The crucial question of the availability of health educator personnel in the United States initiated this study. It is part of a long-term investigation of the health educator alumni of the University of North Carolina School of Public Health. The results indicate the need for a national roster of such personnel and stress is placed on further investigation to secure more precise information.

PUBLIC HEALTH EDUCATORS

A STUDY OF AVAILABILITY AND DISTRIBUTION OF ALUMNI—WITH IMPLICATIONS FOR THE PROFESSION

Rosemary M. Kent, M.P.H., Ph.D., F.A.P.H.A.

PROFESSIONAL public health educators —the discipline prepared in professional schools of public health as contrasted with educators having majors in health from other types of institutions—have been on the national scene for over 17 years. Yet, in no single location can exact information be found on the number of such professionally qualified personnel available to the nation today.

A tabulation of reports from the American Public Health Association's Committee on Professional Education[1] gives evidence of some 1,087 health education students having been enrolled in the schools of public health between and including the academic years 1943-1944 and 1956-1957. The dates are significant. Educators were admitted to professional schools prior to those years; however, 1943 marked the opening of new curricula especially designed for the preparation of numbers in the profession. The figure 1,087, then, represents the most nearly accurate estimate of graduate students enrolling in the new curricula in seven professional schools during the 14-year period. But real differences exist between enrolled and graduated and between graduated and available. Availability implies, in this case, employment as or willingness to accept employment as a health educator in the United States.

The Long-Term Study: Origin, Plan, and Progress

Origin

Concern over the problem of health educator availability stimulated investigation. Aware of what appeared to be an increasing gap between the number of health educator positions open and the potential for staffing all positions, new and old, the Department of Health Education in the University of North Carolina School of Public Health initiated, in 1957, a study of the situation as regards its own alumni health educators. Potential, reasoned the department, consists of alumni health educa-

tors (all seven professional schools) employed in health educator capacities and of graduate students presently enrolled (again, all schools) and looking ahead to first employment as health educators. The fact that the department mentioned could account for 33.3 per cent of the APHA 14-year recorded total of 1,087 justified beginning the study at home.

While the foremost question was that of availability, the dearth of research concerning the profession posed the possibility of elaborating the investigation for further descriptive information and for guides to later research. As examples:

1. What backgrounds—academic and experiential—did the alumni have prior to entering the profession?
2. How are health educator alumni distributed geographically?
3. How much health educator experience have they had?
4. How long do they stay with a position?
5. In what direction do they go when they change positions?
6. What are their present (a) agency affiliations and (b) areas of operation?
7. How do they fare financially?
8. What seem to be critical problems of the profession—worthy of further study?

The collection of comprehensive, accurate, current, and detailed data amenable to analysis might be productive of answers to several of the above. Measures of variation of pertinent factors might be feasible. Leads to future research might be found. Accordingly, a new alumni record form was designed and distributed to alumni by mail.

Plan and Progress

The plan evolved for long-term research on alumni health educators was projected through four phases.

Phase 1 would deal with graduate students from within the Continental United States upon their first enrollment in any of the 14 classes through 1957. Deferred until later would be the study of international and territorial students (nearly 17 per cent of the cumulative enrollment), doctoral students as such upon return to or transfer to the school to pursue their programs, and undergraduate students admitted to the school and the department in their junior year. Phase 2 would include the triennial up-dating of the first level (first graduate enrollment) alumni treated in Phase 1 and the addition of classes graduated since 1957.

Phase 3 would combine a search of backgrounds with which former students entered professional preparation (first of the questions listed above) and a tracing of careers through the years following graduation from the professional school. Phase 4 would treat the presently deferred but increasing backlog of international, doctoral, and undergraduate students and would continue the triennial up-dating on groups studied earlier.

Phase 3, implemented by the doctoral research of Akbar Moarefi,[2] is now complete, and the collection of data toward Phase 4 has been initiated.

Purpose of this Report

The paper at hand proposes to do three things:

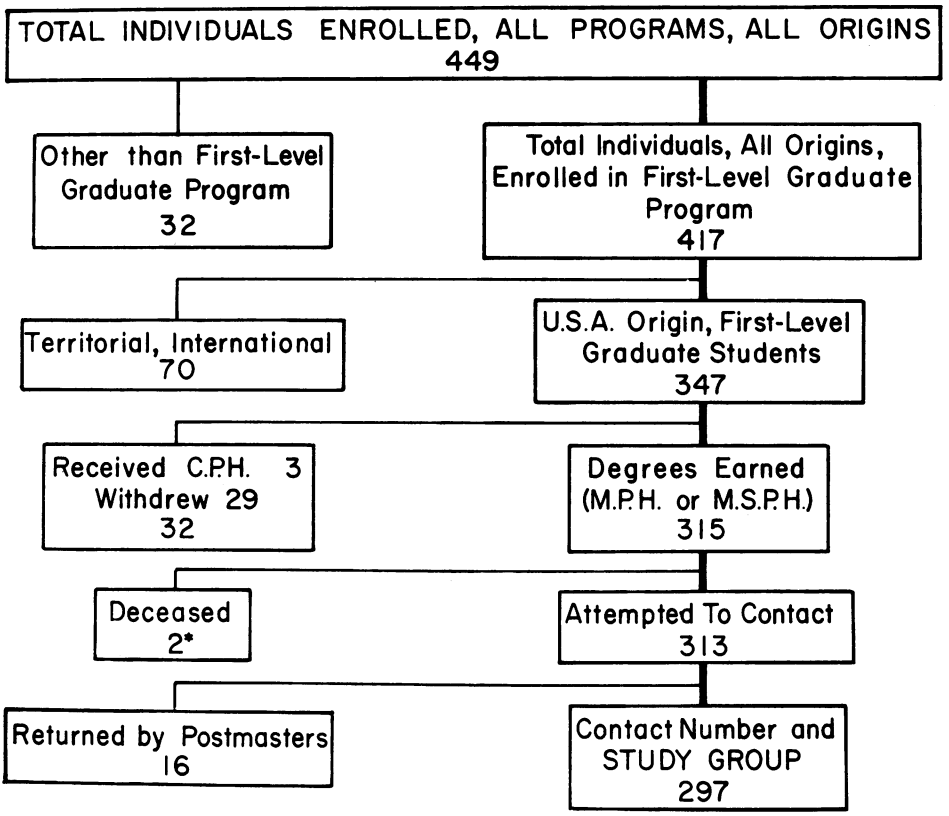
1. to report the Phase 2 findings on health educator alumni through the class of 1960 and, in the course of reporting, to answer questions 2-8 above;
2. quite tentatively, in lieu of more precise data on the discipline and recognizing the limitations implicit, to apply certain of the findings to the discipline as a whole; and
3. to suggest some implications for the future of the discipline.

