

Expenditures of Health Departments In Large Cities

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Adequate financial support for public health services is essential if the benefits of modern public health practices are to reach the people. Although it has often been said that public health is purchasable, there has been insufficient attention to the problem of setting the price. If appropriating bodies are expected to provide adequate funds, we should be prepared to offer sound objective standards against which the funds requested may be measured.

Health officers annually submit budget requests which include sums for many new positions. Budget officers annually reduce these requests, usually allowing necessary increments in salaries and here and there permitting the creation of additional jobs. All of us are familiar with the arithmetic of the budget office: the sum of the requests from all of the government departments exceeds anticipated revenue; therefore, unless new sources of income are sought there can be no other recourse than to cut the departmental requests. If health department officials hope to do more than bargain for an arbitrary share of the total appropriation for governmental services, efforts must be made to develop a more rational and more precise approach to budget preparation and justification.

In recognition of the need for organized effort to insure adequate public funds for health

services, the health council of the District of Columbia has adopted as one of its functions a program of study and action to develop community understanding and support for the budget needs of the official health department. A committee of lay persons, organized for this purpose, directed the author to prepare data to assist in such a study, with particular reference to comparisons of expenditures in other communities of comparable population size. This paper presents the data collected as a part of this study, together with a discussion of some of the problems in developing effective justifications for public health appropriations.

Table 1. Health department expenditures in eleven large cities, 1920, 1930, 1948

City	Per capita expenditure			Rank	
	1948 ¹	1930 ²	1920 ³	1948	1920
Baltimore.....	\$1. 53	\$0. 91	\$0. 53	7	5
Boston.....	1. 60	(⁴)	. 48	5	6
Buffalo.....	⁵ 1. 74	. 99	. 71	2	3
Cleveland.....	⁶ 1. 26	(⁴)	. 48	8	7
Detroit.....	1. 13	1. 16	. 72	9	2
Milwaukee.....	1. 66	1. 02	. 70	3	4
New Orleans.....	1. 04	. 54	. 36	10	10
Philadelphia.....	. 98	. 61	. 39	11	9
Pittsburgh.....	⁶ 1. 54	. 92	. 81	6	1
St. Louis.....	⁶ 1. 64	. 63	. 34	4	11
Washington.....	2. 40	1. 04	. 45	1	8

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¹ Source: Data secured by the author from the health department or social planning council of each city.
² Source: Reference (9). ³ Source: Reference (6).
⁴ Data not available. ⁵ Erie County, including Buffalo. ⁶ Expenditures for 1949.

Table 2. Municipal income and expenditure in 10 large cities, 1948

City	Per capita income		Per capita operating expenditure		Percent of operating expenditure for health
	Total tax revenue	General borrowings	All services	Health services	
Baltimore.....	\$ 55.82		\$72.20	\$1.53	2.1
Boston.....	105.15	\$20.62	125.04	1.63	1.3
Cleveland.....	30.72	6.66	37.38	1.56	4.2
Detroit.....	53.93		71.17	1.12	1.6
Milwaukee.....	50.56		60.87	1.51	2.5
New Orleans.....	34.80	9.67	34.82	1.12	3.2
Philadelphia.....	42.91	16.96	39.86	.92	2.3
Pittsburgh.....	36.85	5.88	30.00	1.04	3.4
St. Louis.....	38.94	4.69	36.46	1.30	3.6
Washington.....	84.33		82.56	2.83	3.4

Source: Reference (1).

This study is limited to public health expenditures in large cities. For 33 of the largest cities in the United States, data collected by the U. S. Census Bureau for 1948 (1) show a median expenditure for public health services of \$1.18 per capita. Detailed data on expenditures, by service and by source of funds, were collected by the author from 11 large cities which could furnish such figures. The aggregate population of these 11 cities was approximately 8 percent of the total United States population. In 1948, the median health department expenditure of these 11 cities was \$1.54 per capita. These expenditures cover only the traditional activities of a health department and do not include programs of hospital or medical care. There was a considerable range in total expenditure among these 11 cities, with a low of 98 cents per capita and a high of \$2.40 (table 1).

Factors Influencing Health Expenditures

What factors determine the amount of funds appropriated to the health department in any community? Obviously many complex factors may play a part. Some of the measurable factors which might possibly have a relationship to total municipal expenditures for health services were studied for 10 cities. (Buffalo was excluded from this analysis because comparable data were not available.)

