Patented Medicine Prices Review Board
Conseil d'examen du prix des médicaments brevetés

The Impact upon Public Drug Plans of Changes in Drug Distribution

npduis

Analytical Study Series

National Prescription Drug Utilization Information System

November 2005

Canada

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sur les budgets des régimes publics d'assurance-médicaments"

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This report was also guided by an Advisory Committee drawn from the Steering Committee. The contribution of the members, specifically discussions and suggestions regarding methodologies to estimate the impact upon drug plans of changes in the distribution system was greatly appreciated.

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Highlights

Background

- The Patented Medicine Prices Review Board (PMPRB) has undertaken the project: The Impact Upon Public Drug Plans of Changes in Drug Distribution as a National Prescription Drug Utilization Information System (NPDUIS) project.
- Public drug plan members of the NPDUIS Steering Committee have identified changes in the drug distribution system as a potential cost driver for their programs.
- The objective of this paper is to examine the retail distribution system in Canada; the changes that have occurred since the early 1990s and its impact on provincial drug plans.
- Drug products arrive at pharmacy outlets either directly from the manufacturers or indirectly through distribution centers and/or through wholesalers.
- Since the early 1990s the distribution system has been changing in favour of more drugs being sold to pharmacies indirectly, i.e., through distribution centers and wholesalers instead of manufacturers selling directly to pharmacies. Many manufacturers who still sell directly to pharmacies have increased their minimum purchase size.
- The trend towards higher indirect sales translates into additional costs to final payers, such as insurers (public or private) and consumers who pay out-of-pocket in the form of absorbing the up-charges or mark-ups.

Methodology and Results

- The analysis is based on aggregate level data from seven jurisdictions (British Columbia, Alberta, Saskatchewan, Manitoba, New Brunswick, and Nova Scotia and from the Non-Insured Health Benefits and for the period 1997-1998 to 2003-2004).
- The financial impact is estimated assuming a 5% distribution margin; Additional analysis is conducted assuming a 2.5% and 7.5% distribution margin. The 1993 rate of indirect sales to pharmacies is used as the reference to estimate the financial impact for the period under study.

- During the period 1997-1998 to 2003-2004 the seven jurisdictions and their beneficiaries paid an additional $103.9M assuming a 5% distribution margin, $51.9M assuming a 2.5% distribution margin and $155.8M assuming a 7.5% distribution margin as distribution costs as a result of more drugs being distributed to pharmacies through indirect routes.
- The analyses suggest that the value of the financial impact of changes in the distribution system for the seven jurisdictions over seven years lie somewhere between $51.9M and $155.8M.

Conclusion

- Changes in the distribution system have resulted in additional costs for the drug plans considered in this study.
- The distribution system will continue to evolve in response to changes in the pharmaceutical sector as a whole.
- The estimated financial impact should be used with discretion as the analysis is based on a number of assumptions.

Introduction

1

Retail prescription drug sales[1] in Canada accounted for $17.3 billion in 2004.[2] Drugs are available to retail pharmacies either directly from manufacturers or indirectly, through middlemen such as drug wholesalers and chain distribution centers. The drug distribution scheme is a complex system that involves many players and involves mark-ups, rebates and free goods, which has an impact on the final price that payers pay for the product.

Public drug plan members of the NPDUIS Steering Committee have identified changes in the drug distribution system as a potential cost driver for their programs. The Steering Committee has requested that the PMPRB evaluate the potential financial implications of manufacturers changing their drug distribution patterns. This report has been prepared by the PMPRB as part of its commitment to the NPDUIS initiative.

The PMPRB reviews the prices of patented drugs as charged by manufacturers; it has no jurisdiction over drug distribution, mark-ups charged by wholesalers and retail pharmacies, or the retail or wholesale prices of drugs.

1.1 Objectives

This report has three objectives:

- describe the retail drug distribution system in Canada;
- review changes that have occurred since the early 1990's in the drug distribution system; and
- evaluate whether changes in the drug distribution system have had an impact upon publicly funded drug plans.

1. Including dispensing fees and wholesale and retail mark-ups but excluding sales to hospitals and other institutions.
2. IMS Health.

1.2 Data Used in this Report

This report uses aggregate data on drug utilization and costs obtained from the provincial drug plans of British Columbia, Alberta, Saskatchewan, Manitoba, New Brunswick, and Nova Scotia and from the Non-Insured Health Benefits (NIHB) — the federal drug plan for First Nations, Inuit, and Métis for the fiscal years 1997-1998 to 2003-2004.

