Report of The Commission of Inquiry on the Pharmaceutical Industry

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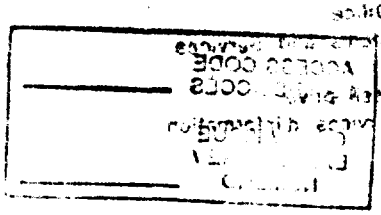

Available in Canada through

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or by mail from

Canadian Government Publishing Centre
Supply and Services Canada
Ottawa, Canada K1A 0S9

Catalogue No. CP32-46/1985E
ISBN 0-660-11835-1

Canada: $19.25
Other countries: $23.10

Price subject to change without notice

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on the
Pharmaceutical Industry

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28 February 1985

Her Excellency the Governor General

May it please your Excellency:

By Order-in-Council dated 17 April 1984, as revised and amended on 20 December 1984, I was appointed a Commissioner under Part I of the Inquiries Act to inquire into and report upon the current situation in the pharmaceutical industry in Canada. I have completed my inquiry and beg leave to submit the accompanying Report.

H.C. Eastman
Commissioner

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Order in Council

P.C. 1984-1298

Certified to be a true copy of a Minute of a Meeting of the Committee of the Privy Council, approved by His Excellency the Governor General on the 17 April, 1984

WHEREAS the Committee of the Privy Council is of the view that it is desirable that the prospects for the pharmaceutical industry in Canada be assessed;

AND WHEREAS it is desirable that proposals for incentives for the development of the pharmaceutical industry be evaluated, as well as the relationship of the pharmaceutical industry to the health care delivery system throughout Canada, the cost of pharmaceuticals to consumers in Canada, the clearance procedures for new products and any other policies and programs administered by the government that relate to the pharmaceutical industry.

THEREFORE the Committee of the Privy Council, on the recommendation of the Prime Minister, advise that Dr. Harry Eastman of the City of Toronto, in the Province of Ontario, be appointed a Commissioner under Part I of the Inquiries Act to inquire into and report upon the current situation in the pharmaceutical industry in Canada, the prospects for a significant expansion of this industry in Canada and the policy framework for the development of the pharmaceutical industry and, within that framework, to identify proposals that might form the basis for reaching a consensus on licensing policy.

Without limiting the generality of the foregoing, in making the inquiry and report, the Commissioner shall give particular attention to

(a) an analysis of companies in the pharmaceutical industry in Canada that will include economic and financial data in respect of the industry and will identify differences in operation and growth patterns among generic and patent-holding firms including firms engaged in biotechnology;

(b) the identification of prospects for growth of the Canadian pharmaceutical industry in the following areas:

(i) growth in pharmaceutical research and development expenditures together with the composition of those expenditures, and any plans of the pharmaceutical industry to link such expenditures to Canadian research institutes and medical school programs,

(ii) growth in pharmaceutical manufacturing of bulk active ingredients,

(iii) an identification of regional factors affecting this growth,

(iv) exports,

(v) growth and composition of pharmaceutical employment,

(vi) agricultural applications, and

(vii) biotechnological pharmaceutical investment;

(c) the review of programs used in other countries, including the functioning and effect of incentives and regulations and barriers to trade in those countries that would help in identifying market conditions and socio-economic environments that parallel or differ from the Canadian situation.

And, further, the Commissioner shall make recommendations directed toward the development of a policy framework for the pharmaceutical industry in Canada, including, where he consider it appropriate, proposals for patent protection, tax and tariff changes, incentives, availability of capital, modification of the Health Care delivery system and clearance procedures, and other policies and programs under provincial and federal control.

The Committee further advise that the inquiry be known as the Commission of Inquiry on the pharmaceutical industry.

The Committee further advise that the Commissioner:

1. be authorized to adopt such procedures and methods as the Commissioner may from time to time deem expedient for the proper conduct of inquiry;

2. be authorized to sit at such times and in such places in Canada as may be required;

3. be authorized to exercise all the powers conferred upon him by section 11 of the Inquiries Act;

4. be authorized to engage the services of such staff and technical advisers, including counsel, as he deems necessary or advisable to aid him in the conduct of the inquiry at such rates of remuneration and reimbursement as may be approved by Treasury Board;

5. be authorized to rent office space and facilities for public hearings in cooperation with the federal Department of Public Works as he may deem necessary at such rental rates as are consistent with the policies of the Department of Public Works;

6. be directed to make a final report to the Governor in Council, not later than the thirty-first day of December 1984, providing an analysis of

the operation of the pharmaceutical industry in Canada, noting the difference among generic and patent holding firms and the operation of the international and domestic pharmaceutical market, and containing statistics on the operations of the pharmaceutical industry in Canada, together with any other findings relevant to this inquiry;

7. be directed to file with the Dominion Archivist the papers and records of the inquiry as soon as reasonably may be after the conclusion of the inquiry;

8. be assisted by the officers and employees of the departments and agencies of the Government of Canada in any way the Commissioner may require for the conduct of the inquiry;

9. may collect evidence from any existing source of information, public hearings, testimony of expert witnesses, surveys or other appropriate means pursuant to his authority under the Inquiries Act; and

10. be authorized to travel outside Canada, where in the opinion of the Commissioner it is necessary to do so, to fulfil the requirements for a review of programs used in other countries.

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CLERK OF THE PRIVY COUNCIL — LE GREFFIER DU CONSEIL PRIVÉ

Order in Council

P.C. 1984-4094

Certified to be a true copy of a Minute of a Meeting of the Committee of the Privy Council, approved by Her Excellency the Governor General on the 20th of December, 1984.

