Prologue: The escalating costs of prescription drugs and competition among pharmaceutical firms for customers are drawing the attention of policymakers, pharmacies, and individual and institutional purchasers. Mail order pharmacies recently have grown in prominence as a competitive alternative to the local community pharmacy. This article by Constance Horgan, Brigid Goody, David Knapp, and Leslye Fitterman explores the one-hundred-year history of mail service pharmacies and the role they play in providing prescription drugs to the elderly. The authors conducted a study of mail service pharmacies, which was mandated by Congress under the Medicare Catastrophic Coverage Act of 1988. Their survey reveals that the elderly account for nearly 57 percent of total sales of mail service pharmacies. At Brandeis University, Horgan is an associate research professor at the Bigel Institute for Health Policy, Heller Graduate School. She holds a doctorate in health policy and management from The Johns Hopkins University and served from 1980 to 1984 as a health services researcher at the National Center for Health Services Research and Health Care Technology Assessment. Brigid Goody, social science research analyst at the Health Care Financing Administration’s Office of Research, received her master’s degree in public health from Boston University. She is currently working on a doctoral degree in health policy and management from the Harvard School of Public Health. David Knapp is professor in pharmacy administration and acting dean of the School of Pharmacy at the University of Maryland. He received his doctorate in pharmacy administration from Purdue University. Since 1987, he has directed the Center on Drugs and Public Policy at the University of Maryland Graduate School. Leslye Fitterman, a policy fellow at the University of Maryland Center on Drugs and Public Policy, holds a master of science degree from the University of Maryland School of Pharmacy.
The passage of the Medicare Catastrophic Coverage Act of 1988 (P.L. 100-360) led to a renewed interest in the use of prescription drugs by the elderly population. Although most of the interest focused on predicting use and costs for the newly added prescription drug benefit, some attention was also paid to alternative mechanisms for the delivery of prescription drugs. One such alternative is mail service pharmacies, which generally concentrate on processing new and renewal prescriptions for maintenance drugs through the mail. These pharmacies constitute a relatively small part of the prescription drug market; however, they are a rapidly growing industry and have become a viable alternative delivery system for maintenance prescription drugs. This article describes the current role of mail service pharmacies in the delivery of prescription drugs, with a particular emphasis on the elderly.

Historical Perspective On Mail Service Pharmacies

Prescriptions have been provided by mail in the United States for over a century, although historically this practice existed primarily for delivery in rural or remote areas. The mailing of prescription drugs was performed by community or hospital-based pharmacies and was seen as a necessary service for the patient. Pharmacies that dealt primarily in prescriptions by mail did not exist until 1946, when the Veterans Administration (VA) mailed prescription drugs at no charge to eligible veterans. Currently, the VA accounts for one-third of all prescriptions provided by mail service pharmacies. In 1959, the American Association of Retired Persons (AARP) and the National Retired Teachers Association formed a nonprofit mail service pharmacy for their membership. For-profit companies followed in 1963 and began to market to corporate, union, and government employers. The 1960s witnessed growing opposition to the mail service concept by many pharmacy associations.

The most rapid growth of mail service pharmacies occurred during the late 1980s. Mail service pharmacy sales grew from less than $100 million in 1981 to a projected $1.5 billion in 1989. The mail service market currently accounts for an estimated 6 percent of the outpatient prescription drug market. This is expected to grow at an annual rate of 30 percent through the early 1990s. Because these pharmacies focus on the delivery of maintenance medications—currently the majority of outpatient prescription drug sales—their potential market is enormous.

In the past five years, there have been many new entrants to the mail service market, including both mail service–only companies and traditional pharmacies, usually large chains, that have developed a mail service component. During the same time, many of the largest for-profit
mail service companies have undergone ownership changes. Employer interest has fueled the growth of for-profit mail service pharmacies, which have marketed their services primarily as a means of cost containment without quality reduction. Employer concerns relate to two factors: (1) the costs of prescription drugs are rising faster than other medical costs, and (2) the increasing number of retirees means more maintenance drugs will be used. The elderly use more maintenance drugs and thus constitute a significant market for the mail service industry.

