Pharmacy Closings in Massachusetts, 1980 - 1995

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Jasprit Deol, M.P.H., compiled data, geocoded pharmacies, and prepared maps for this study. Her help has been indispensable.

Madame Chair, Mr. Chairman, and members of the committee:

Thank you for the chance to speak with you this afternoon. As always, we speak only for ourselves and not for Boston University or any of its components, or for our funding organizations. We gratefully acknowledge financial support from The Boston Foundation, The Boston Globe Foundation, the Mabel A. Horne Trust/Bank of Boston Charitable Trusts, the Raytheon Company, and the Erna Yaffe Foundation.

Today, as you take up several bills pertaining to pharmacies, we would like to provide background information on pharmacy closings, survival, and new construction.

We think that the convenient availability of pharmacies is especially important in several instances. For one example, in lower-income and minority neighborhoods, pharmacists appear to provide greater amounts of medical advice and counseling. For a second example, the ready availability of a pharmacy that stocks pain medications is especially valuable when a patient is returning home from the hospital after surgery and it is necessary to buy medications during that trip. Otherwise, a family can spend a difficult time driving around trying to locate needed prescription drugs.
INTRODUCTION

The number of pharmacies in Massachusetts has dropped from 1,374 in 1980 to 1,011 in 1995, a cut of 26.4 percent.¹

What are the possible advantages and dangers associated with this reduction? Little is known. Many questions are possible:

1. Is this reduction in the number of pharmacies safe for the public?
2. Does it reflect legitimate differences in patient need or non-legitimate differences in insurance coverage or ability to afford needed medications?
3. Is pharmacy survival influenced inappropriately by drug company pricing practices?
4. Does the reduction reflect legitimate free market forces or, does it reflect other forces that may not be in the public’s interest?
5. Does the reduction diminish access to needed medications. For example, do frail or elderly patients face greater travel time to the pharmacy, and do patients find it harder to obtain pain-fighting medications after discharge from a hospital?
6. Does the loss of pharmacies from lower-income or minority neighborhoods reduce contacts with pharmacists, who often serve as important sources of medical advice in these very neighborhoods?
7. Is the drop in the number of pharmacies partly offset by the increased size or longer hours of operation of those that remain?
8. Is the drop offset partly by a rise in use of mail-order prescriptions?
9. Does the reduction in the number of pharmacies save money for all those who pay the bills: patients, employers, and government programs?

Because the evidence needed to answer these questions is lacking, we urge that:

- the available national research be examined, and that
- closings of pharmacies in the Commonwealth be monitored carefully every two years.

To begin the second job, we would like to offer some baseline information.
SIX MASSACHUSETTS CITIES

We are beginning to document the specific pattern of pharmacy closings in six Massachusetts cities: Boston, New Bedford, Lawrence, Worcester, Springfield, and Pittsfield.

Overall Pattern of Pharmacy Closings in Six Cities

In 1980, there were 290 pharmacies in these cities, according to the 1981 edition of the Hayes Directory. Fully 200 (69.0 percent) of these had closed by 1995. Only 90 (31.0 percent) of those open in 1980 were still open in 1995.

During these fifteen years, 80 new pharmacies opened in the six cities. As a result, 170 pharmacies were in business in 1995. That represented a net reduction of 41.4 percent between 1980 and 1995. Thus, in 1995, the number of pharmacies open was 58.6 percent of the number open in 1980.

This 41.4 percent cut in the number of pharmacies in the six cities was over one and one-half times greater than the statewide average cut of 26.4 percent (see Table 1). These reductions reflect both closings of existing pharmacies and openings of new ones.

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>1980 Pharmacies</th>
<th>1995 Pharmacies</th>
<th>Percent Lost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Six Cities</td>
<td>290</td>
<td>170</td>
<td>41.4 %</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>1,374</td>
<td>1,011</td>
<td>26.4 %</td>
</tr>
</tbody>
</table>

Viewed geographically across cities, although the pattern of closings varied somewhat, the strong overall tendency is what matters. The share of 1980 pharmacies closed ranges from a low of 60.0 percent in Pittsfield to a high of 74.5 percent in Worcester. (See Table 2.)

