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Staff Patterns of Epidemiologists in the Health Departments of 12 Southern States

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Synopsis

In November 1989, representatives from 12 States attending the Annual Convocation of Southern State Epidemiologists completed a survey to enumerate epidemiologists working in central offices of State health departments. Epidemiologists were classified according to education and program

area. A total of 117 epidemiologists were identified, yielding a range among the States of 0.6 to 8.3 (median 1.9) epidemiologists per million population.

The most common degree was a medical degree, followed by master's training in epidemiology or biostatistics; only 9 percent had doctoral training in epidemiology or biostatistics. More than one-third of the epidemiologists worked in infectious diseases, including acquired immunodeficiency syndrome (AIDS) and sexually transmitted diseases, and about one-fifth worked in environmental epidemiology. The areas of injuries, cancer, chronic diseases, maternal and child health, and occupational health collectively accounted for about one-fifth of epidemiologists. The results of the survey suggest room for further epidemiologic training among health department epidemiologists. The results also identify areas where additional epidemiologic input would be beneficial.

Among the agenda topics discussed during the 14th Annual Convocation of Southern State Epidemiologists, held November 29-December 1, 1989, in Mobile, AL, was the evolving role of epidemiology in public health. This topic was of interest for several reasons, including the emphasis placed on epidemiology in the Institute of Medicine's report, "The Future of Public Health," and in the draft report of the "Health Objectives for the Nation for the Year 2000," as well as ongoing organizational issues facing the Council of State and Territorial Epidemiologists and the Public Health Service's Centers for Disease Control (1,2).

As an adjunct to that discussion, a survey was

conducted to determine staffing patterns among epidemiologists in central offices of State health departments represented at the meeting. This article summarizes the results of that survey.

Methods

The State epidemiologist or other designee of the 14 States (including the District of Columbia) attending the meeting was asked to complete a single page, nonvalidated survey. A repeat request was made of nonresponders. Epidemiologists were listed if they currently (November 30, 1989) worked in the central office of the State health department

Table 1. Degrees, location, and ratio of epidemiologists per million population in southern States, November 1989

State	Degrees				Location		Total epidemiologists	Population in millions	Epidemiologists per million
	Master's ¹	Doctorate ¹	Medical ²	Other ³	In office of State epidemiologist	Outside of office of State epidemiologist			
AL.....	2	0	1	2	3	2	5	4.2	1.2
AR.....	3	1	4	1	6	3	9	2.4	3.8
DC.....	0	2	2	1	4	1	5	0.6	8.3
FL.....	3	1	2	1	2	5	7	12.0	0.6
KY.....	1	0	2	2	5	0	5	3.7	1.4
LA.....	2	2	3	3	8	2	10	4.3	2.3
NC.....	4	2	9	2	16	1	17	6.3	2.7
OK.....	11	0	3	4	15	3	18	3.3	5.5
SC.....	2	0	3	0	2	3	5	3.6	1.4
TN.....	1	0	4	9	8	6	14	5.0	2.8
TX.....	4	2	4	4	14	0	14	17.0	0.8
VA.....	1	1	3	3	6	2	8	5.3	1.5
Total.....	34	11	40	32	89	28	117	67.7	1.7
Percent....	29	9	34	27	76	24

¹ Major in epidemiology or biostatistics.

² Doctoral medical degree regardless of academic epidemiology training.

³ All other degrees including RN, BA, BS, BSN, MPH (administration), MS (demography, health administration), PhD (virology, geography, microbiology).

Table 2. Frequency and average number of epidemiologists in and outside the State epidemiologist's office, by disease area, southern States, November 1989

Disease area ¹	Total epidemiologists	In office of State epidemiologist		Outside office of State epidemiologist	
		States ²	Average number of epidemiologists ³	States ²	Average number of epidemiologists ³
Infectious.....	25	10	2.3	1	2
Environmental.....	24	6	2.5	4	2.25
General.....	18	10	1.8	0	0
AIDS.....	15	4	2.25	5	1.2
Injuries.....	13	4	2.75	1	2
Cancer.....	8	4	1.5	2	1
Sexually transmitted diseases.....	6	1	2	1	4
Chronic.....	4	3	1	1	1
Maternal and child health.....	2	1	1	1	1
Occupational.....	0	0	0	0	0
Other ⁴	2	1	1	1	1

¹ Judged by the respondent as the area where the epidemiologists spend most of their time.