There appears to be a definite relationship between the per capita amount spent for health

and total municipal revenue from taxes (table 2). When the cities were ranked according to health expenditure and grouped as the highest or lowest three and middle four, 7 of the 10 cities fell into identical groups when health expenditure was compared with tax revenue. This relationship is illustrated by comparing the figures for 1948 for Baltimore, which had a per capita health expenditure of \$1.53 and a per capita tax revenue of \$55.82, with those for Pittsburgh, where the health expenditure was \$1.04 and tax revenue was \$36.85 per capita (table 2). Health expenditures were also related to per capita total municipal operating expenditures for all purposes. Six cities fell into identical groups according to these two factors. This suggests a conclusion which, while rather obvious, is nevertheless important: a city may be expected to appropriate funds for health services in relation to total funds secured from its basic revenue source and to total funds available for all operating services. This principle is further supported by the fact that health expenditures do not rank highest in those cities where borrowing is greatest.

How much should a community spend for its public health program? The committee on local health units of the American Public Health Association considered that approximately \$1 per capita, based on the 1942 purchasing power of the dollar, would be required "to assure basic and reasonably adequate local health services" and that \$2 or \$2.50 per capita might be needed "to provide also such addi-

tional services as may be found to be locally desirable and considered to be essential for an optimum local health service of comprehensive scope and superior quality" (2). Emerson found that for the Nation as a whole in 1942 actual expenditures for local health services were only 65 cents per capita. Recognition was given at that time to the need to adjust the recommended figures as the dollar value changed, and in a discussion in the 1947 American Public Health Association meeting (3), it was suggested that the \$1 minimum per capita be raised to \$1.50 in view of the increased cost of providing the same basic services. On this basis a more adequate budget would require \$3 or \$3.75 per capita.

An analysis of the relationship between an index of purchasing power and per capita health expenditure in the 11 cities studied reveals that those cities with a higher cost of living tend to spend more per capita for health. However, adjustment of the actual health department expenditure in these cities for differences in the cost of living suggests the inadequacy of appropriations for health services (table 3). If the minimum per capita need of \$1.50 is used for the city with the lowest cost

of living index, the city with the highest living cost would require not \$1.50 but \$1.71 per capita to provide the same services, assuming the cost of health service bears a relationship to the cost of living. When actual expenditures are adjusted for the cost of living factor, only four of the 11 cities exceed their minimum need.

The observations on the relationship between health expenditure and total municipal operating cost suggest another possible approach to the establishment of a standard for a community's health expenditure. Should a city be asked to devote some recommended minimum percentage of its total expenditure to health services? For the 10 cities studied, the actual percentage in 1948 ranged from 1.3 to 4.2, with a median of 2.8 percent (table 2). It should be noted, however, that for these cities there is no significant relationship between the level of per capita health expenditures and the percentage of total city expenditures devoted to health. Boston, for example, allocated the smallest percentage of total expenditure to health, but ranked second among the 10 cities in per capita health expenditure.

We are forced to recognize the problem of city fiscal officers faced with requests for more funds than are available. The health department might seek an "equitable" share of the available funds. If such an allocation is still inadequate based on other criteria, the alternatives are to increase health appropriations at the expense of other municipal services, or to increase municipal revenue.

There is a striking relationship between a health department's expenditures in 1 year and the record of expenditures by the same health department in past years. This relationship is clear even when the expenditure in 1948 is compared with the expenditure in 1920. When the 11 cities are ranked, major shifts in relative positions are seen to have occurred over this 28-year period in only 4 cities (table 1). Two of the four cities whose rank shifted significantly also experienced radical population increases during the period, both over 90 percent. One city maintained the same rank in both 1948 and 1920, four cities shifted only one position in rank, and two cities shifted two positions. In short, a community spends for health services at the rate it is accustomed to maintain.