The Committee of the Privy Council, on the recommendation of the Prime Minister, pursuant to Part I of the Inquiries Act, advises that the commission issued pursuant to Order in Council P.C. 1984-1298 of 17 April, 1984, be amended by deleting therefrom the following paragraph:

> "AND WE DO HEREBY direct Our said Commissioner to make a final report to the Governor in Council, not later than December 31, 1984, providing an analysis of the operation of the pharmaceutical industry in Canada, noting the difference among generic and patent holding firms and the operation of the international and domestic pharmaceutical market, and containing statistics on the operations of the pharmaceutical industry in Canada, together with any other findings relevant to this inquiry;"

and substituting therefor the following paragraph:

> "AND WE DO HEREBY direct Our said Commissioner to make a final report to the Governor in Council, not later than February 28, 1985, providing an analysis of the operation of the pharmaceutical industry in Canada, noting the difference among generic and patent holding firms and the operation of the international and domestic pharmaceutical market, and containing statistics on the operations of the pharmaceutical industry in Canada, together with any other findings relevant to this inquiry;"

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CLERK OF THE PRIVY COUNCIL - LE GREFFIER DU CONSEIL PRIVÉ

Foreword

Order-in-Council, P.C. 1984-1298 charged this Commission with the analysis of the functioning of generic and patent-holding firms in the pharmaceutical industry in Canada, the identification of prospects for growth of the Canadian pharmaceutical industry, and the review of programs used in other countries. The Commission was directed to make recommendations for the development of a framework of policy for the pharmaceutical industry in Canada including policies and programs under the control of both provincial and federal governments.

The Commission received 146 briefs from interested parties and held public hearings in Ottawa at which 41 witnesses or groups of witnesses appeared. The Commissioner and the Director of Research visited the United Kingdom, Belgium, the Commission of the European Community, Switzerland, and Italy to learn at first hand of programs, practices, and opinions in other countries. Fourteen research studies were commissioned from experts in the field. These studies are being readied for publication where the information is considered to be of general usefulness and necessary to give a complete understanding of many of the matters dealt with in this Report.

I was impressed in the course of the Inquiry with the feelings of conviction and the sense of urgency of those communicating with the Commission and with the basic conflict in the advice I received respecting the need for change in the compulsory licensing provisions of the Patent Act. This issue dominated all others that affect the performance of the pharmaceutical industry and the distribution of drugs in Canada, such as the procedures for assuring safety and efficacy and the forces affecting the functioning of the retail market, despite the evident importance of the latter. Nevertheless, I hope that the recommendations contained in this Report will meet that part of the Order-in-Council which charges the Commission "to identify proposals that might form the basis for reaching a consensus on licensing policy."

Despite the contentious nature of some of the issues before the Commission, the witnesses appearing at the hearings were thoughtful, analytical, helpful, and invariably courteous, for which the Commission is grateful. The experts from industry, government, and universities both in Canada and abroad who were consulted by the Commission were unstinting in the time they gave us for which kindness I am also grateful.

In preparing this Report, I have had the assistance of a very competent and dedicated research and administrative staff. Dr. R.D. Fraser, who was the Director of Research while continuing his duties as Dean of the Faculty of Arts and Science at Queen's University, deserves special mention. He was a full partner in the preparation of the Report, but took no part in developing the recommendations.

H.C.E.

Summary of the Report of the Commission of Inquiry on the Pharmaceutical Industry

In 1969 the Canadian Patent Act was amended to provide for compulsory licensing to import patented pharmaceutical products. Unless he saw a good reason not to do so, the Commissioner of Patents has granted compulsory licences to import to all applicants and has set a royalty of 4 per cent of the licensee's selling price of the patented product as the licensee's share of the costs of research leading to the invention.

In the years following the introduction of compulsory licensing to import pharmaceutical products, the provincial legislatures also introduced measures that affected the pharmaceutical industry. Provincial policies differ, but their main characteristic is that they encourage or require the substitution of cheaper for more expensive brands of drugs that are deemed to be equivalent. The provisions for substitution apply to all drugs prescribed in the province or to those that are paid for or reimbursed by the provinces under their various social programs.

Compulsory licensing to import together with provincial encouragement of substitution has resulted in the growth of firms whose business is largely the production of compulsorily licensed drugs. Of the four most important firms producing compulsorily licensed drugs, two are Canadian owned and two are foreign owned, the Canadian-owned firms having by far the largest share of the production of compulsorily licensed drugs.

Sales of the 70 compulsorily licensed drugs in Canada amounted to $328 million out of a total of $1.6 billion for all ethical drugs in 1983 or 20 per cent of total sales. The generic firms that hold compulsory licences have not supplanted the patent-holding firms in the market for licensed drugs. Indeed, generic firms sold and paid royalties on 32 of the 70 drugs on which compulsory licences had been issued. Their sales of these drugs were $46 million or 21 per cent by value of total sales of $217 million of these compulsorily licensed drugs, the remaining 79 per cent being accounted for by the patent-holding firms' brand name products. The 21 per cent generic share translates to approximately 34 per cent by volume of the market in compulsorily licensed drugs when account is taken that prices charged by generic firms are half those of patentees. The sales of compulsorily licensed drugs by generic firms amounted to 3 per cent of the sale of all pharmaceutical products in Canada. The 24 other patented products on which compulsory licences had been issued by 1983 had sales of $111 million by patent-holding firms, but none yet by generic firms.

Generic firms sell drugs other than those that are under compulsory licence. Their sales of all pharmaceutical products are about 8 per cent of the value of total pharmaceutical sales in Canada.

Generic firms have been more active in some therapeutic categories than in others. In 1983, they held 13 per cent of sales of anti-infective agents and from 6 to 9 per cent of the sales in five other of the 19 therapeutic classes according to the Commission's survey of the biggest firms in Canada.

The generic firms have introduced an element of vigorous competition in the market for pharmaceutical products in Canada. They have concentrated on selling to hospitals and pharmacies and have used price competition as their strategy. In 1983, the prices of generic drugs were 51 per cent of the prices of the patent-holding firms for substitutable brands. The consequence of compulsory licensing is that Canadian consumers and taxpayers paid $211 million less in 1983 than they would have done for the same drugs in its absence. The $211 million in estimated savings is the difference between the actual purchases by both pharmacies and hospitals of the 32 compulsorily licensed drugs sold by both patent-holding and generic firms and the cost of those purchases if their price had had the same relationship to United States prices as did those of unlicensed drugs. It is thus a definite figure.