The Study Group

Derivation and Definition

Diagram 1 traces the derivation of the study group. A total of 449 individ-

Diagram 1—Disposition of Individuals Enrolled in All Programs of the Department of Health Education, University of North Carolina School of Public Health, Within the 17 Academic Years, 1944-1960, and Derivation of This Study Group



* A third alumna died after returning her report in December.

uals was enrolled within the 17 classes. The number earning degrees was 403. The number of degrees earned was 412. The difference between individuals earning degrees (403) and degrees and certificates awarded (412) rests in the fact that two earned both bachelor's and master's degrees and seven, both master's and Ph.D.

Alumni from within the United States who had been enrolled for and had completed first level graduate degrees (M.P.H. or M.S.P.H.) were the subject of attention. Complete enumeration of these 315 individuals (115 men, 200 women) was attempted. The contact number, the 297 assumed to have received the materials and requests mailed from the department, represents 94.9 per cent of all the department's USA alumni holding either the M.P.H. or the M.S.P.H. degree and alive in December, 1960. This, then, constitutes the study group.

Terminology

Boundaries were established and terminology was adopted for the study.

The primary professional capacity of all graduates is considered to be that of health educator. Other professional competencies,

Table 1—Employment Status of Study Group of 297 Health Educator Alumni

Kind of Employment	Time*	No.	%
No response	—	19	6.4
Inactive	All	31	10.4
Outside	All	16	5.4
Secondary professional capacity	All	20	6.7
Primary professional capacity (H.Ed'r.)			
	Part	53	17.9
	All	158	53.2
Total	—	297	100.0

* Time in study period in terms of maximum available to the individual.

whether acquired before or following the M.P.H./M.S.P.H., are, for purposes of this study, considered secondary. The latter are, to be sure, usually related. They include the competencies of D.D.S.'s, dental hygienists, M.D.'s, R.N.'s and public health nurses, sanitarians, and teachers employed for subject matter other than health.

All experience as a public health educator is determined from the date at which the professional degree was awarded, regardless of prior experience.

The time element in the study is the 36-month period which began January 1, 1958, and closed December 31, 1960.

Alumni of the last three classes (1958, 1959, 1960) have had fewer than 36 months in the study period. The individual's maximum available working time is, therefore, the criterion for his placement within the study under All or Part of the period. Thus, an alumnus of the class of 1959 who has been employed in a health educator capacity (primary professional capacity) every month since graduation is listed below under All. An alumna of one of the first 14 classes who returned to full-time professional employment in 1959 would be classified under Part. Also falling under Part would be those who were employed throughout the 36 months but in a part-time position. Alumni occupied with programs of study leading to the Ph.D., the Dr.P.H., or the Ed.D. in health education or public health are considered as employed or active.

The term Outside refers to employment in areas not included within primary and secondary professional competencies, i.e., in fields other than health, public health, or education. Real estate and sales are examples.

Inactive designates unemployed in any capacity.

Findings on Health Educator Alumni, Phase 2 of the Study

The findings of the study may be grouped into three categories:

1. those answering the crucial question of availability;
2. those relating to questions 2-7 on page 1383; and
3. those reflecting major problems of the professions, question 8.

The second category subdivides into descriptive data—those having to do with geographic distribution, experience (analyzed as to years, tenure per position, and so forth), and agencies and areas of employment—and those having to do with the salary picture and its analysis. Incidental to the analysis of findings was the development of a new method, that of career tracing, which will be illustrated in this section.

The Crucial Question—Availability

Restated, this was: How many USA alumni are working in their primary professional capacity as health educators?

The baseline for this calculation was the contact figure, 297. The picture which emerged is presented as Table 1. The answer was twofold: 158 were so employed all of the study period, and an additional 53 worked part of the period (up to, during, or through 1960).

Those employed in primary professional capacity all of the study period, the 158, and an additional 11 (from the 53 who were so employed part of the period) compose a group of 169 to which repeated reference will be made in the remainder of this report.

Table 2—169 Alumni Grouped as to Years of Work Experience as Health Educators

Group	Years of Experience	Men	Women	Total
A	14.0—16.11	3	19	22
B	11.0—13.11	11	21	32
C	8.0—10.11	19	12	31
D	5.0— 7.11	11	11	22
E	2.0— 4.11	16	13	29
F	0.0— 1.11	14	19	33
All	0.0—16.11	74	95	169

Data re Other Questions

Descriptive

Data under this heading are derived from the employed group—the 169 mentioned previously.

