

A Baseline Survey Of Pennsylvania Sanitarians And Their Backgrounds

HENRY R. O'BRIEN, M.D., M.P.H.

IN the late spring of 1956, an investigation of the background of sanitarians, which began in Maryland and Puerto Rico in 1954 (1), was extended to Pennsylvania. On both occasions, a training program was in progress. It was felt that the development of further plans would be aided by a knowledge of the situation, in particular, the number of sanitarians, their ages, educational background, salary, length of service, and so on.

The same questionnaire was used in 1956 as in 1954. The blanks were circulated by the divisions of sanitation in Philadelphia and Pittsburgh and by our regional sanitarians to State employees and full-time local sanitarians. In these groups the coverage was practically complete; the one or two local sanitarians who may have been overlooked would not invalidate the findings. In private industry, however, only a beginning was made; this is practically a dip sample.

In most places in the United States, certainly in Pennsylvania, three groups are providing environmental health service: the sanitary or public health engineer at the top, a sanitary inspector in the ranks, usually local, and a new person, the sanitarian, who has now appeared between the other two. The third group is growing in numbers, training, and functions; the second is probably shrinking.

The changes are so rapid that it is valuable to have a record of this study as a baseline, not only as a help in planning training but also for later comparison to measure progress. Many new people are being appointed, with much

Dr. O'Brien is director of professional training in the Pennsylvania State Department of Health, Harrisburg. This paper was read at the Annual Health Conference, University Park, Pa., on August 19, 1958.

more training, to work on new programs or on old programs in new ways. Many of these 1956 findings no longer obtain, but it is essential to have them on record or we shall not know in 1961 or 1966 just how far we have progressed.

This paper considers the "sanitarian" and the "sanitary inspector" together, for the borderline is not yet definite. Staff members and their supervisors are included, but not (a) those with engineering degrees or those doing strictly engineering work, (b) veterinarians concerned with diagnosis or treatment of sick animals, (c) employees of other State departments, (d) Federal workers, (e) laboratory technicians, or (f) laborers.

In all, 312 replies to the questionnaire were received and tabulated, including 91 from the State, 51 from Philadelphia, 43 from Pittsburgh, 107 from smaller local departments of health, and 20 from private industry. Next to public health nurses, sanitarians make up the largest group in public health in Pennsylvania.

Some of the findings of the questionnaire are included in the tables and discussion below. The conclusions from these data are limited in scope, for the questions are few and the numbers are small. However, trends are evident.

Population Ratio

First, we may ask the number of sanitarians employed by health departments in relation to 1956 population estimates. In Pittsburgh, 1 sanitarian was at work per 15,700 persons in the population. In Philadelphia, the ratio was 1 to 42,700 and in the rest of Pennsylvania, counting both State and local sanitarians, 1 to 42,000. In Baltimore and Puerto Rico in 1954, on the other hand, the figure was 1 to 10,000 and in upstate Maryland 1 to 20,000. These proportions are enough to make us consider whether in much of Pennsylvania sanitarians are too few, although they do not reflect the number of sanitarians in private employment, the level of sanitation practice, or the effects of climate or dispersion of population.

Age, Education, and Salary

The age and education of Pennsylvania's sanitarians are shown in table 1. The median

figure for the first college degree is in the 30-34 age group. Those with two degrees are naturally a little older. The median figure for those

with no more than a high school background is at still an older age (45-49), and for those with only grade school, older yet (60-64). These

Table 1. Relationship of age and highest education attained by Pennsylvania sanitarians, 1956

Age group	Second college degree	First college degree	High school graduate	Some high school	8th grade school or less	Total
24 and under.....	0	8	2	0	0	10
25-29.....	1	26	7	0	0	34
30-34.....	8	22	11	0	1	42
35-39.....	2	8	19	2	0	31
40-44.....	4	5	18	3	3	33
45-49.....	3	5	15	5	3	31
50-54.....	3	2	18	10	3	¹ 37
55-59.....	1	2	9	12	4	28
60-64.....	1	0	10	5	6	22
65-69.....	1	1	5	6	7	20
70-74.....	1	0	5	3	3	12
75-79.....	0	0	3	2	2	7
80-84.....	0	0	1	0	2	3
Not stated.....	0	0	2	0	0	3
Total.....	25	79	125	48	34	312

¹ Educational level not given for 1 person.