A Study Of The Mail Service Pharmacy Industry

The Medicare catastrophic legislation mandated the secretary of health and human services to report to Congress by 1 January 1990 on the results of a study “to evaluate the potential to use mail service pharmacies to reduce costs to the Medicare Program and Medicare Beneficiaries.” The legislation’s repeal has obviated the mandate to report to Congress; however, the study, which was completed prior to the repeal, provides a comprehensive description of the mail service pharmacy industry. We have based this article on that study, which was carried out by Brandeis University in collaboration with the University of Maryland School of Pharmacy, under contract with the Health Care Financing Administration (HCFA).

The sampling frame for our study was the universe of mail service pharmacies, exclusive of the Veterans Administration, now the Department of Veterans Affairs. To identify this universe, we composed a list of fifty-one potential mail service pharmacies from several sources, including the National Association of Mail Service Pharmacies, the National Council on Prescription Drug Programs, and the journal Drug Topics. We telephoned these pharmacies to verify that they were a mail service operation, to ascertain appropriate sampling criteria, and to determine their willingness to participate in the primary data collection effort. As a result of this telephone inquiry, conducted in December 1988, thirty-four mail service pharmacies were identified.

As part of our initial telephone inquiry, we asked about the firms’ size (in both dollar sales and number of prescriptions dispensed), characteristics of the firms’ customers, years in business, and the use of automated systems. From the universe of thirty-four firms, twenty-three indicated they would be willing to participate in our primary data collection effort. Pharmacies were placed into three strata based on size of operation in 1988. A stratified random sample of nine pharmacies (five large, two medium, and two small) was selected for further study. The sample size was constrained to nine pharmacies because of the short time frame for
the study and the requirement of preclearance of the survey instrument by the Office of Management and Budget (OMB) for a larger sample size. We asked these nine firms to complete a more comprehensive mail questionnaire and to allow a follow-up site visit. The more detailed mail survey asked about many dimensions of the business, including the size and complexity of operations, drug entities dispensed, prescription operations, patient counseling, and financial information. The on-site visits consisted of a structured interview, usually preceded by a tour of pharmacy operations.

Overview Of The Industry

The mail service industry can be characterized along a variety of important dimensions, including the size and concentration of firms, the nature of their customers, operating characteristics, types of contracts, and types of products dispensed. Unless otherwise indicated, the following description is based upon information obtained from all thirty-four mail service pharmacies during the initial telephone inquiry.

Firm size. The distribution of firms by size, whether characterized by annual sales or number of prescription dispensed, is very skewed. We estimate that in 1988 the two largest firms were responsible for approximately two-thirds of both dollar sales and number of prescriptions dispensed. Of the twenty-two firms providing information on the number of prescriptions dispensed, seventeen (77 percent) each dispensed fewer than a million prescriptions annually, with eight of these firms each dispensing fewer than 100,000 prescriptions annually. At the other end of the scale, two firms dispensed in excess of five million prescriptions annually. The mean was 1,389,000 prescriptions filled; median, 272,500.

Similarly, with annual sales, of the twenty-four firms providing information, seventeen (71 percent) had annual revenues of less than $50 million, with twelve of these firms having annual revenue of less than $10 million. In contrast, three firms had annual revenue in excess of $100 million. Mean annual sales revenue exceeded $45 million, and the median, over $6 million. When asked about growth in sales between 1987 and 1988, all mail service pharmacies reported substantial growth, with percentage increases ranging from 16 percent to 82 percent. The weighted average growth in sales was 52 percent. Younger firms were smaller and experienced relatively more rapid growth than their older and larger counterparts.

Customers. We explored several characteristics of customers: whether customers come to a firm as members of a group or as individuals, and the proportion of sales to customers over age sixty-five (Exhibit 1). Almost
95 percent of firms indicated that their customers came to them as members of funded groups. Employers, private insurers/third-party administrators, and unions were the most frequently mentioned types of group served, although health maintenance organizations (HMOs) and preferred provider organizations (PPOs) were mentioned as group customers as well.