City maps. Six pairs of maps follow Table 2, one pair for each city. In each pair, the left-hand map displays the locations of pharmacies open in 1980 and the right-hand map displays the locations of pharmacies open in 1995.
Table 2

Rate of Pharmacy Closings, Six Cities Compared, 1980 - 1995

<table>
<thead>
<tr>
<th>City</th>
<th>Pharmacies Open 1980</th>
<th>Percent Closed by 1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>128</td>
<td>68.8</td>
</tr>
<tr>
<td>Lawrence</td>
<td>23</td>
<td>69.6</td>
</tr>
<tr>
<td>New Bedford</td>
<td>29</td>
<td>65.5</td>
</tr>
<tr>
<td>Pittsfield</td>
<td>15</td>
<td>60.0</td>
</tr>
<tr>
<td>Springfield</td>
<td>47</td>
<td>70.2</td>
</tr>
<tr>
<td>Worcester</td>
<td>48</td>
<td>74.5</td>
</tr>
<tr>
<td>Total 6 Cities</td>
<td>290</td>
<td>69.0</td>
</tr>
</tbody>
</table>

RACE/ETHNICITY, INCOME, AND PHARMACY CLOSINGS

The six cities studied had a much higher rate of pharmacy closings than the state as a whole. They also had triple the state average African-American and Latino-American population share, 28.5 percent. In 1990, our state’s population was 5.0 percent African-American and 4.4 percent Latino-American, for a total of 9.3 percent (allowing for rounding). As Table 3 shows, all but one of the cities studied had populations with greater minority shares than the state as a whole in 1990.

Table 3


<table>
<thead>
<tr>
<th>City</th>
<th>Percent Black</th>
<th>Percent Hispanic</th>
<th>Percent Black + Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>25.6</td>
<td>9.0</td>
<td>34.6</td>
</tr>
<tr>
<td>Lawrence</td>
<td>6.4</td>
<td>36.9</td>
<td>43.3</td>
</tr>
<tr>
<td>New Bedford</td>
<td>4.1</td>
<td>6.1</td>
<td>10.2</td>
</tr>
<tr>
<td>Pittsfield</td>
<td>3.1</td>
<td>1.0</td>
<td>4.1</td>
</tr>
<tr>
<td>Springfield</td>
<td>19.2</td>
<td>15.9</td>
<td>35.0</td>
</tr>
<tr>
<td>Worcester</td>
<td>4.5</td>
<td>9.0</td>
<td>13.6</td>
</tr>
<tr>
<td>Six cities</td>
<td>17.4</td>
<td>11.1</td>
<td>28.5</td>
</tr>
<tr>
<td>Statewide</td>
<td>5.0</td>
<td>4.4</td>
<td>9.3</td>
</tr>
</tbody>
</table>

Viewed geographically within cities, there is a mild tendency for pharmacies to close in lower-income and minority areas. But this trend is not statistically significant. (See Table 4, comparing the characteristics of the census tracts containing pharmacies that
Springfield Pharmacies, 1980

Springfield Pharmacies, 1995

close between 1980 and 1995 with those of pharmacies remaining open.) In this study, we define the area as the census tract in which the pharmacy is located.

### Table 4

**Comparison of 1990 Neighborhood Ethnicity and Income, Pharmacies Closing versus Those Remaining Open, Six Cities, 1980 - 1995**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>tract pct. black</td>
<td>14 %</td>
<td>12 %</td>
<td>0.483</td>
</tr>
<tr>
<td>tract pct. Hispanic</td>
<td>13 %</td>
<td>12 %</td>
<td>0.493</td>
</tr>
<tr>
<td>tract pct. black+Hispanic</td>
<td>27 %</td>
<td>23 %</td>
<td>0.351</td>
</tr>
<tr>
<td>median household income</td>
<td>$25,769</td>
<td>$26,391</td>
<td>0.621</td>
</tr>
<tr>
<td>median family income</td>
<td>$31,766</td>
<td>$33,066</td>
<td>0.487</td>
</tr>
<tr>
<td>mean income/capita</td>
<td>$13,775</td>
<td>$14,475</td>
<td>0.421</td>
</tr>
<tr>
<td>number of pharmacies</td>
<td>197</td>
<td>90</td>
<td></td>
</tr>
</tbody>
</table>

Note: Table 4’s income figures are for 1989.
Source: 1990 Census of Population.

Next, we examined the pattern of pharmacy closings by neighborhood race and ethnicity. The pattern of pharmacy closings by residential race and ethnicity becomes more pronounced at the extremes. We looked separately at the 1980 pharmacies that were located in census tracts that were under 20 percent African-American or Latino-American (minority) in 1990, and those that were over 80 percent minority. As Table 5 shows, a far higher percentage of pharmacies closed in the high-minority census tracts than in the low-minority census tracts.