This report also uses information from PPS Pharma — published by Total Pricing Systems Inc., IMS Health, McKesson Canada — the country's largest drug wholesaler and reports published by the Canadian Association for Pharmacy Distribution Management (CAPDM).[3]

3. In Canada, drug wholesalers and distributors are represented by the CAPDM. The CAPDM represents six wholesalers and three integrated pharmacy chains.

2

Retail Drug Distribution System in Canada

Drug products arrive at pharmacy outlets either directly from the manufacturer or indirectly through a distribution center with which the pharmacy outlet is affiliated or through an arms length distributor such as a wholesaler.

Pharmacy outlets can be classified as one of the following five formats.[4]

1. An independent is not affiliated with any corporate run banner, franchise or chain program. The owner makes all purchasing and marketing decisions.
2. A banner is an independent that is affiliated with a central office and pays fees to use a recognized name and to participate in centralized buying.
3. A franchise is owned by a franchisee. Franchise agreements vary and the franchisor often retains considerable control over the franchise. However, the franchisee has some autonomy over drug purchases and marketing.
4. A chain is wholly owned and operated by head office.
5. Food stores and Mass Merchandisers are pharmacy outlets inside a supermarket or mass merchandiser. In Quebec, due to regulations that require the pharmacy to be owned by a pharmacist, the outlets are operated as franchises. In all other provinces the outlets are usually corporately owned and employ a pharmacist as a store manager.

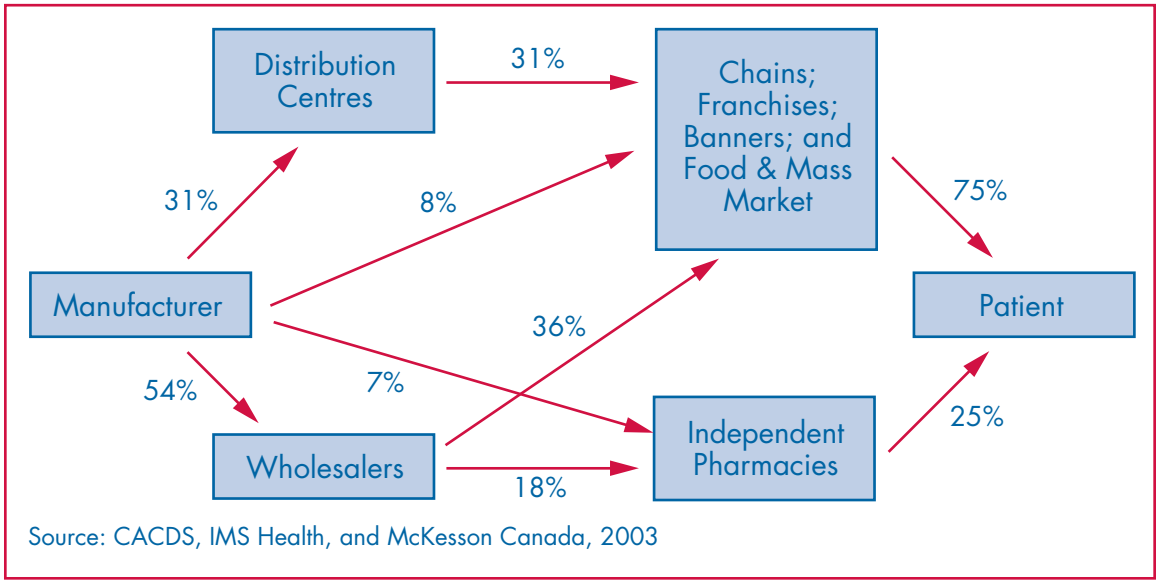
In 2003, the top five pharmacy chains and banners accounted for 40% of all prescriptions filled in Canada; in some geographic markets the local top five chains/banners account for nearly three quarters of all retail drug sales.[5,6]

4. McKesson Canada, Pharmacy Trends Report 2003.
5. McKesson Canada, Pharmacy Trends Report 2003.
6. The Canadian Association of Chain Drug Stores (CACDS) represents 21 pharmacy brands including Banners, Food Stores and Mass Merchandisers, Chains and Franchises. Its members represent over 70% of the estimated 7500 pharmacies in Canada and dispense 75% of prescriptions filled in the country.

Figure 1 provides an illustration of the common avenues of drug distribution and the estimated percentages of drugs that followed each route in 2003. In 2003, chains, franchises, banners and food and mass markets received 67% of their shipments indirectly through distribution centers and wholesalers and 8% of their shipments directly from manufacturers. It should be noted that large retail chains like Shoppers Drug Mart and Jean Coutu have developed their own distribution capabilities. However, they still use wholesalers and also distribute to other retailers. Independent pharmacies received 18% of their shipments through wholesalers and 7% directly from manufacturers. At the end, 75% of patients' demand for drugs was met by chains, franchises, banners and food and mass markets and 25% of the demand was met by independent pharmacies.