² N = 12; columns are not necessarily mutually exclusive.

³ Arithmetic mean based on the number of States with at least 1 epidemiologist in that disease area.

⁴ Includes vital statistics and Alzheimer's disease.

and were full-time State, not Federal, employees. Education was distinguished with respect to a graduate degree (master's or doctorate) with a major in epidemiology or biostatistics (epi-bio), a medical degree (MD, DVM, and so on) with or without a graduate degree in epi-bio, and a category for all other degrees. A worker was to be designated as an epidemiologist if, in the opinion of the respondent, he or she worked primarily as an epidemiologist. It was suggested that the respondents use, as an operational definition of an epidemiologist, whether the worker did arithmetic division with case counts as numerators (3). A predefined list of disease areas was provided to the respondents. Epidemiologists were to be classified in these areas on the basis of where they spent "most of their time."

Results

Survey forms were received from staff of 12 States of the 14 represented at the convocation. A total of 117 epidemiologists were identified as working in the central offices of the 12 States. The total number of epidemiologists by State ranged from 5 to 18 (median 8.5). The ratio of epidemiologists per million population ranged from 0.6 to 8.3 (median 1.9, regional average 1.7). In all but two States, all or a majority of the designated epidemiologists worked in the office of the State epidemiologist (table 1).

The most common degree among the epidemiologists was a medical degree (40 of 117, 34 percent); 17 (42 percent) of these also had graduate training in epi-bio. The second most common degree was a

master's degree in epi-bio (34 of 117, 29 percent). A total of 32 (27 percent) epidemiologists had other degrees, and 11 (9 percent) had a doctoral degree in epi-bio (table 1).

A total of 46 (39 percent) epidemiologists worked in infectious diseases, acquired immunodeficiency syndrome (AIDS), or sexually transmitted diseases. A total of 24 (21 percent) worked in environmental epidemiology, and 18 (15 percent) were listed as general epidemiologists. The areas of injuries, cancer, chronic diseases, maternal and child health, and occupational epidemiology accounted for 27 (23 percent) epidemiologists. In more than six responding States, epidemiologists worked in the areas of infectious diseases, environmental health, general epidemiology, and AIDS. Cancer, injuries, sexually transmitted diseases, chronic diseases, maternal and child health, and occupational diseases had assigned epidemiologists in half or fewer of the States. Areas that had an average of two or more epidemiologists per State included injuries, environmental health, infectious diseases, AIDS, and sexually transmitted diseases (table 2).

Discussion

Enumeration can be problematic because of differing definitions of an epidemiologist, respondents' being unaware of the duties and qualifications of others, particularly those outside their offices, and a possible tendency to define epidemiologists along organizational lines. The decision in this survey to count only State-level personnel underestimates the total number of epidemiologists working in public health agencies in States, since county- and district-level epidemiologists are omitted. It was felt that the number of central office staff would more accurately reflect the capability of States to address statewide, epidemiologic issues. Federal assignees were omitted also, because they are a temporary work force (for example, 2-year assignments without guaranteed replacements) and may not represent a financial commitment by State governments to provide an epidemiologic work force.

The results of this survey suggest an improvement when compared with results of a previous survey conducted by Gunn and colleagues (4). In 1983, the southeast region had a ratio of 0.8 epidemiologists per million population (4); in 1989, the ratio was 1.7. It should be noted, however, that there are methodological differences between these two surveys and the results are not wholly comparable. If State epidemiologists and persons without

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graduate degrees are omitted (as was done in 1983), the 1989 ratio becomes 1.1. In 1989, all States had Gunn's suggested minimum of at least four epidemiologists. Only Florida and Texas, the two most populous States, did not meet Gunn's proposed ratio of 1 epidemiologist per million population despite listing 7 epidemiologists for Florida and 14 for Texas. The District of Columbia, with the smallest population of approximately 600,000 persons, had the highest ratio at 8.3.

