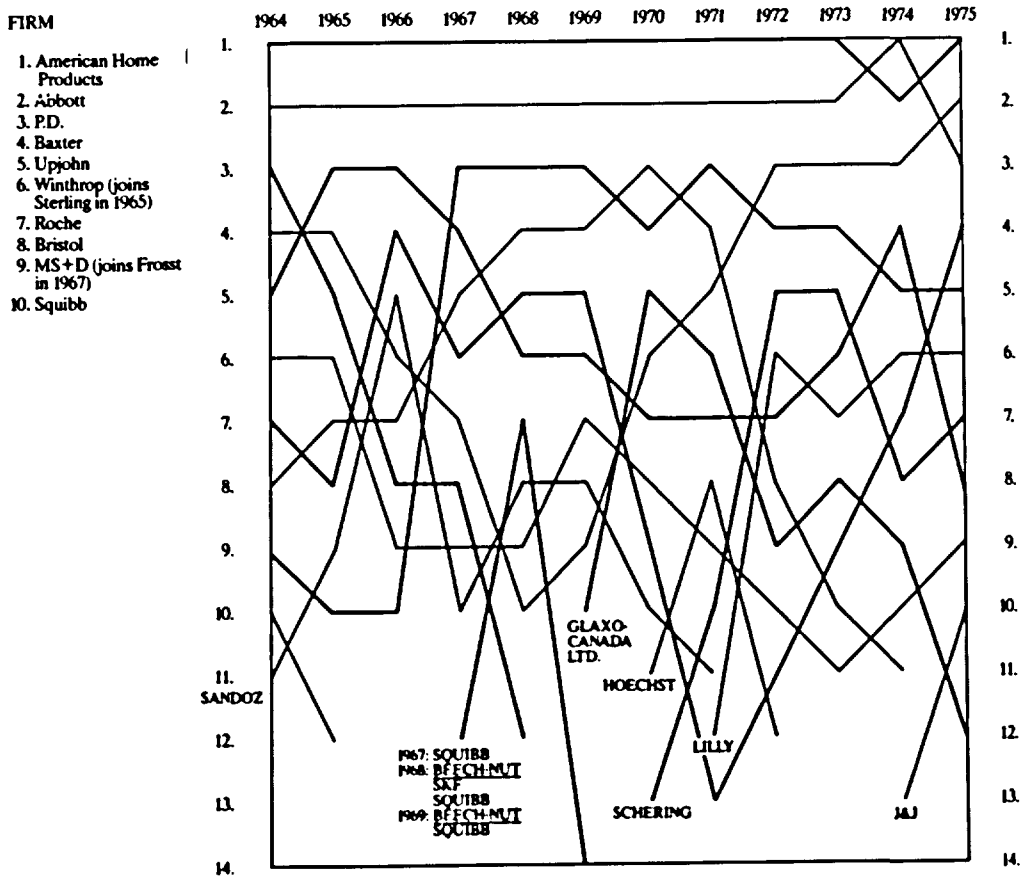
Given the nature of the formula by which the instability index is calculated it is interpreted as follows: the higher the value of the index, the greater the instability of market share.

There are several inferences that can be drawn from the results presented in Table 4.12. First, market share instability is generally greater in the hospital market than it is in either the combined drugstore and hospital market or the drugstore market alone. For example, from 1974 to 1976 and with respect to the total ethical market, the instability index reads .182 for the hospital market taken by itself; in contrast, the index reads .148 for the retail drugstore market and .133 for the combined drugstore and hospital market.

Instability is generally far greater for individual therapeutic classes than it is for the total ethical market. For example, from 1974 to 1976, the index reading of .133 for the total ethical market for drugstores and hospitals

## Chart 4.3

### Rank of Firms by Market Share, Total Ethical Market Hospitals, 1964-75




Source: IMS Canada.

combined is lower, in most cases substantially so, than that for any of the 14 therapeutic classes. Much the same results are obtained when consideration is given to the drugstore market and the hospital market taken separately. In both cases, instability for all ethical products in the market in question is less than instability in the individual therapeutic classes.

A third general inference drawn from the information presented from Table 4.12 is that the instability of market shares has been steadily increasing over the 13 years. For example, with respect to the total ethical market for drugstores and hospitals combined, the instability index has risen from .95 in 1965-66 to .133 in 1974-76.

Much the same trend towards increasing market share instability is revealed for the different individual therapeutic classes. The two exceptions to this are the markets for sex hormones and other hypotensives.

## Table 4.12

## Instability Indexes by Therapeutic Class for Various Periods, 1964-75

| Time Periods | | Total Ethical Market | Ethical Analgesics 5.4% | Antibiotics: Broad & Medium Spectrum 4.9% | Antibiotics: Oral and Other Penicillins 3.0% | Ataractics 5.4% | Bronchial Dilators 2.3% | Ethical Cough and Cold Preparations 5.1% | Hematinics 0.9% | Sex Hormones 6.8% | Hormones: Plain Corticoids 2.9% | Hormones: Corticoid Combinations 1.7% | Other Hypotensives 1.6% | Ethical Laxatives 2.0% | Vitamins 6.0% | Nutrients 3.4% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1964-1966 | A[a] | .095 | .196 | .175 | .156 | | .273 | .198 | .239 | .396 | .253 | .155 | .356 | | .154 | .155 |
| | B[b] | .115 | .149 | .180 | .143 | | .244 | .206 | .242 | .398 | .282 | .170 | .348 | | .156 | .148 |
| | C[c] | .149 | .162 | .266 | .253 | | .399 | .264 | .260 | .222 | .154 | .278 | .359 | | .236 | .358 |
| 1967-1969 | A | .105 | .107 | .297 | .087 | | .280 | .136 | .223 | .229 | .149 | .115 | .259 | .158 | .198 | .235 |
| | B | .119 | .130 | .277 | .134 | | .330 | .144 | .247 | .242 | .163 | .128 | .256 | .153 | .204 | .246 |
| | C | .130 | .210 | .349 | .079 | | .273 | .220 | .344 | .181 | .231 | .202 | .274 | .190 | .260 | .303 |
| 1970-1972 | A | .118 | .112 | .376 | .339 | .225 | .546 | .236 | .235 | .215 | .247 | .225 | .302 | .255 | .303 | .334 |
| | B | .136 | .114 | .341 | .308 | .252 | .564 | .244 | .255 | .216 | .299 | .227 | .315 | .261 | .304 | .338 |
| | C | .171 | .268 | .547 | .432 | .225 | .434 | .257 | .403 | .208 | .120 | .267 | .201 | .369 | .467 | .415 |
| 1973-1975 | A | .131 | .222 | .288 | .195 | .200 | .343 | .213 | .214 | .109 | .174 | .245 | .194 | .213 | .328 | .284 |
| | B | .140 | .240 | .386 | .225 | .225 | .355 | .214 | .223 | .107 | .193 | .244 | .184 | .216 | .332 | .184 |
| | C | .183 | .286 | .262 | .151 | .318 | .445 | .406 | .312 | .227 | .216 | .228 | .344 | .308 | .349 | 1.005 |
| 1964-1969 | A | .215 | .257 | .500 | .311 | | .511 | .353 | .418 | .538 | .338 | .254 | .622 | | .273 | .470 |
| | B | .222 | .277 | .482 | .337 | | .508 | .361 | .434 | .568 | .449 | .269 | .626 | | .265 | .491 |
| | C | .271 | .279 | .658 | .314 | | .645 | .309 | .401 | .386 | .146 | .344 | .546 | | .350 | .673 |
| 1970-1975 | A | .228 | .351 | .693 | .492 | .468 | .963 | .386 | .425 | .356 | .325 | .451 | .464 | .632 | .502 | .559 |
| | B | .262 | .369 | .607 | .516 | .550 | .944 | .396 | .442 | .356 | .306 | .468 | .481 | .649 | .508 | .512 |
| | C | .343 | .525 | .886 | .491 | .452 | .877 | .331 | .512 | .400 | .329 | .419 | .548 | .671 | .561 | 1.146 |
| 1964-1975 | A | .347 | .465 | 1.120 | .736 | | 1.123 | .702 | .716 | .740 | .630 | .612 | 1.155 | | .658 | 1.031 |
| | B | .367 | .516 | 1.001 | .781 | | 1.122 | .716 | .745 | .769 | .701 | .610 | 1.187 | | .671 | 1.016 |
| | C | .461 | .608 | 1.365 | .630 | | 1.160 | .556 | .652 | .463 | .359 | .644 | .876 | | .722 | 1.205 |
| 1974-1975 | A | .133 | .267 | .393 | .291 | .265 | .382 | .149 | .239 | .147 | .292 | .212 | .220 | .200 | .235 | .222 |
| | B | .148 | .281 | .407 | .324 | .311 | .366 | .157 | .256 | .153 | .284 | .224 | .219 | .207 | .242 | .196 |
| | C | .182 | .231 | .395 | .373 | .236 | .568 | .277 | .441 | .150 | .247 | .149 | .304 | .372 | .349 | .436 |

[a] A Represents the combined drugstore and hospital markets.

[b] B Represents the retail drugstore market.

[c] C Represents the hospital market.

Source: IMS Canada.

In addition to the comparison of instability indices over time and amongst therapeutic classes, limited comparisons can be made with the instability indices calculated for other industries. A limited set of such calculations are available from the work of B. Hymer and P. Pashigian on instability in some 19 broadly defined (two-digit) industries in the United States from 1946 to 1955. For these industries and that time, the instability indices calculated were all fairly low relative to those just discussed for the pharmaceutical industry. For example, the highest instability index calculated was .244 for the petroleum industry and the second highest, for the transportation industry, was .199. In constrast, for nine of the 19 industries, the calculated instability index fell below .100.

In order to make some rough comparisons with the work of Hymer and Pashigian who studied instability over a ten-year period, 1946 to 1955, instability over the 12 years from 1964 to 1975 is considered. The instability index calculated for the combined drugstore and hospital market for all ethical products in Canada was .347. Accordingly, with respect to the possible benchmarks provided by the instability indices calculated by Hymer and Pashigian, those that have been calculated for the pharmaceutical market in Canada seem to be relatively high.

### Market Share Stability for Therapeutic Classes

The instability index for pharmaceutical markets is especially high if consideration is given to individual therapeutic classes. For example, for the therapeutic class that has the lowest instability index for the 12-year period from 1964 to 1975, namely ethical analgesics, the calculated index is a relatively high .465. Instability indices for the other therapeutic classes are substantially and significantly higher than that for ethical analgesics. Accordingly, although there is concern for high levels of concentration of the output of a given therapeutic class in the hands of the four and eight largest firms, it is also very much the case that the stability of market shares in these individual therapeutic classes is fairly low.

### Source of Instability: Reliance by Firms on the Sales of a Few Products

A principal source of the instability of market share appears to be the degree to which given pharmaceutical firms rely on a small number of products for the vast bulk of their overall value of factory shipments. Information describing the extent to which firms rely on the sales of a single product and on the sales of their four leading products is presented in Table 4.13.* In 1982 and for the 45 largest firms, the most important product accounted for as little as 7.7 per cent of a single firm's sales and for as much as 89.1 per cent. In general, however, the leading product for particular firms appears to account for some 25 to 35 per cent of sales.

* The detailed data from which Table 4.13 is derived are presented in Appendix Table A4.2.

Table 4.13

**The Relative Size of Sales of the Leading Ethical Products in the Ten Largest Companies: Canada, 1982**

| Rank in Terms of Company's Sales | Share of Total Ethical Market | Sales of Leading Product as a Percentage of Company's Sales | Sales of Second Leading Product as a Percentage of Company's Sales | Sales of Four Leading Products as a Percentage of Company's Sales |
|---|---|---|---|---|
| 1 | 7.07 | 17.4 | 13.2 | 50.0 |
| 2 | 6.88 | 8.7 | 8.4 | 32.8 |
| 3 | 4.76 | 59.9 | 13.5 | 78.7 |
| 4 | 4.64 | 18.1 | 11.5 | 49.2 |
| 5 | 4.17 | 7.7* | 6.7 | 20.9* |
| 6 | 4.15 | 15.6 | 8.0 | 38.3 |
| 7 | 3.31 | 55.6 | 11.4 | 81.4 |
| 8 | 3.27 | 66.4 | 7.5 | 81.8 |
| 9 | 3.05 | 7.7* | 5.6 | 20.9* |
| 10 | 3.03 | 9.4 | 4.5 | 21.5 |
| 11 | 2.90 | 48.2 | 8.0 | 66.7 |
| 12 | 2.83 | 34.6 | 18.2 | 68.9 |
| 13 | 2.63 | 13.3 | 12.3 | 21.1 |
| 14 | 2.61 | 34.7 | 15.0 | 46.1 |
| 15 | 2.28 | 17.4 | 14.5 | 45.4 |
| 16 | 2.10 | 27.8 | 24.6 | 77.3 |
| 17 | 2.07 | 19.5 | 10.1 | 44.3 |
| 18 | 1.92 | 15.5 | 9.7 | 35.6 |
| 19 | 1.91 | 11.6 | 7.3 | 30.5 |
| 20 | 1.77 | 19.4 | 17.3 | 57.4 |
| 41 | 0.51 | 89.1** | 4.0 | 96.2** |

* Lowest percentages recorded amongst 45 largest companies.

** Highest percentages recorded amongst 45 largest companies.

Source: IMS Canada.

The four leading products of individual firms in general account for the overwhelming majority of the sales of the firm in question. The lowest percentage accounted for by the four leading products in 1982 was 20.9 per cent, the highest was 96.2 per cent. In general, however, the four leading products appear to account for some 30 to 80 per cent of sales of an individual firm.

Similar information on the extent to which firms rely on their leading product and their four leading products as measured by the number of prescriptions accounted for by these products is presented in Table 4.14.[7] Once again, firms are seen to rely quite heavily on their leading product and most certainly on their four leading products.

[7] See also Appendix Table A4.2.

Table 4.14

**The Relative Size of Sales of the Leading Ethical Products in Terms of Prescriptions in the Ten Largest Companies: Canada, 1982**

| Rank in Terms of Company's Sales | Share of Total Ethical Market | Sales of Leading Product as a Percentage of Company's Sales | Sales of Second Leading Product as a Percentage of Company's Sales | Sales of Four Leading Products as a Percentage of Company's Sales |
|---|---|---|---|---|
| 1 | 10.9 | 16.7 | 13.3 | 52.8 |
| 2 | 6.5 | 13.8 | 7.8 | 36.1 |
| 3 | 3.5 | 41.5 | 34.8 | 81.1 |
| 4 | 4.1 | 28.4 | 14.1 | 58.0 |
| 5 | 1.5 | 26.7 | 24.0 | 79.3 |
| 6 | 4.3 | 20.5 | 15.7 | 51.2 |
| 7 | 2.9 | 30.2 | 17.3 | 70.6 |
| 8 | 2.1 | 46.2 | 17.0 | 77.0 |
| 9 | 3.3 | 15.0 | 12.8 | 37.6 |
| 10 | 0.9 | 13.5 | 6.6 | 32.0 |
| 11 | 3.2 | 40.0 | 16.6 | 76.6 |
| 12 | 3.3 | 37.4 | 27.5 | 80.8 |
| 13 | 2.4 | 19.1 | 9.1 | 42.4 |
| 14 | 0.5 | 98.1** | 1.8 | 99.9** |
| 15 | 1.8 | 20.8 | 16.2 | 56.8 |
| 16 | 1.8 | 30.9 | 27.5 | 79.0 |
| 17 | 1.2 | 20.6 | 18.9 | 61.5 |
| 18 | 3.9 | 53.3 | 6.1 | 69.9 |
| 19 | 1.8 | 13.4 | 13.2 | 46.0 |
| 20 | 1.3 | 20.5 | 15.8 | 56.0 |
| 22 | 7.0 | 9.8* | 8.4 | 30.2* |

* Lowest percentages recorded amongst 45 largest companies.

** Highest percentages recorded amongst 45 largest companies.

Source: IMS Canada.

The success of a firm is thus dependent on the strength and stability of the demand for a limited number of products from one year to the next. Information describing the extent to which sales for the leading products of particular firms change from one year to the next is provided by the detailed data presented in Table 4.15.[8] It is clear there can be substantial movements in sales in particular products from one year to the next. The sales of the leading product in 1982 of one firm rose by as much as 230 per cent over sales in 1981 and for another firm fell by 29.2 per cent. Similarly, the number of prescriptions for the leading product of one firm rose by 195.8 per cent and of another fell by 46.3 per cent. In general there is a substantial variation in the extent to which sales of given drugs increase or decrease relative to the average increase in sales for the overall ethical market.

[8] See also Appendix Table A4.2.

Table 4.15

**Changes in Sales and Prescriptions of Leading Products of the Ten Largest Companies: Canada, 1981-82**

| Rank in Terms of Company's Sales | Percentage Change 1981-82 in Sales: Leading Product in Terms of Sales | | | | Percentage Change 1981-82 in Prescriptions: Leading Product in Terms of Prescriptions | | | |
|---|---|---|---|---|---|---|---|---|
| | 1st | 2nd | 3rd | 4th | 1st | 2nd | 3rd | 4th |
| 1 | 16.1 | −18.3 | 23.2 | − 1.2 | 7.1 | 15.3 | − 7.1 | 25.5 |
| 2 | 45.3 | − 6.4 | −16.1 | 44.1 | −12.9 | −38.8 | − 4.2 | −33.1 |
| 3 | − 3.1 | −17.9 | 58.7 | 0.4 | − 8.9 | 3.4 | − 9.9 | 7.4 |
| 4 | 61.2 | 107.1 | −12.1 | 32.8 | − 6.9 | 21.0 | 2.9 | 86.7 |
| 5 | 12.8 | 16.2 | 27.1 | 12.3 | − 4.5 | −13.7 | −14.2 | 17.0 |
| 6 | 7.5 | 16.8 | 51.2 | 61.6 | −10.3 | 12.0 | − 3.3 | 66.8 |
| 7 | 230.0 | 40.8 | 39.9 | 45.9 | 195.8 | −27.5 | 0.2 | 13.8 |
| 8 | 31.7 | 8.5 | 150.1 | − 8.4 | − 5.0 | −11.0 | 2.3 | 132.9 |
| 9 | − 7.3 | 24.6 | − 2.7 | 5.4 | 2.4 | −17.3 | − 7.9 | −12.3 |
| 10 | 47.0 | 26.8 | 33.5 | 40.2 | −36.9 | − 9.3 | −36.3 | 28.0 |
| 11 | 26.2 | 7.5 | 14.6 | 14.7 | 6.5 | 1.2 | −10.1 | 4.1 |
| 12 | 14.3 | 82.2 | − 0.2 | 5.2 | 32.8 | − 6.4 | 1.7 | − 3.4 |
| 13 | 64.1 | 9.9 | 29.7 | 31.9 | − 2.9 | 5.4 | 37.5 | 4.9 |
| 14 | − 3.9 | − 2.4 | − 3.7 | 61.0 | 4.0 | −27.8 | – | – |
| 15 | 45.8 | 25.0 | − 5.6 | 47.9 | − 7.0 | 39.7 | 45.2 | −20.7 |
| 16 | 32.9 | 15.9 | 8.1 | – | − 8.9 | −30.3 | −10.8 | − 6.5 |
| 17 | 90.3 | 0.8 | – | 57.1 | − 6.6 | − 6.8 | 36.9 | − 3.1 |
| 18 | 35.0 | − 8.5 | −10.8 | 72.6 | − 4.6 | −17.3 | 9.6 | −38.3 |
| 19 | 36.8 | −12.8 | 21.7 | 57.4 | − 5.6 | 10.3 | − 4.5 | 4.7 |
| 20 | 32.1 | 14.1 | 39.2 | 999.9 | 0.1 | −11.1 | − 8.6 | 0.7 |

Source: IMS Canada.

## Other Elements of Market Structure

### Economies of Scale

The relationship between the size of the activities of pharmaceutical firms and their costs of production and thereby their overall efficiency can be briefly considered. These activities, which incorporate the entire process from discovery of a new drug through to its sale to the final consumer, can be classified into several distinct stages. These are summarized as follows:

1. the search for and discovery of new ideas;
2. the development of these ideas into a safe, efficacious, and marketable new drug, including the carrying out of tests necessary to pass regulatory/clearance procedures;
3. the production of the active ingredient;
4. the combining of active and inactive ingredients and excipients into formulations of the drug;
5. the packaging of the formulations into dosage strengths and package sizes;
6. the marketing of the drug principally to physicians but also to pharmacists and in some instances to the public;
7. the distribution of the drug to wholesalers or directly to drugstores, pharmacies, other retail outlets, and hospitals; and
8. the sale or dispensing of the drug to consumer/patient.

"Economies of scale," that is, the extent to which larger firms have an advantage over smaller firms, appear to vary greatly amongst these stages of production.

With regard to the first two stages, sometimes considered as one, the first is not demonstrably characterized by economies of scale whereas the second appears to be strongly so. Fundamental new ideas usually spring from individuals employed in, or associated with, a wide variety of institutions: firms that specialize in the process of scientific discovery (especially, for example, in the rapidly expanding area of biotechnology), major pharmaceutical firms, non-profit research institutes, and especially universities and other institutions of higher learning. The generation of fundamental new ideas does not seem to be greatly influenced by the expenditures of vast sums of money on research and development.

Once the new idea exists, however, the process of developing it into a marketable drug, stage 2, is in general a complex and costly exercise. Though

some question the exact cost of stage 2, with estimates varying from $10 million to $110 million or more per successful drug, few dispute that larger firms have in general a distinct and all but dominant advantage over smaller firms.

This stated, there appear to be alternative strategies followed by the larger pharmaceutical firms. Some do indeed attempt to exploit (any) advantages of size by allocating disproportionately large amounts of the firm's resources to research and development, while others appear to rely on the research efforts of other firms through voluntary licensing arrangements and the like. For at least this reason, the relationship between firm size and the actual discovery of major new drugs is not as close as would otherwise be expected.

With regard to stages 3, 4, and 5, sometimes considered as a single manufacturing stage, again the magnitude of economies of scale varies. It is generally quite small for stages 4 and 5. Very small firms appear to be successful in combining ingredients into different formulations and in packaging them. The production of the active ingredient, however, seems to be characterized by moderate economies of scale. For the most part, the entire world supply of a single drug and its active ingredient could be produced by a single or at most a few plants.

The marketing and sales promotion activities of pharmaceutical firms appear to be characterized by moderate to large economies of scale. This is not unrelated to the nature of the retail market and the dominant role played in it by physicians. In order to launch a new drug successfully, a significant promotion exercise that covers a high proportion of physicians appears to be required. As described more fully in Chapter 5, pharmaceutical firms in Canada expend large resources on sales promotion.

The picture for distribution activities is less clear. Almost all firms sell to wholesalers and directly to drugstores and hospitals.[9] In general, the larger the firm, the larger the portion of direct sales. Equally important as the size of firm is the extent to which the firm relies on one or a few products for the majority of its sales. In general, the fewer the (major) products, the greater the sales through wholesalers.

With respect to wholesaling itself, the concentration of the activity in the hands of a few firms is consistent with the existence of moderate economies of scale. For example, the leading four wholesalers in 1979 accounted for 45.7 per cent of total wholesale sales and the leading eight wholesalers accounted for 54.2 per cent.[10] The remaining 45.8 per cent was accounted for by approximately 453 relatively small wholesaling firms.

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[9] The percentage distribution of sales to wholesalers and directly to drugstores and hospitals for each of drugstore and hospital sales is presented in Appendix Tables A4.12 (for ethical drugs) and A4.13 (for proprietary drugs).

[10] See Appendix Table A4.14.

The retail market is probably also characterized by only moderate economies of scale. Retail drugstore chains and voluntary purchasing groups have had some success in the last decade or so. In 1979, the four leading retailers, two chains and two voluntary groups, accounted for 31.5 per cent of the sales of drugs at the retail level, and the eight leading retailers including four additional chains accounted for 44.2 per cent.[11] Some 31 chains and voluntary groups accounted for 61.9 per cent of retail drug sales. The remaining 38.1 per cent of the retail market is served principally by independent pharmacists, of which there were 4,207 in 1979.[12]

Of perhaps more importance than the extent of economies of scale for each separate stage is the apparent magnitude of economies of scale for the combination of these stages of productive activity into a single firm. The linkages and interdependence amongst several of the stages are significant. Although when considered separately only two of the eight stages distinguished are characterized by large economies of scale, when taken together and incorporated into a single multinational pharmaceutical firm the entire activity of such a firm seems to be characterized by substantial economies of scale. It should be emphasized that these are characteristic of the combined set of activities and not to more traditionally defined production, which in the case of a large multinational pharmaceutical firm represents substantially less than 50 per cent of total sales revenues. The integrated nature of these firms is described more fully in Chapter 5.

**Concentration of Buyers**

The discussion of the preceding section is suggestive of a greater degree of concentration on the buying side than actually exists. The principal role played by physicians in prescribing drugs, frequently by brand rather than generic names, moderates enormously the potential role that could in principle be played by the chain stores, by pharmacy outlets in large department stores, and by voluntary groups, acting separately or in concert, in influencing the choice, and therefore the price, of products available for sale/dispensing at the retail level. The more than 47,000 physicians, whose role was discussed briefly in Chapter 3, are geographically widely dispersed and largely independent decision-makers. That they continue to be prime targets for the promotion activities of the pharmaceutical firms is indicative of their pivotal but independent role.

In contrast, there is currently some, and potentially more, buying power to be exercised by the 31 chains and voluntary groups which account for over 60 per cent of retail drug sales. Their buying power could be increased with the more complete implementation of provincial legislation on generic substitution. Whether "permissive" or more binding, such legislation, however, ultimately

[11] See Appendix Table A4.15.

[12] See Appendix Table A4.16.

requires the support, compliance, and/or altered practice of both physicians and pharmacists. Altering the practice of physicians is difficult especially given the all but complete absence of any financial incentive for them to be concerned with price. In this context, the behaviour of pharmacists could probably be more easily altered by changing other provincial policies, for example, on dispensing fees and the reimbursement mechanism. These provide direct financial incentives to pharmacists. Such policies can thus either facilitate or frustrate the cost-cutting objectives of policies on generic substitution and thereby can indirectly affect the extent to which the potential buying power of chains and voluntary groups is exercised on behalf of the consumer/patient.

For the 20 per cent or so of the retail market accounted for by the drug purchases of hospitals and other institutions, buying power is somewhat more concentrated. Almost all hospitals have committees to oversee the purchase of all drugs to be used in the hospital setting. Moreover, in some instances several hospitals jointly purchase their supplies of drugs. With most Canadian hospitals funded with global budgets, there are in principle direct incentives for their medical staffs to consider carefully both the quality and price of the drugs to be used. Resources not spent on drugs can be used to purchase other needed supplies and equipment and to hire additional personnel. However, with the majority of the more than 1,000 Canadian hospitals not so collectively organized for drug purchases, the actual extent of their buying power should not be overemphasized.

For the most part neither government pharmicare nor private third-party insurance plans exercise fully their potential buying power on behalf of the consumer/patient. This may reflect in part the geographic segmentation of the market along provincial lines.

The buying side of the market for pharmaceuticals and medicines consists of a large number of decision-makers, including more than 47,000 physicians, more than 17,000 pharmacists (independent, in chains or voluntary groups), more than 1,000 hospital drug purchasing committees, often more than one department or agency in each of ten provinces and the federal government, a multitude of third-party private insurance companies, and ultimately 25 million consumers/patients. This represents what is in practice the diffuse, pluralistic, unconcentrated buying side of the market in Canada.

### The Nature of Generic Firms

Before 1969, there were less than a dozen generic firms that concentrated their output on off-patent drugs and a limited number of patented drugs under voluntary licensing arrangements. By 1984, some 19 generic producers concentrated their output on off-patent drugs and compulsorily licensed drugs.

The generic firms are principally Canadian owned although two of the four largest, ICN and Frank Horner, are foreign owned. As noted in an earlier section of this chapter, some of the generic firms are amongst the leading firms, especially in terms of numbers of prescriptions, in several therapeutic classes.[13]

Entry of new generic firms, and the consolidation of some of these and existing firms, continues to characterize the generic sector of the pharmaceutical industry. Recent entries include subsidiaries of foreign-owned patent-holding firms which also have Canadian subsidiaries to sell their patent drugs.

With the exception of the foreign-owned, generic-producing subsidiaries, the selling of generic drugs is principally accomplished through price competition. The sales force of the Canadian-owned generic firms accounts for less than 10 per cent of all employees. As discussed more fully in Chapter 5, the corresponding figure for patent-holding, generally foreign-owned, subsidiaries is in excess of 30 per cent.

In 1983, some 70 drugs for human use were subject to one or more compulsory licences and were sold by either or both of the patent- and licence-holding firms. For the 32 of these for which royalty payments were being paid by the licensees, total sales amounted to approximately $216.9 million, of which $171.1 million were from the patentees and $45.7 million from the licensees. For 14 of the 70, no royalty payments were recorded and thus by implication these drugs were off patent or the generic firms were using a non-infringing process, and production was shared by patentees (with sales of $25.4 million) and licensees ($3.1 million). The remaining 24 drugs with sales of $111 million are currently sold only by patentees, but production and sale by the licensees is expected. These drugs thus represent the next portion of the patentees' market likely to face generic competition.

### The Competitive Structure of the Pharmaceutical Industry in Canada Reviewed

The discussion above on the concentration of output in the hands of the leading firms in the pharmaceutical industry in Canada leads to the conclusion that concentration levels are moderately high when compared to corresponding levels of concentration in other countries.

The examination of the stability of market shares on the other hand suggests that there is indeed a fair amount of instability. Such instability is no doubt strongly influenced by the limited number of products on which each pharmaceutical firm relies for the bulk of its sales and in turn its profit.

Important economies of scale appear to characterize only two or three stages of production in pharmaceutical firms but at the same time appear to

[13] See Table 4.5.

characterize the combination of these stages as seen in the integrated multinational firms.