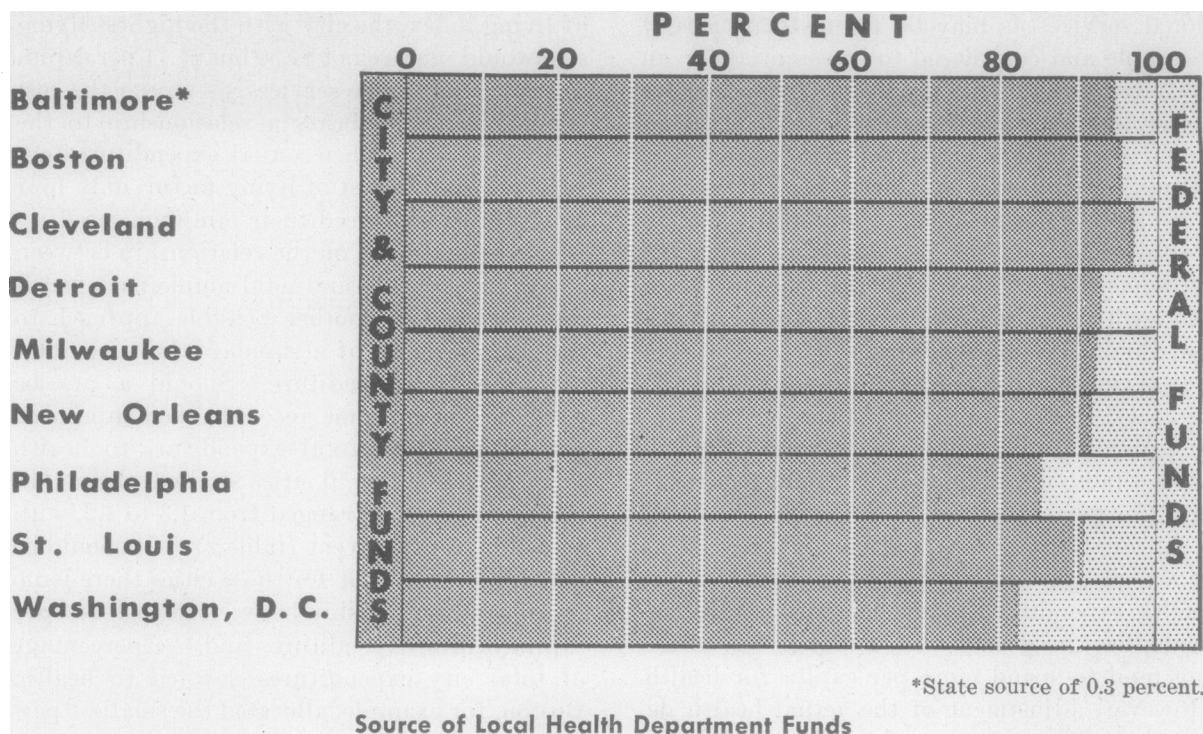
Table 3. Per capita health department expenditures adjusted for cost of living in 11 large cities, 1948

City	Family cost of goods and services, 1947 ¹	Per capita health department expenditure	
		Minimum need adjusted for cost of living ²	Actual expenditure, 1948
Baltimore.....	\$2, 944	\$1. 62	\$1. 53
Boston.....	2, 981	1. 64	1. 60
Buffalo.....	2, 810	1. 54	1. 74
Cleveland.....	2, 897	1. 59	³ 1. 26
Detroit.....	2, 974	1. 63	1. 13
Milwaukee.....	2, 988	1. 64	1. 66
New Orleans.....	2, 734	1. 50	1. 04
Philadelphia.....	2, 867	1. 57	. 98
Pittsburgh.....	2, 973	1. 63	³ 1. 54
St. Louis.....	2, 928	1. 61	³ 1. 64
Washington.....	3, 111	1. 71	2. 40

¹ Source: U. S. Department of Labor, Bureau of Labor Statistics, Workers budgets in the United States; Bulletin No. 927, 1948.

² Based on need of \$1.50 for city having lowest cost-of-living index (New Orleans).

³ Expenditures for 1949.



There is no significant relationship between per capita health department expenditures and the size of the city's population. This is true for the 11 cities studied as well as generally for larger and smaller cities. For the five largest cities in the United States which have populations over 1,000,000, the median per capita health expenditure in 1948 was \$1.15; for eight cities between 500,000 and 1,000,000 population, it was \$1.58; and for 20 cities between 250,000 and 500,000 population, the median expenditure was \$1.11 per capita.