Figure 1

Drug Distribution Routes to Patients with Estimated Volume Shares in 2003



Source: CACDS, IMS Health, and McKesson Canada, 2003

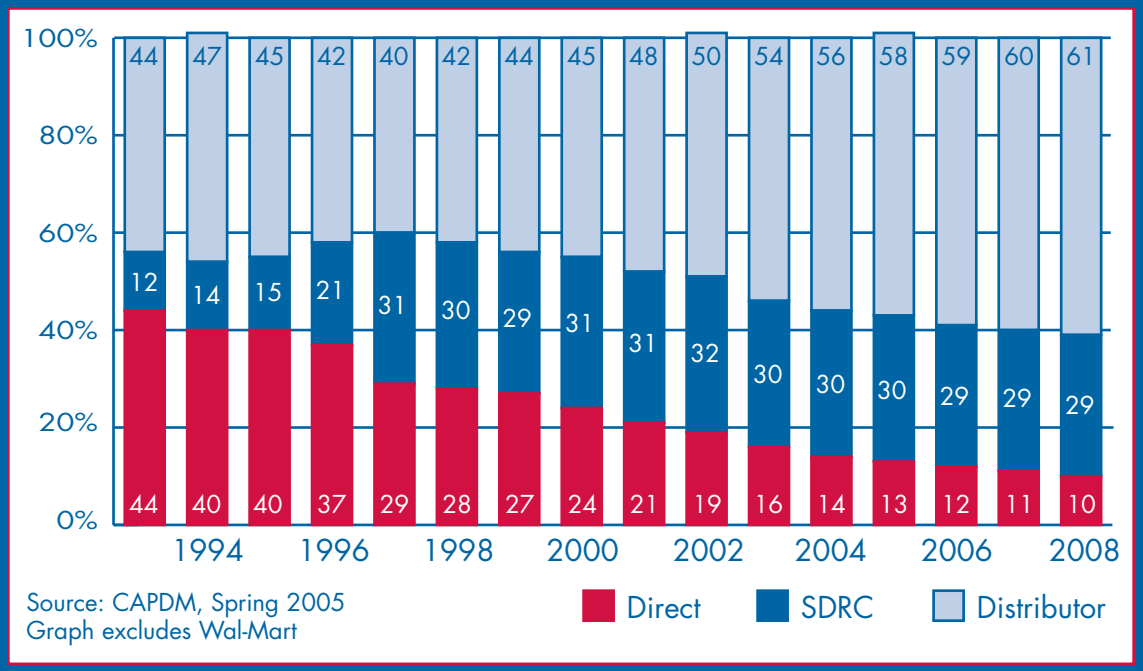
Drug Distribution Trends

3

3.1 Changes in the Drug Distribution System

Since the early 1990's, the distribution system is shifting towards an indirect distribution system as opposed to the more prevalent direct distribution system during earlier years.

In its spring 2005 edition of the *CAPDM Industry Trends Report 2005 Pharmacy Distribution*, CAPDM provides a break-down of manufacturers' direct and indirect sales. Indirect sales is broken down into Self-Distributing Retail Chains (SDRC) and distributors/wholesalers. Figure 2 shows that, in 1993, the percentage of drugs distributed directly to pharmacies was 44%; by 2004 this share has fallen to 14%. The percentage of drugs distributed



Source: CAPDM, Spring 2005
Graph excludes Wal-Mart

Figure 2
Distribution Trends (1993-2004) and Forecast (2005-2008)

through SDRCs increased from 12% in 1993 to 30% in 2004 and the percentage of drugs distributed through wholesalers or distributors increased from 44% in 1993 to 56% in 2004. In other words, indirect shipments increased from 56% in 1993 to 86% in 2004.

Figure 2 also shows forecasted trends till 2008. Distribution through indirect routes will continue to grow in the future.