Geographic Distribution

Geographically, the employed 169 were distributed as follows: New England and Middle Atlantic, 16.5 per cent; South, 46.2 per cent; Central, 13.0 per cent; West and Pacific, 13.0 per cent; District of Columbia, 5.3 per cent; and International, 6.0 per cent.

Experience

Five three-year intervals and a sixth short interval (two years) of work experience as a health educator were established for the classification of the 169 into Experience Groups A-F. Table 2, presents this system of grouping by years and months of work experience. (A period is used in numbering to separate years from months.)

Table 3 casts further light on the experience patterns of health educators. This table shows the mean number of health educator positions per individual in an experience group, the mean number of years and months per position, and the mean total time as an employed health educator. Thus, job tenure and frequency of job change are to be found within this table.

The mean work experience as a health educator among the 74 men is six years and nine months, found in

Table 3—Mean Number of Positions and Mean Tenure per Position by Health Educator Experience Groups and Sex

		Positions					
		Men's			Women's		
Group	Time	No. per Person	Tenure* per Person	Mean* Total Time	No. per Person	Tenure* per Person	Mean* Total Time
A	14.0—16.11	2.7	5.6	14.5	3.3	4.7	14.9
B	11.0—13.11	4.5	2.8	12.3	3.2	3.9	12.2
C	8.0—10.11	3.3	2.9	9.1	3.1	3.0	9.2
D	5.0— 7.11	3.1	2.2	4.5	3.5	1.9	5.6
E	2.0— 4.11	1.8	1.7	2.9	2.1	1.6	3.2
F	0.0— 1.11	1.1	0.11	1.0	1.1	0.9	0.8
All		2.7	2.9*	—	2.6	3.1*	—

* Expressed in years and months.

Table 4—Distribution of 169 Health Educators

(A) As to Employing Agency and Sex

Employing Agency	Men		Women		Total	
	No.	%	No.	%	No.	%
Official	49	29.0	69	40.8	118	69.8
Voluntary	25	14.8	26	15.4	51	30.2
All	74	43.8	95	56.2	169	100.0

(B) As to Employing Agency, Area of Service, and Sex

Area	Official						Voluntary						Both	
	Men		Women		Total		Men		Women		Total		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Local	18	10.7	18	10.7	36	21.4	17	10.0	17	10.0	34	20.0	70	41.4
State	11	6.5	20	11.8	31	18.3	4	2.4	6	3.6	10	6.0	41	24.3
National	10	5.9	9	5.3	19	11.2	2	1.2	2	1.2	4	2.4	23	13.6
University	8	4.7	15	8.9	23	13.6	1	0.6	1	0.6	2	1.2	25	14.8
International	2	1.2	7	4.1	9	5.3	1	0.6	0	0.0	1	0.6	10	5.9
Totals	49	29.0	69	40.8	118	69.8	25	14.8	26	15.4	51	30.2	169	100.0

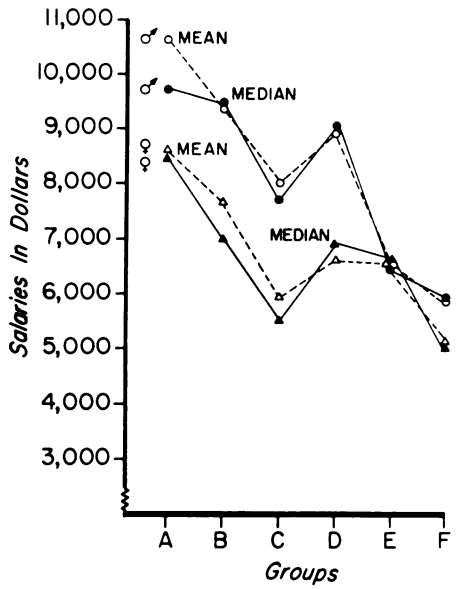


Figure 1—Median and Mean Salaries Reported by 160 USA Health Educators by Sex and Experience Groups

Experience Group D. Among the 95 women, the mean is eight years and one month, Experience Group C. Medians, likewise, fall in the groups stated. Over 70 per cent of the total group (169) have experienced health educator employment other than the position reported for 1960.

Agencies and Areas

The study uses the headings Official and Voluntary to designate employing agencies.

The agency (employment affiliation) headings multiplied by five areas (of operation or service) provide a usable grid into which most health educator positions fit. The five areas are Local, State, National, College or University, and International.

One use of this grid is demonstrated in Table 4 A, B, which locates the 169 health educators.

It is immediately apparent from Table 4 that 30.2 per cent of the total group is attached to voluntary health agencies and that two-thirds of the 30 per cent have been attracted to the local area of the voluntary agency. By contrast, less than one-third of the official group operates in a local area.

A second look reveals that there is a difference in the commitment of the sexes. Women are more obvious in the official agencies—72.6 per cent under Official and 27.4 per cent under Voluntary. Among the men, the distribution is 66.2 per cent to 33.8 per cent.

Hidden differences do exist. To learn that the more experienced women health educators are found more prominently in state official agencies and the more experienced men in local voluntary (also state and national official) agencies requires the grid elaborated by the A-F Experience Groups.