NOTE: Boldface numbers represent the age group near which the median number falls.

Table 2. Educational progress of all Pennsylvania sanitarians in areas studied, 1956

Schooling completed	Total	State	Philadel- phia	Pitts- burgh	Local	Indus- trial
All sanitarians						
Total number.....	312	91	51	43	107	20
8th grade:						
Number.....	304	91	50	42	101	20
Percent of total.....	97. 4	100	98. 8	97. 7	94. 4	100. 0
High school:						
Number.....	¹ 229	70	42	32	67	18
Percent of total.....	73. 4	76. 9	82. 4	74. 4	62. 6	90. 0
College:						
Number.....	104	33	30	17	11	13
Percent of total.....	33. 3	36. 3	58. 8	39. 5	10. 3	65. 0
Sanitarians with less than 4 years in present service						
Total number.....	124	45	30	14	29	6
8th grade:						
Number.....	124	45	30	14	29	6
Percent of total.....	100	100	100	100	100	100. 0
High school:						
Number.....	115	44	30	13	22	6
Percent of total.....	92. 7	97. 8	100	92. 9	75. 9	100. 0
College:						
Number.....	81	29	29	12	6	5
Percent of total.....	65. 3	64. 4	96. 7	85. 7	20. 7	83. 3

¹ Some of these had been to college, but did not graduate.

figures follow the social trends of past generations, when the education of many boys ended with grade school. Later, high school was the accepted stopping point. In the Maryland study, the findings were much the same, but employment of college graduates for this work began in Maryland a little earlier than in Pennsylvania.

The educational breakdown for the different agencies appears in table 2. Three-fourths of the group had finished high school; Philadelphia and private industry made the best showing. One-third graduated from college, Philadelphia and private industry again leading, with local workers far in the rear.

If we look at sanitarians employed only in the last 4 years, a different picture appears. Educational standards went up. Eleven-twelfths of the group had finished high school, and two-thirds, college. This is an indication of what happens today. These Pennsylvania figures in turn are higher than those in the 1954 study.

The major undergraduate courses taken are shown in table 3. Three-fourths (78 percent) followed courses in the biological sciences. Pittsburgh and private industry had a predilection for agricultural graduates, who were still more popular in Maryland.

The current in sanitation today runs strongly

Table 3. Major undergraduate fields for sanitarians with degrees in Pennsylvania, 1956

College major	Total	State	Philadel- phia	Pitts- burgh	Local	Private industry
Biology.....	34	16	13	2	0	3
Chemistry.....	10	3	2	3	0	2
Bacteriology.....	9	5	3	1	0	0
Agriculture or dairy science.....	17	2	1	6	2	6
Sanitary science.....	5	1	4	0	0	0
Veterinary medicine.....	8	2	2	0	4	0
Education.....	2	2	0	0	0	0
Mathematics.....	2	0	1	0	1	0
English, philosophy, psychology, history.....	9	2	3	2	2	0
Government, sociology.....	3	0	1	1	1	0
Other subjects.....	3	1	0	1	1	0
Not stated.....	4	1	0	1	0	2
Total.....	104	33	30	17	11	13

Table 4. Relationship of salary and educational level attained by Pennsylvania sanitarians, 1956

Salary group	Second college degree	First col- lege degree	High school graduate	Some high school	8th grade school or less	Total
\$2,499 or less.....	0	0	16	7	6	29
\$2,500-\$2,999.....	0	1	4	0	2	7
\$3,000-\$3,499.....	0	0	3	2	5	10
\$3,500-\$3,999.....	1	34	42	24	11	112
\$4,000-\$4,499.....	6	7	34	12	10	69
\$4,500-\$4,999.....	5	16	11	1	0	33
\$5,000-\$5,499.....	1	7	4	1	0	13
\$5,500-\$5,999.....	0	2	3	0	0	5
\$6,000-\$6,499.....	3	0	2	1	0	6
\$6,500-\$6,999.....	1	1	1	0	0	3
\$7,000-\$7,499.....	1	0	0	0	0	1
\$7,500-\$7,999.....	0	1	0	0	0	1
\$8,000 or more.....	6	5	2	0	0	13
Not stated.....	1	5	3	0	0	10
Total.....	25	79	125	48	34	312

¹ Educational level not stated for 1 person.