In comparison, the competitive strategy followed by patent-holding firms in Canada, as abroad, is to introduce on the market new products which may have entirely new indications or significantly improved effectiveness or which may be similar to the successful products of their own or of other firms and are introduced in order to share these markets. The patent-holding firms also incur heavy promotion expenditures, directed in large part to physicians. In Canada during the past five years the weighted average of promotion costs to sales for the 55 major firms in the pharmaceutical industry has been 21 per cent whereas the ratio of research and development to sales was 4.5 per cent and of profits to sales 15 per cent.

Aggregated data for the pharmaceutical industry in Canada does not show adverse effects from the introduction of compulsory licensing to import in 1969. The overall profitability of firms in the pharmaceutical industry in Canada measured by their after tax profit on capital employed for the years 1968 to 1982 is more stable than for most industries in Canada and rises in the later years of the period. The profits of the industry are also substantially higher than those for total manufacturing and for most industries. Profits after taxes on equity in Canada have been lower over this period than in the United States and profits in the United States have been more stable. However, Canadian profits have risen relative to those in the United States since 1978. Thus, compulsory licensing has had no visible effect on the profitability of the pharmaceutical industry in Canada. It has adversely affected the profits of particular firms, but this effect has been compensated by the high profits of others.

Neither does the growth of the industry reflect adverse effect from compulsory licensing. The value of shipments of pharmaceuticals in 1969 was .766 per cent of the value of shipments of total manufacturing. In 1983, the proportion was .894 per cent, but there had been lower levels between those two dates. The value of shipments can be corrected for price changes, but the pharmaceutical price index is suspected of understating the inflation that occurred in pharmaceutical prices so that the very high "real" rate of growth for pharmaceuticals shown by such a calculation is probably excessive. An alternative measure of real output is employment, which grew as a proportion of total manufacturing from .74 per cent to .91 per cent between 1967 and 1982. The growth in the industry in Canada is not dominated by the growth of the generic sector. In 1969 the number of employees in the industry was 12,645, few of whom were in generic firms. In 1982, the employment was 15,707 of whom approximately 1,300 were employees of generic firms.

The indices of growth can be compared to those in the United States. Value measures show a substantially greater rate of growth in Canada than in the United States. This includes value added in manufacturing, value of shipments, and wages and salaries. But changes in values are even less reliable to interpret changes between the two countries than they are for inter-industry comparisons within Canada. Turning to employment, it turns out that total employment in Canada between 1967 and 1982 rose by 28.8 per cent whereas in the United States it grew 22.6 per cent; the number of production employees in Canada rose by 29.9 per cent and in the United States by 13.2 per cent. Compulsory licensing has not had a discernible negative impact on the profitability and rate of growth of the pharmaceutical industry in Canada as a whole.

Compulsory Licensing

The Commission believes that compulsory licensing as it exists in Canada today under Section 41(4) of the Patent Act is an effective component of an appropriate patent policy for the pharmaceutical industry, but that its terms should be modified by royalty arrangements that raise the payment of generic firms for the benefits they derive from the research and promotion expenditures of the firms whose patents they license. Such arrangements would also provide incentives to research in Canada.

The 17 years of patent life protects the profitability of introducing new drugs in Canada. The early introduction of new drugs improves health and comfort and should be encouraged. For its part, compulsory licensing to import introduces competition and lowers prices of drugs that are major successes on the market. Without compulsory licensing, the high prices and profits of such drugs would induce other patent-holding firms to engage in research to imitate a new drug, differentiating their own new brand sufficiently to avoid patent infringement. This form of competition among patent-holding firms does not result in much lower prices; instead, firms incur heavy promotion costs to promote their brand. It is better, therefore, to introduce competition with a

compulsory licence, because this avoids the waste of resources used in imitating the successful product and in promoting the imitation. Moreover, competition from generic firms, whose products compete on the basis of price, results in greatly reduced costs to consumers.

It is of course the case that the advantages of compulsory licensing, one of which is the avoidance of wasteful research costs incurred in imitating a successful product without infringing its patent, may not result when compulsory licensing is used only in Canada. Little research is done in Canada and, in any event, research programs are developed in relation to the expected profitability of research expenditures on a world-wide basis; whether or not a product is subject to a compulsory licence to import in Canada does not affect such decisions appreciably. Nevertheless, the fact that policies in other countries respecting pharmaceutical products are inferior to compulsory licensing in Canada, some because they limit choice and involve greater bureaucratic controls and others because they do not limit prices, is not a reason to abolish compulsory licensing in Canada. This would require Canadian consumers to contribute to incentives that lead to some waste of resources in research and promotion on a world-wide basis. Furthermore, the promotion expenditures, which are especially high on imitative drugs, are specific to Canada and are discouraged by compulsory licensing.

To protect innovating firms from the very early issuance of compulsory licences, Canadian policy should provide a short period of market exclusivity for patent holders to begin when the new drug receives a Notice of Compliance authorizing marketing. The exclusivity would permit the innovating firm to set its prices free of concern for losing market share and enable it to develop its sales and cover its costs, including the high promotion expenses that typically accompany the introduction of new drugs. The period of exclusivity should be short so as to hasten the introduction of the new drugs. The Commission believes four years would be appropriate.

After the period of exclusivity, the continuation of reward to the innovating firm requires that it be given appropriate royalties during the remaining life of the patent after the generic product enters the market. Such royalties should be based on the world-wide research and development expenditures of firms whose patents are exposed to compulsory licensing in Canada so that Canadian consumers would make an appropriate contribution to these costs. The royalty should also include a component which recognized the fact that some of the patent-holding firms' promotion expenditures have a favourable impact on the licensee. The Commission estimates the value of this last element at 4 per cent of the licensee's sales.