Market power on the buying/demand side is limited, and the absence of financial incentives for the principal decision-makers, namely physicians, probably limits the growth of generic prescribing. Generic dispensing by pharmacists is clearly facilitated or frustrated by provincial policies and practices in setting dispensing fees and reimbursing pharmacists for ingredient costs.

## Table A4.1

### Part A: 1977 Sales of Firms, Market Share and Size Rank in Combined (Ethical & Proprietary), Ethical, Ethical Drugstore, Ethical Hospital and Proprietary Markets Listed in Order of Size of Firm (Combined Market Sales)

| | | Combined Market | | Ethical Market | | | Ethical—Drugstores | | | Ethical—Hospitals | | | Proprietary Market | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Company Name | Sales ($000s) | Share (%) | Sales ($000s) | Share (%) | Rank | Sales ($000s) | Share (%) | Rank | Sales ($000s) | Share (%) | Rank | Sales ($000s) | Share (%) | Rank |
| 1 | American Home Products | 63,877 | 9.22 | 57,655 | 9.18 | 1 | 48,188 | 9.90 | 1 | 9,467 | 6.69 | 3 | 6,221 | 9.63 | 1 |
| 2 | Merck, Sharp & Dohme | 40,296 | 5.81 | 40,255 | 6.41 | 2 | 36,469 | 7.49 | 2 | 3,786 | 2.67 | 11 | 41 | — | |
| 3 | Ciba-Geigy | 27,434 | 3.96 | 27,005 | 4.30 | 3 | 24,758 | 5.09 | 3 | 2,247 | 1.59 | 20 | 429 | 0.66 | 32 |
| 4 | J. & J. | 26,880 | 3.88 | 24,189 | 3.85 | 5 | 20,739 | 4.26 | 4 | 3,450 | 2.44 | 13 | 2,691 | 4.16 | 5 |
| 5 | Abbott | 25,948 | 3.74 | 24,221 | 3.85 | 4 | 12,428 | 2.55 | 11 | 11,793 | 8.33 | 2 | 1,727 | 2.67 | 11 |
| 6 | Roche | 21,472 | 3.10 | 21,472 | 3.42 | 6 | 16,833 | 3.46 | 5 | 4,639 | 3.28 | 7 | — | — | |
| 7 | Bristol-Myers | 20,573 | 2.97 | 19,854 | 3.16 | 7 | 15,585 | 3.20 | 6 | 4,270 | 3.02 | 9 | 719 | 1.11 | 20 |
| 8 | B.W. | 18,571 | 2.68 | 17,999 | 2.86 | 8 | 14,630 | 3.01 | 7 | 3,369 | 2.38 | 14 | 572 | 0.89 | 27 |
| 9 | Schering | 17,072 | 2.46 | 16,926 | 2.69 | 9 | 12,397 | 2.55 | 12 | 4,528 | 3.20 | 8 | 146 | — | |
| 10 | Baxter Labs | 16,786 | 2.42 | 16,786 | 2.67 | 10 | 917 | 0.19 | 64 | 15,870 | 11.21 | 1 | — | — | |
| 11 | Glaxo Canada Ltd. | 16,617 | 2.40 | 16,339 | 2.60 | 11 | 12,747 | 2.62 | 9 | 3,592 | 2.54 | 12 | 279 | 0.43 | 43 |
| 12 | Sterling | 16,408 | 2.37 | 10,465 | 1.67 | 22 | 5,402 | 1.11 | 26 | 5,063 | 3.58 | 5 | 5,943 | 9.20 | 2 |
| 13 | Upjohn | 15,259 | 2.20 | 15,258 | 2.43 | 12 | 10,178 | 2.09 | 18 | 5,050 | 3.59 | 6 | 1 | — | |
| 14 | SKF | 14,879 | 2.15 | 12,303 | 1.96 | 18 | 11,113 | 2.28 | 14 | 1,190 | 0.84 | 27 | 2,576 | 3.99 | 6 |
| 15 | P.D. | 14,850 | 2.14 | 14,809 | 2.36 | 13 | 12,722 | 2.61 | 10 | 2,087 | 1.47 | 21 | 41 | — | |
| 16 | Warner-Lambert | 14,843 | 2.14 | 12,576 | 2.00 | 17 | 11,542 | 2.37 | 13 | 1,034 | 0.73 | 30 | 2,268 | 3.51 | 7 |
| 17 | Lilly | 14,491 | 2.09 | 14,487 | 2.31 | 14 | 9,405 | 1.93 | 20 | 5,082 | 3.59 | 4 | 4 | — | |
| 18 | Syntex | 13,564 | 1.96 | 13,564 | 2.16 | 15 | 12,972 | 2.66 | 8 | 592 | 0.42 | 39 | — | — | |
| 19 | Squibb | 13,329 | 1.92 | 12,785 | 2.03 | 16 | 9,785 | 2.01 | 19 | 3,000 | 2.12 | 17 | 544 | 0.84 | 28 |
| 20 | Searle | 12,117 | 1.75 | 12,117 | 1.93 | 19 | 11,099 | 2.28 | 15 | 1,018 | 0.72 | 32 | — | — | |
| 21 | Carter-Wallace | 12,107 | 1.75 | 12,000 | 1.91 | 20 | 10,824 | 2.22 | 16 | 1,175 | 0.83 | 28 | 107 | — | |
| 22 | Sandoz | 11,947 | 1.72 | 11,947 | 1.90 | 21 | 10,412 | 2.14 | 17 | 1,535 | 1.08 | 25 | — | — | |
| 23 | Richardson-Merrell | 11,164 | 1.61 | 5,594 | 0.89 | 32 | 5,135 | 1.05 | 28 | 458 | 0.32 | 47 | 5,571 | 8.62 | 3 |
| 24 | Robins | 9,464 | 1.37 | 9,464 | 1.51 | 23 | 9,014 | 1.85 | 21 | 451 | 0.32 | 48 | — | — | |
| 25 | Rhône-Poulenc | 8,708 | 1.26 | 8,700 | 1.38 | 24 | 5,880 | 1.21 | 24 | 2,820 | 1.99 | 18 | 8 | — | |
| 26 | Hoechst | 8,511 | 1.23 | 8,511 | 1.35 | 25 | 4,269 | 0.88 | 33 | 4,242 | 3.00 | 10 | — | — | |
| 27 | Novopharm | 7,760 | 1.12 | 7,760 | 1.23 | 26 | 7,343 | 1.51 | 22 | 417 | 0.29 | 50 | — | — | |
| 28 | Pfizer | 7,637 | 1.10 | 6,840 | 1.09 | 28 | 6,118 | 1.26 | 23 | 722 | 0.51 | 34 | 797 | 1.23 | 18 |
| 29 | Lederle | 7,138 | 1.03 | 7,138 | 1.14 | 27 | 5,287 | 1.09 | 27 | 1,850 | 1.31 | 23 | — | — | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | Roussel | 6,830 | 0.99 | 6,830 | 1.09 | 29 | 3,812 | 0.78 | 35 | 3,019 | 2.13 | 16 | — | — | |
| 31 | Boehringer | 6,474 | 0.93 | 6,474 | 1.03 | 30 | 5,612 | 1.15 | 25 | 862 | 0.61 | 33 | — | — | |
| 32 | Wampole | 5,839 | 0.84 | 5,087 | 0.81 | 34 | 4,764 | 0.98 | 30 | 323 | 0.23 | 53 | 753 | 1.16 | 19 |
| 33 | Dow Pharmaceutical | 5,768 | 0.83 | 5,727 | 0.91 | 31 | 5,038 | 1.04 | 29 | 689 | 0.49 | 37 | 41 | — | |
| 34 | Connaught | 5,210 | 0.75 | 5,210 | 0.83 | 33 | 4,682 | 0.96 | 32 | 528 | 0.37 | 41 | — | — | |
| 35 | Wander | 4,846 | 0.70 | 4,842 | 0.77 | 35 | 4,739 | 0.97 | 31 | 104 | 0.07 | — | 4 | — | |
| 36 | International Chem. & Nuclear | 4,409 | 0.64 | 4,381 | 0.70 | 36 | 3,661 | 0.75 | 36 | 720 | 0.51 | 35 | 28 | — | |
| 37 | Ames | 4,378 | 0.63 | 2,460 | 0.39 | 46 | 1,744 | 0.36 | 45 | 716 | 0.51 | 36 | 1,919 | 2.97 | 9 |
| 38 | Pharmacia | 4,374 | 0.63 | 4,374 | 0.70 | 37 | 1,143 | 0.23 | 58 | 3,231 | 2.28 | 15 | — | — | |
| 39 | Rorer | 4,192 | 0.60 | 4,123 | 0.66 | 38 | 3,963 | 0.81 | 34 | 160 | 0.11 | — | 69 | — | |
| 40 | Astra | 4,010 | 0.58 | 3,965 | 0.63 | 39 | 1,229 | 0.25 | 55 | 2,736 | 1.93 | 19 | 45 | — | |
| 41 | Nordic | 3,350 | 0.48 | 3,343 | 0.53 | 40 | 3,086 | 0.63 | 37 | 257 | 0.18 | 58 | 7 | — | |
| 42 | Cooper Labs | 3,303 | 0.48 | 2,902 | 0.46 | 44 | 2,613 | 0.54 | 40 | 288 | 0.20 | 57 | 401 | 0.62 | 33 |
| 43 | Fisons | 3,177 | 0.46 | 3,117 | 0.50 | 41 | 2,672 | 0.55 | 39 | 445 | 0.31 | 49 | 60 | — | |
| 44 | Organon | 3,120 | 0.45 | 3,074 | 0.49 | 42 | 1,016 | 0.21 | 61 | 2,058 | 1.45 | 22 | 46 | — | |
| 45 | Pennwalt | 2,981 | 0.43 | 2,981 | 0.47 | 43 | 2,942 | 0.60 | 38 | 39 | 0.03 | — | — | | — |

## Table A4.1

### Part B: 1982 Total Combined Sales, Market Share; Ethical Market Sales, Market Share and Size Ranking; Proprietary Market Sales, Market Share and Size Ranking Listed in Order of Size of Company (Value of Combined Sales)

| Rank in Combined Sales | Company Name | Combined Ethical and Proprietary | | Ethical Market | | | Proprietary Market | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Sales ($000s) | % of Total | Sales ($000s) | % of Total | Rank | Sales ($000s) | % of Total | Rank |
| 1 | American Home Products[b] | 106,254 | 7.33 | 94,704 | 7.07 | 1 | 11,550 | 10.44 | 1 |
| 2 | Merck Sharp & Dohme[a] | 92,206 | 6.36 | 92,172 | 6.88 | 2 | 34 | 0.03 | |
| 3 | SmithKline[b] | 65,945 | 4.55 | 63,766 | 4.76 | 3 | 2,179 | 1.97 | 11 |
| 4 | Ciba-Geigy | 62,797 | 4.33 | 62,121 | 4.64 | 4 | 676 | 0.61 | 33 |
| 5 | J. & J. (229) | 60,708 | 4.19 | 55,514 | 4.15 | 6 | 5,194 | 4.70 | 6 |
| 6 | Abbott | 57,013 | 3.93 | 55,781 | 4.17 | 5 | 1,232 | 1.11 | 16 |
| 7 | Warner-Lambert (131) | 46,663 | 3.22 | 40,777 | 3.05 | 9 | 5,885 | 5.32 | 5 |
| 8 | Pfizer | 44,884 | 3.10 | 44,304 | 3.31 | 7 | 580 | 0.52 | 36 |
| 9 | Syntex | 43,767 | 3.02 | 43,767 | 3.27 | 8 | 0 | 0 | |
| 10 | Bristol-Myers (376) | 41,590 | 2.87 | 40,512 | 3.03 | 10 | 78 | 0.07 | |
| 11 | Glaxo Canada Ltd. | 39,436 | 2.72 | 38,773 | 2.90 | 11 | 663 | 0.60 | 34 |
| 12 | Upjohn | 37,949 | 2.62 | 37,949 | 2.83 | 12 | 0 | 0 | |
| 13 | Sandoz | 35,150 | 2.43 | 35,150 | 2.63 | 13 | 0 | 0 | |
| 14 | Baxter Labs | 34,924 | 2.41 | 34,924 | 2.61 | 14 | 0 | 0 | |
| 15 | Schering[b] | 33,376 | 2.30 | 25,579 | 1.91 | 19 | 7,796 | 7.05 | 4 |
| 16 | Lilly (379) | 30,520 | 2.11 | 30,512 | 2.28 | 15 | 8 | 0.01 | |
| 17 | Searle, G D. | 29,763 | 2.05 | 28,129 | 2.10 | 16 | 1,634 | 1.48 | 14 |
| 18 | Squibb | 28,356 | 1.96 | 27,769 | 2.07 | 17 | 588 | 0.53 | 35 |
| 19 | B.W. (756) | 26,820 | 1.85 | 25,768 | 1.92 | 18 | 1,053 | 0.95 | 21 |
| 20 | Sterling (229) | 25,527 | 1.76 | 16,125 | 1.20 | 25 | 9,402 | 8.50 | 2 |
| 21 | Rhône-Poulenc | 23,716 | 1.64 | 23,716 | 1.77 | 20 | 0 | 0 | |
| 22 | Carter (681) | 22,902 | 1.58 | 22,725 | 1.70 | 21 | 177 | 0.16 | |
| 23 | Novopharm | 22,296 | 1.54 | 22,296 | 1.67 | 22 | 0 | 0 | |
| 24 | Roche | 21,507 | 1.48 | 21,507 | 1.61 | 23 | 0 | 0 | |
| 25 | Ames | 19,350 | 1.33 | 15,972 | 1.19 | 26 | 3,378 | 3.05 | 8 |
| 26 | Richardson-Merrell | 17,532 | 1.21 | 8,980 | 0.67 | 35 | 8,552 | 7.73 | 3 |
| 27 | Astra | 17,513 | 1.21 | 17,513 | 1.31 | 24 | 0 | 0 | |
| 28 | Robins | 15,365 | 1.06 | 15,365 | 1.15 | 27 | 0 | 0 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 29 | Lederle | 15,122 | 1.04 | 15,122 | 1.13 | 28 | 0 | 0 | |
| 30 | Boehringer | 14,999 | 1.03 | 14,999 | 1.12 | 29 | 0 | 0 | |
| 31 | Roussel (616) | 11,638 | 0.80 | 11,638 | 0.87 | 30 | 0 | 0 | |
| 32 | Connaught | 10,746 | 0.74 | 10,746 | 0.80 | 31 | 0 | 0 | |
| 33 | Hoechst (756) | 9,617 | 0.66 | 9,617 | 0.72 | 32 | 0 | 0 | |
| 34 | Dow Pharmaceutical (378) | 9,595 | 0.66 | 9,565 | 0.71 | 33 | 30 | 0.03 | |
| 35 | Apotex | 9,498 | 0.66 | 9,498 | 0.71 | 34 | 0 | 0 | |
| 36 | Rorer Canada | 9,261 | 0.64 | 8,179 | 0.61 | 36 | 1,081 | 0.98 | 19 |
| 37 | Beecham | 8,489 | 0.59 | 7,399 | 0.55 | 38 | 1,090 | 0.99 | 18 |
| 38 | Wampole | 8,045 | 0.56 | 7,131 | 0.53 | 39 | 915 | 0.83 | 24 |
| 39 | International Chem. & Nuclear | 7,736 | 0.53 | 7,711 | 0.58 | 37 | 25 | 0.02 | |
| 40 | Nordic | 6,975 | 0.48 | 6,975 | 0.52 | 40 | 0 | 0 | |
| 41 | Adria Labs (616) | 6,809 | 0.47 | 6,809 | 0.51 | 41 | 0 | 0 | |
| 42 | Revlon Health Group | 6,780 | 0.47 | 6,713 | 0.50 | 42 | 67 | 0.06 | |
| 43 | Organon | 6,530 | 0.45 | 6,447 | 0.48 | 43 | 83 | 0.08 | |
| 44 | Fisons (616) | 6,256 | 0.43 | 6,210 | 0.46 | 44 | 46 | 0.04 | |
| 45 | Pharmacia (616) | 6,065 | 0.42 | 6,065 | 0.45 | 45 | 0 | 0 | |

[a] Unless noted, firm was classified to pharmaceuticals and medicines (374). Other classifications are as follows:
379 - Other chemical industries.
376 - Manufacturers of soap and cleaning compounds.
756 - Holding and holding management companies.
681 - Drugstores.
616 - Wholesalers of drugs and toilet preparations.
229 - Miscellaneous textile industries.
131 - Confectionery manufacturers.
378 - Manufacturers of industrial chemicals.

[b] Unclassified.

Source: IMS Canada.

## Table A4.2

### Part A: 1977 Ethical Market Sales in Canada for Leading Product and Four Leading Products Listed in Order of Size of Company (Value of Sales on Ethical Market)

| | | Ethical Market | | Top Product in Terms of Sales | | | |
|---|---|---|---|---|---|---|---|
| | Company Name | Sales ($000s) | Share (%) | Name | Sales ($000s) | Share of Company Sales (%) | % Change in Sales 77/76 |
| 1 | American Home Products<br>Ayerst<br>Wyeth<br>Elliott-Marion | 57,655 | 9.18 | Inderal | 10,777 | 18.7 | +34.1 |
| 2 | Merck Sharp & Dohme<br>MSD<br>Frosst | 40,255 | 6.41 | Acetophen Comp w. Cod., Non Rx | 5,881 | 14.6 | +3.4 |
| 3 | Ciba-Geigy<br>Ciba<br>Geigy | 27,005 | 4.30 | Anturan | 5,097 | 18.9 | +48.8 |
| 4 | Abbott<br>Abbott<br>Ross | 24,221 | 3.85 | Dextrose in Water | 1,856 | 7.7 | +4.2 |
| 5 | J. & J.<br>Ortho<br>McNeil | 24,189 | 3.85 | Ortho Novum | 9,157 | 37.9 | +2.0 |
| 6 | Roche | 21,472 | 3.42 | Valium | 5,539 | 25.8 | −15.2 |
| 7 | Bristol-Myers<br>Mead Johnson<br>Bristol<br>Westwood | 19,854 | 3.16 | Ampicin | 1,200 | 6.0 | +46.8 |
| 8 | B.W.<br>B.W.<br>Calmic | 17,999 | 2.86 | Zyloprim | 3,944 | 21.9 | +23.3 |
| 9 | Schering | 16,926 | 2.69 | Garamycin | 2,929 | 17.3 | +52.4 |
| 10 | Baxter Labs | 16,786 | 2.67 | Dextrose | 5,068 | 30.2 | +67.6 |

| Top Four Products in Terms of Sales | | | |
|---|---|---|---|
| Names | Sales ($000) | Share of Company Sales (%) | % Change in Sales 77/76 |
| Inderal | 10,777 | 18.7 | +34.1 |
| Amoxil | 5,681 | 9.9 | −2.2 |
| Ovral 0.25 mg | 4,869 | 8.4 | −8.2 |
| Min-Ovral | 4,127 | 7.2 | +14.2 |
| Total | 25,454 | 44.1 | |
| Acetophen w. Cod., Non Rx | 5,881 | 14.6 | +3.4 |
| Aldomet | 5,247 | 13.0 | −6.4 |
| Inducid | 4,135 | 10.3 | +0.4 |
| Acetophen w. Cod., Rx | 3,430 | 8.5 | −3.0 |
| Total | 18,693 | 46.4 | |
| Anturan | 5,097 | 18.9 | +48.8 |
| Slow-K | 3,310 | 12.3 | +28.2 |
| Hygroton | 1,317 | 4.9 | −13.1 |
| Otrivin | 1,249 | 4.6 | +14.9 |
| Total | 10,973 | 40.6 | |
| Dextrose in Water | 1,856 | 7.7 | +4.2 |
| Transene | 1,600 | 6.6 | +23.6 |
| Erythrocin | 1,551 | 6.4 | −5.7 |
| Selsun | 1,074 | 4.4 | −7.1 |
| Total | 6,081 | 25.1 | |
| Ortho Novum | 9,157 | 37.9 | +2.0 |
| Haldol | 2,138 | 8.8 | +0.6 |
| Tylenol w. Cod | 1,737 | 7.2 | +46.3 |
| Tylenol | 1,619 | 6.7 | +10.1 |
| Total | 14,651 | 60.6 | |
| Valium | 5,539 | 25.8 | −15.2 |
| Dalmane | 3,612 | 16.8 | +11.6 |
| Bactrim | 1,902 | 8.9 | −11.7 |
| Librium | 1,635 | 7.6 | −7.2 |
| Total | 12,688 | 59.1 | |
| Ampicin | 1,200 | 6.0 | +46.8 |
| Alpha Keri | 1,004 | 5.1 | +18.1 |
| Keri | 866 | 4.4 | +67.5 |
| Tri-Vi-Flor | 851 | 4.3 | +0.0 |
| Total | 3,921 | 19.7 | |
| Zyloprim | 3,944 | 21.9 | +23.3 |
| Septra | 1,616 | 9.0 | −5.8 |
| Lanoxin | 1,497 | 8.3 | +16.1 |
| Polysporin | 954 | 5.3 | +15.8 |
| Total | 8,011 | 44.5 | |
| Garamycin | 2,929 | 17.3 | +52.4 |
| Chlor-Trimeton | 1,797 | 10.6 | +11.4 |
| Cortisone | 1,134 | 6.7 | +27.8 |
| Etrafon D | 1,002 | 5.9 | −2.2 |
| Total | 6,862 | 40.5 | |
| Dextrose | 5,068 | 30.2 | +67.6 |
| Travasol | 2,429 | 14.5 | +163.9 |
| Dianeal w. Dext | 2,362 | 14.1 | +31.7 |
| Normal Saline Vialflex | 1,082 | 6.4 | +111.9 |
| Total | 10,941 | 65.2 | |

## Table A4.2 (continued)

## Part A: 1977 Ethical Market Sales in Canada for Leading Product and Four Leading Products Listed in Order of Size of Company (Value of Sales on Ethical Market)

| | | Ethical Market | | Top Product in Terms of Sales | | | |
|---|---|---|---|---|---|---|---|
| | Company Name | Sales ($000s) | Share (%) | Name | Sales ($000s) | Share of Company Sales (%) | % Change in Sales 77/76 |
| 11 | Glaxo Canada, Ltd.<br>Allen & Hanburys<br>Glaxolabs | 16,339 | 2.60 | Ventolin | 5,254 | 32.2 | +36.7 |
| 12 | Upjohn | 15,258 | 2.43 | Motrin | 4,901 | 32.1 | +23.9 |
| 13 | P.D. | 14,809 | 2.36 | Benylin Exp. w. Cod. | 1,592 | 10.8 | −16.9 |
| 14 | Lilly | 14,487 | 2.31 | Keflin Neutral | 2,349 | 16.2 | +34.7 |
| 15 | Syntex | 13,564 | 2.16 | Naprosyn | 6,956 | 51.3 | +60.2 |
| 16 | Squibb | 12,785 | 2.03 | Kenacomb | 2,171 | 17.0 | +0.8 |
| 17 | Warner-Lambert<br>W.C.<br>Warner-Lambert | 12,576 | 2.00 | Choledyl | 2,104 | 16.7 | +32.4 |
| 18 | SKF<br>SKF<br>Menley & James | 12,303 | 1.96 | Dyazide | 3,200 | 26.0 | +45.4 |
| 19 | Searle | 12,117 | 1.93 | Metamucil | 3,685 | 30.4 | +33.0 |
| 20 | Carter-Wallace<br>Horner | 12,000 | 1.91 | Gravol | 2,885 | 24.0 | +7.6 |

| Top Four Products in Terms of Sales | | | |
|---|---|---|---|
| Names | Sales ($000) | Share of Company Sales (%) | % Change in Sales 77/76 |
| Ventolin | 5,254 | 32.2 | +36.7 |
| Beclovent | 2,272 | 13.9 | −1.6 |
| Betnovate | 1,581 | 9.7 | +5.9 |
| Dermovate | 676 | 4.1 | +999.9 |
| Total | 9,783 | 59.9 | |
| Motrin | 4,901 | 32.1 | +23.9 |
| Dalacin C | 1,731 | 11.3 | +44.2 |
| Solu-Medrol | 750 | 4.9 | +9.3 |
| Solu Cortef | 740 | 4.8 | −8.3 |
| Total | 8,122 | 53.2 | |
| Benylin Exp. w. Cod. | 1,592 | 10.8 | −16.9 |
| Dilantin Sodium | 1,197 | 8.1 | −12.8 |
| Benylin DM | 1,025 | 6.9 | +18.6 |
| Norlestrin | 923 | 62 | −2.5 |
| Total | 54,737 | 32.0 | |
| Keflin Neutral | 2,349 | 16.2 | +34.7 |
| Keflex | 2,241 | 15.5 | +5.4 |
| Nalfon | 1,553 | 10.7 | +76.1 |
| Ilosone | 1,247 | 8.6 | −6.5 |
| Total | 7,390 | 51.0 | |
| Naprosyn | 6,956 | 51.3 | +60.2 |
| Norinyl | 2,366 | 17.4 | −5.3 |
| Lidex | 1,095 | 8.1 | −7.0 |
| Synalar | 743 | 5.5 | −0.7 |
| Total | 11,160 | 82.3 | |
| Kenacomb | 2,171 | 17.0 | +0.8 |
| Moditen | 1,003 | 7.8 | −6.2 |
| Promestyl | 888 | 6.9 | −8.3 |
| Vitamin E | 798 | 6.2 | −2.6 |
| Total | 4,860 | 38.0 | |
| Choledyl | 2,104 | 16.7 | +32.4 |
| Geltosil | 1,006 | 8.0 | −3.9 |
| Sinutab | 1,004 | 8.0 | +9.2 |
| Agarol | 966 | 7.7 | +15.5 |
| Total | 5,080 | 40.4 | |
| Dyazide | 3,200 | 26.0 | +45.4 |
| Tagamet | 3,146 | 25.6 | — |
| Stelabid | 1,451 | 11.8 | +2.6 |
| Stelazine | 968 | 7.9 | +1.8 |
| Total | 8,765 | 71.2 | |
| Metamucil | 3,685 | 30.4 | +33.0 |
| Aldactazide | 2,499 | 20.6 | +13.2 |
| Aldactone | 1,977 | 16.3 | +15.1 |
| Demulen | 678 | 5.6 | +24.7 |
| Total | 8,839 | 72.9 | |
| Gravol | 2,885 | 24.0 | +7.6 |
| Dramamine | 2,755 | 23.0 | +14.3 |
| Yovel | 1,292 | 10.8 | −33.4 |
| Maldevel 12 | 490 | 4.1 | −37.0 |
| Total | 7,422 | 61.9 | |

## Table A4.2 (continued)

## Part A: 1977 Ethical Market Sales in Canada for Leading Product and Four Leading Products Listed in Order of Size of Company (Value of Sales on Ethical Market)

| | | Ethical Market | | Top Product in Terms of Sales | | | |
|---|---|---|---|---|---|---|---|
| | Company Name | Sales ($000s) | Share (%) | Name | Sales ($000s) | Share of Company Sales (%) | % Change in Sales 77/76 |
| 21 | Sandoz | 11,947 | 1.90 | Fiorinal-C | 2,286 | 19.1 | +10.6 |
| 22 | Sterling<br>Winthrop Sterling | 10,465 | 1.67 | Bayer Aspirin | 2,166 | 20.7 | −4.1 |
| 23 | A.H. Robins | 9,464 | 1.51 | Dimetapp, Capsules | 1,836 | 19.4 | +2.4 |
| 24 | Rhône-Poulenc | 8,700 | 1.38 | Surmontil | 1,684 | 19.4 | +1.3 |
| 25 | Hoechst<br>Hoechst Albert Pharm. | 8,511 | 1.35 | Lasix, Non-inject | 2,376 | 27.9 | −20.1 |
| 26 | Novopharm | 7,760 | 1.23 | Novo-Ampicillin | 1,460 | 18.8 | +10.9 |
| 27 | Lederle<br>Cyanamid Canada | 7,138 | 1.14 | Methotrexate | 778 | 10.9 | +42.0 |
| 28 | Pfizer | 6,840 | 1.09 | Sinequan | 1,418 | 20.7 | +22.9 |
| 29 | Roussel | 6,830 | 1.09 | Cidomycin | 1,927 | 28.2 | +4.4 |
| 30 | Boehringer | 6,474 | 1.03 | Catapres | 1,180 | 18.2 | +20.5 |

| Top Four Products in Terms of Sales | | | |
|---|---|---|---|
| Names | Sales ($000) | Share of Company Sales (%) | % Change in Sales 77/76 |
| Fiorinal-C | 2,286 | 19.1 | +10.6 |
| Hydergine | 1,881 | 15.7 | +6.6 |
| Calcium-Sandoz | 1,509 | 12.6 | +19.3 |
| Mellaril | 1,274 | 10.7 | +1.0 |
| Total | 6,950 | 58.2 | |
| Bayer Aspirin | 2,166 | 20.7 | −4.1 |
| Demerol | 1,469 | 14.0 | +76.3 |
| Hypaque-M | 836 | 8.0 | +16.2 |
| Phisoderm | 802 | 7.7 | +37.8 |
| Total | 5,273 | 50.4 | |
| Dimetapp, Capsules | 1,836 | 19.4 | +2.4 |
| Dimetapp, Liquid | 820 | 8.7 | +8.0 |
| Robitussin | 729 | 7.7 | −13.8 |
| Dimetane | 677 | 7.2 | +20.4 |
| Total | 4,062 | 42.9 | |
| Surmontil | 1,684 | 19.4 | +1.3 |
| Norzanin | 1,265 | 14.5 | −6.8 |
| Largactil | 860 | 9.9 | +8.1 |
| Flagystatin | 652 | 7.5 | +37.5 |
| Total | 4,461 | 51.3 | |
| Lasix, Non-inject | 2,376 | 27.9 | −20.1 |
| Lasix, Injectable | 2,031 | 23.9 | +28.4 |
| Presummune | 946 | 11.1 | +196.4 |
| Diabeta | 865 | 10.2 | +26.0 |
| Total | 6,218 | 73.1 | |
| Novo-Ampicillin | 1,460 | 18.8 | +10.9 |
| Novotetra | 684 | 8.8 | +33.3 |
| Novomedopa | 622 | 8.0 | +999.9 |
| Novopen V | 374 | 4.8 | +36.9 |
| Total | 3,140 | 40.5 | |
| Methotrexate | 778 | 10.9 | +42.0 |
| Minocin | 764 | 10.7 | +17.2 |
| Nilstat | 497 | 7.0 | +1.1 |
| Diamox | 480 | 6.7 | +19.9 |
| Total | 2,519 | 35.3 | |
| Sinequan | 1,418 | 20.7 | +22.9 |
| Atarax | 1,070 | 15.6 | +6.9 |
| Dubinaue | 874 | 12.8 | −4.4 |
| Vibramycin | 820 | 12.0 | −2.6 |
| Total | 4,182 | 61.1 | |
| Cidomycin | 1,927 | 28.2 | +4.4 |
| Proctosedyl | 1,505 | 22.0 | +15.9 |
| Mandrax | 1,050 | 15.4 | −7.6 |
| Sofra-Tulle | 953 | 14.0 | +65.2 |
| Total | 5,435 | 79.6 | |
| Catapres | 1,180 | 18.2 | +20.5 |
| Aluprent | 1,085 | 16.8 | +3.8 |
| Canesten | 967 | 14.9 | +118.7 |
| Dulcolax | 945 | 14.6 | −0.3 |
| Total | 4,177 | 64.7 | |