NOTE: Boldface numbers represent the salary group near which the median number falls.

in favor of the biology major. In 1954 the authors asked if anyone really knew whether this was well founded. Today we are emphasizing the importance of the social sciences. Will this be reflected in new requirements?

Table 4 shows that, by and large, educational background is reflected in the paycheck. Differences would probably be greater if it were not that those with less education have been longer on the job, and experience and native ability are valued as well as schooling.

Among the different agencies, local posts tend to pay less than State positions, and private industry appears to pay more than government. It is only fair to say that salaries, especially for State positions, have risen markedly since 1956.

Service and Training

In table 5, we note that more than a third of the sanitarians came to their present employers less than 3 years before this study. The proportion was largest in Philadelphia and in the State and was fairly even in the others. Philadelphia had only two who had been there more than 19 years.

The period of "service with present employer" is usually the same as "total service in sanitation." Sanitarians do some moving among jobs, but not a great deal.

A course of field training in basic sanitation of from 9 to 12 weeks is considered a standard in the preparation of sanitarians, much like the academic year of public health nursing. Those

Table 5. Length of service of Pennsylvania sanitarians with present employer, 1956

Years of service	Total	State	Philadelphia	Pittsburgh	Local	Private industry
Total number of sanitarians	312	91	51	43	107	20
Less than 3	113	44	30	11	23	5
3-4	28	6	1	4	13	4
5-9	54	14	7	10	19	4
10-14	36	6	6	8	15	1
15-19	40	15	5	4	15	1
20-24	21	2	2	5	11	1
25-34	15	2	0	1	9	3
35 or more	1	0	0	0	1	0
Not stated	4	2	0	0	1	1

Table 6. Pennsylvania sanitarians having had a course in basic sanitation, 1956

Training and year of training	Total	State	Philadelphia	Pittsburgh	Local	Private industry
Total number of sanitarians	312	91	51	43	107	20
Basic training						
MPH or BS in public health	17	0	14	2	1	0
9-12 week course	159	76	28	29	24	2
No basic course	136	15	9	12	82	18
Percent with training	54.6	83.5	66.7	72.1	23.4	15
Attendance at a short course						
1953	87	31	16	17	17	6
1954	102	29	34	19	13	7
1955	118	39	36	22	14	7
Number with no course	105	13	3	8	70	11
Percent with no course	33.7	14.3	5.9	18.6	65.4	55

with a master's or bachelor's degree in public health do not need this basic course, but the rest do. Table 6 shows a substantial need for such a course, particularly in the local and industrial groups.

Everyone needs the information and the stimulation of a short course in his field, yet only 87 of the 312 attended even one short course in 1953, 102 in 1954, and 118 in 1955. Philadelphia made the best showing of any of the agencies. But some workers in each category, as table 6 shows, attended not one short course in these 3 years. That is withering on the vine indeed. Attendance was especially low among the sanitarians in the smaller local health departments.

It is evident that the local sanitarians are a large body of health workers, usually insufficiently trained, with less formal education, and paid lower salaries than their associates in State or private industry jobs. However, these local people are natural aides for overloaded State

sanitarians. A State sanitarian in close touch with all local workers in his area can help and be helped by such association. It is clear that training for local sanitarians is a sound and necessary investment.

The sanitarians of private industry, barely touched in this study, warrant further coverage in the future.

Conclusion

The figures presented here should be studied by all of us for what they suggest, as a basis for planning and cooperation.

A similar study in other States would prove valuable.

REFERENCE

- (1) O'Brien, H. R., and Neill, A. H.: A pilot survey of sanitarians and their background. *Pub. Health Rep.* 70: 1222-1228, December 1955.

Heart-Sound Recording of Chicago School Children

The heart sounds of 40,000 public elementary school children in Chicago are being recorded in a new study launched on April 20, 1959. The study is being sponsored by an interagency committee. Ultrasensitive tape recording equipment, developed under Chicago Heart Association leadership, is being used; the heart sounds are being recorded on the tape for subsequent analysis. The Public Health Service is providing technical assistance and support.

The objective is to test this mass screening method as a rapid and practical means of finding individuals with abnormal heart sounds. The heart-sound recorder is believed to be as effective as the stethoscope.