### Table 5


<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>00.0 - 19.9 %</td>
<td>116</td>
<td>55</td>
<td>67.8 %</td>
</tr>
<tr>
<td>20.0 - 39.9 %</td>
<td>29</td>
<td>13</td>
<td>69.1 %</td>
</tr>
<tr>
<td>40.0 - 59.9 %</td>
<td>24</td>
<td>13</td>
<td>64.9 %</td>
</tr>
<tr>
<td>60.0 - 79.9 %</td>
<td>8</td>
<td>7</td>
<td>53.3 %</td>
</tr>
<tr>
<td>80.0 - 100.0 %</td>
<td>20</td>
<td>2</td>
<td>90.9 %</td>
</tr>
<tr>
<td>All Tracts</td>
<td>197</td>
<td>90</td>
<td>68.6 %</td>
</tr>
</tbody>
</table>
The Figure titled Histogram: TPM90 displays this information in a slightly different way. TPM90 stands for tract percent minority in 1990, the African-American and Latino-American share of the census tract’s population in 1990. In all years studied, most pharmacies in these six cities were located in census tracts with relatively low tract percent minority (TPM) in 1990.

The term ALIVE95 describes whether a pharmacy is closed in 1995, open in 1995, or new in 1995. A separate histogram is provided for each of these three categories.

The vertical axis of the histogram refers to the number of pharmacies and the horizontal axis refers to tract percent minority (expressed in decimal form, so the range from 0.2 to 0.3 includes those tracts with 20 to 30 percent tract percent minority population).

Although the average pharmacy was located in a census tract that was 26.3 percent minority in 1990, most pharmacies in these cities were located in tracts with relatively low tract percent minority in 1990. But the closed group showed a substantial bulge in the number of pharmacies in the 90 to 100 percent tract percent minority group. The new pharmacies showed a smaller bulge in that range. This suggests that in some high-minority neighborhoods, some new pharmacies may have partially replaced those closing during the period studied.

The Figure titled Alive95 vs. TPM90 shows the 1990 tract percent minority distribution of three groups of pharmacies: those closing between 1980 and 1995, those remaining open throughout the period, and those not listed in 1980 and listed in 1995. This figure shows the moderate tendency of pharmacies which closed to be located in tracts with higher 1990 percent minority. This Figure happens to exclude pharmacies located in downtown Boston census tracts numbered from 02101 through 02116; this makes almost no difference in the analysis.

Pharmacy location mapped with census tract demography. The next series of maps, one for each city, displays pharmacy locations against census tract percent minority in 1990. In each map, a circle represents any pharmacy open in 1995 (whether it was open in 1980 or not), and a star represents a pharmacy that was open in 1980 but had closed by 1995.

The pattern of closed, surviving, and new pharmacies by tract percent minority and across cities shows considerable variation. This analysis can be useful in identifying emerging problems of access to pharmacy services. It would be valuable to repeat the analysis routinely in cities where access to pharmacy services is suspected to be a problem, and also in rural areas where problems are suspected.
Notes


3 1996 Hayes Druggist Directory.
ALIVE95 vs. TPM90 (Casewise MD deletion)

TPM90 = .27567 - .0070 \times ALIVE95

Correlation: \( r = -0.0200 \)
Lawrence Pharmacies, 1980 and 1995

Tract Percent Minority, 1990
- 0 to 20 (11)
- 20.1 to 40 (6)
- 40.1 to 60 (5)
- 60.1 to 80 (5)
- 80.1 to 100 (1)

Pharmacies
- Open, 1995
- Closed, 1980-1995

Pittsfield Pharmacies, 1980-1995

Tract Percent Minority, 1990

- 0 to 20 (17)
- 20.1 to 40 (0)
- 40.1 to 60 (0)
- 60.1 to 80 (0)
- 80.1 to 100 (0)

Pharmacies
- ● Open, 1995
- ★ Closed, 1980-1995

Springfield Pharmacies, 1980 and 1995

Tract Percent Minority, 1990
- 0 to 20 (29)
- 20.1 to 40 (6)
- 40.1 to 60 (4)
- 60.1 to 80 (4)
- 80.1 to 100 (6)

Pharmacies
- Open, 1995
- Closed, 1980-1995