3.2 Changes in the Retail Sector

McKesson Canada reports that, in 1994, 31% of all pharmacies were independently owned and operated; by 2003, 22% of all pharmacies remained as independents. Furthermore, according to McKesson Canada, on average, independent pharmacies used to process more prescriptions than food stores and mass marketers but, in 2003, they processed fewer prescriptions than any other category of pharmacy.[7]

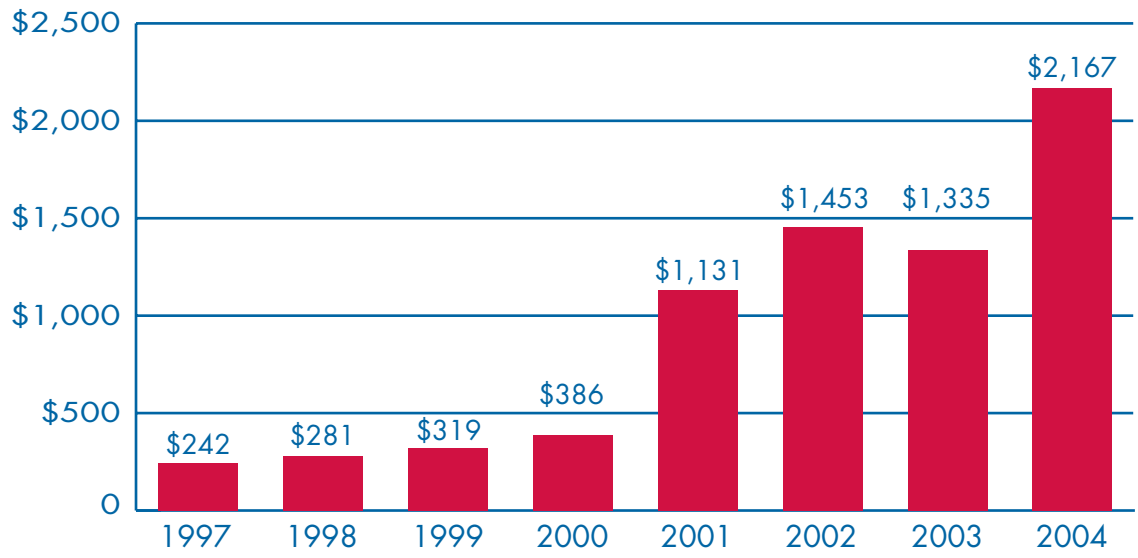
The retail sector has also seen the entrance of mass merchandisers and grocers. The CAPDM reported that the number of pharmacies operated by mass merchandisers grew by over 15% between 1999 and 2001.

3.3 Changes in the Minimum Size Purchase Order

Information obtained from PPS on manufacturers' distribution practices suggests that fewer manufacturers are shipping products directly to pharmacies; when they do ship directly their minimum purchase size has increased. For instance in 1999, 78% of all manufacturers listed in the PPS would accept orders directly from retail pharmacies and 56% had minimum purchase sizes of less than $500 or imposed a small fee if the order was less than the minimum purchase to cover shipping costs. However, by January 2004, only 53% of manufacturers listed in PPS Pharma would accept an order directly from a retail pharmacy and of these only 33% had a small minimum purchase size.

Over the years 1997 to 2004 there was an average of 32 companies listed each year in the PPS. Of those, on average, 17 companies accepted pharmacy orders subject to minimum purchase sizes. In 1997, Pfizer had a minimum order of $250 but, by 2002, Pfizer would only fill orders that were worth at least $15,000[8]. As shown in Figure 3, in 1997 the average minimum purchase size was $242 but by 2004 the average minimum purchase size was $2,167, nearly nine times greater.

7. McKesson Canada, Pharmacy Trends Report 2003.
8. PPS Pharma catalogues 1997 to 2004.



Source: January issues of PPS 1997 2004, current dollars

Figure 3

Average Minimum Purchase Size 1997-2004

3.4 Why did the drug distribution system change?

The Canadian drug distribution system is complex and constantly evolving to meet the needs of the market place. Figure 4 lists some of the driving forces behind a more consolidated distribution system in Canada.

Pharmaceutical Industry	Retail Sector	Distribution Sector
– Industry experience shows that changes in distribution model have little to no impact on sales growth	– Growth in grocers/mass merchandisers who prefer consolidated distribution	– Consolidation, merger activities and acquisitions in the drug distribution industry
– Allows industry to focus on core competencies (e.g., marketing, R&D)	– Health human resource issues, for example, pharmacist shortage favouring consolidated orders (one source offering all inventory needs freeing up pharmacists' time)	– Large chain stores opting for own distribution capabilities
– Cost-effective, reduce operational costs	– Operating cost considerations (e.g. fewer purchase orders, invoices, warehouse receipts, lower inventory carrying costs)	– Improvements in distribution related technology (e.g. IT initiatives such as e-ordering, supply management solutions) allows distributors to gain a competitive edge
– Changing customer base, e.g. growth of mass merchandisers driving new distribution requirements	– Consolidated distribution model ensures frequent and timely delivery	
– Mergers and acquisitions that lead to changes in operations infrastructure and/or product portfolios that necessitate revised distribution strategies		