Of the major municipal functions, only libraries and penal institutions receive a lower per capita allocation than public health service. For 10 large cities, the 1948 Census Bureau tabulation shows a median health expenditure of \$1.40 per capita. This compares with a per capita expenditure of \$2.39 for public welfare, \$2.87 for public recreation, \$3.20 for highways, \$3.76 for public hospital care, \$5.73 for municipal sanitation (including garbage collection and disposal, street cleaning, and sewage disposal, but not including the public health sanitation services of food and milk control, environmental hygiene, and related activities), and \$13.15 for public safety. The median expend-

iture for penal institutions was 78 cents and for public libraries was \$1.16 per capita.

Seven of the 11 cities studied were included in the 1948 tabulation of total community health and welfare expenditures by community chests and councils of America (4). For these seven cities, the median per capita expenditure from public funds for all health and

Table 4. Percent of municipal health department expenditure by source of funds in 9 large cities, 1948

City	Source of funds (percent)	
	City and county	Federal
Baltimore ¹	94.3	5.4
Boston.....	95.5	4.5
Cleveland ²	97.4	2.6
Detroit.....	93.7	6.3
Milwaukee.....	92.4	7.6
New Orleans.....	92.2	7.8
Philadelphia.....	85.1	14.9
St. Louis ²	91.7	8.3
Washington.....	81.3	18.7

¹ Funds from State sources were reported only for Baltimore (0.3 percent).

² Expenditures for 1949.

hospital services was \$9.48. The median health department expenditure in these seven cities was \$1.64 per capita. It is thus apparent that the expenditure by the health department for traditional public health activities in these cities represents only a relatively small part of the public dollar spent for health care.

Source of City Health Department Funds

The large city health departments studied relied almost exclusively for their funds on local appropriations. In nine cities for which data were available a median of 92.4 percent of health department expenditures was derived from the city and county. State funds made available to the large city health departments reported on were negligible. This may not, in all cases, reflect services provided in the city by the State health department directly under State appropriation, but, in general, such services are very limited in metropolitan communities. Large cities do not depend on Federal funds for any significant proportion of their expenditure. The percentage of city health department expenditures derived from Federal grants ranged from 2.6 to 18.7, with a median of 7.6 percent (table 4). The highest percentage, 18.7, is for the District of Columbia, which, for its Federal grants, is treated as a State.

Expenditures by Service

It would be helpful to have available bases for justifying adequate appropriations for specific services. Suggestions have been made for minimum ratios of personnel to population in a number of public health fields (2). Another and more precise approach has been to develop personnel needs in man-hours, estimating the time required for each type of service and the units of service to be rendered. In illustration of this technique, the total number of environmental sanitation inspections required in the District of Columbia was estimated for 1952 at 190,795 visits. The record shows an average of 2,500 inspections per worker per year. Thus a need for 76 inspectors can be demonstrated.

It might be helpful if one could point to morbidity or mortality records as evidence of the need for adequate appropriations. Unfortu-

Table 5. Average percent and per capita expenditure of health departments by service, 1948, 1920

Service	Percent		Per capita	
	1948 ¹	1920 ²	1948 ¹	1920 ²
All services.....	100.0	100.0	\$1.54	\$0.48
Administration.....	7.1	6.7	.10	.03
Health education.....	.6	-----	.01	-----
Vital statistics.....	2.2	3.6	.04	.02
Laboratory.....	5.2	7.5	.07	.04
Sanitation.....	25.8	34.3	.39	.16
Medical and nursing.....	61.3	45.5	.79	.22
Nursing.....	28.8	2.3	.44	.01
Medical.....	28.5	43.2	.46	.21
Communicable disease.....	3.0	17.3	.07	.08
Tuberculosis.....	6.2	3.7	.10	.02
Venereal disease.....	5.8	1.7	.08	.01
Maternal, child.....	4.8	9.9	.07	.05
School.....	4.4	10.6	.09	.05
Other classification.....	3.9	-----	.06	-----
Other services.....	-----	2.4	-----	.01

¹ Source: Data collected by the author from 11 large cities. (Data for some services not available for all cities; the base therefore varies and the column cannot be totaled.)

² Source: Reference (6).

nately the use of such justifications is accompanied by hazards. Where the death rate is high, the need for efforts to effect a reduction can be used to justify a large appropriation. On the other hand, where the mortality rate is low, in part as a result of earlier activities, there is a need to maintain control programs in order to avoid a relapse. Further, the reduction of a low mortality rate requires relatively greater effort than the reduction of a high rate. Thus, large appropriations can be justified by either a high or low mortality rate.

