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Trends in Hospital and Nursing Home Care Expenditures, Maine, 1982 to 1986

Maine Department of Human Services

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TRENDS IN HOSPITAL AND NURSING HOME CARE EXPENDITURES,
MAINE, 1982 TO 1986

MAINE DEPARTMENT OF HUMAN SERVICES
Office of Data, Research, and Vital Statistics

John R. McKernan, Jr., Governor
Rollin Ives, Commissioner

Brenda Smith
Planning and Research Associate
May, 1989

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Acknowledgements

This report was prepared under the general supervision of Ellen Naor, Director of the Office of Data, Research, and Vital Statistics and Donald Lemieux, Director, Statistical Services Unit. The text was typed by Sue Whitley and Sylvia Cunningham. Medicaid Cost Report data for hospitals were collected with the cooperation and assistance of the staff at the Division of Audits, Office of Management and Budget, Maine Department of Human Services. The computerized system for nursing home Medicaid Cost Reports is maintained by the Survey Operations and Technical Operations Units in the Office of Data, Research, and Vital Statistics.
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INTRODUCTION

This report features new estimates of health care expenditures for hospitals and nursing homes. It is part of an ongoing series of reports designed to describe the flow of funds through Maine's health care system. Hospital care and nursing home care represent two of the ten categories commonly included in personal health care expenditure studies of this type. The two accounted for approximately 50 percent of the health care dollars spent in the state in 1986. Expenditures for hospital care and nursing home care have generated much public interest and have prompted cost containment efforts by both federal and state governments.

This type of health care expenditures analysis is sometimes referred to as a funds flow study. National data, in the form of the National Health Expenditures Series tables, have been published since 1929, first by the U.S. Social Security Administration and since 1978 by the Health Care Financing Administration. Maine was one of the pioneering states in producing health expenditure estimates locally. The first study was completed in 1978 by the Maine Department of Human Services (MDHS), with the assistance of the Maine Health Systems Agency. In that initial effort, the MDHS analyses were carried out by the Division of Data and Research, Bureau of Health Planning and Development. Thereafter, the collection of data and production of these tables passed entirely to the Division of Data and Research, which became the Office of Data, Research, and Vital Statistics (ODRVS) in 1986.

The previous report in this series presented hospital and nursing home care expenditures for 1974 through 1984. This update follows the format established earlier. In this report, hospital and nursing home expenditure estimates are shown for 1982 through 1986. These data supersede estimates and projections previously published. Due to a change in collection methodology (described in the nursing home section of this report), nursing home data presented here should not be compared to data for years prior to 1982, which appeared in earlier ODRVS publications.

In the following sections, the methods and results of the new analyses are described first for the hospital expenditure data, and then for nursing homes. Several methodological comments apply to both the hospital and nursing home expenditures data described below. In each case, the general estimation approach has followed that presented in the Guide to the Collection and Use of Health Expenditures and Utilization Data for Health Planning Agencies, produced by the Harvard University Center for Community Health and Medical Care. Per capita expenditure estimates for both hospitals and nursing homes are based on population estimates produced by the ODRVS, and national population estimates by the U.S. Social Security Administration. Finally, adjustments for inflation, producing expenditures data in "constant" dollars, have been made by using the annual average of the monthly Consumer Price Index for All Urban Consumers (CPI-U). The most current base for this index was 1982-84 at the time of this study.
HOSPITAL CARE EXPENDITURES

The definition of hospital care expenditures used for this report closely approximates that used in the National Health Expenditures (NHE) studies by the Health Care Financing Administration. In the present Maine study, hospital care expenditures are assumed to equal total operating expenses for hospital goods and services billed, including inpatient and outpatient care, drugs and appliances supplied by the hospitals, and services of hospital-salaried physicians and other hospital-based professionals. They exclude costs specifically identified as coming from intermediate care (ICF) and skilled nursing facilities (SNF), as these are included in expenditures for nursing home care. The Maine study's definition of hospital care expenditures deviates from the NHE definition in that the latter excludes the portion of expenditures for physician services incurred by the Veterans' Administration and by the Department of Defense (except CHAMPUS).