Source: Adapted from CAPDM reports and presentations

Figure 4

Factors Leading to Consolidated Distribution Model

4 Impact Upon Public Drug Plans

4.1 The Perspective of Public Plans

The impact upon drug plans of changes in the distribution system depends on the reimbursement model adopted by a particular jurisdiction. Jurisdictions that reimburse Actual Acquisition Cost (AAC) will see unit cost paid by their drug plans affected by the distribution model. In jurisdictions that reimburse AAC, the pharmacist will only be reimbursed the manufacturer's price if the drug was purchased directly from the manufacturer. However, if the pharmacist purchased the product from a wholesaler, the pharmacist will be reimbursed the wholesaler's price. For instance, if the manufacturer's ex-factory price for a drug product is $1.00 per tablet and the wholesalers apply a 5% mark-up, the pharmacy will bill the provincial drug plan $1.00 per tablet when obtained directly from the manufacturer and $1.05 per tablet when the drug was obtained through a wholesaler, a 5% increase in unit costs with no offsetting therapeutic benefit.

The drug costs that are recognized by public drug plans may vary from plan to plan. Appendix 1 explains the reimbursement model used in each jurisdiction.

4.2 Financial Impact upon provincial drug plans

The financial impact of changes in the drug distribution system is estimated based on drug reimbursement data from six provinces: British Columbia, Alberta, Saskatchewan, Manitoba, New Brunswick and Nova Scotia and NIHB for the period 1997-1998 to 2003-2004. Calculations of the amount paid as distribution costs are based on the "approved ingredient cost" amount. Ingredient costs refer to the cost of the drug ingredient alone and do not include any other costs that may be associated with the prescription, such as, dispensing fees.[9] Information from Figure 2 (page 7)[10] was used to calculate the

9. The "approved" ingredient cost differs from the "paid" ingredient cost as the former includes the beneficiary share of the claim, such as, co-pays and deductibles. The final cost to the public plans includes ingredient cost plus mark-ups plus dispensing fees minus any applicable co-payments and/or deductibles paid by the beneficiary.
10. Please note that the indirect sales percentages in Figure 2 are represented in calendar years and the provincial and NIHB data are available to us in fiscal years.

amount spent by the seven public drug plans on drugs that were purchased through indirect routes by pharmacies. The distribution cost is calculated assuming a 5% mark-up.[11] The analysis was also conducted assuming a 2.5% mark-up and a 7.5% mark-up in Appendix 2. In order to simplify the methodology, we assume that pharmaceutical prices were constant during this time.[12]

Table 1

Estimated Distribution Costs Incurred by Drug Plans from 1997-1998 to 2003-2004

(in millions of dollars)

Years	BC		AB		SK		MB		NB		NS		NIHB[13]	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
1997-1998	$13.2	$10.4	$6.6	$5.2	$4.1	$3.2	NA	NA	$1.6	$1.3	$2.8	$2.2	NA	NA
1998-1999	$14.2	$11.1	$7.5	$5.9	$4.6	$3.6	NA	NA	$1.8	$1.4	$3.3	$2.5	NA	NA
1999-2000	$16.3	$12.5	$9.4	$7.2	$5.2	$4.0	NA	NA	$2.1	$1.6	$3.5	$2.7	$3.9	$3.0
2000-2001	$19.7	$14.5	$11.3	$8.3	$6.1	$4.5	$4.4	$3.3	$2.6	$1.9	$3.8	$2.8	$4.7	$3.4
2001-2002	$22.9	$16.2	$14.1	$10.0	$7.2	$5.1	$5.7	$4.0	$3.1	$2.2	$4.3	$3.0	$5.7	$4.0
2002-2003	$25.1	$17.1	$16.6	$11.3	$8.7	$5.9	$6.9	$4.7	$3.6	$2.4	$4.9	$3.3	$6.9	$4.7
2003-2004	$23.8	$15.8	$19.9	$13.3	$9.8	$6.5	$8.1	$5.4	$4.1	$2.7	$5.5	$3.7	$7.9	$5.3
Total	**$135.2**	**$97.7**	**$85.3**	**$61.1**	**$45.7**	**$32.9**	**$25.1**	**$17.4**	**$18.8**	**$13.5**	**$28.0**	**$20.3**	**$29.1**	**$20.4**

(1): Estimated amount paid as distribution cost;
(2): Estimated amount drug plans would have paid if indirect distribution levels were at 1993 levels;
NA: Not available.