Salaries and Their Analysis

Any examination of salaries must be made with an alertness to the possibility of differentials requiring further investigation. Obvious possibilities are sex, geographic location, amount of experience, nature of employing agency, service

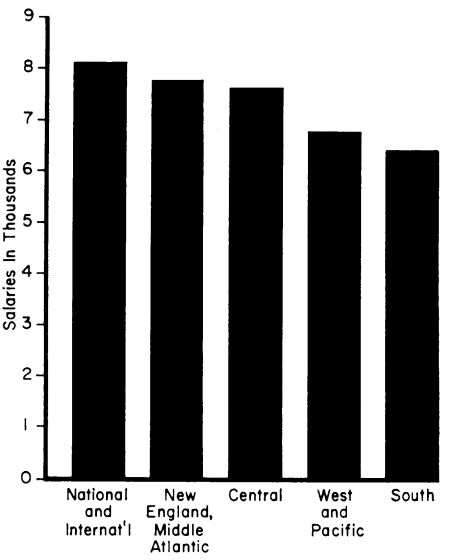


Figure 2—Mean Salaries, 160 USA Health Educators, for Regions Weighted by Experience Groups

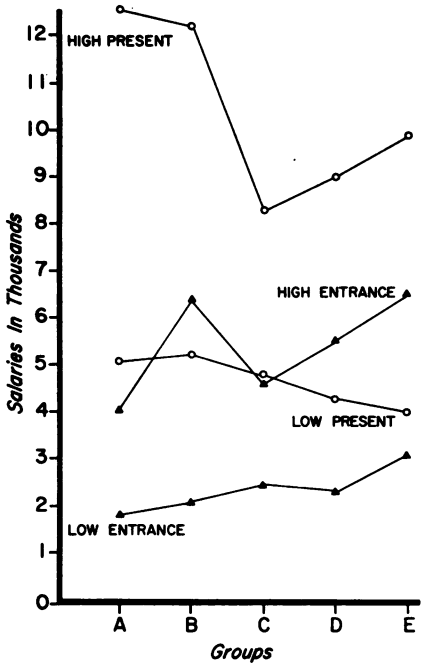


Figure 3—Women's Salary Extremes, Both Entrance and Present, for Five Experience Groups

area (as local, state), and so forth. Each of these was explored. To insure comparability, part-time salaries were removed from consideration. The base for these analyses was, therefore, 160 full-time salaries from among the 169 individuals discussed above (Figure 1).

In Terms of Sex

Table 2 showed the group of 169 to be composed of 74 men and 95 women. The full-time salary group of 160 is made up of 71 men and 89 women.

The salary extremes of the group are $3,840 (low) and $14,700 (high). The mean salary of the 160 is $7,300. For the 71 men, the mean is $7,740; for 89 women, $6,949. This difference of $791 is elaborated into a marked sex differential, sometimes in excess of $2,000, when the means for the sexes are plotted against Experience Groups A-F. Figure 2, which compares the median and the mean for the sexes by groups, shows this clearly. (It also shows the median and the mean to be of the same order

Table 5—Mean Salary of Health Educators in Official and Voluntary Agencies—By Experience Groups and Sex

Group	Official			Voluntary			Both		
	Men	Women	Both	Men	Women	Both	Men	Women	Both
A	$ 8,594 (2)	$9,348 (13)	$9,247 (15)	$14,760 (1)	$7,061 (6)	$8,161 (7)	$10,649 (3)	$8,626 (19)	$8,902 (22)
B	$10,538 (5)	$7,762 (16)	$8,423 (21)	$ 8,300 (5)	$7,500 (5)	$7,900 (10)	$ 9,419 (10)	$7,700 (21)	$8,254 (31)
C	$ 7,516 (13)	$5,662 (9)	$6,758 (22)	$ 9,145 (6)	$7,400 (2)	$8,708 (8)	$ 8,030 (19)	$5,978 (11)	$7,278 (30)
D	$ 8,462 (5)	$6,024 (5)	$7,443 (10)	$ 9,476 (5)	$7,415 (4)	$8,560 (9)	$ 8,969 (10)	$6,642 (9)	$7,867 (19)
E	$ 6,394 (11)	$6,507 (10)	$6,448 (21)	$ 7,050 (4)	$6,663 (3)	$6,884 (7)	$ 6,569 (15)	$6,543 (13)	$6,557 (28)
F	$ 5,777 (11)	$5,080 (13)	$5,400 (24)	$ 6,363 (3)	$5,400 (3)	$5,881 (6)	$ 5,903 (14)	$5,140 (16)	$5,497 (30)
All Totals	$ 7,315 (47)	$6,938 (66)	$7,095 (113)	$ 8,575 (24)	$6,979 (23)	$7,794 (47)	$ 7,740 (71)	$6,949 (89)	$7,300 (160)

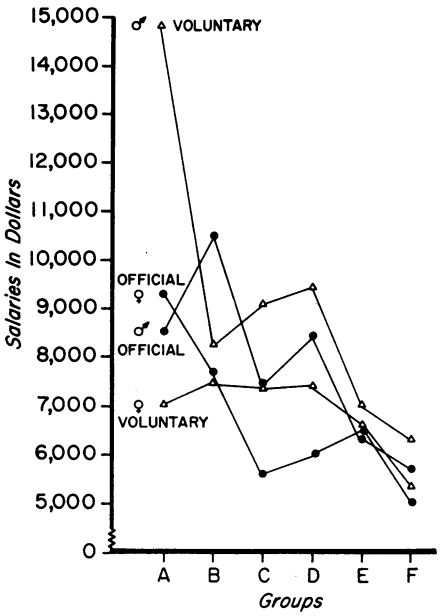


Figure 4—Mean Salaries Reported by 160 USA Health Educators — By Agency, Sex, and Experience Groups

of magnitude; so remaining presentations are expressed only as the mean or as the mean weighted by a specific factor. Salary data received during the spring of 1963 reflect substantial improvement over the means of the study reported. For a total of 68 health educator alumni, 1944-1960, the 1963 mean salary was $8,508.78. The sex differential continued to appear: a mean of $8,890.97 for 36 men against a mean of $8,078.81 for 32 women.