## Table A4.2 (continued)

## Part A: 1977 Ethical Market Sales in Canada for Leading Product and Four Leading Products Listed in Order of Size of Company (Value of Sales on Ethical Market)

| | | Ethical Market | | Top Product in Terms of Sales | | | |
|---|---|---|---|---|---|---|---|
| | Company Name | Sales ($000s) | Share (%) | Name | Sales ($000s) | Share of Company Sales (%) | % Change in Sales 77/76 |
| 31 | Dow Pharmaceutical | 5,727 | 0.91 | Novahistex-DH | 1,482 | 25.9 | −6.1 |
| 32 | Richardson-Merrell<br>Merrell<br>Vick | 5,594 | 0.89 | Tenuate Dospan | 1,460 | 26.1 | +2.0 |
| 33 | Connaught | 5,210 | 0.83 | Insulin NPH | 2,028 | 38.9 | +34.5 |
| 34 | Wampole | 5,087 | 0.81 | Vitamin E | 947 | 18.6 | −16.5 |
| 35 | Wander<br>Anca<br>Wander | 4,842 | 0.77 | Triaminic, Liquid | 810 | 16.7 | −16.3 |
| 36 | International Chem. & Nuclear<br>ICN<br>Empire<br>Sabra | 4,381 | 0.70 | Furosule | 509 | 11.6 | −52.2 |
| 37 | Pharmacia | 4,374 | 0.70 | Intralipid | 2,635 | 60.2 | +41.3 |
| 38 | Rorer | 4,123 | 0.66 | Maalox | 2,116 | 51.3 | +6.1 |
| 39 | Astra | 3,965 | 0.63 | Xylocaine, Inject | 1,124 | 28.3 | +13.8 |
| 40 | Nordic | 3,343 | 0.53 | Maseran | 1,672 | 50.0 | +45.3 |

| Top Four Products in Terms of Sales | | | |
|---|---|---|---|
| Names | Sales ($000) | Share of Company Sales (%) | % Change in Sales 77/76 |
| Novahistex-DH | 1,482 | 25.9 | −6.1 |
| Novahistine DH | 652 | 11.4 | +23.5 |
| Orifer F | 552 | 9.6 | +17.5 |
| Rifadin | 465 | 8.1 | +42.6 |
| Total | 3,151 | 55.0 | |
| Tenuate Dospan | 1,460 | 26.1 | +2.0 |
| Vicks Formula 44 | 1,104 | 19.7 | +18.2 |
| Vicks Vaporub | 651 | 11.6 | +9.6 |
| Bendectin | 649 | 11.6 | −3.8 |
| Total | 3,864 | 69.1 | |
| Insulin NPH | 2,028 | 38.9 | +34.5 |
| Insulin Lente | 1,957 | 37.6 | +36.0 |
| Insulin-Toronto | 562 | 10.8 | +48.4 |
| Insulin Zinc Prot. | 330 | 6.3 | +20.0 |
| Total | 4,877 | 93.6 | |
| Vitamin E | 947 | 18.6 | −16.5 |
| Vitamin C | 942 | 18.5 | −14.4 |
| C-2 W. Codeine | 720 | 14.2 | +14.1 |
| Magnolax | 602 | 11.8 | −8.5 |
| Total | 3,211 | 63.1 | |
| Triaminic, Liquid | 810 | 16.7 | −16.3 |
| Triaminic, Capsules | 579 | 12.0 | −10.0 |
| Tavist | 542 | 11.2 | +7.1 |
| Triulfaminic | 463 | 9.6 | −4.5 |
| Total | 2,394 | 49.4 | |
| Furoside | 509 | 11.6 | −52.2 |
| Dopamet | 365 | 8.3 | −44.1 |
| E-Pam | 293 | 6.7 | −20.4 |
| Urodon | 274 | 6.3 | −31.5 |
| Total | 1,441 | 32.9 | |
| Intralipid | 2,635 | 60.2 | +41.3 |
| Salazopyrin | 1,105 | 25.3 | +26.5 |
| Vamin | 357 | 8.2 | +26.2 |
| Rheomacrodex | 145 | 3.3 | +63.0 |
| Total | 4,242 | 97.0 | |
| Maalox | 2,116 | 51.3 | +6.1 |
| Maalox Plus | 1,810 | 43.9 | +36.7 |
| Camalox | 110 | 2.7 | −21.2 |
| G.B.H. | 30 | 0.7 | — |
| Total | 4,066 | 98.6 | |
| Xylocaine, Inject | 1,124 | 28.3 | +13.8 |
| Xylocaine, Other | 702 | 17.7 | +15.1 |
| Xylocaine Cardiac | 617 | 15.6 | +62.1 |
| Bupivacaine Dorsales | 494 | 12.5 | +59.8 |
| Total | 2,937 | 74.1 | |
| Materna | 1,672 | 50.0 | +45.3 |
| Revitalose C-1000 | 510 | 15.3 | −23.8 |
| Glucophage | 254 | 7.6 | +108.7 |
| Vitalbum | 180 | 5.4 | +13.7 |
| Total | 2,616 | 78.3 | |

## Table A4.2 (continued)

### Part A: 1977 Ethical Market Sales in Canada for Leading Product and Four Leading Products Listed in Order of Size of Company (Value of Sales on Ethical Market)

| | | Ethical Market | | Top Product in Terms of Sales | | | |
|---|---|---|---|---|---|---|---|
| | Company Name | Sales ($000s) | Share (%) | Name | Sales ($000s) | Share of Company Sales (%) | % Change in Sales 77/76 |
| 41 | Fisons | 3,117 | 0.50 | Intal | 1,954 | 62.7 | −9.2 |
| 42 | Organon | 3,074 | 0.49 | Cotazym | 685 | 22.3 | +15.4 |
| 43 | Pennwalt | 2,981 | 0.47 | Ionamin | 1,479 | 49.6 | −0.1 |
| 44 | Cooper Labs | 2,902 | 0.46 | Aveeno | 619 | 21.3 | +34.7 |
| 45 | Allergan | 2,695 | 0.43 | Hydrocare | 607 | 22.5 | +78.9 |

Source: IMS Canada.

| Top Four Products in Terms of Sales | | | |
|---|---|---|---|
| Names | Sales ($000) | Share of Company Sales (%) | % Change in Sales 77/76 |
| Intal | 1,954 | 62.7 | −9.2 |
| Rynacrom | 552 | 17.7 | +34.5 |
| Kondremul | 163 | 5.2 | +27.1 |
| Imferon | 161 | 5.2 | +16.0 |
| Total | 2,830 | 90.8 | |
| Cotazym | 685 | 22.3 | +15.4 |
| Heparin | 492 | 16.0 | +9.7 |
| Pavulon | 446 | 14.5 | −6.5 |
| Deca-Durabolin | 265 | 8.6 | +34.5 |
| Total | 1,888 | 61.4 | |
| Ionamin | 1,479 | 49.6 | −0.1 |
| Tussionex | 609 | 20.4 | −5.1 |
| Desenex | 426 | 14.3 | +25.9 |
| Zarontolyn | 218 | 7.3 | +29.2 |
| Total | 2,732 | 91.6 | |
| Aveeno | 619 | 21.3 | +34.7 |
| Elixophyllin | 396 | 13.6 | +23.2 |
| Miocarpine | 227 | 7.8 | +4.9 |
| Vasocidin | 162 | 5.6 | −0.5 |
| Total | 1,404 | 48.4 | |
| Hydrocare | 607 | 22.5 | +78.9 |
| Blephamide | 256 | 9.5 | +1.8 |
| Herplex D | 202 | 7.5 | +30.1 |
| Liquifilm Tears | 146 | 5.4 | +5.2 |
| Total | 1,211 | 44.9 | |

## Table A4.2

## Part B: 1982 Ethical Market Sales and Prescriptions in Canada for Leading Product and Four Leading Products Listed in Order of Size of Company (Value of Sales on Ethical Market)

| | | Ethical Market | | Leading Product in Terms of Sales | | | | Four Leading Products in Terms of Sales | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Company Name | Sales ($000s) | % of Total | Name | Sales ($000s) | % of Co. Sales | % Sales 82/81 | Names | Sales ($000s) | % of Co. Sales | % Sales 82/81 |
| 1 | American Home Products | 94,704 | 7.07 | Min-Ovral | 16,445 | 17.4 | +16.1 | Min-Ovral | 16,445 | 17.4 | +16.1 |
| | | | | | | | | Inderal 9/68 | 12,488 | 13.2 | −18.3 |
| | | | | | | | | Isordil | 11,259 | 11.9 | +23.2 |
| | | | | | | | | Ovral .25 mg 10/68 | 7,133 | 7.5 | −1.2 |
| | | | | | | | | Total | 47,325 | 50.0 | |
| 2 | Merck, Sharp & Dohme | 92,172 | 6.88 | Mefoxin 8/79 | 8,045 | 8.7 | +45.3 | Mefoxin 8/79 | 8,045 | 8.7 | +45.3 |
| | | | | | | | | Clinoril 4/79 | 7,719 | 8.4 | −6.4 |
| | | | | | | | | Indocid 10/65 | 7,504 | 8.1 | −16.1 |
| | | | | | | | | Timoptic 10/78 | 6,963 | 7.6 | +44.1 |
| | | | | | | | | Total | 30,231 | 32.8 | |
| 3 | SmithKline | 63,766 | 4.76 | Tagamet 6/77 | 38,205 | 59.9 | −3.1 | 6/77 | 38,205 | 59.9 | −3.1 |
| | | | | | | | | Dyazide 4/66 | 8,633 | 13.5 | −17.9 |
| | | | | | | | | Ancef 2/74 | 2,110 | 3.3 | +58.7 |
| | | | | | | | | Stelabid 9/60 | 1,270 | 2.0 | +0.4 |
| | | | | | | | | Total | 50,218 | 78.7 | |
| 4 | Ciba-Geigy | 62,121 | 4.64 | Lopresor 6/77 | 11,251 | 18.1 | +61.2 | Lopresor 6/77 | 11,251 | 18.1 | +61.2 |
| | | | | | | | | Voltaren 9/80 | 7,164 | 11.5 | +107.1 |
| | | | | | | | | Slow K 6/70 | 6,981 | 11.2 | −12.1 |
| | | | | | | | | Apresoline | 5,212 | 8.4 | +32.8 |
| | | | | | | | | Total | 30,608 | 49.2 | |
| 5 | Abbott | 55,781 | 4.17 | Tranxene | 4,309 | 7.7 | +12.8 | Tranxene | 4,309 | 7.7 | +12.8 |
| | | | | | | | | Erythrocin | 3,745 | 6.7 | +16.2 |
| | | | | | | | | Depakene | 2,012 | 3.6 | +27.1 |
| | | | | | | | | Pentothal, Sod. | 1,631 | 2.9 | +12.3 |
| | | | | | | | | Total | 11,697 | 20.9 | |
| 6 | J. & J. | 55,514 | 4.15 | Ortho Novum 50 mcg | 8,653 | 15.6 | +7.5 | Ortho Novum 50 mcg | 8,653 | 15.6 | +7.5 |
| | | | | | | | | Haldol | 4,445 | 8.0 | +16.8 |
| | | | | | | | | Ortho 1/35 6/80 | 4,340 | 7.8 | +51.2 |
| | | | | | | | | Zomax 12/80 | 3,852 | 6.9 | +61.6 |
| | | | | | | | | Total | 21,290 | 38.3 | |
| 7 | Pfizer | 44,304 | 3.31 | Feldene 4/81 | 24,643 | 55.6 | +230.0 | Feldene 4/81 | 24,643 | 55.6 | +230.0 |
| | | | | | | | | Sinequan | 5,052 | 11.4 | +40.8 |
| | | | | | | | | Minipress | 3,437 | 7.8 | +39.5 |
| | | | | | | | | Vibramycin | 2,910 | 6.6 | +45.5 |
| | | | | | | | | Total | 36,042 | 81.4 | |
| 8 | Syntex | 43,767 | 3.27 | Naprosyn 7/74 | 29,078 | 66.4 | +31.7 | Naprosyn 7/74 | 29,078 | 66.4 | +31.7 |
| | | | | | | | | Norinyl 7/64 | 3,298 | 7.5 | +8.5 |
| | | | | | | | | Anaprox 9/80 | 1,785 | 4.1 | +150.1 |
| | | | | | | | | Brevicon 9/76 | 1,679 | 3.8 | −8.4 |
| | | | | | | | | Total | 35,840 | 81.8 | |
| 9 | Warner-Lambert | 40,777 | 3.05 | Choledyl | 3,131 | 7.7 | −7.3 | Choledyl | 3,131 | 7.7 | −7.3 |
| | | | | | | | | Dilantin Sodium | 2,281 | 5.6 | +24.0 |
| | | | | | | | | Benylin DM | 1,644 | 4.0 | −2.7 |
| | | | | | | | | Loestrin | 1,451 | 3.6 | +5.4 |
| | | | | | | | | Total | 8,507 | 20.9 | |

| Company Prescriptions | | Leading Product in Terms of Number of Prescriptions | | | | Four Leading Products in Terms of Number of Prescriptions | | | |
|---|---|---|---|---|---|---|---|---|---|
| Number (000s) | % of Total | Name | Number of Prescrs. (000s) | % of Co. Prescrs. | % Prescrs. 82/81 | Names | Number of Prescrs. (000s) | % of Co. Prescrs. | % Prescrs. 82/81 |
| 19,094.4 | 10.9 | Min-Ovral | 3,187.3 | 16.7 | +7.1 | Min-Ovral | 3,187.3 | 16.7 | +7.1 |
| | | | | | | Amoxil | 2,530.9 | 13.3 | +15.3 |
| | | | | | | Inderal | 2,200.7 | 11.5 | −7.1 |
| | | | | | | Ativan | 2,164.1 | 11.3 | +25.5 |
| | | | | | | Total | 10,083.0 | 52.8 | |
| 11,464.8 | 6.5 | Entrophen | 1,585.0 | 13.8 | −12.9 | Entrophen | 1,585.0 | 13.8 | −12.9 |
| | | | | | | Hydrodiuril | 888.7 | 7.8 | −38.8 |
| | | | | | | Acetophen Compounds | 830.9 | 7.2 | −4.2 |
| | | | | | | Aldomet | 829.9 | 7.2 | −33.1 |
| | | | | | | Total | 4,134.5 | 36.1 | |
| 6,178.5 | 3.5 | Dyazide | 2,563.7 | 41.5 | −8.9 | Dyazide | 2,563.7 | 41.5 | −8.9 |
| | | | | | | Tagamet 6/77 | 2,150.2 | 34.8 | +3.4 |
| | | | | | | Stelabid | 157.5 | 2.5 | −9.9 |
| | | | | | | Herplex D | 141.3 | 2.3 | +7.4 |
| | | | | | | Total | 5,012.7 | 81.1 | |
| 7,279.4 | 4.1 | Slow K | 2,065.9 | 28.4 | −6.9 | Slow K | 2,065.9 | 28.4 | −6.9 |
| | | | | | | Lopresor 7/77 | 1,027.8 | 14.1 | +21.0 |
| | | | | | | Apresoline | 607.6 | 8.3 | +2.9 |
| | | | | | | Voltaren 9/80 | 519.7 | 7.1 | +86.7 |
| | | | | | | Total | 4,221.0 | 58.0 | |
| 2,682.2 | 1.5 | Erythromid | 715.3 | 26.7 | −4.5 | Erythromid | 715.3 | 26.7 | −4.5 |
| | | | | | | Erythrocin | 644.3 | 24.0 | −13.7 |
| | | | | | | Tranxene | 558.2 | 20.8 | −14.2 |
| | | | | | | EES | 208.3 | 7.8 | +17.0 |
| | | | | | | Total | 2,126.1 | 79.3 | |
| 7,570.1 | 4.3 | Ortho Novum 50 mcg | 1,548.1 | 20.5 | −10.3 | Ortho Novum 50 mcg | 1,548.1 | 20.5 | −10.3 |
| | | | | | | Tylenol w. Cod., Non Rx | 1,191.8 | 15.7 | +12.0 |
| | | | | | | Tylenol w. Cod., Rx | 578.5 | 7.6 | −3.3 |
| | | | | | | Zomax | 559.5 | 7.4 | +66.8 |
| | | | | | | Total | 3,877.9 | 51.2 | |
| 5,092.3 | 2.9 | Feldene | 1,536.1 | 30.2 | +195.8 | Feldene | 1,536.1 | 30.2 | +195.8 |
| | | | | | | Tetracyn | 882.1 | 17.3 | −27.5 |
| | | | | | | Atarax | 653.5 | 12.8 | +0.2 |
| | | | | | | Sinequan | 521.7 | 10.2 | +13.8 |
| | | | | | | Total | 3,593.4 | 70.6 | |
| 3,726.3 | 2.1 | Naprosyn 7/74 | 1,720.1 | 46.2 | −5.0 | Naprosyn 7/74 | 1,720.1 | 46.2 | −5.0 |
| | | | | | | Norinyl | 632.2 | 17.0 | −11.0 |
| | | | | | | Brevicon | 325.7 | 8.7 | +2.3 |
| | | | | | | Anaprox | 192.5 | 5.2 | +132.9 |
| | | | | | | Total | 2,870.5 | 77.0 | |
| 5,899.2 | 3.3 | Dilantin Sodium | 882.4 | 15.0 | +2.4 | Dilantin Sodium | 882.4 | 15.0 | +2.4 |
| | | | | | | Choledyl | 753.9 | 12.8 | −17.3 |
| | | | | | | Benadryl | 311.2 | 5.3 | −7.9 |
| | | | | | | Loestrin | 268.0 | 4.5 | −12.3 |
| | | | | | | Total | 2,215.8 | 37.6 | |

## Table A4.2 (continued)

## Part B: 1982 Ethical Market Sales and Prescriptions in Canada for Leading Product and Four Leading Products Listed in Order of Size of Company (Value of Sales on Ethical Market)

| | | Ethical Market | | Leading Product in Terms of Sales | | | | Four Leading Products in Terms of Sales | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Company Name | Sales ($000s) | % of Total | Name | Sales ($000s) | % of Co. Sales | % Sales 82/81 | Names | Sales ($000s) | % of Co. Sales | % Sales 82/81 |
| 10 | Bristol-Myers | 40,512 | 3.03 | Platinol 1/79 | 3,807 | 9.4 | +47.0 | Platinol 1/79 | 3,807 | 9.4 | +47.0 |
| | | | | | | | | Keri 10/65 | 1,808 | 4.5 | +26.8 |
| | | | | | | | | Blenoxane 4/73 | 1,650 | 4.1 | +33.5 |
| | | | | | | | | Tempra | 1,562 | 3.9 | +40.2 |
| | | | | | | | | Total | 8,728 | 21.5 | |
| 11 | Glaxo Canada Ltd. | 38,773 | 2.90 | Ventolin | 18,706 | 48.2 | +26.2 | Ventolin | 18,706 | 48.2 | +26.2 |
| | | | | | | | | Beclovent | 3,100 | 8.0 | +7.5 |
| | | | | | | | | Dermovate | 2,038 | 5.3 | +14.6 |
| | | | | | | | | Beconase | 2,036 | 5.3 | +14.7 |
| | | | | | | | | Total | 25,880 | 66.7 | |
| 12 | Upjohn | 37,949 | 2.83 | Motrin | 13,133 | 34.6 | +14.3 | Motrin | 13,133 | 34.6 | +14.3 |
| | | | | | | | | Halcion | 6,896 | 18.2 | +82.2 |
| | | | | | | | | Dalacin C | 4,372 | 11.5 | −0.2 |
| | | | | | | | | Solu-Medrol | 1,731 | 4.6 | +5.2 |
| | | | | | | | | Total | 26,132 | 68.9 | |
| 13 | Sandoz | 35,150 | 2.63 | Visken 8/78 | 4,671 | 13.3 | +64.1 | Visken 8/78 | 4,671 | 13.3 | +64.1 |
| | | | | | | | | Fiorinal C | 4,336 | 12.3 | +9.9 |
| | | | | | | | | Calcium-Sandoz | 3,453 | 9.8 | +29.7 |
| | | | | | | | | Parlodel | 1,873 | 5.3 | +31.9 |
| | | | | | | | | Total | 7,427 | 21.1 | |
| 14 | Baxter Labs | 34,924 | 2.61 | Dextrose | 12,121 | 34.7 | −3.9 | Dextrose | 12,121 | 34.7 | −3.9 |
| | | | | | | | | Dianeal w. Dext. | 5,255 | 15.0 | −2.4 |
| | | | | | | | | Normal Saline Viaflex | 4,491 | 12.9 | −3.7 |
| | | | | | | | | Normal Saline | 3,208 | 9.2 | +61.0 |
| | | | | | | | | Total | 16,093 | 46.1 | |
| 15 | Lilly | 30,512 | 2.28 | Nebcin 6/75 | 5,303 | 17.4 | +45.8 | Nebcin 6/75 | 5,303 | 17.4 | +45.8 |
| | | | | | | | | Keflex 3/71 | 4,428 | 14.5 | +25.0 |
| | | | | | | | | Nalfon 7/75 | 2,253 | 7.4 | −5.6 |
| | | | | | | | | Ceclor 1/80 | 1,872 | 6.1 | +47.9 |
| | | | | | | | | Total | 13,856 | 45.4 | |
| 16 | Searle | 28,129 | 2.10 | Metamucil | 7,833 | 27.8 | +32.9 | Metamucil | 7,833 | 27.8 | +32.9 |
| | | | | | | | | Aldactazide | 6,916 | 24.6 | +15.9 |
| | | | | | | | | Aldactone | 4,735 | 16.8 | +8.1 |
| | | | | | | | | Isoptin | 2,266 | 8.1 | — |
| | | | | | | | | Total | 21,750 | 77.3 | |
| 17 | Squibb | 27,769 | 2.07 | Corgard 7/79 | 5,411 | 19.5 | +90.3 | Corgard 7/79 | 5,411 | 19.5 | +90.3 |
| | | | | | | | | Kenacomb | 2,792 | 10.1 | +0.8 |
| | | | | | | | | Capoten | 2,079 | 7.5 | — |
| | | | | | | | | Modecate | 2,012 | 7.2 | +57.1 |
| | | | | | | | | Total | 12,294 | 44.3 | |
| 18 | B.W. | 25,768 | 1.92 | Lanoxin | 3,997 | 15.5 | +35.0 | Lanoxin | 3,997 | 15.5 | +35.0 |
| | | | | | | | | Zyloprim | 2,490 | 9.7 | −8.5 |
| | | | | | | | | Septra | 1,389 | 5.4 | −10.8 |
| | | | | | | | | Imuran | 1,295 | 5.0 | +72.6 |
| | | | | | | | | Total | 9,171 | 35.6 | |

| Company Prescriptions | | Leading Product in Terms of Number of Prescriptions | | | | Four Leading Products in Terms of Number of Prescriptions | | | |
|---|---|---|---|---|---|---|---|---|---|
| Number (000s) | % of Total | Name | Number of Prescrs. (000s) | % of Co. Prescrs. | % Prescrs. 82/81 | Names | Number of Prescrs. (000s) | % of Co. Prescrs. | % Prescrs. 82/81 |
| 1,632.8 | 0.9 | Polymox | 221.2 | 13.5 | −36.9 | Polymox | 221.2 | 13.5 | −36.9 |
| | | | | | | Colace | 108.3 | 6.6 | −9.3 |
| | | | | | | Tetrex | 101.0 | 6.2 | −36.3 |
| | | | | | | Staticin | 92.7 | 5.7 | +28.0 |
| | | | | | | Total | 523.2 | 32.0 | |
| 5,652.6 | 3.2 | Ventolin | 2,259.5 | 40.0 | +6.5 | Ventolin | 2,259.5 | 40.0 | +6.5 |
| | | | | | | Eltroxin | 938.3 | 16.6 | +1.2 |
| | | | | | | Betnovate | 710.9 | 12.6 | −10.1 |
| | | | | | | Beclovent | 423.8 | 7.5 | +4.1 |
| | | | | | | Total | 4,332.5 | 76.6 | |
| 5,812.0 | 3.3 | Halcion | 2,176.0 | 37.4 | +32.8 | Halcion | 2,176.0 | 37.4 | +32.8 |
| | | | | | | Motrin | 1,595.9 | 27.5 | −6.4 |
| | | | | | | Deltasone | 661.7 | 11.4 | +1.7 |
| | | | | | | E-Mycin | 263.9 | 4.5 | −3.4 |
| | | | | | | Total | 4,697.5 | 80.8 | |
| 4,278.4 | 2.4 | Fiorinal C | 816.6 | 19.1 | −2.9 | Fiorinal C | 816.6 | 19.1 | −2.9 |
| | | | | | | Fiorinal | 389.4 | 9.1 | +5.4 |
| | | | | | | Visken | 326.3 | 7.6 | +37.5 |
| | | | | | | Calcium-Sandoz forte | 279.9 | 6.5 | +4.9 |
| | | | | | | Total | 1,812.2 | 42.4 | |
| 877.5 | 0.5 | Synthroid | 861.2 | 98.1 | +4.0 | Synthroid | 861.2 | 98.1 | +4.0 |
| | | | | | | Choloxin | 15.4 | 1.8 | −27.8 |
| | | | | | | Total | 876.6 | 99.9 | |
| 3,188.3 | 1.8 | Nitroglycerin | 661.7 | 20.8 | −7.2 | Nitroglycerin | 661.7 | 20.8 | −7.0 |
| | | | | | | Keflex 3/71 | 517.0 | 16.2 | +39.7 |
| | | | | | | Ilosone | 437.8 | 13.7 | +45.2 |
| | | | | | | Seconal Sodium | 193.0 | 6.1 | −20.7 |
| | | | | | | Total | 1,809.5 | 56.8 | |
| 3,284.1 | 1.8 | Aldactazide | 1,014.9 | 30.9 | −8.9 | Aldactazide | 1,014.9 | 30.9 | −8.9 |
| | | | | | | Metamucil | 902.2 | 27.5 | −30.3 |
| | | | | | | Aldactone | 442.9 | 13.5 | −10.8 |
| | | | | | | Lomotil | 233.8 | 7.1 | −6.5 |
| | | | | | | Total | 2,593.8 | 79.0 | |
| 2,123.0 | 1.2 | Mycostatin | 437.4 | 20.6 | −6.6 | Mycostatin | 437.4 | 20.6 | −6.6 |
| | | | | | | Kenacomb | 401.2 | 18.9 | −6.8 |
| | | | | | | Corgard | 380.5 | 17.9 | +36.9 |
| | | | | | | Pronestyl | 87.6 | 4.1 | −3.1 |
| | | | | | | Total | 1,306.7 | 61.5 | |
| 6,994.0 | 3.9 | Lanoxin | 3,730.1 | 53.3 | −4.6 | Lanoxin | 3,730.1 | 53.3 | −4.6 |
| | | | | | | Zyloprim | 430.0 | 6.1 | −17.3 |
| | | | | | | Septra | 398.2 | 5.7 | +9.6 |
| | | | | | | Sudafed | 328.7 | 4.7 | −38.3 |
| | | | | | | Total | 4,886.9 | 69.9 | |