In the 11 cities studied, medical and nursing services accounted for a median of 61 percent of the total health department expenditures in 1948 (table 5). About half of this amount, 29 percent, was spent for nursing services. Sanitation programs accounted for 26 percent of all expenditures; laboratory services for 5 percent; and administration, vital statistics, and health education, for 10 percent.

Within the field of medical programs, the median percentages devoted to specific services were: tuberculosis, 6 percent; venereal disease, 6 percent; maternal and child health, 5 percent; school health, 4 percent; and communicable disease, 3 percent. Other programs, such as cancer

Table 6. Percent of total health department expenditures, by service in 11 large cities, 1948

Service	Baltimore	Boston	Buffalo	Cleveland ¹	Detroit	Milwaukee	New Orleans	Philadelphia	Pittsburgh ¹	St. Louis ¹	Washington
All services.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Administration.....	7.0	7.7	7.2	(²)	8.5	3.8	12.7	1.8	3.8	1.7	7.2
Health education.....	1.4	---	1.0	(²)	1.8	1.3	4.5	---	---	---	.3
Vital statistics.....	5.8	1.1	1.6	5.5	2.5	2.1	7.1	2.2	.6	3.8	1.5
Laboratory.....	8.0	3.3	12.5	4.5	5.2	5.1	---	7.4	3.5	7.0	5.2
Sanitation.....	25.8	24.2	23.6	28.6	26.3	25.7	22.0	26.7	30.2	40.9	18.2
Medical and nursing.....	52.0	63.7	54.0	61.3	55.7	61.9	53.8	61.9	62.0	46.6	67.5
Nursing.....	30.2	23.7	30.0	33.9	(²)	32.3	26.7	(²)	27.7	(²)	20.8
Medical.....	21.8	40.0	24.0	27.4	(²)	29.6	27.1	(²)	34.3	(²)	46.7
Communicable disease.....	1.8	4.5	1.7	(²)	(²)	4.8	3.0	(²)	5.6	(²)	2.9
Tuberculosis.....	6.2	12.3	6.4	(²)	(²)	5.6	4.9	(²)	4.5	(²)	9.6
Venereal disease.....	7.9	---	1.8	(²)	(²)	3.0	7.4	(²)	5.8	(²)	8.8
Cancer.....	---	---	.2	(²)	(²)	---	---	(²)	---	(²)	.8
Maternal, child.....	4.8	³ 11.1	2.5	(²)	(²)	³ 3.8	8.1	(²)	⁴ 4.3	(²)	11.1
School.....	0.7	(⁵)	7.6	(²)	(²)	4.1	.4	(²)	⁴ 14.2	(²)	4.8
Mental.....	---	---	---	(²)	(²)	---	---	(²)	---	(²)	2.0
Dental.....	0.2	(⁵)	3.7	(²)	(²)	3.0	1.9	(²)	---	(²)	6.7
Other classification.....	0.2	12.1	---	(²)	(²)	5.3	1.4	(²)	---	(²)	---

¹ Expenditures for 1949. ² Data not available. ³ Child hygiene only. ⁴ Estimated figure.
⁵ Included under other classification.

control, dental health, and mental hygiene, showed considerable variability and were not found in all cities.