In Terms of Geography

For a fair comparison of means based upon geographic location, it was necessary to remove from the regions those individuals with salaries derived from national or international funds. Thus, while a health educator may be located in New York City, his operation nationally with a voluntary agency would pull his salary from the region, New England and Middle Atlantic, to the special category, National and International. Figure 2 presents the mean salaries for regions weighted by Experience Groups. It shows the National-International group leading, the South trailing. However, paired with the South and in but slightly better position is the Western Region. The higher salary means of the North and East approach more nearly that of the National-International group than they do those of the South and West.

In Terms of Experience, Agency, and Area

The relationship between experience and salary mean was reflected in Figure 1. Entrance and present salaries for women of five of the Experience Groups appear in Figure 3. For the most experienced health educators, the A group, the distance between the lowest reported entrance salary and the highest reported present salary is $10,700. The distance spanned by the present salaries alone is approximately $7,400.

Figure 3, in addition, discloses two trends. It shows an over-all upward trend for entrance salaries of less experienced

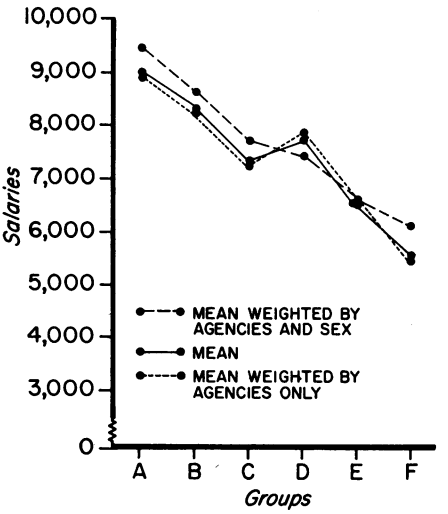


Figure 5—Comparison of Salaries for Experience Groups: Mean Salary, Mean Weighted by Agencies Only, and Mean Weighted by Agencies and Sex

groups. The highest salary reported by a woman of Experience Group E was $6,500. (Some entrance salaries for women of Experience Group F, not shown on this graph, exceeded $7,000.) The second trend is for women with more experience to earn more than do those with less experience. This is seen without distortion in the line depicting lowest present salaries. Both the lines for high salaries (entrance and present) describe a dip at the point above Experience Group C. The same distortion appears in a subsequent graph.

Table 5 is the point of reference for salary means expressed in exact figures, arranged by sex for Experience Groups A-F, and classified as to agency of employment. Figure 4 visualizes the same data. The graph reiterates the sex differential, the trend toward higher salaries with more experience, and the distortion at the level of Experience Group C. It underscores distinctly an agency differential.

The peculiar depression at C level required review of characteristics of the six groups with special attention to Groups C and D. Both internal factors (number of doctoral degrees prior to or since M.P.H.) and external factors (chronology and national economy) were explored again. Weighted means, however, returned attention to the influences of sex and employing agencies. Figure 5 shows the near-elimination of the C dip in the mean weighted by both agencies and sex.

The whole of the picture is viewed in yet another way in Table 6. Down the left margin of this table, salaries of $5,000 to $11,000 are telescoped into thousand dollar brackets. Extremes beyond this range are also bracketed. Offi-

Table 6—Summary of 160 Health Educators by Type and Area of Employment and by Experience Groups

Salaries in thousand dollars	OFFICIAL					VOLUNTARY				TOTAL
	Local	State	National	University	Internat'l	Local	State	National	University	Individuals
	A B C D E F	A B C D E F	A B C D E F	A B C D E F	A B C D E F	A B C D E F	A B C D E F	A B C D E F	A B C D E F	O V Both
11-15			○ ○●	● ▲	○ ○●	▲▲		○		8 3 11
10			● ○●	□		△ ●▲▲		●		5 5 10
9	△ △	○ ○ ○ △▲	○●▲	○ △□	●	▲ ▲		●		14 3 17
8		△	●	○	●	○ ▲ ▲	● ●	○	△	4 7 11
7	▲□	● △ ○●△	□ □■	● ●△ □		△ □ ■ ●▲▲□■	○● ▲□			15 13 28
6	▲□■ ▲□■	● △ ○●▲ □	■ □■	● ●▲▲□	△ ●▲	○ △ □ ○●▲ □	○		■	29 10 39
5	○ △ △ □	●▲ ■ ■		▲		● ■	●			23 3 26
less than 5	△▲□■ ■	▲▲ ■		△ △ ■		▲ ■ ■				14 4 18
Salaries In Areas	34	31	18	21	8	33	9	4	2	112 48 160

Key: A=○, B=●, C=△, D=▲, E=□, F=■

cial agencies are given on the left half of the table, voluntary, on the right. Service areas are indicated for each agency, and under each service area are subcolumns for Experience Groups A-F.

The two columns indicating local operation seem to throw light on at least one of the profession's problems. Thirty-six local positions appear on the official side of Table 6; yet only three (one from A and two from C) are to be found above the $7,000 bracket. By contrast with this fraction (one-twelfth), 11 of the voluntary agencies' 33 working in local areas (one-third) are in brackets of from $8,000 to $14,000 (the latter within $11,000 and above). Nine of the 11 come from groups of moderate experience, C and D.

Similarly, when all service areas are pooled under the two employment headings, Official and Voluntary, one-third of those under Official appear in the brackets below $6,000 as against only one-eighth of those entered under Voluntary.

Major Problems Confronting the Discipline

The findings reported previously appear to have real bearing upon two problems, called, for convenience, professional fall out and job-hopping. At certain points these two problems show evidence of being interrelated. Both seem to have dire impact upon the profession and its future, and both should, it would seem, receive the closest scrutiny of health educators.

While another decade may be required before the "professional life-expectancy" of the health educator begins to take shape, measurement of the exodus of qualified educators from the profession is possible today—through an analysis of fall out.