In the study, which is scheduled to last about 18 months, at least two cardiologists will listen to all heart-sound recordings, and the findings of each specialist will be checked against the other. Parents of children who need further study will be notified, and secondary screening by physician examination will be performed.

Schools selected represent a cross section of the city's varied population groups. Guiding the project with the Service is a committee of representatives from the following Chicago groups and institutions: the Board of Health, the Board of Education, the Medical Society, the Heart Association, and local universities. A physician from the Chicago Heart Association is serving as project coordinator.

Signs

and

Symptoms

of trends in public health

"Understanding Aphasia," a 50-page booklet written by Martha L. Taylor, New York Institute of Physical Medicine and Rehabilitation, is designed to help families understand loss of speech and to acquaint them with speech rehabilitation.

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When the Chehalis Fluoridation League in Chehalis, Wash., offered \$1,000 reward in 1955 to anyone who could prove that fluorides in 1 ppm concentration had caused any ill effect to anyone anywhere, they were sued by Dr. F. B. Exner. His evidence was based on testimony of a man and wife who had severe dental fluorosis and who had lived in areas where the water supply was presumed to be less than 1 ppm in the public water supply.

Testimony revealed that the dental enamel of this couple had developed prior to the first studies of fluoride levels in water supplies, and that the water used by these people when they were children must have been in excess of 2 ppm. Dr. Exner lost his case and his appeal.

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Many members of insured medical plans waste benefits because they are inadequately informed and without guidance, reports the Columbia University School of Public Health and Administrative Medicine.

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Sterilizing male mosquitoes by irradiation with cobalt-60 has proved an effective means of reducing the population of malaria-carrying insects, report entomologists from the U.S. Department of Agriculture.

A 389-page study of the Windsor (Canada) medical services has been published by Harvard University Press. The book, "Comprehensive Medical Services Under Voluntary Health Insurance," was written by Benjamin J. Darsky, Dr. Nathan Sinai, and Dr. Solomon J. Axelrod, all with the Bureau of Public Health Economics, University of Michigan School of Public Health.

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Phreatophytes (thirsty plants and trees) drink 25 million acre-feet of water annually, reported Dr. D. L. Klingman and F. L. Timmons before the December convention of the American Association for the Advancement of Science.

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The Community Services Committee, AFL-CIO, has sent several letters to its local community services committees on health matters. One said, apropos of the Murray-Green Award to Dr. Salk, "The best gift we can give Dr. Salk is the full use of his vaccine." It recommended joint union-management, local health department, and county medical society cooperation in a mass inoculation program on a plantwide basis and in other relevant activities.

Local community services committees were urged also to advance fluoridation.

Since professional workers are "underpaid, underpraised, and unheralded," the committee suggested that community chests allocate 1 percent of total funds raised annually for scholarships. Forums on health problems were suggested as well as further development of public health departments.

Deaths caused by measles during 1957 outnumbered deaths caused by poliomyelitis for the first time since 1944. There were 410 deaths from measles and 220 from poliomyelitis.

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The Food and Nutrition Board has approved for publication a report entitled, "Evaluation of Protein Nutrition with Emphasis on Amino Acids Proportionalities," which presents a comprehensive background for critical consideration of the addition of specific amino acids to cereal foods for improvement of protein quality.

A report of the board's Food Protection Committee, with reference to the 1958 amendment to the Federal Food, Drug, and Cosmetic Act, entitled "Food Packaging Materials—Their Composition and Uses," is also approved for publication.

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Admissions to schools of professional and practical nursing reached a new high in 1958, according to the National League for Nursing, New York. An estimated 46,600 students entered basic professional nursing schools, compared with 44,281 the preceding year. Some 20,000 began training for careers in practical nursing, compared with 16,710 the year before.

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A new booklet, "Your Future," is offered without charge by the Office of Mental Education and Information, Department of Mental Hygiene, Albany, N.Y. Its purpose is to stimulate constructive thinking about the later years.

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The automobile insurance industry has set up an Institute for Highway Safety with annual appropriations of \$1,000,000.