While twenty-two firms (65 percent) indicated having individual customers, several of these firms indicated that such customers were a very small portion of their business. Only two firms, sold exclusively to customers not associated with group contracts. The vast majority of firms who sold to individuals did so through affinity groups—groups whose special interests, sometimes related to a particular disease, are represented by an organization. Members of an affinity group were classified as individual customers, since the relationship is that of a referral and the pharmacies collect payment from the individual customer. It is, however, important to note that the mail service firms did not market directly to individuals belonging to affinity groups. In fact, only one firm marketed directly to individual customers. A couple of additional firms were considering test marketing direct sales in a limited geographic area.

Persons over age sixty-five represented a large portion of sales in mail service pharmacies despite the predominance of employer contracts. Both employer and union contracts tended to include retirees as eligible
for prescription drug coverage. The mean percentage of customers over age sixty-five was 33 percent; however, the mean percentage of sales to persons over age sixty-five was 57 percent. This reflects the fact that elderly persons are heavier users of prescription drugs, especially chronic medications, than are their younger counterparts.

**Other characteristics.** Although three firms indicated they had been in the mail service business for twenty years, more than half of the firms had been in the business for five years or less (Exhibit 2). Three firms had entered the business during the past year. As expected, the average age of small firms (those dispensing fewer than a million prescriptions annually) was less (7 years) than the average age of larger firms (13.5 years).

Three-quarters of mail service firms marketed on a national basis, and all of the large firms considered their market to be national. Only four firms indicated that they have had more than one distribution site, although several single- and multiple-site firms indicated that they were in the process of establishing additional sites.

Almost all firms had toll-free telephone lines to accommodate inquiries from their long-distance customers. Nearly three-quarters of the firms, including all of the large firms, used automatic dispensing equipment. All but one pharmacy maintained patient profile systems, enabling them to retrieve a drug history by patient. More than half of the firms indicated that they carried other product lines, such as vitamins and minerals, over-the-counter medications, durable medical equipment, and disposable medical supplies.

### Implications For The Elderly

Sales to the elderly represent the majority of sales in most mail service pharmacies. This suggests that a substantial number of elderly find mail

---

**Exhibit 2**

**Characteristics Of Mail Service Pharmacies**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>National market</td>
<td>26</td>
<td>76.5%</td>
</tr>
<tr>
<td>Toll-free telephone line</td>
<td>33</td>
<td>97.1%</td>
</tr>
<tr>
<td>Automated dispensing</td>
<td>25</td>
<td>73.5%</td>
</tr>
<tr>
<td>Patient profile system</td>
<td>33</td>
<td>97.1%</td>
</tr>
<tr>
<td>Other product lines</td>
<td>19</td>
<td>55.9%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mean of years in business</th>
<th>8.25</th>
<th>Median</th>
</tr>
</thead>
</table>

Source: C. Horgan et al., “Study to Evaluate the Use of Mail Service Pharmacies” (Brandeis University, 1989).

*n=34.*
service pharmacies an acceptable way to obtain their maintenance medications. Because market penetration of mail service pharmacies is still relatively low, only a small segment of the elderly population actually uses mail service pharmacies. The broad range of products offered, the convenience of home delivery, and the availability of a toll-free number for inquiries are some of the features that might be attractive to elderly customers. Delivery of pharmaceuticals directly to one’s home through the mail may be particularly important to the elderly, especially those whose increased impairment affects their ability to get to a pharmacy. Characteristics of mail service pharmacies that may be less appealing to the elderly are the reduced opportunity for personalized advice from the pharmacist. This is countered by the availability of a toll-free number; however, some elderly may prefer face-to-face contact.

Access to mail service pharmacies. The traditional paradigm of access, cost, and quality may be used to assess the implications of mail service pharmacies for the elderly. Only one mail service pharmacy markets directly to the elderly who are not retirees eligible for employer-provided prescription drug coverage. This raises the issue as to whether many elderly are aware of mail service pharmacies and their potential benefits. Access to these services by the elderly could be increased by contracts with both group and nongroup “Medigap” insurers. Before such contracts are likely to become widespread, Medigap insurers and mail service pharmacies will have to accommodate each other. Currently, if contracts between the employer or insurer and the mail service pharmacy provide for cost sharing, it generally takes the form of a flat copayment per prescription. Only a few contracts provide for a quarterly or annual deductible consistent with the provisions of most Medigap drug benefits.