## Table A4.2 (continued)

## Part B: 1982 Ethical Market Sales and Prescriptions in Canada for Leading Product and Four Leading Products Listed in Order of Size of Company (Value of Sales on Ethical Market)

| | | Ethical Market | | Leading Product in Terms of Sales | | | | Four Leading Products in Terms of Sales | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Company Name | Sales ($000s) | % of Total | Name | Sales ($000s) | % of Co. Sales | % Sales 82/81 | Names | Sales ($000s) | % of Co. Sales | % Sales 82/81 |
| 19 | Schering | 25,579 | 1.91 | Chlor-Tripolon | 2,975 | | +36.8 | Chlor-Tripolon | 2,975 | 11.6 | +36.8 |
| | | | | | | | | Garamycin | 1,861 | 7.3 | −12.8 |
| | | | | | | | | Valisone | 1,593 | 6.2 | +21.7 |
| | | | | | | | | Drixoral S.A. | 1,382 | 5.4 | +57.4 |
| | | | | | | | | Total | 7,811 | 30.5 | |
| 20 | Rhône-Poulenc | 23,716 | 1.77 | Surmontil | 4,598 | | +32.1 | Surmontil | 4,598 | 19.4 | +32.1 |
| | | | | | | | | Orudis | 4,100 | 17.3 | +14.1 |
| | | | | | | | | Nozinan | 2,628 | 11.1 | +39.2 |
| | | | | | | | | Flagyl | 2,281 | 9.6 | +999.9 |
| | | | | | | | | Total | 13,607 | 57.4 | |
| 21 | Carter-Wallace | 22,725 | 1.70 | Peptol | 6,045 | | +999.9 | Peptol | 6,045 | 26.6 | +999.9 |
| | | | | | | | | Gravol | 3,381 | 14.9 | −4.1 |
| | | | | | | | | Diovol | 2,861 | 12.6 | −0.1 |
| | | | | | | | | Purinol | 947 | 4.2 | −9.4 |
| | | | | | | | | Total | 13,234 | 58.2 | |
| 22 | Novopharm | 22,296 | 1.67 | Novamoxin | 3,083 | | +47.5 | Novamoxin | 3,083 | 13.8 | +47.5 |
| | | | | | | | | Novo-Ampicillin | 1,814 | 8.1 | −10.0 |
| | | | | | | | | Novemedopa | 1,681 | 7.5 | +55.9 |
| | | | | | | | | Novomethacin | 1,551 | 7.0 | +79.8 |
| | | | | | | | | Total | 8,129 | 36.5 | |
| 23 | Roche | 21,507 | 1.61 | Valium | 3,034 | | −21.9 | Valium | 3,034 | 14.1 | −21.9 |
| | | | | | | | | Dalmane | 3,000 | 13.9 | −26.3 |
| | | | | | | | | Bactrim | 2,400 | 11.2 | −5.6 |
| | | | | | | | | Librax | 1,477 | 6.9 | +4.1 |
| | | | | | | | | Total | 9,911 | 46.1 | |
| 24 | Astra | 17,513 | 1.31 | Theo-Dur | 5,798 | | +95.3 | Theo-Dur | 5,798 | 33.1 | +95.3 |
| | | | | | | | | Betaloc | 4,404 | 25.1 | +42.2 |
| | | | | | | | | Biquin Durules | 1,629 | 9.3 | +21.8 |
| | | | | | | | | Xylocaine | 1,581 | 9.0 | +20.0 |
| | | | | | | | | Total | 13,412 | 76.6 | |
| 25 | Sterling | 16,125 | 1.20 | Cyclomen | 2,064 | | +62.1 | Cyclomen | 2,064 | 12.8 | +62.1 |
| | | | | | | | | Talmin | 1,513 | 9.4 | +37.6 |
| | | | | | | | | Gaviscon Foam Tab | 1,253 | 7.8 | +29.7 |
| | | | | | | | | Phisohex | 1,048 | 6.5 | +3.2 |
| | | | | | | | | Total | 5,878 | 36.5 | |
| 26 | Ames | 15,972 | 1.19 | Adalat | 7,636 | | — | Adalat | 7,636 | 47.8 | — |
| | | | | | | | | Canesten: Topical | 1,592 | 10.0 | +17.6 |
| | | | | | | | | Canesten: Vag. | 1,536 | 9.6 | −28.8 |
| | | | | | | | | Tridesilon | 708 | 4.4 | +53.4 |
| | | | | | | | | Total | 11,472 | 71.8 | |
| 27 | Robins | 15,365 | 1.15 | Dimetapp. Capsules | 2,852 | | | Dimetapp. Capsules | 2,852 | 18.6 | −11.9 |
| | | | | | | | | Robaxisal | 1,234 | 8.0 | +31.8 |
| | | | | | | | | Dimetapp. Liquid | 1,184 | 7.7 | +2.4 |
| | | | | | | | | Robitussin | 971 | 6.3 | +12.9 |
| | | | | | | | | Total | 6,241 | 40.6 | |

| Company Prescriptions | | Leading Product in Terms of Number of Prescriptions | | | | Four Leading Products in Terms of Number of Prescriptions | | | |
|---|---|---|---|---|---|---|---|---|---|
| Number (000s) | % of Total | Name | Number of Prescrs. (000s) | % of Co. Prescrs. | % Prescrs. 82/81 | Names | Number of Prescrs. (000s) | % of Co. Prescrs. | % Prescrs. 82/81 |
| 3,186.5 | 1.8 | Sulamyd | 427.0 | | −5.6 | Sulamid | 427.0 | 13.4 | −5.6 |
| | | | | | | Garamycin | 421.8 | 13.2 | +10.3 |
| | | | | | | Celestoderm-V | 396.3 | 12.4 | −4.5 |
| | | | | | | Drixoral | 221.4 | 6.9 | +4.7 |
| | | | | | | Total | 1,466.5 | 46.0 | |
| 2,404.5 | 1.3 | Surmontil | 492.4 | | +0.1 | Surmontil | 492.4 | 20.5 | +0.1 |
| | | | | | | Orudis | 380.2 | 15.8 | −11.1 |
| | | | | | | Nozinan | 288.7 | 12.0 | −8.6 |
| | | | | | | Flagystatin | 185.9 | 7.7 | +0.7 |
| | | | | | | Total | 1,347.2 | 56.0 | |
| 2,475.3 | 1.4 | Vivol | 395.9 | | −32.3 | Vivol | 395.9 | 16.0 | −32.3 |
| | | | | | | Peptol | 275.6 | 11.1 | — |
| | | | | | | Atasol-30 | 235.9 | 9.5 | +45.6 |
| | | | | | | Purinol | 231.5 | 9.4 | +22.7 |
| | | | | | | Total | 1,138.9 | 46.0 | |
| 12,354.0 | 7.0 | Novamoxin | 1,209.2 | | +44.5 | Novamoxin | 1,209.2 | 9.8 | +44.5 |
| | | | | | | Novotetra | 1,035.7 | 8.4 | +35.2 |
| | | | | | | Novoflupam | 744.1 | 6.0 | +79.1 |
| | | | | | | Novo-Ampicillin | 737.7 | 6.0 | +1.2 |
| | | | | | | Total | 3,726.7 | 30.2 | |
| 4,721.6 | 2.6 | Dalmane | 1,128.5 | | −46.3 | Dalmane | 1,128.5 | 23.9 | −46.3 |
| | | | | | | Valium | 1,029.3 | 21.8 | −37.8 |
| | | | | | | Bactrim | 595.6 | 12.6 | −3.6 |
| | | | | | | Noludar | 379.0 | 8.0 | −18.2 |
| | | | | | | Total | 3,132.4 | 66.3 | |
| 1,337.1 | 0.7 | Theo-Dur | 653.8 | | +72.5 | Theo-Dur | 653.8 | 48.9 | +72.5 |
| | | | | | | Betaloc | 405.6 | 30.3 | +9.4 |
| | | | | | | Biquin Durules | 98.1 | 7.3 | +18.9 |
| | | | | | | Kalium | 82.1 | 6.1 | +5.2 |
| | | | | | | Total | 1,239.6 | 92.7 | |
| 1,137.1 | 0.6 | Talmin | 253.6 | | −3.0 | Talmin | 253.6 | 22.3 | −3.0 |
| | | | | | | Phisohex | 138.7 | 12.2 | −9.6 |
| | | | | | | Demerol | 126.9 | 11.2 | +2.3 |
| | | | | | | Gaviscon | 109.3 | 9.6 | +9.8 |
| | | | | | | Total | 628.5 | 55.3 | |
| 1,148.3 | 0.6 | Canesten, Top. & Vag. | 466.3 | | −17.0 | Canesten, T&V | 466.3 | 40.6 | −17.0 |
| | | | | | | Adalat | 253.3 | 22.1 | — |
| | | | | | | Tridesilon | 132.1 | 11.5 | +32.9 |
| | | | | | | Domeboro | 40.3 | 3.5 | −11.8 |
| | | | | | | Total | 8,920 | 77.7 | |
| 2,410.7 | 1.3 | Dimetapp, Caps & Liq. | 350.9 | | −7.2 | Dimetapp, Caps & Liq. | 350.9 | 14.6 | −7.2 |
| | | | | | | Dimetane | 296.2 | 12.3 | −14.7 |
| | | | | | | Robitussin | 295.6 | 12.3 | −16.5 |
| | | | | | | Robaxisal | 184.6 | 7.7 | +7.9 |
| | | | | | | Total | 1,127.3 | 46.8 | |

## Table A4.2 (continued)

## Part B: 1982 Ethical Market Sales and Prescriptions in Canada for Leading Product and Four Leading Products Listed in Order of Size of Company (Value of Sales on Ethical Market)

| | | Ethical Market | | Leading Product in Terms of Sales | | | | Four Leading Products in Terms of Sales | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Company Name | Sales ($000s) | % of Total | Name | Sales ($000s) | % of Co. Sales | % Sales 82/81 | Names | Sales ($000s) | % of Co. Sales | % Sales 82/81 |
| 28 | Lederle | 15,122 | 1.13 | Minocin | 3,593 | 23.8 | +48.2 | Minocin | 3,593 | 23.8 | +48.2 |
| | | | | | | | | Asendin | 1,077 | 7.1 | +103.9 |
| | | | | | | | | Methotrexate | 757 | 5.0 | −48.8 |
| | | | | | | | | Leucovorin | 738 | 4.9 | +17.5 |
| | | | | | | | | Total | 6,165 | 40.8 | |
| 29 | Boehringer | 14,999 | 1.12 | Persantine | 5,975 | 39.8 | +55.0 | Persantine | 5,975 | 39.8 | +55.0 |
| | | | | | | | | Catapres | 2,044 | 13.6 | +29.4 |
| | | | | | | | | Dulcolax | 1,520 | 10.1 | +16.5 |
| | | | | | | | | Berotec | 1,496 | 10.0 | +35.1 |
| | | | | | | | | Total | 11,035 | 73.6 | |
| 30 | Roussel | 11,638 | 0.87 | Rythmodan | 2,566 | 22.0 | +30.4 | Rythmodan | 2,566 | 22.0 | +30.4 |
| | | | | | | | | Proctosedyl | 2,274 | 19.5 | −1.1 |
| | | | | | | | | Claforan | 1,409 | 12.1 | — |
| | | | | | | | | Cidomycin | 1,166 | 10.0 | −40.0 |
| | | | | | | | | Total | 7,415 | 63.7 | |
| 31 | Connaught | 10,746 | 0.80 | Insulin Lente | 4,256 | 39.6 | +20.9 | Insulin Lente | 4,256 | 39.6 | +20.9 |
| | | | | | | | | Insulin NPH | 4,047 | 37.7 | +13.8 |
| | | | | | | | | Insulin-Toronto | 1,737 | 16.2 | +34.8 |
| | | | | | | | | Insulin Zinc Prot. | 258 | 2.4 | −2.4 |
| | | | | | | | | Total | 10,298 | 95.8 | |
| 32 | Hoechst | 9,617 | 0.72 | Diabeta | 2,492 | 25.9 | +32.7 | Diabeta | 2,492 | 25.9 | +32.7 |
| | | | | | | | | Lasix, non-inject. | 2,010 | 20.9 | −9.0 |
| | | | | | | | | Surfak | 1,397 | 14.5 | +25.1 |
| | | | | | | | | Lasix, injectable | 909 | 9.5 | −42.4 |
| | | | | | | | | Total | 6,808 | 70.8 | |
| 33 | Dow Pharmaceutical | 9,565 | 0.71 | Orifer-F | 964 | | −10.0 | Orifer-F | 964 | 10.1 | −10.0 |
| | | | | | | | | Novahistex-DH | 778 | 8.1 | −21.3 |
| | | | | | | | | Novahistex-DM | 654 | 6.8 | +6.6 |
| | | | | | | | | Novahistex | 650 | 6.8 | +62.6 |
| | | | | | | | | Total | 3,046 | 31.8 | |
| 34 | Apotex Inc. | 9,498 | 0.71 | Apo-Propranolol | 3,217 | 33.9 | +4.3 | Apo-Propranolol | 3,217 | 33.9 | +4.3 |
| | | | | | | | | Apo-ISDN | 788 | 8.3 | — |
| | | | | | | | | Apo-Sulfatrim | 707 | 7.4 | +8.8 |
| | | | | | | | | Apo-Methyldopa | 562 | 5.9 | +90.7 |
| | | | | | | | | Total | 5,274 | 55.5 | |
| 35 | Richardson-Merrell | 8,980 | 0.67 | Tenuate Dospan | 1,653 | 18.4 | −0.4 | Tenuate Dospan | 1,653 | 18.4 | −0.4 |
| | | | | | | | | Clomid | 1,110 | 12.4 | +31.8 |
| | | | | | | | | Bendectin | 841 | 9.4 | +72.4 |
| | | | | | | | | AVC | 814 | 9.1 | +16.1 |
| | | | | | | | | Total | 4,418 | 49.2 | |
| 36 | Rorer Canada Inc. | 8,179 | 0.61 | Maalox | 3,439 | 37.1 | +18.4 | Maalox | 3,439 | 42.0 | +18.4 |
| | | | | | | | | Maalox Plus | 2,340 | 28.6 | +21.0 |
| | | | | | | | | Vit. A Acid | 447 | 5.5 | +38.6 |
| | | | | | | | | Maalox TC | 367 | 4.5 | +104.7 |
| | | | | | | | | Total | 6,593 | 80.6 | |

| Company Prescriptions | | Leading Product in Terms of Number of Prescriptions | | | | Four Leading Products in Terms of Number of Prescriptions | | | |
|---|---|---|---|---|---|---|---|---|---|
| Number (000s) | % of Total | Name | Number of Prescrs. (000s) | % of Co. Prescrs. | % Prescrs. 82/81 | Names | Number of Prescrs. (000s) | % of Co. Prescrs. | % Prescrs. 82/81 |
| 1,048.0 | 0.6 | Minocin | 195.9 | 18.6 | +5.2 | Minocin | 195.9 | 18.6 | +5.2 |
| | | | | | | Nilstat | 99.0 | 9.4 | +2.1 |
| | | | | | | Asendin | 98.0 | 9.3 | +163.1 |
| | | | | | | Aristocort-R | 81.9 | 7.8 | −12.6 |
| | | | | | | Total | 474.8 | 45.3 | |
| 1,351.8 | 0.7 | Persantine | 302.2 | 22.3 | +11.9 | Persantine | 302.2 | 22.3 | +11.9 |
| | | | | | | Berotec | 199.5 | 14.7 | +8.1 |
| | | | | | | Alupent | 177.7 | 13.1 | −3.6 |
| | | | | | | Catapres | 177.3 | 13.1 | +2.1 |
| | | | | | | Total | 856.7 | 63.4 | |
| 1,078.4 | 0.6 | Proctosedyl | 306.7 | 28.4 | −9.1 | Proctosedyl | 306.7 | 28.4 | −9.1 |
| | | | | | | Mandrax | 171.6 | 15.9 | −19.2 |
| | | | | | | Sofracort | 164.8 | 15.2 | −0.8 |
| | | | | | | Rythmodan | 130.0 | 12.0 | +4.5 |
| | | | | | | Total | 773.1 | 71.7 | |
| 1,029.0 | 0.5 | Insulin NPH | 419.3 | 40.6 | +13.5 | Insulin NPH | 419.3 | 40.6 | +13.5 |
| | | | | | | Insulin Lente | 375.9 | 36.4 | +6.7 |
| | | | | | | Ins-Toronto | 166.5 | 16.1 | +30.1 |
| | | | | | | Ins Zinc Prot. | 19.9 | 1.9 | −8.9 |
| | | | | | | Total | 981.6 | 95.4 | |
| 1,586.0 | 0.9 | Lasix, Inj. & Non-inject. | 574.7 | 36.2 | −32.1 | Lasix, Inj. & Non-inj. | 574.7 | 36.2 | −32.1 |
| | | | | | | Diabeta | 487.3 | 30.7 | +17.3 |
| | | | | | | Surfak | 246.8 | 15.5 | +5.3 |
| | | | | | | Topicort | 92.8 | 5.8 | +12.1 |
| | | | | | | Total | 1,401.6 | 88.4 | |
| 1,147.7 | 0.6 | Novahistine DH | 231.1 | 20.1 | −7.3 | Novahistine DH | 231.1 | 20.1 | −7.3 |
| | | | | | | Novahistex DH | 225.9 | 19.6 | −16.8 |
| | | | | | | Mercodol-Decapryn | 125.8 | 10.9 | −29.7 |
| | | | | | | Novahistex DM | 72.6 | 6.3 | +53.9 |
| | | | | | | Total | 655.4 | 57.1 | |
| 5,687.1 | 3.2 | Apo-Hydrochoro-Thiaz | 996.0 | 17.6 | +8.5 | Apo-Hypochlo. | 996.0 | 17.6 | +8.5 |
| | | | | | | Apo-Propran. | 929.7 | 16.4 | −12.8 |
| | | | | | | Apo-Diazepam | 628.8 | 11.1 | +12.3 |
| | | | | | | Apo-Furosemide | 459.5 | 8.1 | +21.2 |
| | | | | | | Total | 3,014.0 | 53.0 | |
| 1,392.9 | 0.7 | Bentylol | 259.5 | 18.6 | −33.7 | Bentylol | 259.5 | 18.6 | −33.7 |
| | | | | | | Tenuate Dospan | 212.6 | 15.3 | −10.1 |
| | | | | | | AVC | 138.4 | 9.9 | −12.9 |
| | | | | | | Bendectin | 121.2 | 8.7 | −7.7 |
| | | | | | | Total | 731.7 | 52.5 | |
| 882.4 | 0.5 | Maalox | 471.5 | 53.4 | −33.8 | Maalox | 471.5 | 53.4 | −33.8 |
| | | | | | | Vit. A Acid | 93.4 | 10.5 | +5.1 |
| | | | | | | Maalox Plus | 71.8 | 8.1 | +9.1 |
| | | | | | | Sulfacet-R | 50.2 | 5.6 | +5.3 |
| | | | | | | Total | 686.9 | 77.8 | |

## Table A4.2 (continued)

## Part B: 1982 Ethical Market Sales and Prescriptions in Canada for Leading Product and Four Leading Products Listed in Order of Size of Company (Value of Sales on Ethical Market)

| | | Ethical Market | | Leading Product in Terms of Sales | | | | Four Leading Products in Terms of Sales | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Company Name | Sales ($000s) | % of Total | Name | Sales ($000s) | % of Co. Sales | % Sales 82/81 | Names | Sales ($000s) | % of Co. Sales | % Sales 82/81 |
| 37 | International Chem. & Nuclear | 7,711 | 0.58 | M.O.S. | 839 | 10.9 | +158.1 | M.O.S. | 839 | 10.9 | +158.1 |
| | | | | | | | | Carbolith | 504 | 6.5 | +19.1 |
| | | | | | | | | Cortenema | 371 | 4.8 | +26.4 |
| | | | | | | | | Dopamet | 307 | 4.0 | −0.9 |
| | | | | | | | | Total | 2,021 | 26.2 | |
| 38 | Beecham | 7,399 | 0.53 | Ticar | 3,366 | 45.5 | +25.4 | Ticar | 3,366 | 45.5 | +25.4 |
| | | | | | | | | Palafer caps & tabs | 521 | 7.0 | −13.8 |
| | | | | | | | | Fastin | 359 | 4.9 | +12.7 |
| | | | | | | | | Palafer CF | 335 | 4.5 | +4.4 |
| | | | | | | | | Total | 4,581 | 61.9 | |
| 39 | Wampole | 7,131 | 0.53 | Vitamin E | 1,514 | 21.2 | +3.9 | Vitamin E | 1,514 | 21.2 | +3.9 |
| | | | | | | | | Ascorbic Acid | 1,227 | 17.2 | +1.4 |
| | | | | | | | | Magnolax | 847 | 11.9 | +15.4 |
| | | | | | | | | Stress Formula Vit. | 409 | 5.7 | −17.3 |
| | | | | | | | | Total | 3,997 | 56.1 | |
| 40 | Nordic | 6,975 | 0.52 | Maxeran | 2,624 | 37.6 | +10.2 | Maxeran | 2,624 | 37.6 | +10.2 |
| | | | | | | | | Sulcrate | 1,134 | 16.3 | +133.8 |
| | | | | | | | | Glucophage | 856 | 12.3 | +35.8 |
| | | | | | | | | Revitalose | 587 | 8.4 | −2.6 |
| | | | | | | | | Total | 5,201 | 75.6 | |
| 41 | Adria Labs | 6,809 | 0.51 | Adriamycin | 6,067 | 89.1 | +28.2 | Adriamycin | 6,067 | 89.1 | +28.2 |
| | | | | | | | | Myoflex | 272 | 4.0 | +19.1 |
| | | | | | | | | Kaochlor-10 | 119 | 1.7 | +58.6 |
| | | | | | | | | Modane | 89 | 1.3 | +8.9 |
| | | | | | | | | Total | 6,547 | 96.2 | |
| 42 | Revlon Health Group | 6,713 | 0.50 | Soft Lens | 2,454 | | +53.9 | Soft Lens | 2,454 | 36.6 | +53.9 |
| | | | | | | | | Arlidin | 762 | 11.4 | −8.9 |
| | | | | | | | | Revimine | 514 | 7.7 | +34.8 |
| | | | | | | | | Euglucon | 391 | 5.8 | +60.9 |
| | | | | | | | | Total | 4,121 | 61.4 | |
| 43 | Organon | 6,447 | 0.48 | Pavulon | 972 | 15.1 | +1.3 | Pavulon | 972 | 15.1 | +1.3 |
| | | | | | | | | Hepalean | 858 | 13.3 | −12.3 |
| | | | | | | | | Cotazym | 783 | 12.1 | −13.3 |
| | | | | | | | | Ampilean | 441 | 6.8 | −14.5 |
| | | | | | | | | Total | 3,054 | 47.4 | |
| 44 | Fisons | 6,210 | 0.46 | Intal-P | 2,108 | 33.9 | −10.4 | Intal-P | 2,108 | 33.9 | −10.4 |
| | | | | | | | | Rynacrom | 1,133 | 18.2 | +10.7 |
| | | | | | | | | Opticrom | 695 | 11.2 | +29.3 |
| | | | | | | | | Fivent | 674 | 10.9 | — |
| | | | | | | | | Total | 4,610 | 74.2 | |
| 45 | Pharmacia | 6,065 | 0.45 | Nutralipid | 2,744 | 45.2 | −29.2 | Nutralipid | 2,744 | 45.2 | −29.2 |
| | | | | | | | | Salazopyrin | 2,204 | 36.3 | +16.3 |
| | | | | | | | | Debrisan Beads | 418 | 6.9 | −8.8 |
| | | | | | | | | Vamin | 248 | 4.1 | −60.4 |
| | | | | | | | | Total | 5,614 | 92.6 | |

Source: IMS Canada.

| Company Prescriptions | | Leading Product in Terms of Number of Prescriptions | | | | Four Leading Products in Terms of Number of Prescriptions | | | |
|---|---|---|---|---|---|---|---|---|---|
| Number (000s) | % of Total | Name | Number of Prescrs. (000s) | % of Co. Prescrs. | % Prescrs. 82/81 | Names | Number of Prescrs. (000s) | % of Co. Prescrs. | % Prescrs. 82/81 |
| 4,508.2 | 2.5 | E-Pam | 779.7 | 17.3 | +0.5 | E-Pam | 779.7 | 17.3 | +0.5 |
| | | | | | | Furoside | 446.3 | 9.9 | +14.9 |
| | | | | | | Urozide | 401.9 | 8.9 | +5.3 |
| | | | | | | Ox-Pam | 264.3 | 5.9 | +91.7 |
| | | | | | | Total | 1,892.2 | 42.0 | |
| 394.9 | 0.2 | Palafer, Caps, Tabs & Liq. | 73.4 | 18.5 | +5.2 | Palafer | 73.4 | 18.5 | +5.2 |
| | | | | | | Fastin | 59.6 | 15.0 | +15.6 |
| | | | | | | Complamin | 55.8 | 14.1 | −69.6 |
| | | | | | | Hydro Aquil | 32.1 | 8.1 | −54.9 |
| | | | | | | Total | 220.9 | 55.9 | |
| 232.8 | 0.01 | Ascorbic Acid | 67.0 | 28.7 | −22.3 | Ascorbic Acid | 67.0 | 28.7 | −22.3 |
| | | | | | | Vitamin E | 58.3 | 25.0 | +42.0 |
| | | | | | | Magnolax | 15.9 | 6.8 | +110.3 |
| | | | | | | Ferrous Sulfate | 15.5 | 6.6 | −34.0 |
| | | | | | | Total | 156.8 | 67.4 | |
| 971.0 | 0.5 | Maxeran | 406.3 | 41.8 | +2.0 | Maxeran | 406.3 | 41.8 | +2.0 |
| | | | | | | Glucophage | 166.1 | 17.1 | +4.9 |
| | | | | | | Revitalose | 63.7 | 6.5 | −2.1 |
| | | | | | | Sulcrate | 60.9 | 6.2 | +116.7 |
| | | | | | | Total | 697.0 | 71.8 | |
| 108.5 | 0.1 | Myoflex | 55.1 | 50.7 | −28.8 | Myoflex | 55.1 | 50.7 | −28.8 |
| | | | | | | Kaon | 14.7 | 13.5 | −25.6 |
| | | | | | | Modane | 14.1 | 12.9 | −47.0 |
| | | | | | | Kaochlor-10 | 13.0 | 12.0 | −8.9 |
| | | | | | | Total | 96.9 | 89.3 | |
| 343.3 | 02. | Euglucon | 166.6 | 48.5 | +43.4 | Euglucon | 166.6 | 48.5 | +43.4 |
| | | | | | | Arlidin | 55.8 | 16.3 | +27.6 |
| | | | | | | Chloral Hydrate | 37.6 | 11.0 | −1.7 |
| | | | | | | Aquasol A | 20.0 | 5.8 | −1.1 |
| | | | | | | Total | 280.0 | 81.6 | |
| 512.9 | 0.3 | Moxilean | 168.2 | 32.7 | −5.7 | Moxilean | 168.2 | 32.7 | −5.7 |
| | | | | | | Ampilean | 62.6 | 12.1 | −17.2 |
| | | | | | | Tetralean | 44.7 | 8.7 | +25.3 |
| | | | | | | Cotazym | 43.9 | 8.5 | −2.4 |
| | | | | | | Total | 319.4 | 62.3 | |
| 417.1 | 0.2 | Opticrom | 96.8 | 23.2 | +20.6 | Opticrom | 96.8 | 23.2 | +20.6 |
| | | | | | | Intal-P | 88.8 | 21.2 | −18.9 |
| | | | | | | Rynacrom | 80.0 | 19.1 | +8.0 |
| | | | | | | Palaron | 40.3 | 9.6 | −22.7 |
| | | | | | | Total | 305.9 | 73.3 | |
| 135.2 | 0.1 | Salazopyrin | 114.0 | 84.3 | −4.4 | Salazopyrin | 114.0 | 84.3 | −4.4 |
| | | | | | | Calmurid | 5.5 | 4.0 | −31.4 |
| | | | | | | Microlax | 5.3 | 3.9 | +6.3 |
| | | | | | | Debrisan Beads | 3.9 | 2.9 | +22.8 |
| | | | | | | Total | 128.7 | 95.2 | |

## Table A4.3

### Ethical Drugstore Pharmaceutical Purchases from Top Ten Corporations Ranked in 1984: Canada, 1979-84 ($000)

| | 1979 | | 1980 | | 1981 | | 1982 | | 1983 | | 1984 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $ Drugst. | % | $ Drugst. | % | $ Drugst. | % | $ Drugst. | % | $ Drugst. | % | $ Drugst. | % |
| Ethical Market | 675,086 | 108.0 | 752,206 | 108.0 | 888,435 | 108.0 | 1,068,405 | 108.0 | 1,315,484 | 108.0 | 1,516,386 | 108.0 |
| American Home Prod. | 74,333 | 11.0 | 76,952 | 10.2 | 83,545 | 9.4 | 86,556 | 8.1 | 108,039 | 8.2 | 123,398 | 8.1 |
| Merck Frosst | 54,914 | 8.1 | 62,222 | 8.3 | 73,541 | 8.3 | 79,370 | 7.4 | 97,376 | 7.4 | 108,828 | 7.2 |
| Ciba-Geigy | 38,021 | 5.6 | 39,367 | 5.2 | 48,910 | 5.5 | 59,075 | 5.5 | 73,746 | 5.6 | 85,338 | 5.6 |
| J. & J. | 27,751 | 4.1 | 32,690 | 4.3 | 44,741 | 5.0 | 54,641 | 5.1 | 67,632 | 5.1 | 79,195 | 5.2 |
| Leading 4 Firms | | 28.8 | | 28.0 | | 28.2 | | 26.1 | | 26.3 | | 26.1 |
| Glaxo Canada Ltd. | 20,214 | 3.0 | 21,989 | 2.9 | 26,026 | 2.9 | 32,342 | 3.0 | 50,478 | 3.8 | 69,699 | 4.6 |
| Pfizer | 8,481 | 1.3 | 11,747 | 1.6 | 20,487 | 2.3 | 41,490 | 3.9 | 44,963 | 3.4 | 48,665 | 3.2 |
| SmithKline | 36,902 | 5.5 | 44,770 | 6.0 | 57,234 | 6.4 | 57,137 | 5.3 | 50,336 | 3.8 | 47,943 | 3.2 |
| Warner-Lambert | 27,617 | 4.1 | 29,973 | 4.0 | 34,704 | 3.9 | 37,404 | 3.5 | 44,219 | 3.4 | 47,657 | 3.1 |
| Leading 8 Firms | | 42.7 | | 42.5 | | 43.7 | | 41.8 | | 40.7 | | 40.2 |
| Abbott | 20,484 | 3.0 | 25,087 | 3.3 | 28,577 | 3.2 | 34,773 | 3.3 | 43,032 | 3.3 | 47,171 | 3.1 |
| Bristol-Myers | 17,637 | 2.6 | 20,869 | 2.8 | 24,023 | 2.7 | 27,015 | 2.5 | 35,098 | 2.7 | 46,175 | 3.0 |
| Leading 10 Firms | | 48.3 | | 48.6 | | 49.6 | | 47.6 | | 46.7 | | 46.3 |

Source: IMS Canada.