Table 1 shows the total costs incurred by the seven jurisdictions and their beneficiaries as distribution costs. The first column under each jurisdiction shows the estimated amount paid as distribution cost. In1997-1998, the aproved ingredient cost in British Columbia was $372.7M.[14] As per Figure 2, in 1997 the percentage of drugs distributed indirectly to pharmacies was 71% i.e., the approved ingredient cost amount for drugs purchased through indirect routes was $264.6M of which, using a 5% distribution margin, distribution costs were $13.2M (see Appendix 2 for methodology). The second column in Table 1 shows the amount that jurisdictions would have approved if indirect distribution were held constant at the 1993 rates.[15] In 1993 the percentage of indirect sales to pharmacies was 56% and British Columbia PharmaCare and its beneficiaries would have paid $10.4M as distribution costs.

11. This percentage is used based on personal correspondence with CAPDM. Also, this rate has been used in analysis conducted for CAPDM by Cap Gemini Ernst & Young.
12. As a result, the estimated financial impact would be an over estimation of the actual financial impact caused by changes in the distribution system. However, the over estimation should not be significant since studies show that pharmaceutical price inflation during the period under study was minimal. The Industrial Product Price Index (IPPI) for pharmaceuticals was virtually unchanged from 1993 to 2001. The index rose by 0.7% in 2004 (PMPRB Annual Report, 2004: pg. 27).
13. The government "paid" amount of ingredient cost was used for NIHB.
14. Table A-1 in Appendix 2 shows the approved ingredient cost amounts for the seven jurisdictions.
15. 1993 is the earliest year for which the breakdown of direct and indirect distributions was available during the time this analysis was conducted.

Table 2 shows the impact of changes in the distribution system. The Table shows the additional amount that jurisdictions and their beneficiaries were paying as a result of the percentage of drugs distributed to pharmacies through indirect routes increasing from 56% in 1993 to higher percentages in subsequent years. For example, Table 2 shows that in 1997-1998 British Columbia paid an extra $2.8 million as distribution costs. This is calculated as the difference between column (1) and Column (2) for each jurisdiction in Table 1. Over seven years, British Columbia paid an additional $37.5M as distribution costs compared to what would be paid if indirect distributions were held constant at the 1993 rates. Table 2 shows that in total, over the seven year time period, the seven jurisdictions and their beneficiaries paid an additional $103.9M as distribution costs. The financial impact of changes in the distribution system increased by 93.5% between 2000-2001 (the first year without any missing data) and 2003-2004.

Table 2

Impact Upon Drug Plans of Changes in the Distribution System from 1997-1998 to 2003-2004

(in millions of dollars)

Years	BC	AB	SK	MB	NB	NS	NIHB	Total
1997-1998	$2.8	$1.4	$0.9	NA	$0.3	$0.6	NA	**$6.0**
1998-1999	$3.2	$1.7	$1.0	NA	$0.4	$0.7	NA	**$7.0**
1999-2000	$3.8	$2.2	$1.2	NA	$0.5	$0.8	$0.9	**$9.4**
2000-2001	$5.2	$3.0	$1.6	$1.2	$0.7	$1.0	$1.2	**$13.8**
2001-2002	$6.7	$4.1	$2.1	$1.6	$0.9	$1.2	$1.6	**$18.3**
2002-2003	$7.9	$5.3	$2.8	$2.2	$1.1	$1.5	$2.2	**$23.0**
2003-2004	$7.9	$6.6	$3.3	$2.7	$1.4	$1.8	$2.6	**$26.4**
Total	**$37.5**	**$24.2**	**$12.8**	**$7.7**	**$5.3**	**$7.7**	**$8.6**	**$103.9**

NA: Not available.

Conclusion

5

Increasingly, a greater share of drugs is arriving at Canadian pharmacies by way of intermediaries rather than directly from the manufacturer. The distribution system will continue to evolve in response to changes in the pharmaceutical sector as a whole. The consolidation of the distribution system is not unique to Canada. The same changes are occurring in the United States and Europe as well. These trends, in addition to the pricing structure of the industry and the reimbursement models adopted by drug plans, have had an impact upon total program costs.

This study has estimated the financial impact of changes in the distribution system. However, the results are only an approximation as the analysis is based on a number of assumptions.

Appendix 1: Prescription Costs Reimbursed by Drug Plans

Appendix 1 describes the prescription cost recognized by public drug plans for reimbursement purposes.[16] Provinces that reimburse pharmacists their Actual Acquisition Cost (AAC) are impacted by changes in the distribution system.

British Columbia:
PharmaCare will pay the pharmacy's AAC, including freight costs, up to a maximum of 7% above the manufacturer's list price for wholesaled drugs, plus the professional/dispensing fee.

Alberta:
AAC + Professional Fees + Inventory Allowance

There are 3 drug price policies: Least Cost Alternative (LCA), Maximum Allowable Cost (MAC), and AAC.