An unpublished report of findings from study of 126 USA alumni, the first 14 classes (through 1957), examined the problem of fall out. Quoting that report, an alumnus "was classified as 'fall out' if he were not at the moment of the study (June 30) employed in a health educator capacity. He might have been (and numbers were) employed as health educator for five or more years after graduation and prior to fall out. This strict definition of fall out was essential for arriving at an accurate knowledge of health educator alumni employed as health educators at the time of the study."[4]

Among the 126 of the preliminary study, professional fall out accounted for 26.2 per cent. (Men registered only 8.3 per cent, women, 37.2 per cent.) However, when the total alumni list for the 14 classes was compared with the study group, the speculation arose that over-all fall out might rise to a high of 49 per cent.

Table 1 reveals 158 health educators employed in their primary professional capacity all their available time in the study period. The others, 139 of the study or contact group, by the strict definition, are fall out. Thus, the percentages for the comprehensive, current study stand at 53.2 active and 46.8 fall out. (The importance of accuracy of prediction pales before the implications of a professional fall out of approximately 47 per cent.)

Not to be overlooked, however, on Table 1 under the headings attributed to fall out is the fluid subgroup of 53 individuals (17.9 per cent). These are the health educators who worked full time a portion of the study period or throughout the period on a part-time basis. (Male health educators who appear to feel themselves miscast in the profession tend to leave it within two or three years of graduation and tend not to return. Female health educators who, after several years of employment as health educators, leave the profession for matrimony or maternity show an increasing tendency to return to professional capacity once their children are of school age.) What hope is there for

returning these individuals from what might be called a twilight zone into the full light of professional activity? If that, in the main, is impossible, how might this reserve force be augmented and strengthened?

Fall out, serious and costly though it is, is not completely an "either—or" proposition; nor is it necessarily final. The dimensions of the problem and devices for staying its eroding effect upon the profession are deserving of continued and earnest attention.

Perhaps even more devastating than fall out to the health educator profession and to individual health educators themselves is the widespread practice of job-hopping. This practice is reflected in Table 3. The average male health educator (Experience Group D) has been employed in three positions, each for an average of only two years and two months. The average female health educator (Experience Group C) has stayed longer on each job, an average of three years, but has also worked in three different positions.

Durable and quality programs of health education can scarcely be expected under such circumstances. Health educator positions do not arise de novo. Months—sometimes years—of effort are expended in stimulating the establishment of a single health educator position. How long will such positions be retained in the face of repeated need for recruitment and orientation of new personnel? Concern of this sort has caused criticism to be leveled at health educators—and not without justification. On the other hand, the problem is by no means simple. While a multitude of questions impinge upon it, only a few will be spelled out here.

What motivation or necessity is forceful enough to impel a man to uproot his family and undergo the expense of moving a household across the country at intervals of two years? What sense of accomplishment can a professional worker attain in so short a period? Is the individual health educator the only culpable agent in the situation? A re-examination of Table 6 (the salary complex) raises other possibilities. Has public health developed a structure which precludes a living wage in the most basic area of operation and, thereby, promoted high frequency turnover of inexperienced workers? What impact does such turnover of personnel have upon agency programs, the communities they serve, and upon other groups of personnel?

These questions give rise to others. Does any pattern emerge from these changes? Do changes reflect a positive or negative influence upon the health educator's total preparation for his present responsibilities? What combination of changes appears to equip a health educator better for a highly responsible position? What is the optimum frequency for change in the direction of that goal? What implications might these change combinations hold for the curriculum of the professional school?

Such questions call for additional research. One step has been taken in connection with this study.

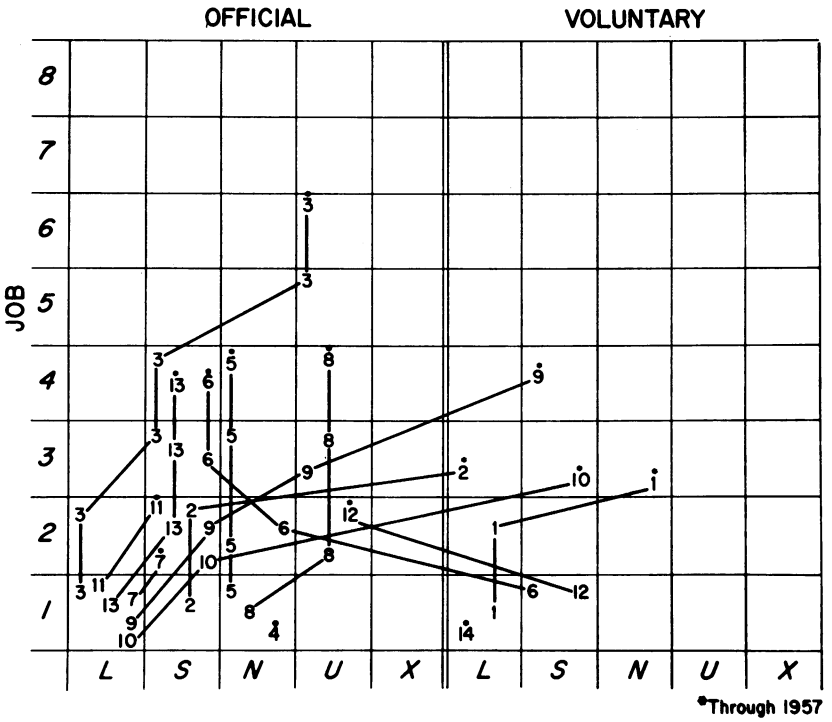
Career Tracings

A method of plotting or tracing careers has been devised. The career tracings of the several experience groups reported in this paper are complete and are to be presented for publication in the near future. The technic may, however, be appropriately illustrated at this time.