## Table A4.4

### Ethical Hospital Pharmaceutical Purchases from Top Ten Corporations Ranked in 1984: Canada, 1979-84 ($000)

| | 1979 | | 1980 | | 1981 | | 1982 | | 1983 | | 1984 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $ Hosp. | % | $ Hosp. | % | $ Hosp. | % | $ Hosp. | % | $ Hosp. | % | $ Hosp. | % |
| Ethical Market | 159,834 | 100.0 | 186,175 | 100.0 | 216,726 | 100.0 | 241,886 | 100.0 | 276,842 | 100.0 | 334,352 | 100.0 |
| Baxter Labs | 21,704 | 13.6 | 26,151 | 14.0 | 32,440 | 15.0 | 33,222 | 13.7 | 31,111 | 11.2 | 39,221 | 11.7 |
| Abbott | 10,674 | 6.7 | 14,627 | 7.9 | 15,724 | 7.3 | 19,984 | 8.3 | 22,679 | 8.2 | 26,240 | 7.8 |
| Bristol-Myers | 6,427 | 4.0 | 7,127 | 3.8 | 10,345 | 4.8 | 13,553 | 5.6 | 16,149 | 5.8 | 19,922 | 6.0 |
| Merck Frosst | 4,465 | 2.8 | 7,146 | 3.8 | 10,520 | 4.9 | 12,843 | 5.3 | 15,028 | 5.4 | 18,778 | 5.6 |
| Leading 4 Firms | | 27.1 | | 29.5 | | 32.0 | | 32.9 | | 30.6 | | 31.1 |
| Lilly | 7,098 | 4.4 | 8,604 | 4.6 | 11,585 | 5.3 | 14,691 | 6.1 | 16,495 | 6.0 | 18,644 | 5.6 |
| Rhône-Poulenc | 2,803 | 1.8 | 3,117 | 1.7 | 3,871 | 1.8 | 7,104 | 2.9 | 11,195 | 4.0 | 13,863 | 4.1 |
| Upjohn | 6,784 | 4.2 | 7,272 | 3.9 | 8,766 | 4.0 | 9,603 | 4.0 | 11,368 | 4.1 | 12,698 | 3.8 |
| American Home Prod. | 9,086 | 5.7 | 8,140 | 4.4 | 8,105 | 3.7 | 8,209 | 3.4 | 9,611 | 3.5 | 10,883 | 3.3 |
| Leading 8 Firms | | 43.2 | | 44.1 | | 46.8 | | 49.3 | | 48.2 | | 47.9 |
| Glaxo Canada Ltd. | 5,390 | 3.4 | 5,310 | 2.9 | 5,504 | 2.5 | 6,439 | 2.7 | 7,466 | 2.7 | 9,761 | 2.9 |
| Squibb | 2,898 | 1.8 | 4,552 | 2.4 | 4,869 | 2.2 | 5,660 | 2.3 | 6,720 | 2.4 | 8,952 | 2.7 |
| Leading 10 Firms | | 48.4 | | 49.4 | | 51.5 | | 54.3 | | 53.3 | | 53.5 |

Source: IMS Canada.

## Table A4.5

### Ethical Pharmaceutical Purchases from Top Ten Corporations Ranked in 1984: Canada, 1979-84 ($000)

| | 1979 | | 1980 | | 1981 | | 1982 | | 1983 | | 1984 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $ Total | % | $ Total | % | $ Total | % | $ Total | % | $ Total | % | $ Total | % |
| Ethical Market | 834,840 | 100.0 | 938,381 | 100.0 | 1,105,161 | 100.0 | 1,810,290 | 100.0 | 1,592,326 | 100.0 | 1,850,738 | 100.0 |
| American Home Prod. | 83,419 | 10.0 | 85,092 | 9.1 | 91,650 | 8.3 | 94,766 | 7.2 | 117,650 | 7.4 | 134,280 | 7.3 |
| Merck Frosst | 59,378 | 7.1 | 69,368 | 7.4 | 84,061 | 7.6 | 92,218 | 7.0 | 112,404 | 7.1 | 127,606 | 6.9 |
| Ciba-Geigy | 40,352 | 4.8 | 41,755 | 4.5 | 51,525 | 4.7 | 61,973 | 4.7 | 77,272 | 4.9 | 89,555 | 4.8 |
| J. & J. | 30,949 | 3.7 | 36,375 | 3.9 | 49,268 | 4.5 | 59,846 | 4.6 | 74,868 | 4.7 | 87,435 | 4.7 |
| Leading 4 Firms | | 25.6 | | 24.9 | | 25.1 | | 23.5 | | 24.1 | | 23.7 |
| Glaxo Canada Ltd | 25,604 | 3.1 | 27,299 | 2.9 | 31,530 | 2.9 | 38,781 | 3.0 | 57,944 | 3.6 | 79,460 | 4.3 |
| Abbott | 31,158 | 3.7 | 39,715 | 4.2 | 44,301 | 4.0 | 54,757 | 4.2 | 65,712 | 3.5 | 73,411 | 4.0 |
| Bristol-Myers | 24,064 | 2.9 | 27,996 | 3.0 | 34,368 | 3.1 | 40,563 | 3.1 | 51,247 | 3.2 | 66,097 | 3.6 |
| SmithKline | 41,267 | 4.9 | 49,986 | 5.3 | 63,955 | 5.8 | 63,968 | 4.9 | 58,001 | 3.6 | 55,799 | 3.0 |
| Leading 8 Firms: | | 40.2 | | 40.3 | | 40.9 | | 38.7 | | 38.0 | | 38.6 |
| Warner-Lambert | 30,928 | 3.7 | 33,733 | 3.6 | 38,354 | 3.5 | 41,389 | 3.2 | 48,613 | 3.1 | 52,843 | 2.9 |
| Upjohn | 21,291 | 2.6 | 25,684 | 2.7 | 31,983 | 2.9 | 37,967 | 2.9 | 48,205 | 3.0 | 51,840 | 2.8 |
| Leading 10 Firms | | 46.5 | | 46.6 | | 47.3 | | 44.8 | | 44.1 | | 44.3 |

Source: IMS Canada.

Table A4.6

## Four-firm Concentration Indices by Therapeutic Class, 1964-76

| | | Total Ethical Market | 1 Ethical Analgesics 5.4% | 2 Antibiotics: Broad & Med. Spectrum 4.9% | 3 Antibiotics: Oral & Other Penicillins 3.0% | 4 Ataractics 5.4% | 5 Bronchial Dilators 2.3% | 6 Ethical Cough & Cold Preparations 5.1% | 7 Hematinics 0.9% | 8 Sex Hormones 6.8% | 9 Hormones: Plain Corticoids 2.9% | 10 Hormones: Corticoid Comb. 1.7% | 11 Other Hypotensives 1.6% | 12 Ethical Laxatives 2.0% | 13 Vitamins 6.0% | 14 Nutrients 3.4% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1964 | A | 21.2 | 68.8 | 55.7 | 78.8 | | 51.8 | 42.9 | 34.0 | 81.0 | 60.2 | 59.3 | 86.7 | | 44.5 | 74.7 |
| | B | 21.6 | 73.1 | 58.7 | 75.6 | | 52.7 | 43.0 | 36.1 | 85.0 | 53.9 | 59.3 | 86.4 | | 45.9 | 77.2 |
| | C | 25.3 | 66.2 | 52.6 | 90.6 | | 51.4 | 47.1 | 39.7 | 52.9 | 76.5 | 58.4 | 87.4 | | 41.7 | 69.5 |
| 1965 | A | 21.6 | 68.3 | 55.0 | 83.4 | | 51.9 | 46.6 | 32.3 | 79.2 | 60.0 | 56.9 | 89.9 | | 41.4 | 77.8 |
| | B | 21.8 | 73.1 | 57.1 | 79.4 | | 54.3 | 46.4 | 34.8 | 82.7 | 51.2 | 59.5 | 90.3 | | 43.3 | 80.2 |
| | C | 26.4 | 67.2 | 53.6 | 93.6 | | 58.2 | 50.0 | 41.5 | 51.1 | 76.6 | 62.8 | 94.2 | | 41.1 | 65.8 |
| 1966 | A | 22.9 | 68.8 | 50.3 | 85.2 | | 54.1 | 46.0 | 32.2 | 74.2 | 59.1 | 59.8 | 92.0 | | 42.1 | 77.7 |
| | B | 23.5 | 73.4 | 54.7 | 82.0 | | 58.0 | 46.2 | 34.5 | 76.8 | 49.3 | 60.0 | 91.9 | | 43.7 | 80.1 |
| | C | 25.9 | 66.8 | 50.7 | 94.9 | | 57.4 | 49.3 | 39.0 | 51.4 | 78.9 | 58.9 | 93.5 | | 38.7 | 68.3 |
| 1967 | A | 25.2 | 67.4 | 49.3 | 86.3 | | 56.7 | 46.1 | 31.2 | 74.3 | 57.2 | 57.1 | 93.6 | 43.8 | 40.6 | 80.0 |
| | B | 26.4 | 72.8 | 52.6 | 82.7 | | 60.2 | 46.5 | 33.7 | 76.9 | 47.1 | 56.5 | 94.1 | 41.8 | 42.4 | 80.9 |
| | C | 27.7 | 64.2 | 53.2 | 95.8 | | 64.6 | 48.3 | 42.4 | 52.1 | 76.5 | 60.6 | 95.6 | 58.6 | 39.6 | 66.2 |
| 1968 | A | 26.3 | 68.8 | 49.9 | 87.2 | 77.6 | 63.2 | 46.3 | 36.0 | 71.8 | 58.1 | 56.4 | 92.5 | 43.0 | 39.6 | 81.9 |
| | B | 26.5 | 73.4 | 55.8 | 84.1 | 81.8 | 64.3 | 46.4 | 37.7 | 73.7 | 48.8 | 56.0 | 93.2 | 42.5 | 40.8 | 83.0 |
| | C | 28.4 | 64.1 | 46.5 | 96.0 | 76.5 | 66.5 | 50.7 | 43.0 | 51.7 | 79.6 | 59.0 | 93.2 | 58.7 | 40.8 | 67.9 |
| 1969 | A | 27.3 | 69.2 | 48.7 | 88.8 | 76.9 | 63.7 | 46.5 | 33.4 | 72.2 | 60.0 | 55.8 | 94.7 | 42.7 | 40.2 | 82.4 |
| | B | 27.7 | 73.4 | 56.4 | 86.3 | 80.0 | 65.1 | 46.5 | 34.1 | 74.2 | 55.3 | 56.0 | 95.2 | 41.2 | 41.5 | 83.6 |
| | C | 28.0 | 70.2 | 48.7 | 96.4 | 79.3 | 66.9 | 51.3 | 41.4 | 51.2 | 80.9 | 60.2 | 97.3 | 54.5 | 42.1 | 71.7 |
| 1970 | A | 28.3 | 67.4 | 45.7 | 86.8 | 76.1 | 63.0 | 46.1 | 35.4 | 74.3 | 61.6 | 55.5 | 96.6 | 42.7 | 45.5 | 83.3 |
| | B | 29.5 | 71.2 | 55.4 | 84.1 | 79.5 | 64.1 | 46.0 | 37.2 | 76.9 | 56.3 | 54.9 | 96.7 | 42.5 | 46.7 | 84.3 |
| | C | 28.5 | 68.3 | 57.3 | 96.5 | 76.9 | 64.7 | 56.7 | 40.8 | 53.6 | 80.6 | 60.8 | 96.0 | 53.0 | 43.2 | 72.0 |
| 1971 | A | 27.9 | 68.0 | 50.3 | 83.0 | 73.8 | 65.7 | 47.2 | 36.6 | 80.1 | 65.0 | 54.8 | 97.3 | 41.8 | 39.6 | 80.6 |
| | B | 29.2 | 71.4 | 56.7 | 79.9 | 77.4 | 67.5 | 46.8 | 38.1 | 82.5 | 62.2 | 55.2 | 97.7 | 46.2 | 40.7 | 81.7 |
| | C | 28.1 | 67.8 | 60.8 | 94.9 | 76.1 | 56.7 | 55.8 | 43.4 | 54.9 | 79.9 | 62.5 | 98.6 | 46.8 | 42.8 | 67.9 |
| 1972 | A | 27.3 | 68.3 | 56.7 | 84.7 | 72.9 | 66.4 | 50.3 | 36.2 | 80.8 | 68.5 | 62.6 | 97.6 | 42.8 | 40.9 | 76.2 |
| | B | 29.4 | 71.8 | 58.0 | 82.6 | 75.2 | 68.6 | 50.5 | 38.3 | 83.2 | 66.4 | 63.0 | 97.7 | 47.9 | 42.1 | 77.0 |
| | C | 28.8 | 65.1 | 69.8 | 92.6 | 77.8 | 59.9 | 49.4 | 44.3 | 57.8 | 81.4 | 61.9 | 95.7 | 43.8 | 45.1 | 74.0 |
| 1973 | A | 25.6 | 67.9 | 58.0 | 85.0 | 68.6 | 65.3 | 52.1 | 33.9 | 82.3 | 68.7 | 61.4 | 95.3 | 45.8 | 40.9 | 75.4 |
| | B | 27.7 | 71.7 | 54.2 | 83.1 | 69.9 | 67.4 | 52.2 | 35.7 | 84.7 | 67.6 | 61.5 | 96.1 | 52.3 | 41.9 | 76.3 |
| | C | 29.1 | 62.9 | 71.4 | 91.8 | 72.6 | 57.6 | 45.2 | 43.8 | 63.1 | 82.6 | 60.6 | 92.9 | 43.9 | 47.0 | 76.4 |
| 1974 | A | 24.9 | 66.7 | 54.7 | 87.4 | 67.0 | 65.2 | 52.0 | 35.5 | 83.9 | 68.1 | 63.1 | 95.8 | 49.0 | 32.9 | 72.1 |
| | B | 27.2 | 70.9 | 50.7 | 86.2 | 68.5 | 66.6 | 52.1 | 37.9 | 86.2 | 66.3 | 63.5 | 97.0 | 54.8 | 33.6 | 75.6 |
| | C | 28.4 | 64.4 | 67.7 | 93.1 | 76.6 | 59.3 | 51.6 | 44.4 | 58.6 | 83.4 | 61.5 | 92.2 | 44.1 | 42.0 | 80.5 |
| 1975 | A | 25.1 | 65.0 | 48.8 | 86.9 | 63.3 | 71.5 | 56.9 | 39.3 | 83.6 | 66.1 | 64.4 | 95.3 | 47.7 | 32.9 | 69.8 |
| | B | 26.9 | 68.4 | 45.7 | 85.8 | 62.7 | 72.9 | 56.9 | 41.2 | 85.8 | 66.0 | 64.8 | 97.4 | 52.3 | 33.5 | 75.5 |
| | C | 29.6 | 66.7 | 68.5 | 92.0 | 77.9 | 65.3 | 57.0 | 46.1 | 67.3 | 82.4 | 59.5 | 93.1 | 45.1 | 45.3 | 85.2 |
| 1976 | A | 24.8 | 67.0 | 46.0 | 89.7 | 59.4 | 72.9 | 54.3 | 38.1 | 82.2 | 72.3 | 63.5 | 95.2 | 46.8 | 33.2 | 68.1 |
| | B | 26.9 | 71.3 | 49.9 | 89.1 | 58.2 | 74.4 | 54.5 | 39.7 | 84.3 | 72.1 | 64.2 | 97.0 | 51.8 | 33.7 | 74.3 |
| | C | 29.6 | 66.2 | 68.3 | 93.8 | 80.5 | 68.8 | 57.4 | 44.9 | 59.8 | 83.1 | 62.1 | 89.1 | 51.9 | 40.9 | 83.6 |

A represents combined drugstore and hospital market.
B represents retail drugstore market.
C represents hospital market.

The 14 sub-markets made up 51.4 per cent of the total ethical market in 1975 and 50.6 per cent in 1976.

Source: IMS Canada.

# Table A4.7

## Eight-firm Concentration Indices by Therapeutic Class, 1964-76

| | | Total Ethical Market | 1 Ethical Anal-gesics 5.4% | 2 Antibiotics: Broad & Med. Spectrum 4.9% | 3 Antibiotics: Oral & Other Penicillins 3.0% | 4 Ataractics 5.4% | 5 Bronchial Dilators 2.3% | 6 Ethical Cough & Cold Preparations 5.1% | 7 Hematinics 0.9% | 8 Sex Hormones 6.8% | 9 Hormones: Plain Corticoids 2.9% | 10 Hormones: Corticoid Comb. 1.7% | 11 Other Hypo-tensives 1.6% | 12 Ethical Laxatives 2.0% | 13 Vitamins 6.0% | 14 Nutrients 3.4% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1964 | A | 33.4 | 80.1 | 79.4 | 96.7 | | 71.9 | 67.2 | 53.1 | 90.7 | 83.2 | 80.9 | 91.8 | | 63.2 | 85.6 |
| | B | 34.7 | 82.4 | 84.9 | 96.6 | | 74.6 | 67.5 | 55.8 | 93.2 | 80.5 | 81.2 | 92.0 | | 64.7 | 88.3 |
| | C | 40.0 | 80.9 | 81.1 | 97.5 | | 72.1 | 65.9 | 58.2 | 88.2 | 90.4 | 82.2 | 89.5 | | 58.8 | 83.9 |
| 1965 | A | 34.0 | 80.6 | 78.6 | 97.0 | | 71.2 | 67.7 | 51.6 | 89.0 | 84.0 | 78.3 | 94.0 | | 61.8 | 87.5 |
| | B | 35.9 | 82.6 | 83.0 | 96.6 | | 73.1 | 67.4 | 54.6 | 91.5 | 80.5 | 81.2 | 94.4 | | 63.2 | 89.6 |
| | C | 41.1 | 83.4 | 84.4 | 98.1 | | 76.7 | 69.7 | 58.0 | 86.8 | 91.5 | 83.8 | 97.1 | | 58.1 | 84.4 |
| 1966 | A | 35.4 | 81.0 | 76.8 | 97.6 | | 72.6 | 67.6 | 54.3 | 90.4 | 84.8 | 78.6 | 95.3 | | 62.4 | 87.2 |
| | B | 37.7 | 82.7 | 81.3 | 97.6 | | 75.1 | 68.0 | 57.2 | 92.9 | 81.4 | 78.4 | 95.4 | | 63.8 | 88.8 |
| | C | 40.9 | 82.8 | 82.3 | 98.8 | | 74.7 | 68.8 | 57.0 | 87.5 | 92.0 | 80.3 | 94.1 | | 58.0 | 84.6 |
| 1967 | A | 37.6 | 81.2 | 74.3 | 98.1 | | 75.8 | 69.3 | 52.7 | 90.5 | 84.5 | 77.0 | 96.4 | 65.3 | 63.9 | 89.1 |
| | B | 40.1 | 83.3 | 81.0 | 98.0 | | 77.9 | 69.8 | 55.7 | 93.2 | 80.6 | 76.7 | 96.6 | 64.2 | 65.6 | 89.7 |
| | C | 42.8 | 80.3 | 81.4 | 98.8 | | 81.1 | 70.2 | 60.4 | 87.9 | 91.4 | 80.4 | 96.2 | 75.8 | 60.7 | 83.1 |
| 1968 | A | 40.3 | 80.5 | 74.3 | 98.4 | 91.4 | 79.8 | 70.1 | 56.7 | 89.3 | 86.7 | 75.3 | 96.7 | 65.9 | 61.4 | 89.6 |
| | B | 41.8 | 82.7 | 82.8 | 98.4 | 94.4 | 81.8 | 70.4 | 58.6 | 91.7 | 83.1 | 75.3 | 97.8 | 65.3 | 63.2 | 90.4 |
| | C | 43.7 | 81.1 | 76.8 | 98.3 | 92.1 | 83.8 | 70.1 | 64.9 | 86.7 | 92.9 | 79.2 | 95.0 | 75.5 | 62.4 | 86.8 |
| 1969 | A | 39.7 | 81.8 | 73.8 | 97.9 | 90.8 | 81.2 | 70.9 | 53.5 | 89.3 | 89.8 | 74.6 | 97.5 | 64.8 | 60.0 | 90.9 |
| | B | 41.3 | 83.7 | 82.9 | 97.5 | 93.5 | 83.0 | 71.3 | 54.8 | 91.6 | 87.1 | 74.4 | 97.4 | 63.4 | 60.9 | 91.6 |
| | C | 43.7 | 84.3 | 78.5 | 98.8 | 92.0 | 85.0 | 70.9 | 61.9 | 84.2 | 95.0 | 79.7 | 97.6 | 74.5 | 61.2 | 86.2 |
| 1970 | A | 40.5 | 80.1 | 71.6 | 96.6 | 92.0 | 81.6 | 71.4 | 55.6 | 89.0 | 90.0 | 74.9 | 98.0 | 65.8 | 58.8 | 90.8 |
| | B | 42.6 | 82.2 | 82.1 | 96.1 | 94.3 | 83.8 | 71.5 | 57.8 | 91.8 | 87.7 | 74.6 | 98.2 | 65.0 | 60.0 | 91.2 |
| | C | 43.4 | 82.4 | 84.4 | 98.7 | 92.5 | 83.8 | 74.5 | 61.7 | 84.8 | 95.1 | 79.3 | 96.2 | 76.1 | 62.9 | 86.2 |
| 1971 | A | 40.1 | 80.6 | 75.1 | 95.3 | 93.2 | 83.2 | 72.7 | 56.0 | 92.4 | 90.4 | 75.9 | 98.3 | 65.1 | 58.9 | 90.6 |
| | B | 42.4 | 82.2 | 83.3 | 94.9 | 94.2 | 85.6 | 73.2 | 58.0 | 94.0 | 88.8 | 75.7 | 98.3 | 66.2 | 59.9 | 91.0 |
| | C | 43.1 | 83.1 | 86.6 | 97.2 | 91.2 | 80.1 | 72.5 | 63.1 | 84.1 | 94.7 | 84.2 | 98.9 | 67.3 | 61.3 | 88.0 |
| 1972 | A | 41.3 | 81.7 | 79.5 | 95.5 | 92.9 | 86.2 | 76.9 | 54.5 | 93.1 | 91.3 | 79.3 | 97.6 | 66.7 | 60.2 | 90.4 |
| | B | 43.5 | 83.5 | 86.1 | 95.7 | 94.1 | 87.9 | 77.4 | 56.5 | 94.5 | 90.0 | 79.3 | 97.7 | 68.6 | 61.5 | 90.3 |
| | C | 43.6 | 84.5 | 90.7 | 96.9 | 93.9 | 82.3 | 68.9 | 64.7 | 88.3 | 94.7 | 83.7 | 95.7 | 65.2 | 63.3 | 89.5 |
| 1973 | A | 39.5 | 82.3 | 78.6 | 95.4 | 88.8 | 86.0 | 77.7 | 54.7 | 93.8 | 90.4 | 80.5 | 99.2 | 69.2 | 56.9 | 89.4 |
| | B | 41.3 | 84.1 | 80.9 | 95.1 | 90.4 | 87.0 | 78.2 | 57.2 | 95.3 | 88.7 | 80.5 | 99.1 | 71.8 | 57.5 | 89.7 |
| | C | 44.1 | 83.3 | 90.9 | 96.5 | 90.4 | 80.4 | 64.1 | 65.6 | 88.8 | 95.4 | 83.2 | 99.8 | 66.8 | 64.6 | 88.9 |
| 1974 | A | 39.0 | 81.8 | 73.7 | 94.8 | 86.1 | 86.7 | 79.1 | 54.3 | 94.4 | 88.8 | 81.8 | 99.7 | 71.1 | 48.9 | 86.5 |
| | B | 41.3 | 83.8 | 77.0 | 94.8 | 86.6 | 87.6 | 79.5 | 57.1 | 95.7 | 86.8 | 81.9 | 99.7 | 74.1 | 49.3 | 88.8 |
| | C | 43.2 | 84.5 | 88.2 | 97.4 | 92.3 | 82.5 | 72.5 | 68.9 | 89.9 | 95.2 | 81.4 | 100.0 | 68.3 | 61.4 | 90.6 |
| 1975 | A | 38.9 | 80.2 | 72.6 | 94.9 | 83.1 | 89.0 | 82.0 | 58.6 | 93.4 | 88.6 | 83.0 | 99.8 | 70.7 | 49.5 | 88.2 |
| | B | 40.7 | 81.6 | 77.0 | 95.1 | 82.0 | 90.1 | 82.4 | 60.8 | 94.7 | 87.1 | 83.4 | 99.9 | 74.0 | 50.4 | 89.0 |
| | C | 43.7 | 83.1 | 85.6 | 96.1 | 93.1 | 85.2 | 75.5 | 65.4 | 90.6 | 94.9 | 82.2 | 99.8 | 66.6 | 64.6 | 92.9 |
| 1976 | A | 38.2 | 81.6 | 71.0 | 96.1 | 81.5 | 87.6 | 80.8 | 57.3 | 93.0 | 91.1 | 83.8 | 99.5 | 70.9 | 50.4 | 87.1 |
| | B | 39.8 | 83.5 | 82.3 | 96.2 | 79.9 | 88.9 | 81.2 | 59.7 | 94.4 | 90.0 | 84.2 | 99.4 | 73.4 | 51.0 | 87.1 |
| | C | 44.1 | 83.8 | 86.0 | 97.7 | 94.2 | 84.1 | 77.4 | 64.1 | 88.8 | 96.1 | 83.9 | 99.6 | 70.8 | 57.9 | 93.0 |

A represents combined drugstore and hospital market.
B represents retail drugstore market.
C represents hospital market.

The 14 sub-markets made up 51.4 per cent of the total ethical market in 1975 and 50.6 per cent in 1976.

Source: IMS Canada.

## Table A4.8

# Herfindahl Indices by Therapeutic Class, 1964-76

| | | Total Ethical Market | 1 Ethical Analgesics 5.4% | 2 Antibiotics: Broad & Med. Spectrum 4.9% | 3 Antibiotics: Oral & Other Penicillins 3.0% | 4 Ataractics 5.4% | 5 Bronchial Dilators 2.3% | 6 Ethical Cough & Cold Preparations 5.1% | 7 Hematinics 0.9% | 8 Sex Hormones 6.8% | 9 Hormones: Plain Corticoids 2.9% | 10 Hormones: Corticoid Comb. 1.7% | 11 Other Hypotensives 1.6% | 12 Ethical Laxatives 2.0% | 13 Vitamins 6.0% | 14 Nutrients 3.4% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1964 | A | .0259 | .2660 | .1021 | .2252 | | .0939 | .0691 | .0479 | .2455 | .1145 | .1201 | .3539 | | .0707 | .1974 |
| | B | .0264 | .3256 | .1191 | .2036 | | .1000 | .0705 | .0517 | .2780 | .0935 | .1194 | .3519 | | .0729 | .2090 |
| | C | .0327 | .1469 | .1077 | .3630 | | .0987 | .0883 | .0576 | .1054 | .2942 | .1356 | .3724 | | .0730 | .1584 |
| 1965 | A | .0268 | .2340 | .1013 | .2546 | | .0947 | .0738 | .0458 | .2348 | .1208 | .1083 | .3595 | | .0666 | .2032 |
| | B | .0270 | .2890 | .1172 | .2067 | | .0998 | .0745 | .0491 | .2597 | .0909 | .1200 | .3602 | | .0690 | .2136 |
| | C | .0352 | .1434 | .1064 | .4499 | | .1146 | .0989 | .0615 | .0997 | .2900 | .1497 | .3689 | | .0654 | .1652 |
| 1966 | A | .0273 | .2341 | .0906 | .2690 | | .1045 | .0731 | .0473 | .2123 | .1220 | .1049 | .3771 | | .0665 | .2018 |
| | B | .0282 | .2835 | .1038 | .2225 | | .1131 | .0745 | .0511 | .2292 | .0930 | .1190 | .3724 | | .0688 | .2121 |
| | C | .0348 | .1397 | .0964 | .4734 | | .1110 | .0982 | .0598 | .1032 | .3112 | .1269 | .4279 | | .0648 | .1750 |
| 1967 | A | .0299 | .2201 | .0870 | .3028 | | .1166 | .0732 | .0460 | .2198 | .1146 | .1163 | .4055 | .0669 | .0639 | .2027 |
| | B | .0310 | .2635 | .0977 | .2542 | | .1239 | .0758 | .0497 | .2374 | .0895 | .1138 | .4075 | .0673 | .0665 | .2079 |
| | C | .0376 | .1246 | .0969 | .4726 | | .1396 | .0935 | .0671 | .1029 | .2639 | .1406 | .3955 | .1214 | .0648 | .1650 |
| 1968 | A | .0316 | .2215 | .0875 | .3179 | .2361 | .1374 | .0764 | .0523 | .1832 | .1190 | .1112 | .3856 | .0663 | .0623 | .2183 |
| | B | .0323 | .2660 | .1031 | .2628 | .3320 | .1471 | .0774 | .0546 | .1946 | .0940 | .1103 | .3876 | .0662 | .0646 | .2259 |
| | C | .0384 | .1354 | .0872 | .5043 | .1692 | .1439 | .0943 | .0661 | .1021 | .2908 | .1252 | .3900 | .1155 | .0691 | .1532 |
| 1969 | A | .0316 | .2248 | .0843 | .3305 | .2795 | .1409 | .0771 | .0453 | .1741 | .1248 | .1116 | .4207 | .0636 | .0626 | .2224 |
| | B | .0325 | .2594 | .1065 | .2849 | .3570 | .1488 | .0774 | .0507 | .1843 | .1061 | .1098 | .4201 | .0645 | .0641 | .2312 |
| | C | .0383 | .1434 | .0901 | .5083 | .1910 | .1411 | .1072 | .0624 | .0974 | .3080 | .1439 | .4331 | .1042 | .0713 | .1567 |
| 1970 | A | .0333 | .2017 | .0794 | .3220 | .2720 | .1314 | .0765 | .0523 | .1754 | .1269 | .1073 | .4729 | .0643 | .0614 | .2263 |
| | B | .0347 | .2325 | .1006 | .2887 | .3684 | .1368 | .0764 | .0557 | .1877 | .1078 | .1065 | .4707 | .0664 | .0625 | .2354 |
| | C | .0389 | .1350 | .1105 | .4729 | .1734 | .1396 | .1261 | .0661 | .1082 | .3096 | .1279 | .4941 | .0978 | .0817 | .1567 |
| 1971 | A | .0332 | .1989 | .0901 | .3153 | .2427 | .1293 | .0799 | .0532 | .2072 | .1435 | .1043 | .5198 | .0638 | .0614 | .2078 |
| | B | .0346 | .2261 | .1087 | .2717 | .3121 | .1382 | .0798 | .0560 | .2190 | .1288 | .1034 | .5212 | .0735 | .0630 | .2158 |
| | C | .0389 | .1408 | .1205 | .5175 | .1645 | .1108 | .1213 | .0794 | .1029 | .3057 | .1346 | .5096 | .0818 | .0739 | .1512 |
| 1972 | A | .0339 | .2053 | .1117 | .3327 | .2367 | .1347 | .0891 | .0534 | .2202 | .1381 | .1198 | .6010 | .0699 | .0607 | .1850 |
| | B | .0356 | .2305 | .1192 | .2923 | .2880 | .1466 | .0899 | .0577 | .2327 | .1465 | .1224 | .6025 | .0816 | .0624 | .1896 |
| | C | .0392 | .1429 | .1613 | .5336 | .1638 | .1159 | .0912 | .0782 | .1144 | .3225 | .1210 | .5788 | .0764 | .0701 | .1678 |
| 1973 | A | .0321 | .2107 | .1078 | .3109 | .1943 | .1332 | .0931 | .0508 | .2331 | .1354 | .1169 | .5631 | .0793 | .0551 | .1833 |
| | B | .0339 | .2371 | .1042 | .2772 | .2282 | .1452 | .0935 | .0537 | .2464 | .1441 | .1177 | .5733 | .0963 | .0566 | .1871 |
| | C | .0375 | .1335 | .1698 | .4874 | .1528 | .1085 | .0876 | .0768 | .1255 | .2994 | .1197 | .4769 | .0719 | .0758 | .1759 |
| 1974 | A | .0310 | .2021 | .0996 | .3117 | .1869 | .1316 | .0920 | .0527 | .2468 | .1319 | .1214 | .5474 | .0878 | .0417 | .1695 |
| | B | .0332 | .2288 | .0965 | .2924 | .2175 | .1408 | .0925 | .0571 | .2606 | .1386 | .1225 | .5653 | .1063 | .0424 | .1858 |
| | C | .0365 | .1376 | .1496 | .4430 | .1705 | .1099 | .1057 | .0772 | .1143 | .3162 | .1175 | .4131 | .0750 | .0676 | .2261 |
| 1975 | A | .0317 | .1817 | .0952 | .3548 | .1629 | .1489 | .1016 | .0578 | .2510 | .1256 | .1267 | .4905 | .0895 | .0424 | .1524 |
| | B | .0331 | .1981 | .0883 | .3297 | .1742 | .1560 | .1021 | .0613 | .2630 | .1305 | .1295 | .5122 | .1058 | .0438 | .1720 |
| | C | .0372 | .1470 | .1627 | .5104 | .1781 | .1320 | .1241 | .0841 | .1349 | .2569 | .1109 | .3359 | .0757 | .0764 | .3068 |
| 1976 | A | .0306 | .1778 | .0969 | .4311 | .1444 | .1650 | .0981 | .0549 | .2523 | .1542 | .1257 | .4225 | .0910 | .0422 | .1434 |
| | B | .0332 | .1984 | .0969 | .4045 | .1487 | .1663 | .0986 | .0583 | .2658 | .1702 | .1279 | .4380 | .1077 | .0430 | .1660 |
| | C | .0370 | .1421 | .1551 | .6188 | .1875 | .1976 | .1117 | .0745 | .1159 | .2912 | .1175 | .3001 | .0931 | .0596 | .3641 |

A represents combined drugstore and hospital market.
B represents retail drugstore market.
C represents hospital market.