Price of drugs from mail service pharmacies. If purchasing prescribed medications through a mail service pharmacy is indeed less expensive than other delivery modes, then this is an important consideration for the elderly, who use a greater proportion of prescribed medications than other age groups. Prescription charges include two principal components: drug product cost and the cost of dispensing. Mail service pharmacies have the potential to dispense prescriptions at a lower cost than other pharmacies as a result of economies of scale, increased generic substitution, volume purchasing, and increased efficiency of operations, including careful inventory management. The literature is mixed on whether ingredient and dispensing costs are lower, and, if so, whether this is offset by increased waste related to dispensing a longer days’ supply.

Our study was voluntary, and the mail service pharmacies in our sample were unwilling to share sufficient financial information to ascertain potential cost savings from the use of such pharmacies. Mail service
pharmacies responding to the survey averaged $42.32 per prescription; 2.2 prescriptions per order processed; 76.7 days’ supply per prescription; and $0.561 charge per day’s supply. Although large and small mail service firms had similar averages for these variables, there were considerable variations across the total sample of mail service firms responding to the survey. The literature provides some comparative averages for community pharmacies ($15.19 per prescription, 26 days’ supply per prescription, and $0.584 charge per day’s supply); however, comparisons across practice settings, particularly for costs, must be made with caution. Prescription costs are affected by several variables other than practice setting, such as type of prescriptions filled; average days’ supply per prescription; generic fill rate; variance in state drug product selection laws; coverage rules and quantity of third-party paid prescriptions; and volume discounts negotiated with third-party payers that are not reflected in estimates available from the literature.

Quality of services from mail service pharmacies. An assessment of quality issues was made primarily through observations during our on-site visits. From our observations, mail service pharmacies appeared to adhere to the standards of practice of the profession of pharmacy related to the process of dispensing a prescription. Mail service pharmacies have carefully crafted process controls over the quality of the dispensing process. The large mail service firms, in particular, have designed systems that use computer-based information systems, automated tablet counting devices, technical personnel, and pharmacists for checking and supervising at strategic points, with the goal of highly efficient and safe dispensing. In addition, most mail service pharmacies provide appropriate written information with prescriptions and the opportunity for customers to follow up by telephone using toll-free lines. Thus, the elderly can learn more about the medications they are taking in a form they may keep for reference and receive counseling without traveling to their local pharmacy. As is typical in most sectors of the U.S. health care system, the onus is on the patient or caregiver to use such services and resources.

Conclusion

Mail service pharmacies currently account for a relatively small proportion of the outpatient prescription drug market, less than 6 percent, with a relatively low level of participation by individuals eligible for their services. The recent rapid growth in the industry suggests that mail service pharmacies may expand their market share substantially in the next five years. The elderly, who are heavy users of maintenance prescription drugs, are a likely target for marketing activities. Since approxi-
mately one-half of mail service sales are to the over-sixty-five population, mail service pharmacies are already being used by Medicare beneficiaries, either through their retiree health benefits or through membership in an organization that allows access to a mail service pharmacy. Mail service pharmacies provide a viable alternative system for the delivery of maintenance or chronic medications to the elderly, although this study did not produce definitive findings on relative costs. Further research is needed on this and other important aspects of the provision of prescription drugs to the elderly through the mail.

This work was supported by the Health Care Financing Administration (HCFA) through cooperative agreement no. 88-C98526/1-05 to Brandeis University. The opinions expressed in this article are those of the authors and do not necessarily represent those of the funding agency. The authors are particularly grateful for the insight provided by HCFA project officer William England. We are also appreciative of the efforts of other members of our study team: Helen Batten and Jerry Boren from Brandeis University; Alan McKay and Frank Palumbo from the University of Maryland; and Stephen Schondelmeyer from Purdue University. We appreciate the efforts of the mail service pharmacies whose participation made this study possible.

NOTES

4. Ibid.
6. A more thorough discussion of the cost and efficiency issues is contained in the final project report, Study to Evaluate the Use of Mail Service Pharmacies, NTIS Pub. no. PB90172677 (Springfield, Va.: National Technical Information Service, 21 September 1989). Data are presented from the mail questionnaire to the sample of nine pharmacies.
7. A more thorough discussion of the quality issue is contained in Study to Evaluate the Use of Mail Service Pharmacies. Observations from the site visits are described in detail.