The format for career tracing is a grid similar in some respects to that used in Table 6. The usual headings for type of employing agency, official or voluntary, appear across the top and divide the chart into halves. Five columns subdivide each of the two major headings and represent the service (or operational) areas as in Table 6—local,

Figure 6—Career Tracing

Experience Group A*—Women



*Through 1957

state, national, university, and international. Eight rows cross the chart. These provide for positions and should be read from the bottom row (first job) upward. So that the careers of several individuals may be traced on one chart, the members of each experience group are assigned code letters or numbers. An asterisk over the code indicates the present location of that health educator. Within this framework, either an individual health educator or a group of health educators may be tracked or traced through the several areas of operation and the two types of employing agencies.

Figure 6 represents the careers of women health educators in Experience Group A. On this chart it is seen that two women, 4 and 14, have remained in the health educator positions which they took upon leaving the School of Public Health. Six began their experience as health educators in local health departments. Five of the six abandoned the local with their second positions, to that extent substantiating the observations in Table 6. The sixth took a position with a second local health department but later moved to a state health department and, still later, to a university.

Thus, the pattern of rapid movement from official, local public health, as hinted by Table 6, is confirmed for women of Experience Group A by this career tracing.

Tentative Application of Study Findings to the Total Situation

Findings described above have provided, it is hoped, a number of leads and some partial answers as to the avail-

ability of public health educators in the United States.

In view of what seems to be a general dearth of critical information on the professional health educator, the investigator has ventured to experiment by projecting certain percentages gleaned from the study of North Carolina alumni to the profession as a whole. Let it be clear that the limitations of such a step are implicit and recognized and that it is taken only in lieu of more precise information.

This tentative application is but another approach to the crucial question, Where and how many are the professional public health educators available to the United States today? It will be recalled, however, that the 14-year total of graduate enrollment in the department making the investigation constitutes ⅓ of all health educators enrolled in seven professional schools during the 14 years ending in June of 1957. The findings of this group may, then, for the moment and for the purpose of projection (and possible guidance), be assumed to be reasonably representative of the 1,087 reported through 1957 by APHA for the seven schools and probably fairly representative of those enrolled in the same schools in the three classes since 1957.

The application procedure is twofold. First is the step-wise subtraction from the recorded 1,087 of three percentages found to apply in the case of one school. Then, the remainder is distributed in the percentage employment pattern found to pertain to the group studied.

The percentages (rounded to the nearest decimal) subtracted are (1) that for international and territorial enrollment over the years, 17 per cent; (2) that for withdrawals and failures of American students, 9 per cent; and (3) that for professional fall out, 47 per cent.

The first of these percentages costs the recorded enrollment (1,087) a total of 185, thereby reducing the working figure to 902. The second subtracts from the 902 an additional 81. The remaining 821 is the estimate of American health educators prepared and graduated over the 14 years and possibly potentially available to the United States. The final and largest percentage, 47 per cent for fall out, reduces the 821 to the estimated work force actually available as of 1957, a meager figure of 515. When the employment distribution displayed by the study is applied to that estimate, the picture below, Table 7, emerges.

The possibility that there were, in

Table 7—Application of the Employment Distribution Pattern of the Study to the Estimated Work Force of Public Health Educators Actually Available to the United States After Professional Preparation in Seven Schools in the 14 Academic Years, 1944-1957

Area of Operation	Type of Employing Agency				Total	
	Official		Voluntary			
	No.	%	No.	%	No.	%
Local	110	21.4	104	20.0	214	41.4
State	94	18.3	31	6.0	125	24.3
National	58	11.2	12	2.4	70	13.6
University	70	13.6	6	1.2	76	14.8
International	27	5.3	3	0.6	30	5.9
All areas	359	69.8	156	30.2	515	100.0

June of 1958, as few as 110 professional public health educators employed in local health departments across the nation gives one pause. Even fewer departments could be expected to be represented by this small corps; for some metropolitan departments have acquired several of the limited number of health educators locally employed.

It is unfortunate that exact figures on enrollment and graduate degrees awarded American students for the years 1958-1960 are not yet available. The best that can be offered as of this writing is an educated guess, which would place the figure at something under 176 before fall out or 93 after fall out added to the preexisting work force. Thus, the gross national work force may, in 1961, be estimated at between 608 and 691.

Irrespective of figures, two things can be said with surety. Professional public health educators are in short supply. Precise information on the total supply is urgently needed to improve the status of the profession and its service to the field of public health. Precise information presupposes a national roster and additional investigation and action.

Implications for the Future of the Discipline

At the outset of this paper it was stated that its third purpose would be to raise questions relative to the future of the discipline; for it is felt that public health as a whole has a stake in directing sound planning for the health educator force of the future.

For example, what academic and experiential backgrounds should be sought in a recruit to health education? What personality factors and aptitudes are important? How many must be recruited to assure even one local health agency of needed health educator personnel? And what are the needs across the nation?

Voices from outside the discipline have proposed ratios of health educator to population from time to time. When only the first handful of professional health educators had ventured forth from schools of public health, Dr. Haven Emerson dignified their appearance with the suggestion for their employment in health departments at a ratio of 1 per 100,000—150,000 population.[11] This, it should be recalled, was in an era when many thought of health education and mass communication or "publicity" as practically synonyms. The role of the health educator in community organization for health was yet to be demonstrated on any notable scale. Subsequent proposals in more current public health administration have revolved around a health department ratio of 1:50,000 population served.