For the present analysis, the primary source of Maine hospital expenditures data was information from Medicaid Cost Reports for the years 1982-1986. Data on total expenditures, including administrative costs, were gathered for each individual facility. In the absence of audited Medicaid Cost Reports for the most recent years, unaudited figures were used. In the few cases that Medicaid Cost Reports were not available, linear estimates were made based on the previous two years' data. As most facilities did not operate on a calendar year, each hospital's expenditures were adjusted from the hospital's fiscal year to a calendar year. These adjustments were based on the assumption that the expenditures reported for a particular fiscal year were spread equally over the twelve month period. Expenditures from individual facilities were aggregated to produce a total statewide estimate for hospital care.

Table 1 summarizes the results of the new 1985-1986 Maine hospital expenditures analysis, along with information for the years 1982-1984 from earlier studies, and comparable national data. Total and per capita expenditures, both in current and constant dollars, are shown for the years 1982 through 1986. Percent annual increases in expenditures also are displayed. The following observations are based on the data presented in Table 1.

1. Total estimated expenditures in Maine for hospital care increased from approximately $548 million in 1982 to $704 million in 1986, an increase of 28 percent in four years. The average annual increase was about 7 percent.

2. Total estimated expenditures in the U.S. for hospital care increased from about $135 billion in 1982 to $180 billion in 1986, an increase of 33 percent over 1982 expenditures, or an approximate 8.3 percent increase per year.

3. After adjusting for inflation by using constant (1982-84) dollars, expenditures in Maine for hospital care increased 13 percent over the four year period 1982 to 1986, from $568 million to $642 million, an annual average of 3.3 percent.

4. Expenditures in the U.S. for hospital care in constant (1982-84) dollars increased from approximately $140 billion in 1982 to $164 billion in 1986, or 17 percent over the four years, for an average increase of 4.3 percent per year.
### TABLE 1
TRENDS OF TOTAL AND PER CAPITA ESTIMATED HOSPITAL CARE EXPENDITURES IN CURRENT AND CONSTANT DOLLARS: MAINE AND U.S., 1982 TO 1986

**HOSPITAL CARE EXPENDITURES IN MAINE**

<table>
<thead>
<tr>
<th>Calendar</th>
<th>Total Expenditures (thousands)</th>
<th>Per Capita Expenditures (thousands)</th>
<th>Total Expenditures (thousands)</th>
<th>Per Capita Expenditures (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>$548,112</td>
<td>$500</td>
<td>$588,007</td>
<td>$527</td>
</tr>
<tr>
<td>1983</td>
<td>$611,075</td>
<td>$527</td>
<td>$603,469</td>
<td>$500</td>
</tr>
<tr>
<td>1984</td>
<td>$637,829</td>
<td>$551</td>
<td>$613,695</td>
<td>$531</td>
</tr>
<tr>
<td>1985</td>
<td>$666,391</td>
<td>$573</td>
<td>$619,322</td>
<td>$552</td>
</tr>
<tr>
<td>1986</td>
<td>$703,622</td>
<td>$599</td>
<td>$641,991</td>
<td>$547</td>
</tr>
</tbody>
</table>

**HOSPITAL CARE EXPENDITURES IN THE UNITED STATES**

<table>
<thead>
<tr>
<th>Calendar</th>
<th>Total Expenditures (billions)</th>
<th>Per Capita Expenditures (billions)</th>
<th>Total Expenditures (billions)</th>
<th>Per Capita Expenditures (billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>$135.2</td>
<td>$636</td>
<td>$149.1</td>
<td>$533</td>
</tr>
<tr>
<td>1983</td>
<td>$146.8</td>
<td>$605</td>
<td>$147.4</td>
<td>$507</td>
</tr>
<tr>
<td>1984</td>
<td>$156.3</td>
<td>$635</td>
<td>$150.4</td>
<td>$514</td>
</tr>
<tr>
<td>1985</td>
<td>$167.2</td>
<td>$676</td>
<td>$155.4</td>
<td>$529</td>
</tr>
<tr>
<td>1986</td>
<td>$179.6</td>
<td>$720</td>
<td>$163.9</td>
<td>$557</td>
</tr>
</tbody>
</table>

* Annual increase computed before rounding per capita figures.