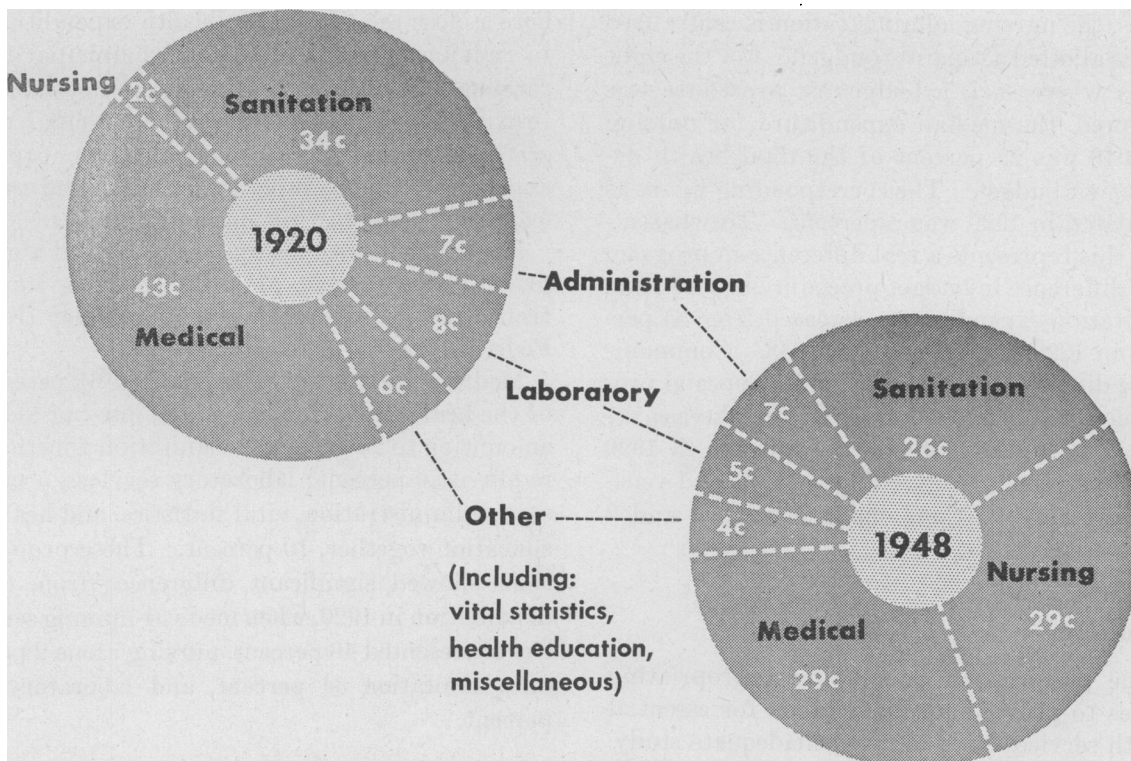
There was considerable variation among the cities in the distribution of expenditures by

service (tables 6 and 7). Nursing expenditures varied from 21 to 34 percent; the range for sanitation was from 18 to 41 percent; laboratory, from 3 to 12 percent; tuberculosis, from 4 to 12 percent; and venereal disease, from 2 to 9

Table 7. Per capita health department expenditures by service in 11 large cities, 1948

Service	Baltimore	Boston	Buffalo	Cleveland ¹	Detroit	Milwaukee	New Orleans	Philadelphia	Pittsburgh ¹	St. Louis ¹	Washington
All services.....	\$1.53	\$1.60	\$1.74	\$1.26	\$1.13	\$1.66	\$1.04	\$0.98	\$1.54	\$1.64	\$2.40
Administration.....	.11	.12	.12	(²)	.10	.06	.13	.02	.06	.03	.17
Health education.....	.02	---	.02	(²)	.02	.02	.05	---	---	---	.01
Vital statistics.....	.09	.02	.03	.07	.03	.04	.07	.02	.01	.06	.04
Laboratory.....	.12	.05	.22	.06	.06	.08	---	.07	.05	.11	.12
Sanitation.....	.39	.39	.41	.36	.30	.43	.23	.26	.46	.67	.44
Medical and nursing.....	.79	1.02	.94	.78	.63	1.03	.56	.60	.96	.76	1.62
Nursing.....	.46	.38	.52	.43	(²)	.54	.28	(²)	.43	(²)	.50
Medical.....	.33	.64	.42	.35	(²)	.49	.28	(²)	.53	(²)	1.12
Communicable disease.....	.03	.07	.03	(²)	(²)	.08	.03	(²)	.08	(²)	.07
Tuberculosis.....	.10	.20	.11	(²)	(²)	.09	.05	(²)	.07	(²)	.23
Venereal disease.....	.12	---	.03	(²)	(²)	.05	.08	(²)	.09	(²)	.21
Cancer.....	---	---	(³)	(²)	(²)	---	---	(²)	---	(²)	.02
Maternal, child.....	.07	⁴ .18	.04	(²)	(²)	⁴ .06	.08	(²)	⁵ .06	(²)	.27
School.....	.01	(⁵)	.13	(²)	(²)	.07	(³)	(²)	⁵ .22	(²)	.12
Mental.....	---	---	---	(²)	(²)	---	---	(²)	---	(²)	.05
Dental.....	(³)	(⁵)	.06	(²)	(²)	.05	.02	(²)	---	(²)	.16
Other classification.....	(³)	.19	---	(²)	(²)	.09	.01	(²)	---	(²)	---

¹ Expenditures for 1949. ² Data not available. ³ Less than 1 cent. ⁴ Child hygiene only.
⁵ Estimated figure. ⁶ Included under other classification.