Royalties levied at a uniform rate on licensees' sales should be paid into a Pharmaceutical Royalty Fund. This fund should then be shared by patent-holding firms chiefly according to the extent of their research and development expenditures in Canada so as to encourage greater research and development by pharmaceutical firms in this country. They should also receive an invariant share to compensate for their current promotion expenditures that are of value to licensees.

To these ends the Commission recommends;

that new drugs should be awarded a period of exclusivity from generic competition of four years after receiving their Notice of Compliance authorizing marketing;

that a Pharmaceutical Royalty Fund be established and be financed by payments made by firms holding compulsory licences, the payments to be determined by the value of the licensee's sales of compulsorily licensed products in Canada multiplied by the pharmaceutical industry's world-wide ratio of research and development to sales, as determined by the Commissioner of Patents, plus 4 per cent (the 4 per cent to reflect the value to compulsory licensees of current promotion expenditures of patent-holding firms); and

that the Pharmaceutical Royalty Fund be distributed periodically to the firms whose patents are compulsorily licensed, each firm's share to be determined by the sales in Canada of its patented products by compulsory licensees multiplied by the firm's ratio of research and development expenditures to total sales of ethical drugs in Canada plus 4 per cent (to reflect promotion), all this as a proportion of the same variables for the entire group of firms with patents under compulsory licence in Canada.

The Pharmaceutical Royalty Fund and its distribution can be expressed by a formula.

Let ST = value of sales of all ethical drugs
SC = value of sales of compulsorily licensed drugs by generic firms in Canada
A = one firm in Canada with compulsorily licensed patents
I = all firms in Canada with compulsorily licensed patents
R&D = research and development expenditures

The Pharmaceutical Royalty Fund is

$$[(R\&D/ST) \text{ for the industry world-wide} + .04] \times SC$$

The share of firm A is

$$\frac{[(R\&D/ST)A \text{ in Canada} + .04] \times SC \text{ of A's patents}}{[(R\&D/ST)I \text{ in Canada} + .04] \times SC} \times \text{Fund}$$

The Commission estimates that the ratio of world-wide research and development expenditures to world-wide sales of firms operating in Canada is 10 per cent. The effect of the proposed royalty arrangements using that ratio when total sales of compulsorily licensed drugs by generic firms in Canada are $46 million can be illustrated. The Pharmaceutical Royalty Fund would be

$6.44 million [(.10 + .04) × $46 million = $6.44 million]. A firm in Canada owning patents on which compulsorily licensed sales were $5 million and which had a ratio of research and development expenditures to sales in Canada of 4.5 per cent (the present industry average) would receive a payment of $700,000 or 14 per cent of the licensee's sales.

$$\left[\frac{(.045 + .04) \times \$5 \text{ million}}{(.045 + .04) \times \$46 \text{ million}} \times \$6.44 \text{ million} = \$700{,}000\right]$$

If a firm did no research, it would receive $329,412 or 6.6 per cent.

$$\left[\frac{(.04) \times \$5 \text{ million}}{(.045 + .04) \times \$46 \text{ million}} \times \$6.44 \text{ million} = \$329{,}412\right]$$

If the research ratio were 10 per cent, the firm would receive $1,152,941 or 23 per cent of the value of licensed sales.

$$\left[\frac{(.10 + .04) \times \$5 \text{ million}}{(.045 + .04) \times \$46 \text{ million}} \times \$6.44 \text{ million} = \$1{,}152{,}941\right]$$

Amongst the 50 largest firms in Canada in 1983, the highest reported ratio of research to sales was 20 per cent. Such a firm would receive a royalty payment of 39.5 per cent of licensed sales under the proposed arrangement.

The cost to the consumer of the proposed measures can only be estimated as an increment on the basis of the present situation. In 1983, the value of production of the 32 compulsorily licensed drugs meeting generic competition was $217 million of which generic firms supplied $46 million. If the proposed measures had been applied in that year, licensees would have paid royalties of $6.4 million instead of the 4 per cent or $1.8 million actually paid. There would thus have been an added cost of $4.6 million for licensees and an increase in their prices to cover at least that amount. In addition, the patent-holding firms producing 78 per cent by value of the 32 licensed drugs would have been able either to raise their prices or to retain a larger share of the market for their higher priced products. If they had raised their prices by the full 10 per cent difference implied by the present royalty rate and that proposed for a new régime, this would have raised drug costs by $22 million. These two elements sum to $26.6 million. If they had retained another 10 per cent of the market that would have raised drug costs by $26 million for the same volume of drugs, because their prices were on the average about twice those of the generic products. In this case the sum of the two elements would be $30.6 million.

What the impact of introducing the proposed royalty arrangements would actually be in future is impossible to foretell. This would depend on the responses of firms in the industry to new incentives. Furthermore, present

market shares of products and firms, which are the basis of the estimates above, have been changing constantly as new products were introduced, compulsory licences issued, and market strategies evolved.

But uncertainty is inherent in a market economy. The proper objective of industrial policy is to establish conditions under which firms compete that induce efficiency and are fair. In the opinion of the Commission, such an objective would be furthered by its proposals to retain compulsory licensing to import pharmaceutical products, but to modify its terms.

Product and Process Patents and Reverse Onus

Section 41(1) of the Canadian Patent Act limits pharmaceutical patents to processes. The product itself can be protected only when it is made by the patented process. The effect of process-only or product-by-process patenting is to weaken the extent of patent protection in that the discovery of new ways of producing a product is a means of avoiding the patent.

The objectives of compulsory licences and of limitations on product patenting are the same: they reduce the height of the barrier to competition with the successful product. Compulsory licensing permits a competitor to import and produce the identical product; process-only patenting permits inventing around a patent to find another way to produce the same product. The latter results in a wasteful duplication of resources and is clearly an inferior way of permitting competition.