**Note:** In addition to private hospitals, public institutions (AMHI, BMHI, Loring AFB hospital and Toquess VA) are included in Maine total hospital care expenditures. The total expenditure figure also includes hospital-based physicians.

**Sources:**


FILENAME IS TABLE ON DISK 05-010 (N72)
5. As illustrated in Text Table A below, inflation-adjusted per capita expenditures in Maine increased 9 percent from 1982 to 1986. The comparable increase for the nation as a whole was 13 percent from 1982 to 1986. Thus, hospital care costs grew at a slower rate in Maine than in the nation over the four year period.

**Text Table A**

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>Maine Per Capita Increase</th>
<th>United States Per Capita Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>$500</td>
<td>$583</td>
</tr>
<tr>
<td>1986</td>
<td>$547 + 9%</td>
<td>$657 + 13%</td>
</tr>
</tbody>
</table>

6. Figure 1 depicts estimated per capita expenditures for hospital care in current and in constant (1982-84) dollars in Maine and the U.S. for the years 1982-1986. It shows that expenditures for hospital care in both Maine and the U.S. increased steadily in current dollar terms from 1982 to 1986 with the state and nation experiencing cost increases of 24 and 28 percent, respectively. After adjustment for inflation the increases were smaller in both Maine and the U.S., with increases of 9 and 13 percent, respectively. Maine per capita costs were consistently less than the nation's in both current and constant dollars.

7. Figure 2 charts the annual percent increase in current and constant dollars of per capita hospital care expenditures in Maine and the U.S. from 1983 to 1986. The percent increase displays similar trends between Maine and national data, except for the period between 1984 and 1985. During that period of time Maine's rate of increase declined in both current and constant dollars in contrast to the national trend which increased. With the exception of 1983, Maine's rate of increase has been less than that of the nation.
FIGURE 1

FIGURE 2
NURSING HOME CARE EXPENDITURES

Nursing home care expenditures are defined for the current Maine funds flow analysis as total operating expenses for both free-standing and hospital-based skilled nursing and intermediate care facilities. Excluded are boarding care and services for the mentally retarded. Just as with the hospital definition, Maine's definition of nursing home care expenditures closely approximates that used in the National Health Expenditure series.

In previous funds flow analyses produced by the ODRVS, Maine nursing home care expenditures data were obtained from facility financial statements. For the present analysis, the primary sources of data were Medicaid Cost Reports for each facility for the years 1982-1986. The source of nursing home care expenditure data was changed when computerized cost report information became available in 1982. These data are not directly comparable to that for earlier years.

The current source of data excludes profits and costs not allowed by Medicaid, whereas the earlier method used total revenues and included profits earned by the facilities. Thus, the earlier figures were somewhat overstated as compared to the current Maine figures and the national figures. For example, profits accounted for approximately 11 percent of Maine nursing home expenditures in 1981. The new method more closely conforms to the national definition.

The current estimation technique is very similar to that used to determine hospital estimates. In the few cases that Medicaid Cost Report data were not available, linear estimates were made based on the previous two years data. Nursing home care expenditure data were adjusted for calendar years in the same way as hospital care expenditure data. Expenditures from individual facilities were aggregated to produce a total statewide estimate of expenditures for nursing home care.

Table 2 summarizes the results of the 1982-1986 Maine nursing home expenditures analysis, and presents comparable national data. Total and per capita expenditures, both in current and constant dollars, are shown and percent annual increases in expenditures displayed. The following observations are based on the data presented in Table 2.

1. Total estimated expenditures in Maine for nursing home care increased from approximately $136 million in 1982 to $178 million in 1986, an increase of 31 percent in the four year period. This averages to an approximate 7.8 percent increase per year.

2. Nationally, nursing home care expenditures increased 41 percent during the four years between 1982 and 1986, from $27 billion to $38 billion; an average annual increase of 10.3 percent.