The 14 sub-markets made up 51.4 per cent of the total ethical market in 1975 and 50.6 per cent in 1976.

Source: IMS Canada.

## Table A4.9

### Top Ten Ethical Pharmaceutical Manufacturers: Drugstore and Hospital Purchase Dollars, 1979-84 ($000)

| | 1984 | | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| | $ Total | % | $ Total | $ Total | $ Total | $ Total | $ Total |
| Ethical Market | 1,851,438 | 100.0 | 833,857 | 937,959 | 1,105,057 | 1,310,266 | 1,592,599 |
| Ethical Analgesics | 100,770 | 5.4 | 44,688 | 48,216 | 58,457 | 68,777 | 85,400 |
| Frosst | 28,414 | 28.2 | 17,876 | 18,721 | 20,376 | 19,973 | 25,148 |
| J & J | 14,195 | 14.1 | 3,678 | 4,212 | 6,577 | 7,731 | 10,984 |
| McNeil | 9,786 | 9.7 | 4,228 | 4,623 | 7,572 | 10,356 | 9,512 |
| Sandoz Pharma | 7,299 | 7.2 | 3,959 | 3,986 | 4,966 | 5,586 | 6,264 |
| Syntex | 4,073 | 4.0 | 0 | 117 | 714 | 1,785 | 2,753 |
| Mead Johnson | 4,025 | 4.0 | 789 | 996 | 1,114 | 1,562 | 2,961 |
| Winthrop | 3,825 | 3.8 | 2,514 | 2,842 | 2,836 | 3,510 | 3,802 |
| Du Pont | 3,489 | 3.5 | 1,315 | 1,404 | 1,476 | 2,218 | 2,843 |
| Private Label | 3,032 | 3.0 | 130 | 133 | 265 | 1,613 | 2,467 |
| Janssen | 2,818 | 2.8 | 582 | 746 | 949 | 1,345 | 2,086 |
| Antibiotics: Brd/Med. Spec. | 120,100 | 6.5 | 58,060 | 64,344 | 74,826 | 85,369 | 105,218 |
| Lilly | 24,235 | 20.2 | 8,658 | 10,880 | 14,072 | 18,211 | 22,337 |
| Ayerst | 13,351 | 11.1 | 10,049 | 9,583 | 9,768 | 8,710 | 12,610 |
| Frosst | 11,773 | 9.8 | 268 | 2,263 | 5,614 | 8,105 | 9,382 |
| Novopharm | 9,910 | 8.3 | 3,695 | 4,481 | 6,193 | 7,802 | 8,465 |
| Abbott | 8,455 | 7.0 | 4,318 | 5,613 | 5,242 | 6,213 | 8,673 |
| Lederle | 7,501 | 6.2 | 2,339 | 2,725 | 3,067 | 4,170 | 5,701 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Upjohn | 6,093 | 5.1 | 3,923 | 4,663 | 6,132 | 5,496 | 6,022 |
| Pfizer | 5,913 | 4.9 | 1,905 | 2,703 | 3,105 | 4,282 | 4,854 |
| SKF | 4,694 | 3.9 | 657 | 904 | 1,329 | 2,110 | 3,306 |
| Bristol | 4,287 | 3.6 | 2,881 | 2,656 | 2,776 | 3,607 | 4,301 |
| Antibiotics: Oral/Other | | | | | | | |
| Penicillins | 9,028 | 0.5 | 6,478 | 6,758 | 7,258 | 6,872 | 8,420 |
| Ayerst | 2,440 | 27.0 | 1,560 | 1,419 | 1,655 | 1,555 | 2,381 |
| Novopharm | 2,248 | 24.9 | 965 | 1,072 | 1,484 | 1,839 | 1,948 |
| Frosst | 1,799 | 19.9 | 1,585 | 1,663 | 1,735 | 1,673 | 1,868 |
| Wyeth | 1,203 | 13.3 | 729 | 849 | 971 | 739 | 972 |
| Lilly | 412 | 4.6 | 304 | 291 | 291 | 289 | 318 |
| Nadeau | 382 | 4.2 | 228 | 126 | 366 | 198 | 388 |
| Bristol | 371 | 4.1 | 471 | 451 | 385 | 336 | 336 |
| Organon | 58 | 0.6 | 47 | 86 | 40 | 31 | 60 |
| Lederle | 31 | 0.3 | 148 | 120 | 60 | 34 | 26 |
| Horner | 28 | 0.3 | 141 | 84 | 57 | 52 | 46 |
| Ataractics | 57,091 | 3.1 | 31,702 | 34,017 | 36,062 | 42,705 | 50,333 |
| Wyeth | 14,942 | 26.2 | 5,568 | 6,205 | 7,372 | 9,047 | 12,015 |
| McNeil | 7,040 | 12.3 | 3,456 | 3,894 | 4,344 | 5,172 | 6,613 |
| Roche | 6,171 | 10.8 | 6,438 | 6,036 | 5,448 | 4,940 | 5,419 |
| Rhône-Poulenc | 5,620 | 9.8 | 3,059 | 3,072 | 3,500 | 5,041 | 5,614 |
| Abbott | 4,612 | 8.1 | 3,095 | 3,488 | 3,826 | 4,330 | 4,609 |
| Pfizer | 3,151 | 5.5 | 1,604 | 2,046 | 2,311 | 2,837 | 3,140 |
| Upjohn | 3,012 | 5.3 | 0 | 0 | 0 | 366 | 1,256 |
| Squibb | 2,569 | 4.5 | 1,825 | 2,362 | 1,878 | 2,654 | 2,677 |
| Sandoz | 1,535 | 2.7 | 1,309 | 1,429 | 1,573 | 1,450 | 1,560 |
| Apotex | 1,418 | 2.5 | 125 | 379 | 595 | 893 | 1,201 |
| Bronchial Dilators | 60,728 | 3.3 | 20,616 | 24,427 | 29,929 | 38,158 | 49,685 |
| Allen & Hanburys | 30,934 | 50.9 | 9,825 | 11,948 | 14,883 | 18,822 | 24,604 |
| Astra | 11,996 | 19.8 | 698 | 1,314 | 3,227 | 6,251 | 9,202 |
| Boehringer | 5,323 | 8.8 | 1,698 | 1,837 | 2,180 | 2,737 | 4,187 |

**Table A4.9 (continued)**

**Top Ten Ethical Pharmaceutical Manufacturers:**
**Drugstore and Hospital Purchase Dollars, 1979-84**
**($000)**

| | 1984 | | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| | $ Total | % | $ Total | $ Total | $ Total | $ Total | $ Total |
| Parke-Davis | 3,910 | 6.4 | 4,121 | 4,456 | 4,359 | 4,264 | 4,251 |
| Fisons | 1,735 | 2.9 | 151 | 263 | 254 | 582 | 1,167 |
| Purdue Frederick | 1,422 | 2.3 | 0 | 85 | 373 | 892 | 1,237 |
| Winthrop | 1,013 | 1.7 | 905 | 989 | 1,009 | 939 | 946 |
| Bristol | 835 | 1.4 | 322 | 353 | 344 | 360 | 607 |
| Riker | 663 | 1.1 | 399 | 380 | 534 | 635 | 875 |
| Rougier | 598 | 1.0 | 376 | 484 | 528 | 580 | 538 |
| Eth. Cough & Cold Preps | 67,208 | 3.6 | 36,782 | 40,327 | 45,007 | 48,802 | 61,440 |
| Robins | 10,459 | 15.6 | 5,907 | 6,816 | 7,407 | 7,309 | 10,038 |
| Parke-Davis | 10,161 | 15.1 | 5,574 | 6,167 | 7,461 | 7,240 | 9,577 |
| Ancalab | 6,996 | 10.4 | 4,033 | 4,775 | 5,073 | 5,530 | 6,094 |
| Dow Pharmaceutical | 6,864 | 10.2 | 3,958 | 4,101 | 4,164 | 4,410 | 5,985 |
| B.W. | 5,566 | 8.3 | 3,484 | 3,933 | 4,357 | 4,640 | 5,127 |
| Schering | 4,717 | 7.0 | 2,573 | 3,001 | 3,268 | 4,080 | 4,393 |
| SKF | 4,416 | 6.6 | 2,386 | 2,093 | 2,091 | 2,722 | 3,930 |
| Ciba-Geigy | 3,476 | 5.2 | 1,517 | 1,915 | 2,373 | 2,768 | 3,283 |
| Allen & Hanburys | 3,183 | 4.7 | 1,675 | 1,489 | 1,776 | 2,032 | 2,833 |
| Syntex | 1,851 | 2.8 | 552 | 628 | 855 | 1,259 | 1,542 |
| Hematinics | 8,718 | 0.5 | 6,224 | 5,808 | 6,187 | 6,627 | 7,717 |
| Beecham Lab | 1,479 | 17.0 | 812 | 912 | 1,052 | 962 | 1,228 |
| Ciba-Geigy | 1,039 | 11.9 | 430 | 477 | 560 | 662 | 908 |
| Bio-Chemical | 651 | 7.5 | 199 | 276 | 334 | 401 | 474 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Mead Johnson | 646 | 7.4 | 273 | 308 | 326 | 359 | 451 |
| Herdt & Charton | 628 | 7.2 | 45 | 196 | 161 | 303 | 555 |
| Ciba | 563 | 6.5 | 237 | 247 | 307 | 327 | 407 |
| Abbott | 382 | 4.4 | 485 | 466 | 363 | 338 | 413 |
| Winthrop | 363 | 4.2 | 378 | 274 | 292 | 308 | 285 |
| Mfr Not Stated | 301 | 3.5 | 311 | 291 | 334 | 335 | 330 |
| Squibb | 274 | 3.1 | 284 | 307 | 306 | 275 | 295 |
| Sex Hormones | 98,402 | 5.3 | 39,630 | 45,805 | 60,569 | 69,406 | 85,655 |
| Wyeth | 37,048 | 37.7 | 12,101 | 14,479 | 21,380 | 23,615 | 29,251 |
| Ortho | 29,740 | 30.2 | 10,935 | 13,386 | 17,969 | 21,379 | 27,003 |
| Syntex | 7,251 | 7.4 | 3,709 | 4,400 | 5,391 | 6,738 | 7,474 |
| Ayerst | 6,431 | 6.5 | 4,227 | 3,990 | 4,541 | 4,211 | 5,836 |
| Parke-Davis | 3,639 | 3.7 | 1,707 | 2,112 | 2,884 | 3,154 | 3,519 |
| Searle | 3,182 | 3.2 | 1,404 | 1,632 | 2,005 | 2,304 | 3,124 |
| Winthrop | 3,109 | 3.2 | 664 | 919 | 1,273 | 2,064 | 2,473 |
| Upjohn | 2,962 | 3.0 | 1,303 | 1,368 | 1,628 | 1,952 | 2,420 |
| Frosst | 762 | 0.8 | 643 | 696 | 751 | 778 | 862 |
| Ciba | 594 | 0.6 | 293 | 349 | 372 | 471 | 555 |
| Hormones: Pl. Corticoids | 40,468 | 2.2 | 21,898 | 23,720 | 26,094 | 30,880 | 36,771 |
| Glaxo | 7,858 | 19.4 | 3,902 | 4,221 | 4,736 | 5,909 | 7,561 |
| Schering | 6,266 | 15.5 | 3,227 | 3,435 | 3,902 | 4,649 | 5,434 |
| Upjohn | 5,996 | 14.8 | 3,635 | 3,984 | 4,743 | 5,382 | 5,765 |
| Syntex | 4,909 | 12.1 | 3,240 | 3,476 | 3,555 | 4,250 | 4,831 |
| Squibb | 2,344 | 5.8 | 1,779 | 1,740 | 1,672 | 2,033 | 2,208 |
| Lederle | 1,727 | 4.3 | 883 | 1,003 | 1,080 | 1,125 | 1,710 |
| Allergan | 1,631 | 4.0 | 375 | 405 | 526 | 741 | 1,260 |
| Miles | 1,334 | 3.3 | 281 | 358 | 478 | 709 | 1,003 |
| MS&D | 1,185 | 2.9 | 1,019 | 1,057 | 1,094 | 1,022 | 1,177 |
| I.C.N. | 924 | 2.3 | 343 | 581 | 467 | 730 | 859 |
| Hormones: Comb. Corticoids | 17,149 | 0.9 | 10,323 | 11,304 | 11,611 | 13,139 | 16,337 |
| Squibb | 3,505 | 20.4 | 2,847 | 3,331 | 2,799 | 2,826 | 3,208 |
| Calmic | 2,306 | 13.4 | 963 | 1,033 | 1,228 | 1,578 | 2,041 |
| Ciba | 2,043 | 11.9 | 1,210 | 1,242 | 1,363 | 1,413 | 1,913 |
| Schering | 1,719 | 10.0 | 809 | 858 | 916 | 1,239 | 1,508 |

Table A4.9 (continued)

Top Ten Ethical Pharmaceutical Manufacturers:
Drugstore and Hospital Purchase Dollars, 1979-84
($000)

| | 1984 | | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| | $ Total | % | $ Total | $ Total | $ Total | $ Total | $ Total |
| Roussel | 1,448 | 8.4 | 774 | 943 | 1,017 | 1,093 | 1,336 |
| Upjohn | 1,446 | 8.4 | 1,316 | 1,196 | 1,270 | 1,307 | 1,366 |
| Parke-Davis | 732 | 4.3 | 429 | 481 | 568 | 597 | 731 |
| Syntex | 584 | 3.4 | 166 | 379 | 476 | 576 | 586 |
| Trans Canada | 561 | 3.3 | 2 | 0 | 0 | 166 | 469 |
| Allergan | 538 | 3.1 | 336 | 327 | 373 | 365 | 530 |
| Other Hypotensives | 27,588 | 1.5 | 12,785 | 13,821 | 17,607 | 20,479 | 23,817 |
| Ciba | 9,290 | 33.7 | 2,638 | 3,112 | 4,200 | 5,479 | 7,337 |
| Pfizer | 5,302 | 19.2 | 1,405 | 1,918 | 2,457 | 3,439 | 4,316 |
| MS&D | 5,281 | 19.1 | 5,174 | 4,829 | 6,054 | 4,988 | 5,072 |
| Boehringer | 2,498 | 9.1 | 1,504 | 1,447 | 1,580 | 2,047 | 2,387 |
| Novopharm | 1,949 | 7.1 | 619 | 730 | 1,078 | 1,682 | 1,799 |
| Apotex | 1,448 | 5.2 | 48 | 143 | 325 | 594 | 1,465 |
| Roche | 657 | 2.4 | 571 | 659 | 736 | 759 | 512 |
| Upjohn | 424 | 1.5 | 0 | 36 | 144 | 165 | 224 |
| I.C.N. | 270 | 1.0 | 387 | 432 | 310 | 308 | 158 |
| Drug Trading | 209 | 0.8 | 0 | 70 | 359 | 463 | 310 |
| Ethical Laxatives | 35,593 | 1.9 | 18,799 | 20,094 | 22,279 | 25,733 | 30,960 |
| Searle | 9,691 | 27.2 | 5,801 | 6,361 | 5,894 | 7,620 | 8,694 |
| Hoechst | 3,062 | 8.6 | 1,068 | 1,313 | 1,585 | 1,969 | 2,591 |
| Purdue Frederick | 2,860 | 8.0 | 1,285 | 1,464 | 1,756 | 1,985 | 2,523 |
| Parke-Davis | 2,673 | 7.5 | 1,971 | 2,149 | 2,308 | 2,321 | 2,656 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Frosst | 2,655 | 7.5 | 1,038 | 1,195 | 1,682 | 1,953 | 2,175 |
| Boehringer | 2,159 | 6.1 | 1,426 | 1,458 | 1,656 | 1,755 | 2,184 |
| Bristol | 1,737 | 4.9 | 1,136 | 983 | 1,040 | 1,197 | 528 |
| Merrell | 1,170 | 3.3 | 195 | 209 | 393 | 430 | 644 |
| Mfr Not Stated | 1,048 | 2.9 | 929 | 915 | 1,079 | 902 | 994 |
| Rorer | 983 | 2.8 | 0 | 0 | 0 | 255 | 506 |
| Vitamins | 60,535 | 3.3 | 38,647 | 39,245 | 44,450 | 48,276 | 61,930 |
| Life | 6,126 | 10.1 | 3,204 | 4,033 | 5,817 | 3,751 | 4,937 |
| Mead Johnson | 5,906 | 9.8 | 2,691 | 3,154 | 3,524 | 3,857 | 4,866 |
| Ayerst | 5,494 | 9.1 | 3,564 | 4,189 | 4,641 | 4,094 | 5,627 |
| Lederle | 4,949 | 8.2 | 961 | 1,450 | 2,157 | 2,395 | 3,927 |
| Wampole | 4,572 | 7.6 | 4,499 | 4,183 | 4,092 | 4,557 | 5,376 |
| Private Label | 4,479 | 7.4 | 879 | 684 | 925 | 3,484 | 6,425 |
| Mfr Not Stated | 3,333 | 5.5 | 4,251 | 3,765 | 4,115 | 4,322 | 5,413 |
| Robins | 2,548 | 4.2 | 1,413 | 1,671 | 2,095 | 2,315 | 2,845 |
| Abbott | 1,768 | 2.9 | 1,638 | 1,634 | 1,787 | 1,840 | 1,760 |
| Dow Pharmaceutical | 1,738 | 2.9 | 980 | 1,063 | 1,248 | 1,116 | 1,476 |
| Nutrients | 50,836 | 2.7 | 25,836 | 28,032 | 31,952 | 37,393 | 44,840 |
| Ross | 19,628 | 38.6 | 7,931 | 10,124 | 13,085 | 16,561 | 19,063 |
| Mead Johnson | 16,258 | 32.0 | 4,648 | 6,097 | 7,694 | 8,774 | 10,537 |
| Wyeth | 6,864 | 13.5 | 6,140 | 4,831 | 3,900 | 4,656 | 6,192 |
| Pharmacia | 1,928 | 3.8 | 4,528 | 4,235 | 3,876 | 2,744 | 2,875 |
| Mfr Not Stated | 1,212 | 2.4 | 858 | 1,008 | 1,130 | 1,332 | 1,402 |
| Loma Linda | 987 | 1.9 | 589 | 535 | 627 | 1,015 | 1,037 |
| Private Label | 756 | 1.5 | 13 | 16 | 25 | 187 | 631 |
| Cutter | 527 | 1.0 | 0 | 0 | 0 | 381 | 331 |
| Jamieson | 471 | 0.9 | 0 | 0 | 6 | 87 | 319 |
| Lalco | 422 | 0.8 | 14 | 40 | 76 | 61 | 321 |

Source: IMS Canada.

## Table A4.10

### Top Four Ethical Pharmaceutical Manufacturers: Drugstore and Hospital Purchase Dollars, 1979 and 1984 ($000)

| | 1979 | 1984 | 1979 | 1984 | 1979 | | 1984 | |
|---|---|---|---|---|---|---|---|---|
| | Drg. % | Drg. % | Hos. % | Hos. % | $ Total | % | $ Total | % |
| Ethical Market | 100.0 | 100.0 | 100.0 | 100.0 | 833,857 | 100.00 | 1,851,438 | 100.0 |
| Ethical Analgesics | 5.9 | 6.0 | 3.1 | 2.9 | 44,688 | 5.4 | 100,770 | 5.4 |
| Frosst | 42.9 | 30.4 | 16.3 | 7.5 | 17,876 | 40.0 | 28,414 | 28.2 |
| J & J | 9.0 | 15.4 | 2.1 | 2.0 | 3,678 | 8.2 | 14,195 | 14.1 |
| McNeil | 10.3 | 10.2 | 2.7 | 4.8 | 4,228 | 9.5 | 9,786 | 9.7 |
| Sandoz | 9.8 | 7.9 | 1.1 | 1.0 | 3,959 | 8.9 | 7,299 | 7.2 |
| Four-Firm Totals | 72.0 | 63.9 | 22.2 | 15.3 | | 66.6 | | 59.2 |
| Antibiotics: Brd/Med. Spec. | 5.4 | 4.7 | 13.6 | 14.7 | 58,060 | 7.0 | 120,100 | 6.5 |
| Lilly | 9.2 | 15.1 | 24.6 | 27.5 | 8,658 | 14.9 | 24,235 | 20.2 |
| Ayerst | 22.8 | 15.4 | 8.1 | 4.9 | 10,049 | 17.3 | 13,351 | 11.1 |
| Frosst | 0.2 | 0.0 | 1.0 | 23.9 | 268 | 0.5 | 11,773 | 9.8 |
| Novopharm | 9.5 | 12.6 | 1.1 | 2.0 | 3,695 | 6.4 | 9,910 | 8.3 |
| | 41.7 | 43.0 | 34.8 | 58.3 | | 39.1 | | 49.4 |
| Antibiotics: Oral/Other | | | | | | | | |
| Penicillins | 0.8 | 0.6 | 0.6 | 0.2 | 6,478 | 0.8 | 9,028 | 0.5 |
| Ayerst | 23.0 | 27.0 | 31.3 | 27.0 | 1,560 | 24.1 | 2,440 | 27.0 |
| Novopharm | 16.7 | 25.1 | 3.5 | 22.8 | 965 | 14.9 | 2,248 | 24.9 |
| Frosst | 27.5 | 21.0 | 4.9 | 5.2 | 1,585 | 24.5 | 1,799 | 19.9 |
| Wyeth | 12.5 | 13.7 | 3.6 | 8.0 | 729 | 11.3 | 1,203 | 13.3 |
| | 79.7 | 86.8 | 43.3 | 63.0 | | 74.8 | | 85.1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Ataractics | 3.7 | 3.0 | 4.1 | 3.5 | 31,702 | 3.8 | 57,091 | 3.1 |
| Wyeth | 21.1 | 31.9 | 3.9 | 3.8 | 5,568 | 17.6 | 14,942 | 26.2 |
| McNeil | 7.7 | 8.9 | 23.3 | 25.6 | 3,456 | 10.9 | 7,040 | 12.3 |
| Roche | 22.3 | 12.0 | 12.7 | 6.1 | 6,438 | 20.3 | 6,171 | 10.8 |
| Rhône-Poulenc | 6.0 | 6.1 | 23.8 | 24.2 | 3,059 | 9.6 | 5,620 | 9.8 |
| | 57.1 | 58.9 | 63.7 | 59.7 | | 58.4 | | 59.1 |
| Bronchial Dilators | 2.6 | 3.6 | 1.9 | 2.0 | 20,616 | 2.5 | 60,728 | 3.3 |
| Allen & Hanburys | 46.3 | 49.8 | 55.6 | 60.1 | 9,825 | 47.7 | 30,934 | 50.9 |
| Astra | 3.5 | 21.1 | 2.5 | 9.0 | 698 | 3.4 | 11,996 | 19.8 |
| Boehringer | 8.7 | 8.5 | 5.8 | 11.2 | 1,698 | 8.2 | 5,323 | 8.8 |
| Parke-Davis | 21.7 | 6.9 | 10.2 | 2.4 | 4,121 | 20.0 | 3,910 | 6.4 |
| | 80.2 | 86.3 | 74.1 | 82.7 | | 79.3 | | 85.9 |
| Eth. Cough & Cold Preps | 5.3 | 4.4 | 0.5 | 0.2 | 36,782 | 4.4 | 67,203 | 3.6 |
| Robins | 15.8 | 15.5 | 26.2 | 20.6 | 5,907 | 16.1 | 10,459 | 15.6 |
| Parke-Davis | 15.4 | 15.2 | 3.6 | 9.6 | 5,574 | 15.2 | 10,161 | 15.1 |
| Ancalab | 11.1 | 10.5 | 2.4 | 2.2 | 4,033 | 11.0 | 6,996 | 10.4 |
| Dow Pharmaceutical | 10.7 | 10.3 | 15.2 | 4.4 | 3,958 | 10.8 | 6,864 | 10.2 |
| | 53.0 | 51.5 | 47.4 | 36.8 | | 53.1 | | 51.3 |
| Hematinics | 0.8 | 0.5 | 0.3 | 0.2 | 6,224 | 0.7 | 8,718 | 0.5 |
| Beecham | 13.4 | 17.5 | 9.1 | 10.0 | 812 | 13.0 | 1,479 | 17.0 |
| Ciba-Geigy | 7.2 | 12.4 | 3.8 | 6.0 | 430 | 6.9 | 1,039 | 11.9 |
| Bio-Chemical | 3.5 | 8.1 | 0.0 | 0.0 | 199 | 3.2 | 651 | 7.5 |
| Mead Johnson | 3.9 | 5.9 | 9.7 | 25.7 | 273 | 4.4 | 646 | 7.4 |
| | 28.0 | 43.9 | 22.6 | 41.7 | | 27.5 | | 43.8 |
| Sex Hormones | 5.7 | 6.3 | 0.8 | 0.6 | 39,630 | 4.8 | 98,402 | 5.3 |
| Wyeth | 31.4 | 38.2 | 5.4 | 12.1 | 12,101 | 30.5 | 37,048 | 37.7 |
| Ortho | 28.4 | 30.8 | 4.1 | 4.8 | 10,935 | 27.6 | 29,740 | 30.2 |
| Syntex | 9.6 | 7.5 | 3.0 | 2.5 | 3,709 | 9.4 | 7,251 | 7.4 |
| Ayerst | 10.7 | 6.5 | 10.3 | 10.0 | 4,227 | 10.7 | 6,431 | 6.5 |
| | 80.1 | 83.0 | 22.8 | 29.4 | | 78.2 | | 81.8 |

Table A4.10 (continued)