More than three-quarters of epidemiologists worked in the office of the State epidemiologist. Although this result could be skewed by the responding State epidemiologists being unaware of other epidemiologists in their agencies, it implies that most epidemiologic activities are organized in the office of the State epidemiologist. A total of 62 (53 percent) epidemiologists held a graduate degree in epi-bio. Thus, nearly half of the working epidemiologists lacked graduate degree training.

The distribution of epidemiologists by disease areas highlights traditional areas of general epidemiology and infectious diseases, including AIDS and sexually transmitted diseases. Environmental epidemiology now shares a significant representation among the epidemiologic work force, with 10 of the 12 States having environmental epidemiologists. On the other hand, only half or fewer States had epidemiologists devoted to injuries, cancer, chronic diseases, maternal and child health, and occupational diseases. These areas thus represent ones of potential growth, particularly in light of interest in these areas by the proposed year 2000 objectives (2).

In summary, the results of this survey show that all 12 surveyed States have at least four full-time epidemiologists and that all but two have more than one epidemiologist per million population. Most State-level epidemiologists work within the office of the State epidemiologist, and most still are involved in traditional areas. States need to improve their capacity to monitor, investigate, and respond to patterns in disease areas different from infectious diseases. It further appears that there is room for improving graduate degree training in

epi-bio among the epidemiologists. Whether epidemiologists should continue to be concentrated in a centralized unit such as the office of the State epidemiologist or dispersed among specific program areas is an issue that deserves further study.

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Drug Use and Sexual Behavior of Indigent African American Men

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Synopsis

A total of 108 African American men in a free lunch program with histories of drug abuse were surveyed to determine the relationships among drug use, sexual activity, AIDS prevention practices, and perceived risk of AIDS.

Of the 108, 69.5 percent were homeless and only 12 percent were currently receiving drug abuse treatment. More than half of the participants had injected drugs, and 38 percent had shared needles. Among the 80 percent who were sexually active, 40 percent reported using condoms every time they had sex. Respondents in monogamous relationships tended to use condoms less frequently. Those who shared needles were more likely to have sex with IV drug users and had more sexual partners. Respondents who used crack used condoms less frequently. Those with multiple partners were more likely to engage in anal intercourse. Three-quarters perceived themselves at risk of AIDS.

Findings underscore the need for community-based strategies to engage high-risk populations beyond the reach of drug treatment and AIDS prevention programs.

Although African Americans represent only 12 percent of the U. S. population, they account for approximately 28 percent of AIDS cases reported in adults (1). Of the African American adults with AIDS, 46 percent are intravenous (IV) drug users, compared with 15 percent of white Anglo adults with AIDS (2).

This demographic portrait of AIDS points up the need for understanding attitudes and behavior in the realms of sexual activity and drug use among African American men. A recent study of 149 male IV drug users found that almost half of African American participants had not been in drug treatment over the past 5 years, whereas only 20 percent of the white respondents had not received treatment (3). In another study of 500 IV drug users, a street sample evidenced a substantially higher sero-

positivity (33 percent vs 12 percent) than a comparison group in treatment (4).

Some studies indicate that IV drug users have made substantial changes in response to concerns about AIDS (5-9). Changes in sexual behavior have been less evident than altered patterns of needle use (10,11). Our own research, conducted on two samples of methadone patients, found low rates of condom use (12,13). We also found that sexual risk-taking was correlated with drug use and with negative attitudes toward condom use and sexual negotiation. Des Jarlais and coworkers concluded from their findings that it appears relatively easy to institute condom use within a casual sexual attachment but more difficult to introduce condoms into an established relationship (14).

The linkages among high-risk drug use, sexual