Until recently the nearest answer formulated by an experienced group of health educators was that suggested in the SOPHE report to the President's Commission on Health Needs of the Nation (Magnuson) in 1952, which called for one health educator to 9,000 population.[12,13] That recommendation was based upon health educators employed in all agencies, official and voluntary, in a given area and coordinating their efforts for greater effect. (At that time the nation's population was just above 150,000,000, and some 16,700 professional health educators would have been required to reach the recommended ideal.)

In the winter of 1958-1959 a sizable group of health educators from one state, reporting to WHO,[14] suggested for official public health a "reasonable ratio." Based upon extensive practical experience in community organization and the other functions of health educators, this group recommended health department employment of one health educator per 25,000 population in the jurisdiction. Here is a numerical goal for the official health agency set forth

Table 8—Estimated Requirements to Approach Goal of "Reasonable Ratio," 1:25,000, in Supply of Professional Health Educators

Factors	For Local Official Positions	For All Positions
Health educators needed by 1980	11,000	44,000
Graduates needed per year (DTR)	535	2,140
Which requires PTR multiplied by—	5.35	21.4
And faculty numbering	76–107	305–450

by experienced health educators. Were this adopted by professional health educators as a whole, the field of public health might replace vague hopes with positive action for attaining the numerical goal.

Time goals rival numerical goals in importance. Deliberate, goal-aimed increments in recruitment, professional traineeships, facilities, and other concomitants could go far toward closing the gap between demand and supply. Here the need requires meticulous diagnosis.

The Present Training Rate (PTR) of health educators (same seven professional schools) is estimated at less than 100 per year available to the United States. To attain the "reasonable ratio" of 1:25,000 in local health departments by 1980 would require 11,000 health educators. (United States population projected at above 275,000,000 by 1980.) Health educators would have to be produced at over five times the present training rate, or 535:100, for local official public health alone.

But, only 21.3 per cent of today's health educators appear to be in local health departments, and the other positions are also important to the nation's health. Therefore, the above figure of 535 should be multiplied by at least a modest four. The result, 2,140, might be called the Demand Training Rate (DTR) for the "reasonable ratio"—without consideration to fall out. The ratio and numerical needs for local health department and all agency health educators are to be seen in Table 8.

Could the United States conceivably graduate 2,140 professional health educators a year from its present schools of public health providing curricula for them? Could it today graduate 535 or even 265 per year?

There are in the schools of public health today fewer than 20 faculty health educators of professorial rank. To meet the goal of health educators prepared for local health departments only would call for over five times as many faculty members if the desirable ratio of one professor to five graduate students is to be maintained. For all agencies would require over 300 faculty members.

Obviously America's schools of public health are in no position to undertake the maximum increase in training rate as of this hour. But, with a long-range plan set up and activated stepwise, the picture could, it would seem, be changed rapidly. The essence of such a plan would be coordinated and progressive increases in faculty and enrollment of graduate students. Five to seven additional graduate students could be enrolled with the addition of one faculty member in a department. If each department increased its faculty by one, 35-49 additional students could be enrolled.

For example, let Step 1 provide 28 or more additional faculty members to the seven departments (rate of one per department per year) by 1965. The schools could then, other things being equal, begin to graduate health educators at from 230 to 322 per year. Let Step 2, 1966-1970, increase professorships at a

rate of 12-14 new faculty members per year in the collective schools. By 1970 the schools would be staffed somewhat beyond the second level, i.e., ability to begin to graduate 535 health educators per year.

Subsequent steps could continue to increase faculty (and enrollment) necessary to accelerate realization of the Demand Training Rate.

Of course, many factors other than faculty resources would have to be spelled out in detail and provided in systematic fashion. Facilities (space for students in the schools), recruitment, training funds, new positions, and the like would have to pace or exceed the increments in numbers prepared. The addition of curricula for health educators in the professional schools not now preparing them would work a change which might revise rates upward or bring the projected time goal nearer. So might the opening of new schools of public health. The development of more and acceptable programs for health educators at the undergraduate level, accompanied by the opening of positions (under supervision) appropriate to this level of preparation, might, likewise, change goal dates and rates.

Between that day and this lie challenges mutually directed to three fronts —the body of professional public health educators, the profession of public health as a whole, and the professional schools of public health.[4,10]

Summary

The first portion of this paper reports the Phase 2 findings of a long-term study of health educator alumni of the Department of Health Education, University of North Carolina School of Public Health. The crucial question, which initiated the study, is that of availability of health educator personnel to the United States. Eight additional questions and two major problems receive attention in this exploratory and descriptive analysis of the profession.

A tentative application of the findings of the study to the profession as a whole produces the speculation that there may have been as few as 691 professional public health educators employed in that capacity in the nation in 1961. The need for a national roster and more investigation to produce precise information was stressed.

Step-wise increments in faculty and enrollment in departments of health education (schools of public health) were suggested to bring the schools within reach of a demand training rate for a ratio of one health educator to 25,000 population under public health jurisdiction. Under the suggested plan, departments might be graduating over five times as many health educators by 1970.

The situation as to the professional health educator demands the attention of that group, of the whole field of public health, and of the professional schools.

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"The traditional role of medicine and of public health has been to prevent or correct, as far as it is possible, the accidents and malfunctions of the body and of the mind which interfere with human activities, and which shorten life or render it less pleasant. Experience has shown, however, that as one social disease is rooted out, another one springs up to take its place, and there are good reasons to believe that this state of affairs will continue to plague mankind as long as the conditions of life will continue to change. In this respect, physicians and public health officers are like gardeners and farmers who have to fight weeds and pests. Their work is never finished, and they must continuously adapt their techniques to new problems."

(René J. Dubos. The Torch of Life: Continuity in Living Experience. New York, N. Y.: Pocket Books, Inc., 1963, p. 107.)