Top Four Ethical Pharmaceutical Manufacturers:
Drugstore and Hospital Purchase Dollars, 1979 and 1984
($000)

| | 1979 | 1984 | 1979 | 1984 | 1979 | | 1984 ($000) | |
|---|---|---|---|---|---|---|---|---|
| | Drg. % | Drg. % | Hos. % | Hos. % | $ Total | % | $ Total | % |
| Hormones: Pl. Corticoids | 2.6 | 2.2 | 2.7 | 2.2 | 21,898 | 2.6 | 40,468 | 2.2 |
| Glaxo | 20.9 | 22.9 | 5.3 | 4.2 | 3,902 | 17.8 | 7,858 | 19.4 |
| Schering | 16.8 | 17.3 | 6.5 | 7.6 | 3,227 | 14.7 | 6,266 | 15.5 |
| Upjohn | 6.6 | 5.4 | 57.3 | 56.5 | 3,635 | 16.6 | 5,996 | 14.8 |
| Syntex | 17.7 | 14.1 | 3.0 | 3.2 | 3,240 | 14.8 | 4,909 | 12.1 |
| | 62.0 | 59.7 | 72.1 | 71.5 | | 63.9 | | 61.8 |
| Hormones: Comb. Corticoids | 1.4 | 1.0 | 0.4 | 0.4 | 10,323 | 1.2 | 17,149 | 0.9 |
| Squibb | 28.2 | 21.3 | 18.5 | 9.8 | 2,847 | 27.6 | 3,505 | 20.4 |
| Calmic | 8.9 | 12.7 | 14.9 | 23.1 | 963 | 9.3 | 2,306 | 13.4 |
| Ciba | 12.0 | 12.2 | 7.5 | 7.9 | 1,210 | 11.7 | 2,043 | 11.9 |
| Schering | 7.7 | 10.3 | 9.3 | 6.6 | 809 | 7.8 | 1,719 | 10.0 |
| | 56.8 | 56.5 | 50.2 | 47.4 | | 56.4 | | 55.7 |
| Other Hypotensives | 1.7 | 1.6 | 0.9 | 0.8 | 12,785 | 1.5 | 27,588 | 1.5 |
| Ciba | 21.6 | 34.1 | 13.1 | 29.8 | 2,638 | 20.6 | 9,290 | 33.7 |
| Pfizer | 11.5 | 20.3 | 6.6 | 8.9 | 1,405 | 11.0 | 5,302 | 19.2 |
| MS&D | 42.0 | 18.7 | 28.3 | 23.5 | 5,174 | 40.5 | 5,281 | 19.1 |
| Boehringer | 13.0 | 9.7 | 1.9 | 3.1 | 1,504 | 11.8 | 2,498 | 9.1 |
| | 88.1 | 82.8 | 49.9 | 65.3 | | 83.9 | | 81.1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Ethical Laxatives | 2.4 | 2.0 | 1.8 | 1.5 | 18,799 | 2.3 | 35,593 | 1.9 |
| Searle | 34.6 | 30.6 | 10.1 | 7.5 | 5,801 | 30.9 | 9,691 | 27.2 |
| Hoechst | 5.5 | 8.4 | 6.5 | 9.5 | 1,068 | 5.7 | 3,062 | 8.6 |
| Purdue Frederick | 7.1 | 8.6 | 5.2 | 4.7 | 1,285 | 6.8 | 2,860 | 8.0 |
| Parke-Davis | 11.1 | 8.1 | 6.9 | 3.9 | 1,971 | 10.5 | 2,673 | 7.5 |
| | 58.3 | 55.7 | 28.7 | 25.6 | | 53.9 | | 51.3 |
| Vitamins | 5.5 | 3.8 | 1.0 | 0.7 | 38,647 | 4.6 | 60,535 | 3.3 |
| Life | 8.6 | 10.6 | 0.0 | 0.0 | 3,204 | 8.3 | 6,126 | 10.1 |
| Mead Johnson | 7.1 | 9.9 | 3.9 | 5.5 | 2,691 | 7.0 | 5,906 | 9.8 |
| Ayerst | 9.3 | 9.3 | 6.4 | 4.4 | 3,564 | 9.2 | 5,494 | 9.1 |
| Lederle | 2.4 | 8.4 | 3.6 | 2.4 | 961 | 2.5 | 4,949 | 8.2 |
| | 27.4 | 38.2 | 13.9 | 12.3 | | 27.0 | | 37.2 |
| Nutrients | 3.1 | 3.1 | 3.2 | 1.0 | 25,836 | 3.1 | 50,836 | 2.7 |
| Ross | 36.9 | 40.9 | 5.6 | 6.9 | 7,931 | 30.7 | 19,623 | 38.6 |
| Mead Johnson | 21.9 | 33.8 | 2.0 | 6.5 | 4,648 | 18.0 | 16,258 | 32.0 |
| Wyeth | 29.3 | 14.5 | 1.4 | 0.2 | 6,140 | 23.8 | 6,864 | 13.5 |
| Pharmacia | 0.0 | 0.0 | 88.6 | 55.7 | 4,528 | 17.5 | 1,928 | 3.8 |
| | 88.1 | 89.2 | 97.6 | 69.3 | | 90.0 | | 87.9 |

Source: IMS Canada.

Table A4.11

**Ranking in 1979-83 of Top Ten Ethical Pharmaceutical Manufacturers in 1984: Drugstore and Hospital Purchase Dollars ($000)**

| | 1984 | | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| | $ Total | % | Ranking | Ranking | Ranking | Ranking | Ranking |
| Ethical Market | 1,851,438 | 100.0 | | | | | |
| Ethical Analgesics | 100,770 | 5.4 | | | | | |
| Frosst | 28,414 | 28.2 | 1 | 1 | 1 | 1 | 1 |
| J & J | 14,195 | 14.1 | 4 | 3 | 3 | 3 | 2 |
| McNeil | 9,786 | 9.7 | 2 | 2 | 2 | 2 | 3 |
| Sandoz | 7,299 | 7.2 | 3 | 4 | 4 | 4 | 4 |
| Syntex | 4,073 | 4.0 | 70 | 26 | 14 | 7 | 8 |
| Mead Johnson | 4,025 | 4.0 | 10 | 10 | 9 | 10 | 6 |
| Winthrop | 3,825 | 3.8 | 5 | 5 | 5 | 5 | 5 |
| Du Pont | 3,489 | 3.5 | 8 | 7 | 8 | 6 | 7 |
| Private Label | 3,032 | 3.0 | 23 | 24 | 23 | 8 | 9 |
| Janssen | 2,818 | 2.8 | 12 | 12 | 11 | 12 | 11 |
| Antibiotics: Brd/Med. Spec. | 120,100 | 6.5 | | | | | |
| Lilly | 24235 | 20.2 | 2 | 1 | 1 | 1 | 1 |
| Ayerst | 13351 | 11.1 | 1 | 2 | 2 | 2 | 2 |
| Frosst | 11773 | 9.8 | 20 | 13 | 5 | 3 | 3 |
| Novopharm | 9910 | 8.3 | 6 | 5 | 3 | 4 | 5 |
| Abbott | 8,455 | 7.0 | 4 | 3 | 6 | 5 | 4 |
| Lederle | 7,501 | 6.2 | 11 | 9 | 9 | 8 | 7 |
| Upjohn | 6,093 | 5.1 | 5 | 4 | 4 | 6 | 6 |
| Pfizer | 5,913 | 4.9 | 12 | 10 | 8 | 7 | 8 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SKF | 4,694 | 3.9 | 15 | 16 | 14 | 13 | 11 |
| Bristol | 4,287 | 3.6 | 9 | 11 | 10 | 10 | 9 |
| Antibiotics: Oral/Other Penicillins | 9,028 | 0.5 | | | | | |
| Ayerst | 2,440 | 27.0 | 2 | 2 | 2 | 3 | 1 |
| Novopharm | 2,248 | 24.9 | 3 | 3 | 3 | 1 | 2 |
| Frosst | 1,799 | 19.9 | 1 | 1 | 1 | 2 | 3 |
| Wyeth | 1,203 | 13.3 | 4 | 4 | 4 | 4 | 4 |
| Lilly | 412 | 4.6 | 6 | 7 | 7 | 6 | 7 |
| Nadeau | 382 | 4.2 | 7 | 8 | 6 | 7 | 5 |
| Bristol | 371 | 4.1 | 5 | 5 | 5 | 5 | 6 |
| Organon | 58 | 0.6 | 12 | 10 | 12 | 11 | 8 |
| Lederle | 31 | 0.3 | 9 | 9 | 9 | 10 | 11 |
| Horner | 28 | 0.3 | 10 | 11 | 10 | 9 | 9 |
| Ataractics | 57,091 | 3.1 | | | | | |
| Wyeth | 14,942 | 26.2 | 2 | 1 | 1 | 1 | 1 |
| McNeil | 7,040 | 12.3 | 3 | 3 | 3 | 2 | 2 |
| Roche | 6,171 | 10.8 | 1 | 2 | 2 | 4 | 4 |
| Rhône-Poulenc | 5,620 | 9.8 | 6 | 5 | 5 | 3 | 3 |
| Abbott | 4,612 | 8.1 | 4 | 4 | 4 | 5 | 5 |
| Pfizer | 3,151 | 5.5 | 7 | 7 | 6 | 6 | 6 |
| Upjohn | 3,012 | 5.3 | 50 | 49 | 37 | 18 | 9 |
| Squibb | 2,569 | 4.5 | 6 | 6 | 7 | 7 | 7 |
| Sandoz | 1,535 | 2.7 | 9 | 8 | 8 | 8 | 8 |
| Bronchial Dilators | 60,728 | 3.3 | | | | | |
| Allen & Hanburys | 30,934 | 50.9 | 1 | 1 | 1 | 1 | 1 |
| Astra | 11,996 | 19.8 | 6 | 4 | 3 | 2 | 2 |
| Boehringer | 5,323 | 8.8 | 3 | 3 | 4 | 4 | 4 |
| Parke-Davis | 3,910 | 6.4 | 2 | 2 | 2 | 3 | 3 |
| Fisons | 1,735 | 2.9 | 13 | 12 | 12 | 8 | 6 |
| Purdue Frederick | 1,422 | 2.3 | 41 | 17 | 9 | 6 | 5 |
| Winthrop | 1,013 | 1.7 | 4 | 5 | 5 | 5 | 7 |

Table A4.11 (continued)

Ranking in 1979-83 of Top Ten Ethical Pharmaceutical Manufacturers in 1984:
Drugstore and Hospital Purchase Dollars
($000)

| | 1984 | | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| | $ Total | % | Ranking | Ranking | Ranking | Ranking | Ranking |
| Bristol | 835 | 1.4 | 9 | 9 | 10 | 12 | 9 |
| Riker | 663 | 1.1 | 7 | 8 | 7 | 7 | 8 |
| Rougier | 598 | 1.0 | 8 | 7 | 8 | 9 | 11 |
| Eth. Cough & Cold Preps | 67,208 | 3.6 | | | | | |
| Robins | 10,459 | 15.6 | 1 | 1 | 2 | 1 | 1 |
| Parke-Davis | 10,161 | 15.1 | 2 | 2 | 1 | 2 | 2 |
| Ancalab | 6,996 | 10.4 | 3 | 3 | 3 | 3 | 3 |
| Dow Pharmaceutical | 6,864 | 10.2 | 4 | 4 | 5 | 5 | 4 |
| B.W. | 5,566 | 8.3 | 5 | 5 | 4 | 4 | 5 |
| Schering | 4,717 | 7.0 | 6 | 6 | 6 | 6 | 6 |
| SKF | 4,416 | 6.6 | 7 | 7 | 8 | 8 | 7 |
| Ciba-Geigy | 3,476 | 5.2 | 9 | 8 | 7 | 7 | 8 |
| Allen & Hanburys | 3,183 | 4.7 | 8 | 9 | 9 | 9 | 9 |
| Syntex | 1,851 | 2.8 | 12 | 13 | 11 | 10 | 10 |
| Hematinics | 8,718 | 0.5 | | | | | |
| Beecham | 1,479 | 17.0 | 1 | 1 | 1 | 1 | 1 |
| Ciba-Geigy | 1,039 | 11.9 | 4 | 2 | 2 | 2 | 2 |
| Bio-Chemical | 651 | 7.5 | 12 | 7 | 5 | 3 | 4 |
| Mead Johnson | 646 | 7.4 | 8 | 4 | 6 | 4 | 5 |
| Herdt & Charton | 628 | 7.2 | 26 | 12 | 14 | 9 | 3 |
| Ciba | 563 | 6.5 | 9 | 9 | 7 | 7 | 7 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Abbott | 382 | 4.4 | 3 | 3 | 3 | 5 | 6 |
| Winthrop | 363 | 4.2 | 5 | 8 | 9 | 8 | 10 |
| Mfr Not Stated | 301 | 3.5 | 6 | 6 | 4 | 6 | 8 |
| Squibb | 274 | 3.1 | 7 | 5 | 8 | 11 | 9 |
| Sex Hormones | 98,402 | 5.3 | | | | | |
| Wyeth | 37,048 | 37.7 | 1 | 1 | 1 | 1 | 1 |
| Ortho | 29,740 | 30.2 | 2 | 2 | 2 | 2 | 2 |
| Syntex | 7,251 | 7.4 | 4 | 3 | 3 | 3 | 3 |
| Ayerst | 6,431 | 6.5 | 3 | 4 | 4 | 4 | 4 |
| Parke-Davis | 3,639 | 3.7 | 5 | 5 | 5 | 5 | 5 |
| Searle | 3,182 | 3.2 | 6 | 6 | 6 | 6 | 6 |
| Winthrop | 3,109 | 3.2 | 9 | 8 | 8 | 7 | 7 |
| Upjohn | 2,962 | 3.0 | 7 | 7 | 7 | 8 | 8 |
| Frosst | 762 | 0.8 | 10 | 9 | 9 | 9 | 9 |
| Ciba | 594 | 0.6 | 12 | 11 | 10 | 11 | 10 |
| Hormones: Pl. Corticoids | 40,468 | 2.2 | | | | | |
| Glaxo | 7,858 | 19.4 | 1 | 1 | 2 | 1 | 1 |
| Schering | 6,266 | 15.5 | 4 | 4 | 3 | 3 | 3 |
| Upjohn | 5,996 | 14.8 | 2 | 2 | 1 | 2 | 2 |
| Syntex | 4,909 | 12.1 | 3 | 3 | 4 | 4 | 4 |
| Squibb | 2,344 | 5.8 | 5 | 5 | 5 | 5 | 5 |
| Lederle | 1,727 | 4.3 | 7 | 7 | 7 | 6 | 6 |
| Allergan | 1,631 | 4.0 | 10 | 11 | 10 | 8 | 7 |
| Miles | 1,334 | 3.3 | 14 | 12 | 11 | 11 | 9 |
| MS&D | 1,185 | 2.9 | 6 | 6 | 6 | 7 | 8 |
| I.C.N. | 924 | 2.3 | 12 | 9 | 12 | 10 | 10 |
| Hormones: Comb. Corticoids | 17,149 | 0.9 | | | | | |
| Squibb | 3,505 | 20.4 | 1 | 1 | 1 | 1 | 1 |
| Calmic | 2,306 | 13.4 | 4 | 4 | 4 | 2 | 2 |
| Ciba | 2,043 | 11.9 | 3 | 2 | 2 | 3 | 3 |
| Schering | 1,719 | 10.0 | 5 | 6 | 6 | 5 | 4 |

Table A4.11 (continued)

Ranking in 1979-83 of Top Ten Ethical Pharmaceutical Manufacturers in 1984:
Drugstore and Hospital Purchase Dollars
($000)

| | 1984 | | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| | $ Total | % | Ranking | Ranking | Ranking | Ranking | Ranking |
| Roussel | 1,448 | 8.4 | 6 | 5 | 5 | 6 | 6 |
| Upjohn | 1,446 | 8.4 | 2 | 3 | 3 | 4 | 5 |
| Parke-Davis | 732 | 4.3 | 7 | 7 | 7 | 7 | 8 |
| Syntex | 584 | 3.4 | 12 | 8 | 8 | 8 | 9 |
| Trans Canada | 561 | 3.3 | 30 | 42 | 37 | 13 | 12 |
| Allergan | 538 | 3.1 | 8 | 9 | 9 | 10 | 10 |
| Other Hypotensives | 27588 | 1.5 | | | | | |
| Ciba | 9,290 | 33.7 | 2 | 2 | 2 | 1 | 1 |
| Pfizer | 5,302 | 19.2 | 4 | 3 | 3 | 3 | 3 |
| MS&D | 5,261 | 19.1 | 1 | 1 | 1 | 2 | 2 |
| Boehringer | 2,498 | 9.1 | 3 | 4 | 4 | 4 | 4 |
| Novopharm | 1,949 | 7.1 | 5 | 5 | 5 | 5 | 5 |
| Apotex | 1,448 | 5.2 | 10 | 9 | 8 | 7 | 6 |
| Roche | 657 | 2.4 | 6 | 6 | 6 | 6 | 7 |
| Upjohn | 424 | 1.5 | 21 | 13 | 11 | 12 | 9 |
| I.C.N. | 270 | 1.0 | 7 | 7 | 9 | 9 | 10 |
| Drug Trading | 209 | 0.8 | 18 | 11 | 7 | 8 | 8 |
| Ethical Laxatives | 35,593 | 1.9 | | | | | |
| Searle | 9,691 | 27.2 | 1 | 1 | 1 | 1 | 1 |
| Hoechst | 3,062 | 8.6 | 6 | 5 | 6 | 6 | 3 |
| Purdue Frederick | 2,860 | 8.0 | 4 | 3 | 3 | 3 | 4 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Parke-Davis | 2,673 | 7.5 | 2 | 2 | 2 | 2 | 2 |
| Frosst | 2,655 | 7.5 | 7 | 6 | 4 | 5 | 6 |
| Boehringer | 2,159 | 6.1 | 3 | 4 | 5 | 6 | 5 |
| Bristol | 1,737 | 4.9 | 5 | 7 | 8 | 7 | 7 |
| Merrell | 1,170 | 3.3 | 14 | 15 | 12 | 11 | 11 |
| Mfr Not Stated | 1,048 | 2.9 | 8 | 8 | 7 | 8 | 9 |
| Rorer | 983 | 2.8 | 68 | 62 | 73 | 16 | 13 |
| Vitamins | 60,535 | 3.3 | | | | | |
| Life | 6,126 | 10.1 | 4 | 3 | 1 | 5 | 5 |
| Mead Johnson | 5,906 | 9.8 | 5 | 5 | 5 | 4 | 6 |
| Ayerst | 5,949 | 9.1 | 3 | 1 | 2 | 3 | 2 |
| Lederle | 4,949 | 8.2 | 13 | 8 | 6 | 7 | 7 |
| Wampole | 4,572 | 7.6 | 1 | 2 | 4 | 1 | 4 |
| Private Label | 4,479 | 7.4 | 15 | 15 | 13 | 6 | 1 |
| Mfr Not Stated | 3,333 | 5.5 | 2 | 4 | 3 | 2 | 3 |
| Robins | 2,548 | 4.2 | 8 | 6 | 7 | 8 | 6 |
| Abbott | 1768 | 2.9 | 6 | 7 | 8 | 9 | 9 |
| Dow Pharmaceutical | 1738 | 2.9 | 12 | 12 | 9 | 13 | 13 |
| Nutrients | 50836 | 2.7 | | | | | |
| Ross | 19628 | 38.6 | 1 | 1 | 1 | 1 | 1 |
| Mead Johnson | 16258 | 32.0 | 3 | 2 | 2 | 2 | 2 |
| Wyeth | 6864 | 13.5 | 2 | 3 | 3 | 3 | 3 |
| Pharmacia | 1928 | 3.8 | 4 | 4 | 4 | 4 | 4 |
| Mfr Not Stated | 1212 | 2.4 | 5 | 5 | 5 | 5 | 5 |
| Loma Linda | 987 | 1.9 | 6 | 6 | 6 | 6 | 6 |
| Private Label | 756 | 1.5 | 26 | 23 | 19 | 9 | 8 |
| Cutter | 527 | 1.0 | 47 | 52 | 46 | 8 | 9 |
| Jamieson | 471 | 0.9 | 49 | 41 | 26 | 15 | 11 |
| Lalco | 422 | 0.8 | 25 | 14 | 11 | 18 | 10 |

Table A4.11 (continued)

Ranking in 1979-83 of Top Ten Ethical Pharmaceutical Manufacturers in 1984:
Drugstore and Hospital Purchase Dollars
($000)

| | 1984 | | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| | $ Total | % | Ranking | Ranking | Ranking | Ranking | Ranking |
| All Other OTC | 1,097,223 | 59.3 | | | | | |
| MS&D | 58,842 | 5.4 | 3 | 3 | 3 | 2 | 1 |
| Geigy | 53,746 | 4.9 | 5 | 5 | 4 | 4 | 2 |
| Travenol | 41,078 | 3.7 | 4 | 4 | 2 | 3 | 5 |
| Pfizer | 36,327 | 3.3 | 34 | 31 | 10 | 5 | 4 |
| Rhône-Poulenc | 32,830 | 3.0 | 15 | 15 | 14 | 12 | 8 |
| Ayerst | 32,531 | 3.0 | 2 | 2 | 5 | 7 | 7 |
| SRK | 32,211 | 2.9 | 1 | 1 | 1 | 1 | 3 |
| Upjohn | 31,333 | 2.9 | 11 | 9 | 8 | 8 | 6 |
| Squibb | 30,643 | 2.8 | 24 | 17 | 21 | 14 | 12 |
| Miles | 28,763 | 2.6 | 37 | 43 | 43 | 21 | 11 |

Source: IMS Canada.

## Table A4.12

### 1982 Ethical Market Total Sales, Drugstore Sales, Hospital Sales, Market Shares and % of Direct and Indirect Sales to Drugstores and Hospitals Listed in Order of Size of Company (Value of Total Sales)

| | Company Name | Total Sales ($000s) | Share of Total Market (%) | Sales to Drugstores ($000s) | Share of Drugstore Market (%) | Sales to Hospitals ($000s) | Share of Hospital Market (%) | Sale to Drugstores | | Sales to Hospitals | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | % Direct | % Indirect | % Direct | % Indirect |
| 1 | American Home Products | 94,704 | 7.07 | 86,492 | 7.92 | 8,212 | 3.33 | 82.27 | 17.73 | 82.90 | 17.10 |
| 2 | Merck, Sharp & Dohme | 92,172 | 6.88 | 79,323 | 7.26 | 12,848 | 5.21 | 48.78 | 51.22 | 58.82 | 41.18 |
| 3 | SmithKline | 63,766 | 4.76 | 56,934 | 5.21 | 6,832 | 2.77 | 39.77 | 60.23 | 74.78 | 25.22 |
| 4 | Ciba-Geigy | 62,121 | 4.64 | 59,218 | 5.42 | 2,903 | 1.18 | 67.66 | 32.34 | 61.16 | 38.84 |
| 5 | Abbott | 55,781 | 4.17 | 35,575 | 3.26 | 20,206 | 8.19 | 55.39 | 44.61 | 88.56 | 11.44 |
| 6 | J. & J. | 55,514 | 4.15 | 52,210 | 4.78 | 3,304 | 1.34 | 22.46 | 77.54 | 61.11 | 38.89 |
| 7 | Pfizer | 44,304 | 3.31 | 42,381 | 3.88 | 1,923 | 0.78 | 25.18 | 74.82 | 61.92 | 38.08 |
| 8 | Syntex | 43,767 | 3.27 | 42,618 | 3.90 | 1,149 | 0.47 | 10.19 | 89.81 | 56.72 | 43.28 |
| 9 | Warner-Lambert | 40,777 | 3.05 | 36,793 | 3.37 | 3,984 | 1.61 | 58.38 | 41.62 | 76.40 | 23.60 |
| 10 | Bristol-Myers | 40,512 | 3.03 | 26,977 | 2.47 | 13,535 | 5.49 | 24.87 | 75.13 | 30.24 | 69.76 |
| 11 | Glaxo Canada Ltd. | 38,773 | 2.90 | 32,334 | 2.96 | 6,439 | 2.61 | 49.10 | 50.90 | 78.29 | 21.71 |
| 12 | Upjohn | 37,949 | 2.83 | 28,346 | 2.60 | 9,603 | 3.89 | 74.44 | 25.56 | 81.57 | 18.43 |
| 13 | Sandoz | 35,150 | 2.63 | 32,857 | 3.01 | 2,293 | 0.93 | 14.56 | 85.44 | 68.90 | 31.10 |
| 14 | Baxter Labs | 34,924 | 2.61 | 1,706 | 0.16 | 33,222 | 13.46 | 11.08 | 88.92 | 98.70 | 1.30 |
| 15 | Lilly | 30,512 | 2.28 | 15,822 | 1.45 | 14,691 | 5.95 | 14.52 | 85.48 | 74.68 | 25.32 |
| 16 | Searle | 28,129 | 2.10 | 26,305 | 2.41 | 1,824 | 0.74 | 48.91 | 51.09 | 73.59 | 26.41 |
| 17 | Squibb | 27,769 | 2.07 | 22,105 | 2.02 | 5,664 | 2.30 | 76.28 | 23.72 | 84.47 | 15.53 |
| 18 | B.W. | 25,768 | 1.92 | 20,914 | 1.91 | 4,854 | 1.97 | 22.53 | 77.47 | 49.86 | 50.14 |
| 19 | Schering | 25,579 | 1.91 | 21,855 | 2.00 | 3,724 | 1.51 | 41.52 | 58.48 | 80.15 | 19.85 |
| 20 | Rhône-Poulenc | 23,716 | 1.77 | 16,613 | 1.52 | 7,103 | 2.88 | 23.90 | 76.10 | 74.36 | 25.64 |
| 21 | Carter | 22,725 | 1.70 | 20,150 | 1.85 | 2,575 | 1.04 | 74.03 | 25.97 | 81.46 | 18.54 |
| 22 | Novopharm | 22,296 | 1.67 | 20,965 | 1.92 | 1,332 | 0.54 | 60.56 | 39.44 | 84.52 | 15.48 |
| 23 | Roche | 21,507 | 1.61 | 17,213 | 1.58 | 4,294 | 1.74 | 29.97 | 70.03 | 79.50 | 20.50 |
| 24 | Astra | 17,513 | 1.31 | 13,327 | 1.22 | 4,186 | 1.70 | 50.15 | 49.85 | 77.31 | 22.69 |
| 25 | Sterling | 16,125 | 1.20 | 11,166 | 1.02 | 4,959 | 2.01 | 61.46 | 38.54 | 83.72 | 16.28 |
| 26 | Ames | 15,972 | 1.19 | 14,188 | 1.30 | 1,785 | 0.72 | 18.07 | 81.93 | 37.97 | 62.03 |

Table A4.12 (continued)