When compulsory licensing is available, limitations on product patenting are not needed to limit the temporary monopoly created by the patent. Indeed, the contrary is the case. When compulsory licensing is available to duplicate a product, broad product patents should be available in order to reduce the incidence of research by competitors that is essentially duplicative or parallel.

The Commission recommends that, conditional on preserving modified provisions for compulsory licensing in the Patent Act as recommended in this Report, limitations on product patents for pharmaceutical products in the Patent Act be removed.

Reverse onus is imposed by Section 41(2) of the Patent Act. Reverse onus is designed to facilitate proof in allegations of infringement of process patents. The underlying logic is that the alleged infringer is in a better position to know whether or not he is infringing the patent than is the patent holder. If so, he should be required to prove that he is not using the alleged process. Hence the reverse onus. With the removal of limitations to product patents for pharmaceutical products, reverse onus would no longer be required. Furthermore, generic firms in Canada sometimes are ignorant of and so cannot disclose the process used in producing the active ingredients they import, so that reverse onus places an inappropriate burden on them.

The Commission recommends that reverse onus for pharmaceutical patents be abolished.

The Commission's several recommendations to alter the Patent Act and the terms on which compulsory licences for pharmaceutical products are granted have been designed to provide together the right amount of patent protection and the right incentives. They form a package of interdependent elements. One element is of a four-year period of market exclusivity for patentees, which permits them to establish their product and brand name while free from competitive concern. The second is a royalty arrangement for compulsory licences. It requires licensees to pay for the benefits they obtain from the patentees' world-wide research expenditures and from their promotion expenditures in Canada. The royalty payment is the same for all licences and therefore constitutes a flat tax giving the same protection from licensing to all patents. The distribution of the Royalty Fund encourages research in Canada by substantial rewards. The third element is the strengthening of patent claims by permitting product patents, which is justifiable in conjunction with the continuance of compulsory licensing. The final element is the removal of reverse onus which is relevant only to process patents and is, in any event, in many instances inappropriate to the particular situation of compulsory licensees in the Canadian industry.

A change in one of the elements of the policy package would upset the balance sought between safeguarding the interests of patentees and generating the degree of competition in the industry necessary to induce efficient performance and reasonable prices that benefit taxpayers and consumers. If a variation were made in one of the proposed elements, a compensating adjustment would be required in others in order to maintain the balance.

The result of the proposals would be that Canadian consumers and taxpayers would pay their fair share of world-wide pharmaceutical research costs for compulsorily licensed drugs to those firms that do a fair share of world-wide research in Canada. The proposals would also ensure that prices would not be so high as to generate excessive profits or selling costs, thereby protecting the consumer interest.

Drug Regulation

Since the 1940s there has been a tremendous increase in the number and potency of drugs that have been discovered and marketed. These drugs have proved highly effective in combating disease and improving the quality of life. They have also inevitably given rise to adverse reactions which have proved harmful to some patients. As a consequence most governments will not allow drugs to be sold in their countries without official approval based on a review of information on the drug, including reports on clinical tests. Many governments also require prior approval from the regulatory authority before drugs can be tested on humans within their jurisdiction.

In Canada the Health Protection Branch of Health and Welfare Canada is responsible for the administration of the regulatory process. The regulatory process in Canada is internationally recognized as applying high standards in determining the safety and efficacy of new drugs. It is also the case that the Canadian regulatory process for clinical testing and the approval of new drugs is slower than in other jurisdictions.

The consequence of delay in the regulatory process is that beneficial drugs are introduced later than necessary, thus depriving patients of potential aid. The costs of the pharmaceutical firms are increased by regulatory delay, because the heavy costs of drug development have to be carried longer before revenue can be derived from sales. The long delays also adversely affect the attraction of Canada as a location for clinical testing and research on drugs despite the high qualifications of clinical investigators and the lower cost of clinical research in Canada than in the United States.

The Commission believes that the clearance process for the marketing of new drugs in Canada should be accelerated. To this end ***the Commission recommends that Preclinical New Drug Submissions should consist of: a summary of information on the new drug, certified in Canada by a qualified health professional, and protocol of the proposed clinical studies and that approvals for Preclinical New Drug Submissions should be automatic within one month of receipt unless the Health Protection Branch finds reason not to grant them or requires further information from the firm concerned. The approval for the submission should also apply to the protocols for research in Phases 1, 2, and 3 which would not require further approval unless by explicit decision of the Health Protection Branch.***

It is important as well that the final authorization for marketing new drugs be more expeditious. Though it cannot judge the merits of any single measure needed to speed up the process, the Commission is satisfied that changes could reach this objective without increasing risk to patients.

The Commission recommends that the Health Protection Branch reorder its activities so as to be able to respond to New Drug Submissions and to Supplementary New Drug Submissions without fail within 120 days.

In view of the risk of adverse reactions following the release of new drugs for general distribution to a large number of patients, the Commission recommends that regulations should permit the Health Protection Branch to impose post-market studies on the manufacturer as a condition of permission for marketing.

The Commission also recommends that Notices of Compliance be issued without review in Canada for New Drug Submissions and Supplementary New Drug Submissions for pharmaceutical products and medical devices that have not received them in Canada but that have already received Notices of Compliance in the United States and either France or the United Kingdom until the backlog of submissions has been absorbed and procedures reformed to provide clearance delays no longer than 120 days.

The Use of Committees of Non-governmental Experts

The Commission believes that the structure of decision-making to approve drugs for clinical testing and to authorize the marketing of new drugs in Canada should be altered so as to use the extensive expertise that exists outside government. Outside experts should be included in decisions respecting particular drugs and in the development of regulations and guidelines that are followed in making particular decisions.