The computation of profits for Maine nursing home care in 1981 was derived by comparing revenues and expenditures incurred by facilities for that calendar year. Revenue data were collected from financial statements of the individual nursing home facilities on file with the Division of Audits, Office of Management and Budget, Maine Department of Human Services. Expenditure data were collected from the Medicaid Cost Report System database at the ODRVS for fiscal years 1981 and 1982. These were then adjusted to a calendar year basis for each facility as described in the text.
TABLE 2
TRENDS OF TOTAL AND PER CAPITA ESTIMATED NURSING HOME CARE EXPENDITURES IN CURRENT AND CONSTANT DOLLARS: MAINE AND U.S., 1982 TO 1986

<table>
<thead>
<tr>
<th>Calendar</th>
<th>Total Expenditures</th>
<th>Per Capita Expenditures</th>
<th>Total Expenditures</th>
<th>Per Capita Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current Dollars</td>
<td>Constant (1982-84) Dollars</td>
<td>Current Dollars</td>
<td>Constant (1982-84) Dollars</td>
</tr>
<tr>
<td>Year</td>
<td>Dollar Annual</td>
<td>Amount Increase</td>
<td>Dollar Annual</td>
<td>Amount Increase</td>
</tr>
<tr>
<td></td>
<td>(thousands)</td>
<td>(thousands)</td>
<td>(billions)</td>
<td>(billions)</td>
</tr>
<tr>
<td>1.982</td>
<td>$136,300</td>
<td>$120</td>
<td>$141,244</td>
<td>$124</td>
</tr>
<tr>
<td>1.983</td>
<td>$149,233</td>
<td>9.5%</td>
<td>$149,322</td>
<td>9.3%</td>
</tr>
<tr>
<td>1.984</td>
<td>$162,071</td>
<td>8.6%</td>
<td>$155,987</td>
<td>7.3%</td>
</tr>
<tr>
<td>1.985</td>
<td>$172,851</td>
<td>6.7%</td>
<td>$160,642</td>
<td>5.9%</td>
</tr>
<tr>
<td>1.986</td>
<td>$178,475</td>
<td>3.2%</td>
<td>$162,806</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

*Annual increase computed before rounding per capita figures.


3. After adjusting for inflation, by using constant (1982-1984) dollars, expenditures in Maine for nursing home care increased from $141 million to $163 million, or 16 percent over the four year period from 1982 to 1986; representing an average increase of 4 percent per year.

4. National expenditures for nursing home care, adjusted for inflation, increased 25 percent from 1982 to 1986, for an average increase of 6.3 percent per year.

5. As illustrated in Text Table B below, Maine expenditures grew at a slower rate than those for the U.S. from 1982 to 1986. After adjusting for inflation, per capita nursing home care expenditures in Maine increased 12 percent from 1982 to 1986. Expenditures in the U.S. increased by 21 percent over the same time period.

Text Table B

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>Per Capita</th>
<th>Four Year Increase</th>
<th>Per Capita</th>
<th>Four Year Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>$124</td>
<td>+12%</td>
<td>$115</td>
<td>+21%</td>
</tr>
<tr>
<td>1986</td>
<td>$139</td>
<td></td>
<td>$139</td>
<td></td>
</tr>
</tbody>
</table>

6. Figure 3 depicts estimated per capita expenditures for nursing home care in current and in constant (1982-84) dollars for Maine and the U.S. It shows that expenditures for nursing home care in Maine and in the U.S. have been increasing in both current and constant dollars from 1982 to 1986, although the inflation-adjusted increases have been much less than the unadjusted. From 1982 to 1986, both Maine and the U.S. increased expenditures by 25-40 percent in current dollars. Over the same period, inflation-adjusted nursing home expenditures for the state and nation went up by 10-20 percent.