The LCA price is the lowest unit cost established for a drug product within a set of interchangeable drug products. Alberta's supplemental health plans will only pay for the lowest-priced drug product where interchangeable (generic) products can be used to fill a prescription. Beneficiaries who choose higher cost alternatives are responsible for paying the difference.

The MAC price is the maximum unit cost established for a specific drug product or a selected group of interchangeable drug products. A small number of products are subject to MAC pricing.

Pursuant to the Pharmacy Agreement, pharmacists are expected to charge the AAC of a drug product. For interchangeable drug products, pharmacists can only charge the AAC to a maximum of the LCA price.

16. Source: NPDUIS Plan Information Module, June 2005, CIHI and *Liste de médicaments, Février 2005*, Québec.

Saskatchewan:
Low Cost Alternative: Benefits are based on the lowest priced interchangeable brand as listed in the Formulary.

Maximum Allowable Cost: Classes of drugs are reviewed by the province's expert drug review committees to determine which products are equally safe, beneficial, and cost-effective. The price of the most cost-effective drugs are used as a guide to set the maximum price that the Drug Plan will cover for other similar drugs, used to treat the same condition.

Prescription Cost: The prescription cost is calculated by adding the actual acquisition cost of the drug material (which can include an allowable wholesale mark-up), the pharmacy mark-up (up to a maximum) and dispensing fee (up to a maximum).

Manitoba:
AAC + Professional Fees

Ontario:
Drug Benefit Price (DBP) + Mark-up + Professional Fee

Where AAC exceeds DBP +10%, pharmacists may claim AAC. A mark-up is not paid on these claims.

Quebec:
Acquisition Price: To be added to the provincial formulary, manufacturers are required to guarantee a fixed price for each product. The reimbursement price to the pharmacists by the Régie is based primarily on the amount guaranteed in the provincial formulary.

Lowest Price: The amount reimbursed for drugs that were listed on the provincial formulary for 15 years or more and produced by two or more manufacturers will be based on the lowest market price.

Maximum amount: In special circumstances, the minister of health could establish a maximum amount for the payment of a medicine.

New Brunswick:
AAC or MAP (Maximum Allowable Price) + Dispensing Fee

Nova Scotia:
MAC + Professional Fees

For drugs that are not assigned a MAC, the drug cost billed to the Pharmacare Programs shall be AAC, with no mark-up, plus the applicable professional fee. In the case of injectable products and ostomy supplies, a mark-up is allowed in addition to the AAC and professional fee.

Prince Edward Island:
MAC + Professional Fees

Multi-Source Interchangeable Drugs
The MAC price is the lowest unit cost established for a drug product within a set of designated interchangeable products.

Single-Source Drugs
The MAC is based upon whether the manufacturer is classed as 'Direct' (i.e. pharmacies can purchased directly from the manufacturer) or 'Wholesale' (i.e. pharmacies must purchase through a wholesaler).

Direct Drugs — the MAC is the manufacturer's catalogue price

Wholesale Drugs — the MAC is the manufacturer's catalogue price plus a 13% markup.

Newfoundland:
List Price + Allowable mark-up (see below) + Professional Fees

NIHB:
In general, NIHB applies the LCA policy in accordance with the LCA list in existence in the jurisdiction where the NIHB beneficiary resides. The NIHB operates in a defined cost (DC) environment. DC's are found on the claims processor price file and is based on two sources: the prices published on provincial formularies for drugs common to the province and NIHB and if a product is unique to NIHB, the price list of a national wholesaler is used or the local listing such as the price list of the *Association Québécoise des Pharmaciens Propriétaires* (AQPP) in Québec or the Atlantic Pharmaceutical Services Inc. (APSI) in Nova Scotia.

Appendix 2: Methodology — Financial Impact Upon Public Drug Plans

The following is the methodology explaining how the financial impact upon public drug plans of changes in the distribution system was calculated for this report.

Table A-1 shows the ingredient cost approved by the public drug plans in the seven jurisdictions over the period 1997-1998 to 2003-2004. This table was used to calculate the financial impact of changes in the distribution system. Ingredient costs refer to the cost of the drug ingredient alone and do not include any other costs that may be associated with the prescription, such as, dispensing fees.