The United Kingdom and France give the responsibility for the final decision as to the acceptability of a drug for marketing to committees of experts composed of pharmacologists, chemists, physicians, and others with special pharmaceutical knowledge. In the United States use is made of advisory committees of experts in the process of review. In contrast, Canada makes very little use of experts from outside the federal government in its evaluation and clearing of drugs.

Committees of non-governmental experts permit the use of the knowledge of all the most highly trained individuals in the country, not only those in government, and notably permits the inclusion of individuals who can provide an informed judgement on the balance between risk and benefit of new drugs on the basis of their daily experience with their own patients. Furthermore, expert committees insulate the process of decision from the pressure of public opinion which is highly sensitive to the drama of adverse drug reactions but is little aware of the incremental improvements that may be made to health by the introduction of new drugs.

The Commission recommends that an expert committee supported by the staff of the Health Protection Branch should be established by statute to make final judgements on the issuance of Notices of Compliance for New Drug Submissions. The Commission also recommends that the various steps in the process of review should make use of statutory advisory committees of outside experts.

It is important that the fundamental review that is required and already partly undertaken within the Health Protection Branch to establish appropriate guidelines and procedures should be based on broad understanding and scientific consensus. To this end ***the Commission recommends that the Minister of Health and Welfare establish an advisory committee of experts from the Health Protection Branch, universities, hospitals, and industry (thus reflecting the many interests affected) to recommend appropriate regulations and guidelines for the evaluation and clearing of drugs for marketing.***

The Commission is of the general opinion that regulations applied to ensure the safety and efficacy of new drugs should not use excessive resources or impede competition in the marketplace where that is avoidable. To this end ***the Commission recommends that no impediment be placed to the access to and use of Product Monographs (which describe the characteristics of new drugs).***

Safety: Original Package Dispensing and Information Inserts

Canada, the United States, the United Kingdom, and a few other countries follow the anachronistic practice for prescription drugs, though not for other drugs, whereby pharmacists receive medicines in bulk and then repackage and label the drugs for distribution at retail. This practice is wasteful, because machines can package medicines more cheaply than pharmacists; it is less safe because repackaging at the pharmacy increases the danger of degradation of the product; it is also less safe because the medicine is only rarely accompanied by a printed leaflet which provides information about dosage, indications, warnings, expiry date, and other information to which the consumer is entitled.

The Commission recommends that measures be taken to ensure that pharmaceutical products sold to consumers at retail in Canada should be dispensed in the manufacturer's original packages and, further, that complete product information be presented in a way that can be understood by laymen. Indications, administration, dosage, warnings with respect to adverse reactions, a full list of contents, and other relevant information should be included. Provision should be made that physicians could instruct pharmacists to withhold such information from designated patients.

The Retail Market and Provincial Plans

Compulsory licensing to import has made available for Canadian consumers drugs marketed by generic firms with lower prices than those of the patent-holding firms.

Provincial policies affecting the retail market have been very influential in determining the extent to which consumers take advantage of the possibility of buying cheaper drugs. The policies of provinces differ substantially from one another with respect to the incentives they provide for the substitution of one brand of an interchangeable product for another and with respect to the responsibility of pharmacists for selecting drugs with low prices. Provinces have also differed respecting the extent to which they encourage the substitution of low-cost for higher priced drugs in the portion of the market in which the cost of drugs to consumers is publicly reimbursed, which accounts for approximately 43 per cent of the retail market, and to the private market in which the consumer is either reimbursed by a private insurance company or not at all. Approximately 15 per cent of the Canadian population is not covered by either public or private insurance schemes.

The Commission has examined the retail market for pharmaceutical products in the provinces and noted the impact of different measures on the extent to which consumers took advantage of the existence of lower prices for some brands. The average prices paid by consumers were lower where provinces listed certain products as interchangeable, when the selection of

cheaper products was made mandatory or was encouraged, and where the drug costs reimbursed to pharmacists (in addition to the payment of a dispensing fee) were the actual cost of the drugs from the manufacturer or the wholesaler and not some inflated value.

In no province did the publicly reimbursed sector realize much more than one-half the potential saving offered by the difference between prices charged by generic firms and those of the patent-holding firms, even in the publicly reimbursed part of the market. The extent to which the private market has taken advantage of the price differences was not estimated by the Commission, but is clearly less. This is reflected in the fact that only 34 per cent of the volume of drugs for which there is competition under compulsory licences are sold by generic firms.

The Commission believes that fiscal pressures on all governments, including provincial governments, will persist and will lead to a continuation of attempts to control the cost of drugs to provincial treasuries and, to some extent as well, to individuals. It expects that provincial governments will learn from each other's varied experience the benefits and drawbacks of various measures of policy.

The Commission is concerned that further measures to control the cost of drugs will be increasingly regulatory and bureaucratic and that they will impose costs and inefficiencies on both manufacturers and the retail industry as well as creating barriers to interprovincial trade.

None of the provincial plans has given a substantial role to consumers' choice in its attempt to control drug costs. The Commission believes they should. Consumers should be given both an opportunity and an incentive to search between pharmacies for lower drug prices. The opportunity comes when consumers can identify alternative brands of the same product and compare prices between pharmacies.

A drug is a complex product with a minimum of three names: its chemical name reflecting the composition of the drug, a simpler generic name attributed to it by the World Health Organization, and a brand name, usually the simplest, given by each manufacturer. Most consumers do not know which brands have substitutes, in the sense of having another brand containing the same active chemical ingredients, nor what those substitutes may be.

In order to facilitate informed choices between different brands of the same drug for consumers, ***the Commission recommends that all ethical drugs should be prominently labelled with their generic name, whatever other name may also appear on the label.***

A further obstacle to the ability of consumers to shop for the lowest priced drug stems from the difficulty of discovering what those prices are from different retail outlets.

The Commission recommends that provincial governments should remove all restrictions on the advertising of drug prices, dispensing fees, or the sum of both;

that pharmacists should be expressly permitted to provide information on drug prices over the telephone; and

that the prescription receipt state both the drug cost and the dispensing fee.