Maine's annual per capita expenditures, as depicted in Figure 3, were consistently higher than comparable figures for the U.S., during the period 1982-1985. In 1986 per capita expenditures for Maine and the U.S. were nearly identical. Considering both current and constant dollars, Maine per capita expenditures ranged from approximately 5 to 8 percent higher than comparable figures for the U.S. between 1982 and 1985.
7. In current dollar terms, Figure 4 shows that nursing home expenditures in Maine generally grew at a decreasing rate over the period 1983-1986, declining from 8.6 percent to 2.4 percent. The national percent increases in current dollars have remained relatively steady during this time period, varying by only 1.5 percent.

Adjusted for inflation, Maine's constant dollar increases reflect the same pattern as that for the current dollar. The rate of increase steadily decreased from 5.2 percent to 0.5 percent. The U.S. constant dollar increases tended to fluctuate more, but stayed in a range of 3 to 6 percent. A noteworthy observation from Figure 4 is that while the rate of increase in Maine constant dollars has been decreasing, comparable figures for the U.S. have been increasing since 1984.
FIGURE 3
Estimated Per Capita Nursing Home Care Expenditures
in Current and Constant (1982–84) Dollars,
Maine and U.S., 1982–1986

Maine, Current Dollars
U.S., Current Dollars
Maine, Constant Dollars
U.S., Constant Dollars

FIGURE 4
Percent Increase in Per Capita Nursing Home Care Expenditures
in Current and Constant (1982–84) Dollars,

Maine, Current Dollars
U.S., Current Dollars
Maine, Constant Dollars
U.S., Constant Dollars
COMPARISON OF HOSPITAL AND NURSING HOME CARE EXPENDITURE TRENDS

The information contained in Figures 1-4 is summarized and extended by Figure 5, which shows hospital and nursing home per capita expenditures from 1982 to 1986 for the state and the nation in current and constant dollars. The use of a logarithmic scale on the vertical axis enables per capita hospital and nursing home expenditures to be placed on one graph, despite the difference in magnitude between the two expenditure categories. Use of a logarithmic scale also means that the slopes of the lines on Figure 5 indicate the rate of growth in expenditures. A straight rising slope, for instance, indicates a constant positive rate of growth.

Figure 5 reveals several similarities in per capita expenditure trends for hospitals and nursing homes. One such similarity is that for both hospitals and nursing homes, per capita expenditures in almost every year have risen in constant as well as in current dollars. This indicates that health care expenditures in these categories consistently have increased more rapidly than the rate of inflation.

Figure 5 also highlights certain differences in per capita expenditure trends for hospitals and nursing homes. One difference is that Maine hospital per capita expenditures consistently have been less than U.S. hospital per capita expenditures, while Maine per capita nursing home expenditures were higher than corresponding U.S. rates.
Figure 5
Estimated Per Capita Expenditures
for Nursing Home and Hospital Care
in Current and Constant (1982–84) Dollars
Maine and U.S., 1982–1986

$1000
$900
$800
$700
$600
$500
$400
$300
$200
$100

Hospital Expenditures

- Maine, Current Dollars
- U.S., Current Dollars
- Maine, Constant Dollars
- U.S., Constant Dollars

Nursing Home Expenditures

CONCLUDING REMARKS

This has been a descriptive report, with no attempt being made to explain the causal factors underlying trends in hospital and nursing home care expenditures over the period 1982-1986. Such factors might include - but would not necessarily be limited to - national and state economic fluctuations, inflationary trends, technological changes, health care market forces, demographic changes, shifts in consumer preferences, and government health care policy initiatives. Understanding the factors underlying trends in health care expenditures is obviously crucial to effective cost containment efforts. The descriptive data presented here should provide a basis for such analysis and discussion.

In addition to hospital care and nursing home care expenditure data presented in this report, expenditure data for other categories of health care will be published in future reports. Hospital and nursing home care expenditure data will also continue to be updated. For further information on this and other reports in the Maine Funds Flow Analysis Series, please contact:

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Office of Data, Research, and Vital Statistics
Maine Department of Human Services
State House Station #11
Augusta, Maine 04333

Tel: (207) 289-3001
References


12. Medicaid Cost Reports for hospitals are on file at the Division of Audits, Office of Management and Budget, Maine Department of Human Services.


Trends in hospital and nursing home care