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The Connecticut Heart Association, in cooperation with the pharmaceutical industry, the retail druggists, and the medical profession, has made it possible for anyone who has had rheumatic fever to purchase penicillin at a discount to prevent recurrence. The price is \$15 per year. Ordinarily a yearly supply costs several times that amount.

publications

Directory of Local Health Units. *PHS Publication No. 118; Revised 1958; 75 pages; 30 cents.*

Formerly entitled "Directory of Full-Time Local Health Units," this publication lists the name of each health unit, health officer or administrative head, and headquarters location. Included for the first time are all local areas which State health officers considered organized to provide public health services, irrespective of whether the health officer serves full time or part time, and whether medical, nursing, and sanitation public health services are available at all times.

Part-time employment of a health officer or administrative head is indicated. In addition, the absence of medical, nursing, and sanitation personnel is shown.

The National Mental Health Program and the States. *PHS Publication No. 629; 1959; 13 pages; 10 cents.*

For organizations and individuals interested in community mental health activities, this pamphlet describes grant-supported programs of the National Institute of Mental Health, Public Health Service. It sketches their operation and tells how they affect the States. Mental health consultants and State mental health authorities are listed.

The Mentally Retarded Child at Home. *Children's Bureau Publication No. 374; 1959; by Laura L. Dittmann; 99 pages; 35 cents.*

This manual for parents, approaching the problem of retarded children from the standpoint of sequences of growth and development, stresses the ways in which these children are like other children.

Included are suggestions for toilet training, dressing, cleanliness and manners, discipline, speech, play, and group experiences for the young retarded child. The manual also lists toys and equipment for home

play and provides parents of young children with long-range guides to problems which may arise during the retarded child's school days and his adjustments in adolescence.

Aging. A review of research and training grants supported by the National Institutes of Health. *PHS Publication No. 652; 1958; by G. Halsey Hunt and Stanley R. Mohler; 50 pages; 35 cents.*

A summary of the extramural research and training activities in aging conducted by the National Institutes of Health, Public Health Service, this review describes each of the categorical programs of the seven institutes and the general program of the Division of General Medical Sciences.

It also lists laboratories throughout the United States where research in aging is being conducted.

Sewage Treatment Works Contract Awards, 1952-1957. *PHS Publication No. 633; 1958; by William H. Abbott and Lewis C. Hudson, Jr.; 93 pages; 50 cents.*

This publication summarizes data originally presented in annual reports of public sewage treatment plant construction for the years 1952 through 1957 (PHS Publications Nos. 291, 409, 453, 488, 549, and 608). New tabulations show contract awards for the 6 years, by population size groups, by contract size groups, by drainage basins, and by States. Lists of individual projects, by year and by State, appear in an appendix.

Scientific Translations. A guide to sources and services. *PHS Publication No. 514; Revised 1959; 19 pages; 15 cents.*

Foreign and domestic institutions maintaining files of translations and offering translating services are described briefly and their publications are noted.

Periodicals in complete or partial translation are listed with subscription information. Russian journals in cover-to-cover translation are arranged alphabetically by both English and Russian title.

Information about professional organizations for translators and selected references on various aspects of translating are included.

Poultry Ordinance. *PHS Publication No. 444, Supplement No. 1; 1958; 9 pages.*

This supplement contains recommended provisions on antemortem and postmortem inspection of poultry for wholesomeness, for use by interested States and municipalities in conjunction with other provisions of the ordinance published in 1955. The supplement also includes some revised and additional labeling requirements and definitions necessary in relation to the inspection provisions.

When You Adopt a Child. *Children's Bureau Folder No. 13; Revised 1958; 28 pages; single copies 15 cents, \$10 per 100.*

Counseling prospective adoptive parents to give up all idea of finding a child without help, the booklet answers questions they might ask. It also reviews the questions which will be asked by the caseworker. A new section offers advice on citizenship and birth certificate needs of the child adopted from abroad.

This section carries announcements of new publications prepared by the Public Health Service and of selected publications prepared with Federal support.

Unless otherwise indicated, publications for which prices are quoted are for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, 25, D. C. Orders should be accompanied by cash, check, or money order and should fully identify the publication. Public Health Service publications which do not carry price quotations, as well as single sample copies of those for which prices are shown, can be obtained without charge from the Public Inquiries Branch, Office of Information, Public Health Service, Washington 25, D. C.

The Public Health Service does not supply publications other than its own.