An incentive to search out and take advantage of low prices of drugs arises if consumers pay part of the cost directly themselves. Their contribution must rise as the cost of their total purchases rise. It is evident that this is not achieved by a flat annual deductible sum unless its level exceeds the total drug purchases of the consumer. A deductible sum has merit as an instrument to reduce the overall cost to the insurer from reimbursement of drug costs and to reduce administrative costs, but unless it is very large and designed to protect only the biggest drug users, it inhibits price competition in the retail market by reducing the incentives of consumers.

The Commission recommends that provincial governments should ensure that public drug reimbursement programs require a significant contribution to each purchase by the consumer arranged in such a way that price competition is induced, and should encourage private drug insurance plans also to have this element.

Research and Development

The Commission is satisfied that its proposals for the sharing of the Pharmaceutical Royalty Fund on the basis of the research expenditures of firms whose patents have been compulsorily licensed, together with existing programs supporting research through grants and tax incentives, are adequate encouragement to research in the pharmaceutical industry in Canada. However, the Commission is concerned that the access of small research-intensive firms to such support is limited by the complex requirements of most granting mechanisms, their inflexibility with respect to the cash-flow needs of small firms, and the low profitability in early years of a firm's establishment which reduces the ability to take advantage of tax incentives.

The Commission believes that the administration of aid to research for the pharmaceutical industry should be simplified, perhaps by means of a simple subsidy that was a rising proportion of the ratio of a firm's own research expenditure to its sales so as to improve the access of small firms to such aid.

The Commission recommends that government departments review their procedures for granting financial support to research in the pharmaceutical industry with a view to improving the access of small research-intensive firms to such support by making such procedures simpler, faster, more stable, and more predictable.

Conclusion

Examination and analysis of the pharmaceutical industry in Canada has led the Commission to believe that the thrusts of public policy specific to the pharmaceutical industry as they have developed over the years in Canada are sound. Principal among these policies are health regulations to ensure the safety and efficacy of drugs, compulsory licensing of imports to facilitate entry of new firms into the manufacture of finished products and to increase competition on the basis of price, and provincial rules for substitution and selection of drugs by pharmacists that cause consumers to reap at least part of the potential for lower prices created by compulsory licensing.

Despite the considerable achievements of these policies, the Commission recommends some major modifications and extensions. The process leading to authorization for marketing should become more rapid and more consultative. The terms on which compulsory licences are issued should ensure that the licensing firms pay their share of the research and development and promotion expenditures from which they benefit. Royalties should be distributed to the patent-holding firms in such a way as to encourage research in Canada. Provincial plans should provide consumers with greater knowledge about what drugs are substitutable and greater information on prices and should give them incentives to seek out cheaper drugs.

These measures would reduce delay in the introduction of new drugs, encourage research in Canada, and ensure that consumers could capture more of the potential benefits of existing policies.

This modified Canadian system for the pharmaceutical industry would make Canada a more attractive site for pharmaceutical production and research. The relative attraction of Canada for the industry compared to other countries will increase further in the foreseeable future because of the growing trend for governments of most industrially advanced countries to interfere directly and forcefully in the activities of the pharmaceutical industry. The purposes of these interventions are to restrict the number of drugs eligible for public reimbursement, thus decreasing profits for the industry and the ability of physicians to prescribe freely, to reduce the profits allowed to the industry, to impose strict controls on prices, to limit expenditures on advertising, and to substitute generic for branded products. Such programs, long in place in France, Italy, and Belgium, are spreading and are becoming more rigorous in countries traditionally regarded as providing especially favourable conditions for patent-holding firms such as the United Kingdom and West Germany. Most of these restrictions are not applied in Canada.

The more favourable environment in Canada, together with the increase in demand for drugs owing to the aging Canadian population, will probably result in increased manufacturing of final products and considerably increased clinical research and perhaps a significant increase in the volume of basic research in the pharmaceutical industry. There are promising opportunities for research based on new technology in fields of special importance and

traditional strength in Canada such as the application of biotechnology to animal husbandry. Canadians may develop specialties in which their research excels. But, in the Commission's opinion, Canada is not well placed to become a major world centre for pharmaceutical research or for the production of active chemical ingredients.

Introduction

The pharmaceutical industries of most industrially advanced countries have much in common. A principal feature is that the dominant firms are multinational in their operations and are vertically integrated. They engage in research and produce active ingredients usually in a very few favourable locations, but manufacture, promote, and market the final product in many parts of the world. Another feature in common is that they also typically incur large promotional expenditures in support of the brand names of their particular products. Profits and expenditures on research and development are high on the average compared to other industries. Price competition between firms is limited. The market is typically divided between hospitals and local governments on the one hand and private consumers on the other. Prices to the institutional purchasers are often lower and less promotional effort is addressed to them than to physicians and pharmacists.

Governments in many countries have policies that are specific to the pharmaceutical industry. In these countries, the firms and the associations of pharmaceutical manufacturers engage in very active attempts to influence public opinion and public policy in a direction favourable to the industry. The particular objectives of the industry's public relations depend on the policies that are implemented in the country in question.

In Canada, Section 41(4) of the Patent Act applies only to the pharmaceutical industry and permits the issuance of compulsory licences to import. This is the chief object of concern of the patent-holding firms in the industry and the repeal of this legislation has been their main objective. They are also critical of provincial policies encouraging or requiring the substitution of generic products for brand-name products. In the United Kingdom, the industry is concerned with the reduced level of profit that it is allowed to earn by the Department of Health and Social Services and is today alarmed at the newly announced official intention to restrict to a few generic products the number of drugs that will be reimbursable in eight therapeutic categories. In West Germany, health insurers are increasingly restricting purchases of expensive drugs by the development of "negative lists" of non-reimbursable products. In France, Italy, and Belgium, there is dissatisfaction with the low levels of prices that are enforced by public policy. In Japan, drug prices paid by health insurance have been sharply reduced. In the United States, the industry is opposed to the Maximum Allowable Cost programs and provisions for substitution in the legislation of individual states and in federal reimbursement of the drug costs of the elderly. The member associations of the European Federation of Pharmaceutical Industries Associations actively oppose the arbitrage of patented products between European markets caused by the

extreme differences in prices prevailing for the same product in different countries owing to divergent national policies. (This arbitrage is also referred to as "parallel importing.") Many other examples exist of concerted efforts by firms and their associations to affect national policies in their common interest.