Table A-1

Ingredient Cost Approved by Jurisdictions (in millions of dollars)

Year	BC	AB	SK	MB	NB	NS	NIHB
1997-1998	$372.7	$185.2	$115.0	N/A	$44.7	$79.4	NA
1998-1999	$395.1	$209.7	$128.2	N/A	$50.5	$91.0	NA
1999-2000	$445.6	$256.5	$141.2	N/A	$57.0	$96.6	$105.8
2000-2001	$518.4	$297.1	$161.6	$116.1	$67.7	$98.8	$122.7
2001-2002	$580.8	$356.9	$183.2	$143.2	$78.2	$108.0	$143.0
2002-2003	$611.5	$404.1	$212.4	$168.8	$87.5	$119.1	$167.5
2003-2004	$566.8	$473.4	$233.4	$193.5	$97.3	$130.4	$188.9

NA: Not available. Ingredient cost paid by NIHB.

- Distribution cost in any given year is calculated as (ingredient cost approved x % of indirect sales ? distribution margin). For example, in 1997-1998 British Columbia paid ($372.7 x 71% x 5%) or $13.2M as distribution cost. The distribution cost was calculated for each jurisdiction for seven years from 1997-1998 to 2003-2004.
- The impact of increasing percentage of indirect sales to pharmacists was calculated by holding the 1993 rates as the reference year. In 1993, the percentage of indirect sales to pharmacies was 56%. The distribution cost was calculated using the above mentioned formula for every jurisdiction for the seven years. For example, British Columbia would pay ($372.7M x 56% x 5%) or $10.4M as distribution cost.
- The impact of changes in the percentage of sales to pharmacists through indirect routes is calculated as a difference between the amount the drug plans paid and the amount they would have paid should indirect distribution rates remained as it was in 1993. For example, British Columbia paid an additional ($13.2M – $10.4M) or $2.8M as distribution costs in 1997-1998.

Appendix 3: Analysis using 2.5% and 7.5% distribution cost

The analysis is also conducted assuming a 2.5% and 7.5% distribution margin. Distribution margins are often negotiated and can be much lower or higher than 5%, which has been used in the analysis so far. Table A-2 shows that using a 2.5% distribution margin, over the seven years the seven jurisdictions would have paid an additional $51.9M as a result of greater sales through indirect routes to pharmacists.

Table A-2

Impact Upon Drug Plans of Changes in the Distribution System from 1997-1998 to 2003-2004 using 2.5% as distribution cost

(in millions of dollars)

Years	BC	AB	SK	MB	NB	NS	NIHB	Total
1997-1998	$1.4	$0.7	$0.4	NA	$0.2	$0.3	NA	**$3.0**
1998-1999	$1.6	$0.8	$0.5	NA	$0.2	$0.4	NA	**$3.5**
1999-2000	$1.9	$1.1	$0.6	NA	$0.2	$0.4	$0.4	**$4.7**
2000-2001	$2.6	$1.5	$0.8	$0.6	$0.3	$0.5	$0.6	**$6.9**
2001-2002	$3.3	$2.1	$1.1	$0.8	$0.4	$0.6	$0.8	**$9.2**
2002-2003	$4.0	$2.6	$1.4	$1.1	$0.6	$0.8	$1.1	**$11.5**
2003-2004	$4.0	$3.3	$1.6	$1.4	$0.7	$0.9	$1.3	**$13.2**
Total	**$18.7**	**$12.1**	**$6.4**	**$3.9**	**$2.6**	**$3.9**	**$4.3**	**$51.9**

NA: Not available.

Table A-3 shows that using a 7.5% distribution margin the seven jurisdictions would pay an additional $155.8M over seven years as a result of changes in the distribution system.

Table A-3

Impact Upon Drug Plans of Changes in the Distribution System from 1997-1998 to 2003-2004 using 7.5% as distribution cost (in millions of dollars)

Years	BC	AB	SK	MB	NB	NS	NIHB	Total
1997-1998	$4.2	$2.1	$1.3	NA	$0.5	$0.9	NA	**$9.0**
1998-1999	$4.7	$2.5	$1.5	NA	$0.6	$1.1	NA	**$10.5**
1999-2000	$5.7	$3.3	$1.8	NA	$0.7	$1.2	$1.3	**$14.1**
2000-2001	$7.8	$4.5	$2.4	$1.7	$1.0	$1.5	$1.8	**$20.7**
2001-2002	$10.0	$6.2	$3.2	$2.5	$1.3	$1.9	$2.5	**$27.5**
2002-2003	$11.9	$7.9	$4.1	$3.3	$1.7	$2.3	$3.3	**$34.5**
2003-2004	$11.9	$9.9	$4.9	$4.1	$2.0	$2.7	$4.0	**$39.6**
Total	**$56.2**	**$36.3**	**$19.3**	**$11.6**	**$7.9**	**$11.6**	**$12.9**	**$155.8**

NA: Not available.

It can be concluded from the analysis that the approximate value of the financial impact of changes in the distribution system for the seven jurisdictions over seven years lie somewhere between $51.9M and $155.8M.