The Health Department Dollar

percent. Whether these differences are accounted for by variations in the scope of program, in the volume of service rendered, or in the unit cost of providing the service could not be ascertained. Studies to determine the reasons for such wide variations should prove enlightening.

The Trend of Expenditures

A study of municipal health department expenditures was undertaken by the American Public Health Association in 1921 covering 83 cities with populations over 100,000 (5, 6). In 1923 the United States Public Health Service surveyed the 100 largest cities (7). Later, data on expenditures of health departments were available from reports on the Health Conservation Contests (8, 9). From these studies some trends can be observed. Average per capita expenditures of the health departments studied increased over 200 percent between 1920 and 1948, rising from \$0.48 to \$1.54 (table 5). The total medical-nursing cost increased from 22 to 79 cents per capita, the nursing cost alone from

1 to 44 cents. Expenditures for communicable disease were 8 and 7 cents per capita in the 2 years. Tuberculosis cost increased from 2 to 10 cents; venereal disease, from 1 to 8 cents. Sanitation expenditures increased from 16 to 39 cents per capita. The cost of administration increased from 3 to 10 cents per capita.

The medical-nursing programs are the most expensive in the public health field and have shown sharp rises in cost. The newer programs being undertaken by public health agencies, such as cancer and other chronic disease control, fall within this field. The implications for financing these added services cannot be ignored.

Significant shifts in program emphasis can be observed from an analysis of changes in the percentage distribution of health department expenditures by field of service. The total medical-nursing program cost increased from 46 to 61 percent of the health department budget. Nursing services are, of course, an aspect of the service programs in communicable disease control, maternal and child health, and other medical activities. Nevertheless, in many

cities, the nursing administration is centralized and is allotted a separate budget. For the eight cities where such a budgetary procedure was followed, the median expenditure for nursing in 1948 was 29 percent of the total health department budget. The corresponding figure as tabulated in 1920 was 2 percent. To what extent this represents a real difference in program or a difference in budget procedure is uncertain. Sanitation expenditures decreased from 34 percent in 1920 to 26 percent in 1948. Communicable disease control, not including special programs for tuberculosis and venereal disease, required 17 percent of all expenditures in 1920 and 3 percent in 1948. Tuberculosis and venereal disease programs changed from 4 and 2 to 6 percent each.

Discussion

The problems of persuading appropriating bodies to provide adequate funds for essential health services have received inadequate study. This is true for both aspects of the problem, namely, development of technical data which can be used to support budget requests and the processes required to inform budget officers and lawmakers. As the shortcomings in the data reviewed in this paper demonstrate, there is a lack of uniformity and completeness in the treatment of health department expenditure figures. Quantified evidences of monetary needs are meager. For example, discussions of the unit cost of providing specified public health services are all too rare. The business man, as Sabin (10) suggested, seeks a clear demonstration of the economy of the preventive approach. Efforts of this kind are not urged as a substitute for appeals based on personal and human values, but such arguments unsupported by statistical evidence represent an inadequate approach to this important aspect of public health administration.

Summary

The median health department expenditure for traditional public health services in 11 large cities in 1948 was \$1.54 per capita. Municipal funds appropriated for public health services

bore a close relationship to health expenditures in previous years and to total municipal tax revenue. Health expenditures represented approximately 3 percent of total municipal operating costs, and were lower than the per capita expenditure for any other major municipal service except penal institutions and libraries.

Large city health departments derived a median of 92.4 percent of their available funds from local governments, and 7.6 percent from Federal grants.

Medical-nursing services required 61 percent of the health department budget, nursing alone amounting to 29 percent. Sanitation functions required 26 percent; laboratory services, 5 percent; administration, vital statistics, and health education together, 10 percent. These proportions showed significant differences from the distribution in 1920, when medical-nursing services represented 46 percent, nursing alone 2 percent, sanitation 34 percent, and laboratory 8 percent.

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