The nature of the policies specific to the pharmaceutical industry has varied by country and over time. In response to concern about the lack of British-owned pharmaceutical firms, which was attributed to excessively broad product patent protection for foreign firms in the United Kingdom before World War I, the British Patent Act was amended in 1919 and restricted the patent protection given to food and drugs to process or product by process, not to the product itself. The amendment also introduced compulsory licensing of patents to permit the entry of new firms. This legislation was widely imitated in other parts of the British Empire. It was introduced in Canada in 1923 in a form that required manufacture of the patented active ingredient in Canada.

The new provision of the Patent Act had little effect in Canada for many years. However, significant changes in public attitudes and policies toward the pharmaceutical industry developed in the late 1950s and the 1960s. One cause of change was the publicity given to the disastrous effects of thalidomide for children whose mothers had taken the drug during pregnancy between 1955 and 1961. This event put in doubt the effectiveness of procedures for the determination of the safety of new drugs.

The other major influence on public opinion was the proceedings of the United States Senate Subcommittee on Antitrust and Monopoly which investigated the behaviour and profitability of the pharmaceutical industry under the chairmanship of Senator Kefauver. The impression was widely disseminated that the industry set high prices, incurred excessive selling costs, and at times disregarded the interests of the public in its successful quest for allegedly excessive profits.

In 1962, the concerns with safety led in the United States to an amendment of the Food, Drug, and Cosmetic Act, which required the Food and Drug Administration to release drugs for marketing only when satisfied that the new drug brought some therapeutic advance in addition to stricter assurance of the drug's safety. Similar requirements and the elaborate and lengthy processes required to meet them were also instituted in Canada and elsewhere.

Canadian policy diverged from that of other countries with respect to competition in the drug industry. In 1969, the Canadian government amended the Patent Act to provide for compulsory licensing to import drugs into Canada. The purpose of reducing barriers to entry to the industry in this way was to lower prices for the benefit of consumers by relying on market forces and increased competition. Other countries relied on regulation if they sought to affect the performance of the industry.

The British government closely regulates the pharmaceutical industry by setting an allowable level of profit for each firm as a function of that firm's performance in the United Kingdom measured chiefly by research and development carried out there and by the level of exports. The average rate allowed has fallen in recent years to control costs. The government also controls the volume of advertising, which was previously thought excessive, by refusing to reimburse in the price of the drugs purchased by the National Health Service more than a certain percentage attributable to promotion expenditures. The French government also seeks to reduce promotion by taxing advertising and, as do many other countries, imposes strict controls on prices. Price control levels are influenced by the performance of the particular firm in France, and discriminate between drugs with respect to the proportion of the purchase price to be reimbursed by public insurance.

In the course of the 1970s, provincial governments in Canada assumed increasing responsibility for the financing of health care. One area of government intervention was the reimbursement of drug purchases. Policies varied between provinces, but most provided for the public reimbursement of drug expenditures for persons over 65 years of age and for persons receiving social assistance. Some provinces extended coverage to the entire population. These responsibilities brought heavy costs and hence concern on the part of provincial governments to limit expenditures. This objective was to be partly achieved by the encouragement of substitution of cheaper generic drugs for the trade name products. Various measures were taken to permit, induce, or mandate the substitution of cheaper for more expensive drugs. These measures have led to varying amounts of generic substitution in the reimbursement programs of provincial governments.

However, so far, little substitution has occurred in the part of the market in which the general public purchases drugs on its own account and is either reimbursed by a private insurance plan or not at all. Growing generic prescription by physicians and the rapid growth of third-party reimbursement plans limited to generic products, where available, may increase the generic share of this market in future.

Canadian provincial policies are similar to policies followed with the same purpose in other jurisdictions. In the United States, various states have repealed anti-substitution laws and introduced measures to limit prices and encourage substitution. West German states and Swiss cantons have also undertaken measures to reduce the costs of pharmaceutical products to the public purse.

Thus three major categories of policies are followed in Canada that affect the pharmaceutical industry. The first is the regulatory mechanism for the clearance of drugs for marketing after satisfactory demonstration of the drug's safety and effectiveness. The second is compulsory licensing in Section 41(4) of the Patent Act to affect the pattern of competition. The third is provincial substitution and reimbursement policies to affect the structure and performance of the retail market and the price paid for drugs by consumers or taxpayers.

These policies are interrelated in two ways. Policies designed to further one goal, such as safety, may have an adverse impact on other goals, such as research or low prices. On the other hand, policies may be designed to support one another in the achievement of a particular goal as in the case of compulsory licensing by the federal government and provincial drug reimbursement programs which both seek to reduce prices.

The clearance mechanism is designed to establish the safety and therapeutic effectiveness of drugs, but it raises the costs of introducing new drugs very significantly by increasing the costs of research and by inducing a long delay before a product can be marketed. It also affects the competitive position of generic firms relative to patent-holding firms since the requirements for clinical testing imposed on the first introduction of a new drug into Canada are necessarily much more onerous than those applied to generic products.

Compulsory licensing to import gave rise to the possibility of increased competition. At the same time, provincial reimbursement plans increased sensitivity to price differentials at the pharmacy level and exploited the opportunities for lower prices through generic substitution made possible by the federal legislation. Both together permitted the growth of large and profitable Canadian-owned generic pharmaceutical firms, which in turn has led to lowered prices to consumers and taxpayers.