**1982 Ethical Market Total Sales, Drugstore Sales, Hospital Sales, Market Shares and % of Direct and Indirect Sales to Drugstores and Hospitals Listed in Order of Size of Company (Value of Total Sales)**

| | Company Name | Total Sales ($000s) | Share of Total Market (%) | Sales to Drugstores ($000s) | Share of Drugstore Market (%) | Sales to Hospitals ($000s) | Share of Hospital Market (%) | Sale to Drugstores | | Sales to Hospitals | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | % Direct | % Indirect | % Direct | % Indirect |
| 27 | Robins | 15,365 | 1.15 | 14,786 | 1.35 | 580 | 0.23 | 8.86 | 91.14 | 59.04 | 40.96 |
| 28 | Lederle | 15,122 | 1.13 | 11,133 | 1.02 | 3,989 | 1.62 | 59.32 | 40.68 | 82.20 | 17.80 |
| 29 | Boehringer | 14,999 | 1.12 | 13,936 | 1.28 | 1,063 | 0.43 | 15.53 | 84.47 | 55.96 | 44.04 |
| 30 | Roussel | 11,638 | 0.87 | 7,456 | 0.68 | 4,182 | 1.69 | 15.64 | 84.36 | 65.61 | 34.39 |
| 31 | Connaught | 10,746 | 0.80 | 9,806 | 0.90 | 940 | 0.38 | 12.50 | 87.50 | 3.24 | 96.76 |
| 32 | Hoechst | 9,617 | 0.72 | 7,250 | 0.66 | 2,367 | 0.96 | 24.19 | 75.81 | 64.30 | 35.70 |
| 33 | Dow Pharmaceutical | 9,565 | 0.71 | 9,056 | 0.83 | 509 | 0.21 | 37.38 | 62.62 | 53.01 | 46.99 |
| 34 | Apotex | 9,498 | 0.71 | 9,105 | 0.83 | 392 | 0.16 | 57.29 | 42.71 | 84.25 | 15.75 |
| 35 | Richardson-Merrell | 8,980 | 0.67 | 8,334 | 0.76 | 646 | 0.26 | 12.60 | 87.40 | 54.83 | 45.17 |
| 36 | Rorer Canada | 8,179 | 0.61 | 8,117 | 0.74 | 62 | 0.03 | 15.52 | 84.48 | 44.40 | 55.60 |
| 37 | International Chem. & Nuclear | 7,711 | 0.58 | 6,339 | 0.58 | 1,372 | 0.56 | 16.37 | 83.63 | 77.59 | 22.41 |
| 38 | Beecham | 7,399 | 0.55 | 3,439 | 0.31 | 3,959 | 1.60 | 18.24 | 81.76 | 83.78 | 16.22 |
| 39 | Wampole | 7,131 | 0.53 | 6,692 | 0.61 | 439 | 0.18 | 74.24 | 25.76 | 54.65 | 45.35 |
| 40 | Nordic | 6,975 | 0.52 | 6,538 | 0.60 | 437 | 0.18 | 25.37 | 74.63 | 41.37 | 58.63 |
| 41 | Adria Labs | 6,809 | 0.51 | 819 | 0.07 | 5,990 | 2.43 | 8.10 | 91.90 | 75.34 | 24.66 |
| 42 | Revlon Health Group | 6,713 | 0.50 | 5,363 | 0.49 | 1,350 | 0.55 | 34.42 | 65.58 | 57.73 | 42.27 |
| 43 | Organon | 6,447 | 0.48 | 2,350 | 0.22 | 4,096 | 1.66 | 15.90 | 84.10 | 76.08 | 23.92 |
| 44 | Fisons | 6,210 | 0.46 | 5,864 | 0.54 | 346 | 0.14 | 10.08 | 89.92 | 53.30 | 46.70 |
| 45 | Pharmacia | 6,065 | 0.45 | 2,544 | 0.23 | 3,521 | 1.43 | 7.33 | 92.67 | 86.69 | 13.31 |
| 46 | Alcon Labs | 5,820 | 0.43 | 4,882 | 0.45 | 938 | 0.38 | 20.41 | 79.59 | 68.04 | 31.96 |
| 47 | Dupont Pharm | 5,287 | 0.39 | 3,881 | 0.36 | 1,407 | 0.57 | 16.42 | 83.58 | 68.06 | 31.94 |
| 48 | Cooper Labs | 5,229 | 0.39 | 4,696 | 0.43 | 534 | 0.22 | 22.36 | 77.64 | 60.67 | 39.33 |
| 49 | Rougier-Desbergers | 4,973 | 0.37 | 3,827 | 0.35 | 1,146 | 0.46 | 17.95 | 82.05 | 74.17 | 25.83 |
| 50 | ICI | 4,712 | 0.35 | 3,270 | 0.30 | 1,442 | 0.58 | 0.00 | 100.00 | 0.65 | 99.35 |
| 51 | Life | 4,701 | 0.35 | 4,699 | 0.43 | 2 | 0.00 | 0.09 | 99.91 | 0.00 | 100.00 |
| 52 | Pennwalt | 4,544 | 0.34 | 4,382 | 0.40 | 162 | 0.07 | 15.73 | 84.27 | 34.09 | 65.91 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 53 | Janssen | 4,467 | 0.33 | 2,565 | 0.23 | 1,902 | 0.77 | 9.86 | 90.14 | 72.84 | 27.16 |
| 54 | Purdue Frederick | 4,405 | 0.33 | 4,010 | 0.37 | 395 | 0.16 | 19.30 | 80.70 | 68.64 | 31.36 |
| 55 | Norwich | 4,206 | 0.31 | 3,188 | 0.29 | 1,018 | 0.41 | 13.07 | 86.93 | 10.74 | 89.26 |
| 56 | Stiefel | 4,128 | 0.31 | 4,035 | 0.37 | 92 | 0.04 | 14.22 | 85.78 | 26.11 | 73.89 |
| 57 | Smith & Nephew | 3,583 | 0.27 | 2,083 | 0.19 | 1,500 | 0.61 | 42.66 | 57.34 | 80.84 | 19.16 |
| 58 | Drug Trading | 3,420 | 0.26 | 3,227 | 0.30 | 193 | 0.08 | 0.00 | 100.00 | 0.00 | 100.00 |
| 59 | Schmid | 3,181 | 0.24 | 3,180 | 0.29 | 1 | 0.00 | 52.67 | 47.33 | 0.00 | 100.00 |
| 60 | 3M | 2,574 | 0.19 | 2,358 | 0.22 | 216 | 0.09 | 12.03 | 87.97 | 58.29 | 41.71 |
| 61 | Pentagone | 1,999 | 0.15 | 1,703 | 0.16 | 296 | 0.12 | 2.35 | 97.65 | 55.79 | 44.21 |
| 62 | Doak | 1,856 | 0.14 | 1,763 | 0.16 | 93 | 0.04 | 11.14 | 88.86 | 0.06 | 99.94 |
| 63 | Reed & Carnrick | 1,603 | 0.12 | 1,558 | 0.14 | 45 | 0.02 | 10.45 | 89.55 | 0.77 | 99.23 |
| 64 | Ohio | 1,597 | 0.12 | 0 | 0.00 | 1,597 | 0.65 | NA | NA | NA | NA |
| 65 | Cutter | 1,544 | 0.12 | 14 | 0.00 | 1,531 | 0.62 | NA | NA | NA | NA |
| 66 | Webber | 1,473 | 0.11 | 1,459 | 0.13 | 14 | 0.01 | 51.90 | 48.10 | 2.67 | 97.33 |
| 67 | Kremers-Urban | 1,406 | 0.11 | 1,129 | 0.10 | 277 | 0.11 | 3.87 | 96.13 | 11.09 | 88.91 |
| 68 | Stanley | 1,367 | 0.10 | 1,342 | 0.12 | 25 | 0.01 | 4.85 | 95.15 | 5.50 | 94.50 |
| 69 | Herdt & Charton | 1,057 | 0.08 | 1,039 | 0.10 | 18 | 0.01 | 21.64 | 78.36 | 23.88 | 76.12 |
| 70 | Bausch & Lomb | 1,047 | 0.08 | 1,046 | 0.10 | 1 | 0.00 | 2.08 | 97.92 | 0.00 | 100.00 |
| 71 | Loma Linda | 1,015 | 0.08 | 1,015 | 0.09 | 0 | 0.00 | 20.10 | 79.90 | 0.00 | 100.00 |
| 72 | Atlas | 932 | 0.07 | 818 | 0.07 | 114 | 0.05 | 0.00 | 100.00 | 7.41 | 92.59 |
| 73 | Jamieson | 929 | 0.07 | 928 | 0.08 | 1 | 0.00 | 88.55 | 11.45 | 0.00 | 100.00 |
| 74 | I.D.A. | 887 | 0.07 | 885 | 0.08 | 2 | 0.00 | 0.00 | 100.00 | 0.00 | 100.00 |
| 75 | Sabex | 864 | 0.06 | 829 | 0.08 | 35 | 0.01 | 0.14 | 99.86 | 37.14 | 62.86 |
| 76 | Certified | 800 | 0.06 | 736 | 0.07 | 64 | 0.03 | 0.00 | 100.00 | 0.00 | 100.00 |
| 77 | Owen Labs | 747 | 0.06 | 737 | 0.07 | 10 | 0.00 | 9.95 | 90.05 | 0.00 | 100.00 |
| 78 | Anglo French | 680 | 0.05 | 595 | 0.05 | 85 | 0.03 | 34.04 | 65.96 | 87.39 | 12.61 |
| 79 | Bio-Chemical | 596 | 0.04 | 569 | 0.05 | 27 | 0.01 | 24.06 | 75.40 | 0.00 | 100.00 |
| 80 | Gerber | 557 | 0.04 | 557 | 0.05 | 0 | 0.00 | 84.55 | 15.45 | 0.00 | 0.00 |
| 81 | Neo | 538 | 0.04 | 516 | 0.05 | 22 | 0.01 | 19.42 | 80.58 | 64.12 | 35.88 |
| 82 | Lalco | 516 | 0.04 | 516 | 0.05 | 0 | 0.00 | 18.93 | 81.07 | 0.00 | 0.00 |

Source: IMS Canada.

## Table A4.13

**1982 Proprietary Market Total Sales, Drugstore Sales, Hospital Sales, Market Shares and % Direct and Indirect Sales to Drugstores and Hospitals Listed in Order of Size of Company (Value of Total Sales)**

| | Company Name | Total Sales ($000s) | Share of Total Market (%) | Sales to Drugstores ($000s) | Share of Drugstore Market (%) | Sales to Hospitals ($000s) | Share of Hospital Market (%) | Sales to Drugstores | | Sales to Hospitals | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | % Direct | % Indirect | % Direct | % Indirect |
| 1 | American Home Products | 11,550 | 10.44 | 11,246 | 10.38 | 303 | 13.71 | 72.20 | 27.80 | 88.66 | 11.34 |
| 2 | Sterling | 9,402 | 8.50 | 9,383 | 8.66 | 19 | 0.87 | 59.35 | 40.65 | 20.55 | 79.45 |
| 3 | Richardson-Merrell | 8,552 | 7.73 | 8,203 | 7.57 | 348 | 15.74 | 65.33 | 34.67 | 65.14 | 34.86 |
| 4 | Schering | 7,796 | 7.05 | 7,782 | 7.18 | 15 | 0.67 | 57.21 | 42.79 | 35.59 | 64.41 |
| 5 | Warner-Lambert | 5,885 | 5.32 | 5,870 | 5.42 | 15 | 0.68 | 57.61 | 42.39 | 76.88 | 23.12 |
| 6 | J. & J. | 5,194 | 4.70 | 5,082 | 4.69 | 111 | 5.04 | 42.36 | 57.64 | 84.32 | 15.68 |
| 7 | Block | 4,947 | 4.47 | 4,937 | 4.56 | 10 | 0.47 | 55.92 | 44.08 | 73.24 | 26.76 |
| 8 | Ames | 3,378 | 3.05 | 3,377 | 3.12 | 1 | 0.04 | 59.98 | 40.11 | 0.00 | 100.00 |
| 9 | Procter & Gamble | 3,093 | 2.80 | 3,093 | 2.85 | 0 | 0.00 | 49.75 | 50.25 | 0.00 | 0.00 |
| 10 | Salada | 2,622 | 2.37 | 2,622 | 2.42 | 0 | 0.00 | 25.09 | 74.91 | 0.00 | 0.00 |
| 11 | SmithKline | 2,179 | 1.97 | 2,178 | 2.01 | 1 | 0.06 | 37.82 | 62.18 | 0.00 | 100.00 |
| 12 | Ex-Lax Inc. | 1,870 | 1.69 | 1,858 | 1.71 | 12 | 0.54 | 34.41 | 65.59 | 0.00 | 100.00 |
| 13 | Chesebrough | 1,636 | 1.48 | 1,364 | 1.26 | 273 | 12.32 | 34.66 | 65.34 | 76.17 | 23.83 |
| 14 | Searle | 1,634 | 1.48 | 1,621 | 1.50 | 14 | 0.61 | 79.52 | 20.48 | 56.21 | 43.79 |
| 15 | Max Factor | 1,473 | 1.33 | 1,460 | 1.35 | 14 | 0.62 | 14.64 | 85.36 | 0.00 | 100.00 |
| 16 | Abbott | 1,232 | 1.11 | 1,144 | 1.06 | 88 | 3.96 | 69.70 | 30.30 | 88.65 | 11.35 |
| 17 | Williams, J.B. | 1,216 | 1.10 | 1,211 | 1.12 | 4 | 0.19 | 40.05 | 59.95 | 0.00 | 100.00 |
| 18 | Beecham | 1,090 | 0.99 | 1,090 | 1.01 | 1 | 0.03 | 30.15 | 69.85 | 0.00 | 100.00 |
| 19 | Rorer Canada | 1,081 | 0.98 | 1,081 | 1.00 | 0 | 0.01 | 22.86 | 77.14 | 0.00 | 100.00 |
| 20 | Bristol-Myers | 1,077 | 0.97 | 1,074 | 0.99 | 3 | 0.15 | 33.39 | 66.61 | 0.00 | 100.00 |
| 21 | B.W. | 1,053 | 0.95 | 904 | 0.83 | 148 | 6.71 | 40.84 | 59.16 | 57.50 | 42.50 |
| 22 | Stella Pharm | 1,017 | 0.92 | 1,017 | 0.94 | 0 | 0.00 | 38.89 | 61.11 | 0.00 | 100.00 |
| 23 | Noxell | 1,009 | 0.91 | 1,009 | 0.93 | 0 | 0.00 | 60.99 | 39.01 | 0.00 | 100.00 |
| 24 | Wampole | 915 | 0.83 | 877 | 0.81 | 38 | 1.71 | 58.98 | 41.02 | 65.73 | 34.27 |
| 25 | Norwich | 894 | 0.81 | 892 | 0.82 | 1 | 0.06 | 34.69 | 65.31 | 80.14 | 19.86 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | Maltby | 887 | 0.80 | 887 | 0.82 | 0 | 0.02 | 66.28 | 33.72 | 0.00 | 100.00 |
| 27 | Combe | 847 | 0.77 | 847 | 0.78 | 0 | 0.00 | 47.76 | 52.24 | 0.00 | 100.00 |
| 28 | Commerce Drug | 823 | 0.74 | 822 | 0.76 | 0 | 0.02 | 33.14 | 66.86 | 0.00 | 100.00 |
| 29 | Mentholatum | 795 | 0.72 | 794 | 0.73 | 0 | 0.02 | 29.18 | 70.82 | 0.00 | 100.00 |
| 30 | W.F. Young | 770 | 0.70 | 770 | 0.71 | 0 | 0.00 | 15.02 | 84.98 | 0.00 | 100.00 |
| 31 | Cooper Labs | 762 | 0.69 | 754 | 0.70 | 8 | 0.38 | 25.62 | 74.38 | 10.03 | 89.97 |
| 32 | Lewis Howe | 723 | 0.65 | 723 | 0.67 | 0 | 0.00 | 32.39 | 67.61 | 0.00 | 100.00 |
| 33 | Ciba-Geigy | 676 | 0.61 | 637 | 0.59 | 40 | 1.79 | 51.09 | 48.91 | 71.10 | 28.90 |
| 34 | Glaxo Canada Ltd. | 663 | 0.60 | 561 | 0.52 | 102 | 4.59 | 58.20 | 41.80 | 84.09 | 15.91 |
| 35 | Squibb | 588 | 0.53 | 587 | 0.54 | 0 | 0.01 | 54.22 | 45.78 | 100.00 | 0.00 |
| 36 | Pfizer | 580 | 0.52 | 567 | 0.52 | 14 | 0.62 | 26.38 | 73.62 | 8.15 | 91.85 |
| 37 | Hilary | 568 | 0.51 | 563 | 0.52 | 6 | 0.26 | 24.62 | 75.38 | 0.00 | 100.00 |
| 38 | Drug Trading | 555 | 0.50 | 545 | 0.50 | 10 | 0.45 | 38.18 | 61.82 | 0.00 | 100.00 |
| 39 | Buckley | 550 | 0.50 | 550 | 0.51 | 0 | 0.00 | 34.83 | 65.17 | 0.00 | 0.00 |
| 40 | Life | 513 | 0.46 | 513 | 0.47 | 0 | 0.00 | 0.07 | 99.93 | 0.00 | 100.00 |

Source: IMS Canada.

## Table A4.14

### Drug Wholesalers' Sales and Markets:[a] Canada, 1979

| Wholesaler | Estimated Sales ($000) | Percentage of Total Sales | Estimated No. of Stores Serviced |
|---|---|---|---|
| Drug Trading[b] | 171,644 | 16.2 | 1,500 |
| National Drug | 160,437 | 15.1 | 5,000 |
| Les Pharmacies Universelles[b] | 82,690 | 7.8 | 1,250 |
| Georges Painchaud | 70,000 | 6.6 | 400 |
| Northwest Drug[b] | 26,000 | 2.4 | 500 |
| Southwestern Drug Warehouse | 24,000 | 2.3 | 470 |
| United Pharmacists | 20,000 | 1.9 | 150 |
| Fraserville Drug | 20,000 | 1.9 | 475 |
| Sorex | 19,000 | 1.8 | 300 |
| West Coast Drugs | 10,000 | 0.9 | 75 |
| Gerald S. Doyle | 10,000 | 0.9 | 107 |
| Dale Laboratories | 8,000 | 0.8 | 200 |
| Brathwaites | 7,000 | 0.7 | 400 |
| M.F. McMahon | 6,000 | 0.6 | — |
| Pacific Coast Wholesale Drugs | 5,141 | 0.5 | 300 |
| Courtney Drug (Wholesale) | 5,000 | 0.5 | — |
| Total | 1,600,000 | 100.0 | |

[a] Sales of $5 million and over.
[b] Retailer-owned cooperative.

Source: Statistics Canada, Distribution Services Branch, *Profile: Drug Distribution*, October 1982.

## Table A4.15

### Drug Retailers' Sales and Markets: Canada, 1979

| Retailer | Estimated Sales ($000) | Percentage of Total Sales | Number of Outlets |
|---|---|---|---|
| Shoppers Drug Mart[a,b] | 380[f] | 16.3 | 362 |
| Uniprix[c] | 130 | 5.6 | 290 |
| London Drug | 114[f] | 4.9 | 13 |
| I.D.A.[c] | 109[f] | 4.7 | 225 |
| Boots Drug Stores (Canada) | 96 | 4.1 | 102 |
| Farmico | 80 | 3.4 | 39 |
| Jack Austin Drugs[d] | 62 | 2.7 | 93 |
| Boots Drug Stores (Western) | 58 | 2.5 | 51 |
| Guardian Drug Stores[c] | 58 | 2.5 | 119 |
| Big V Pharmacies | 45 | 1.9 | 48 |
| Pharmaprix[a,b] | 38[f] | 1.6 | 35 |
| Associated Retail Pharmacies[b] | 32 | 1.4 | 65 |
| Foremost Pharmacists' Co-op. Ass'n | 28 | 1.2 | 45 |
| Kent Drugs[d] | 26 | 1.1 | 45 |
| United Pharmacies | 25 | 1.1 | 50 |
| Cumberland Drugs[b] | 20 | 0.9 | 13 |
| White Cross Pharmacy | 20 | 0.9 | 33 |
| Balcolm Chittick | 17 | 0.7 | 29 |
| Super X[b] | 17[f] | 0.7 | 34 |
| IRDA[c] | 10 | 0.4 | 100 |
| Western Drug Marts[a,b] | 10[f] | 0.4 | 21 |
| Pinders Drugs | 9[f] | 0.4 | 18 |
| Safeguard Drugs | 9[f] | 0.4 | 13 |
| Metro Drugs Manitoba | 8[f] | 0.3 | 17 |
| The Saskatoon Drug and Stationery Co. | 8[f] | 0.3 | 17 |
| Newfoundland Drugs | 7 | 0.3 | 12 |
| McGill and Orme | 6[f] | 0.3 | 12 |
| Peoples Choice Discount Drugs | 6 | 0.3 | 13 |
| Baydala Drug Company | 5 | 0.2 | 6 |
| Drug World | 5 | 0.2 | 7 |
| Smith's Drug Store | 5 | 0.2 | 9 |

[a] Franchised by Koffler Stores Ltd.
[b] Franchise chain.
[c] Voluntary group.
[d] Mainly servicing department stores.
[e] Sales of $5 million and over.
[f] DSB Estimate.

Source: Statistics Canada, Distribution Services Branch, *Profile: Drug Distribution*, October 1982.

## Table A4.16

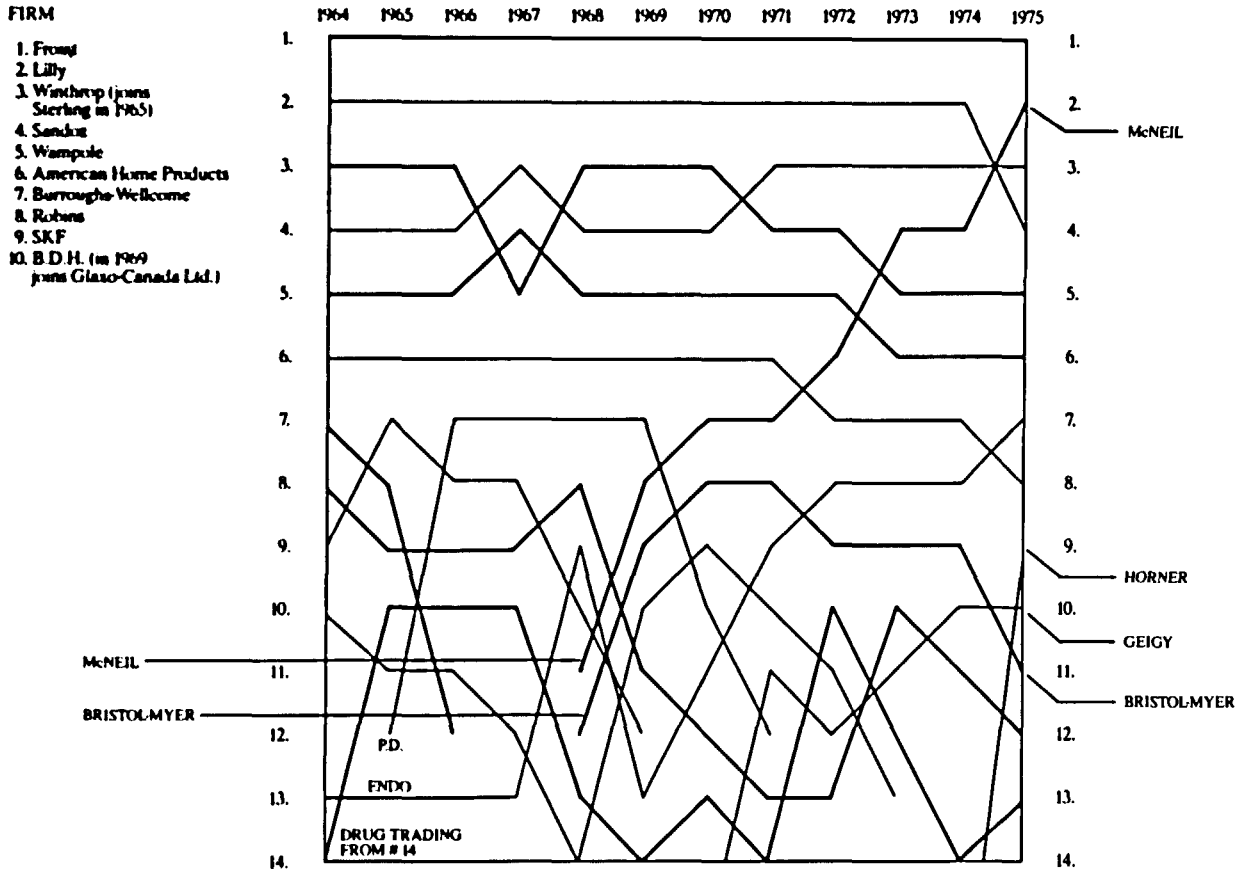
### Number of Pharmacy Outlets by Class of Outlet: Canada and the Provinces, 1979

| | Independents | Chain | Department Store Dispensaries | Total Pharmacies | Population Served/ Pharmacy |
|---|---|---|---|---|---|
| Newfoundland | 87 | 29 | 8 | 124 | 4,629 |
| P.E.I. | 21 | 2 | 2 | 25 | 4,920 |
| Nova Scotia | 130 | 47 | 7 | 184 | 4,603 |
| New Brunswick | 100 | 4 | 11 | 115 | 6,096 |
| Quebec | 1,285 | — | — | 1,285 | 4,902 |
| Ontario | 1,264 | 269 | 118 | 1,651 | 5,148 |
| Manitoba | 205 | 32 | 10 | 247 | 4,174 |
| Saskatchewan | 251 | 35 | 4 | 290 | 3,300 |
| Alberta | 451 | 82 | 22 | 555 | 3,620 |
| British Columbia | 413 | 126 | 23 | 542 | 4,763 |
| Canada | 4,207 | 526 | 205 | 5,018 | 4,717 |

Source: Statistics Canada, Distribution Services Branch, *Profile: Drug Distribution*, October 1982.

Chart A4.1

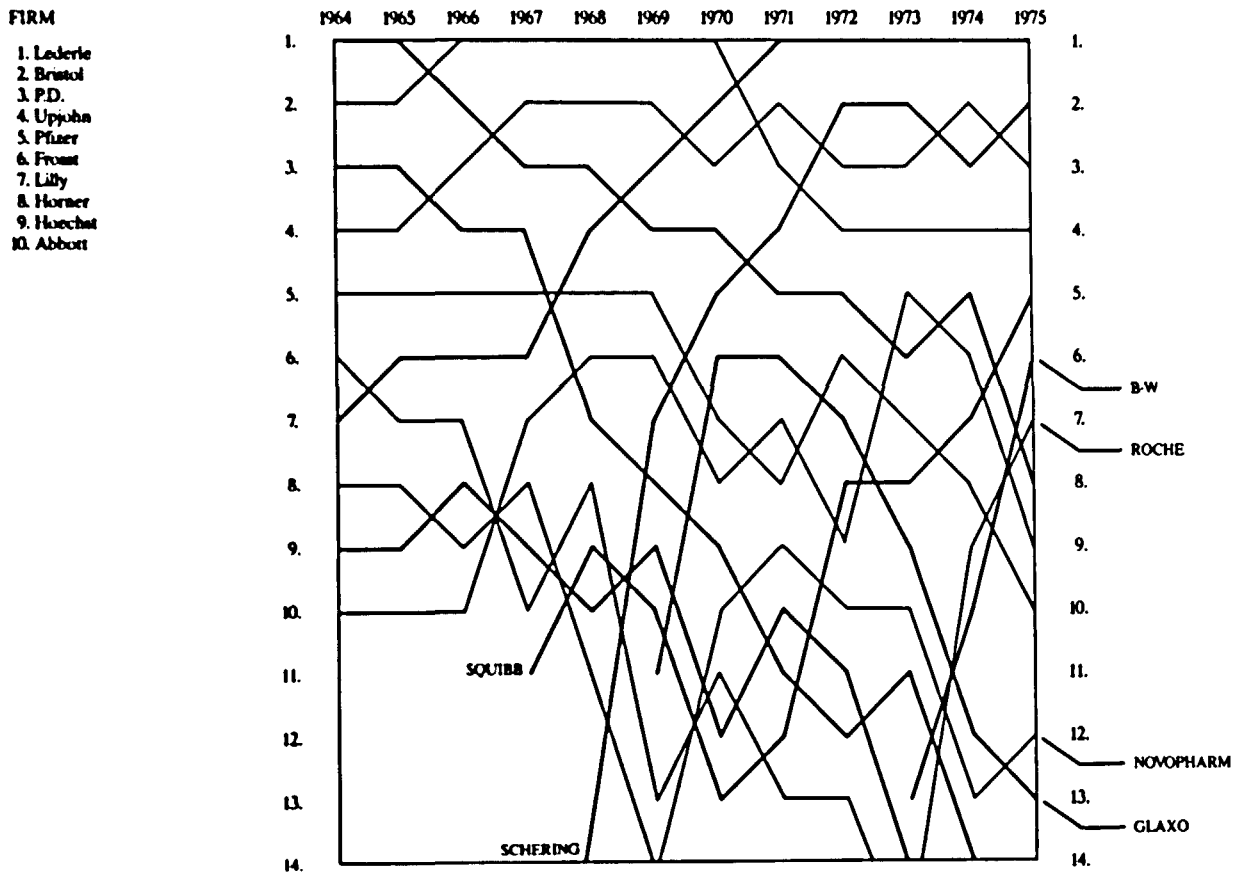
**Rank of Firms by Market Share, Total Analgesic Market Combined, 1964-75**




Source: IMS Canada.

## Chart A4.2

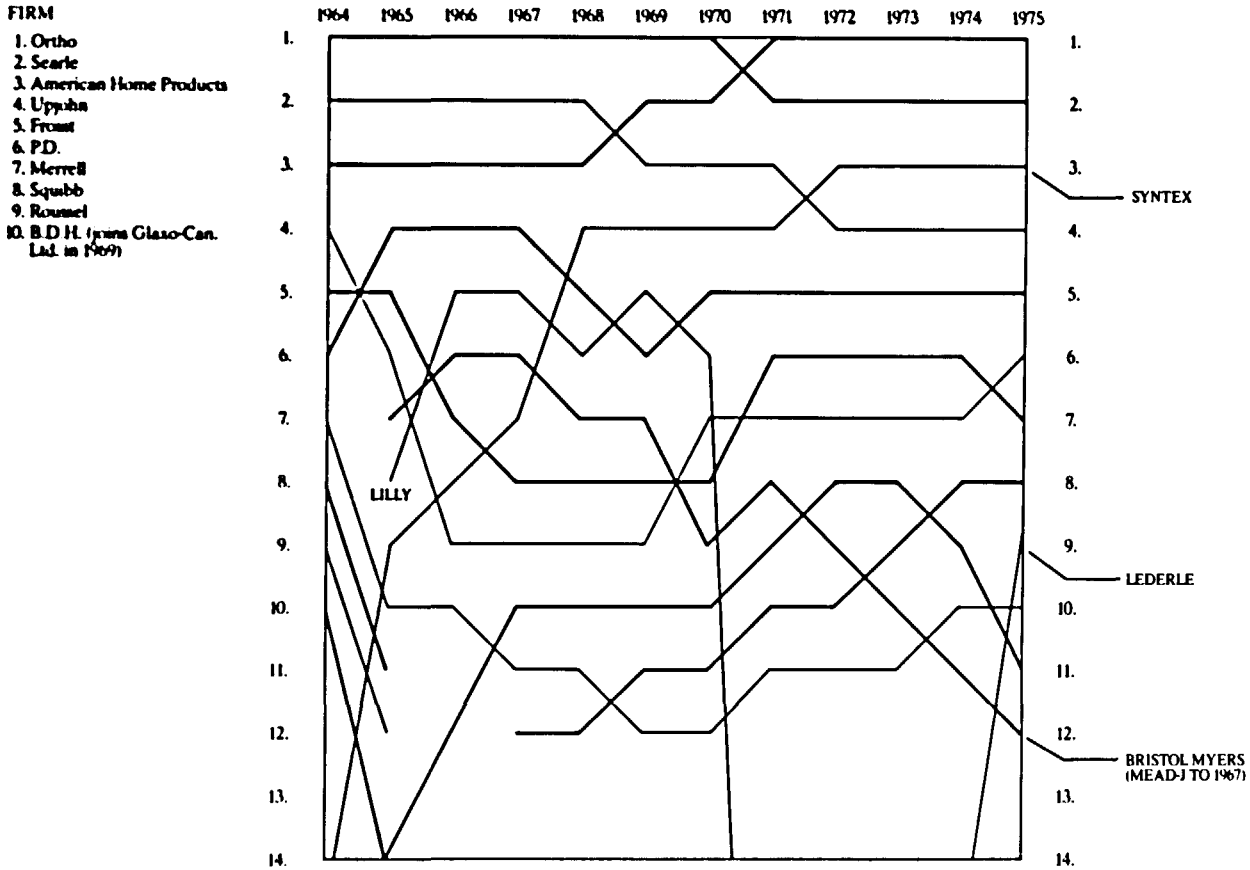
### Rank of Firms by Market Share, Total Antibiotic Market Combined, 1964-75




Source: IMS Canada.

Chart A4.3

**Rank of Firms by Market Share, Total Sex Hormones Market Combined, 1964-75**




Source: IMS Canada.