

Enumeration of the public health workforce is a topic of great interest among public health researchers and policy makers.^{34, 35, 36} In this study, the number of full-time equivalent (FTE) LPHA staff and the occupational classifications of these staff were collected from survey respondents. Using the Standard Occupational Classification (SOC) system for public health, respondents were asked to enumerate the FTEs for various occupations in their agency (see Appendix C).³⁷ This is the first time that national-level data on the LPHA workforce have been collected directly from respondents by SOC categories.

We recommend that the data presented by workforce category be treated as exploratory. The occupational classification data presented in this report represent a first-time effort to standardize the enumeration of public health workers through self-response at the LPHA level. Because this methodology was new, many respondents were not familiar with how to classify workers of various types, or how to split one FTE among several classifications if a worker had more than one occupation at the LPHA. This resulted in missing data for many LPHAs in the dataset. Current research is attempting to validate the SOC categories for future use, and this study provides important data for that effort.³⁸ Future work also is required to validate, refine, and enhance the enumeration of the LPHA workforce based on the results presented in this study.

The LPHA workforce data in this study present a picture of the number and types of workers helping to provide public health services in their communities. There was variation in the range of occupations and overall numbers of FTEs across LPHAs; therefore, both the average (mean) and the median (50th percentile) values are presented in most of the figures and tables that follow.

WORKFORCE SIZE AND COMPOSITION

Respondents were asked to provide the number of FTEs of directly employed staff, contractors to the LPHA, volunteers, interns, visiting scholars, and student workers. Using these categories, the majority of the LPHA workforce is composed of direct employees, with few contractors, volunteers or others.

Staff sizes ranged widely among LPHAs in this study. On average, respondents reported directly employing 67 FTE staff in their agency, with a median of 13 FTEs. These numbers are similar to prior LPHA staff size figures. For example, NACCHO reported similar figures using data from the *1997 Profile* (average 72 FTEs, median of 16). In 1992-1993, NACCHO reported that 42% of all LPHAs have fewer than ten full-time staff members.

The occupations LPHAs most commonly employ are administrative or clerical staff, environmental scientists and specialists, and public health nurses. (Please note the above results were determined using *only* those questions which received greater than 500 responses.) Other research confirms that these occupations are indeed frequent: a NACCHO-ASPH study conducted by the Center for Health Policy Studies at the University of Texas School of Public Health found nurses and environmental scientists/specialists were the largest occupation classifications in the five state health departments with centralized LPHAs included in the analysis.³⁹ While a specific category for “home health aides” was not included on the SOC listing, this was a common occupation listed by LPHAs in the “other” classification section of the questionnaire.

When analyzed by metropolitan versus non-metropolitan areas, LPHAs in metropolitan counties have larger workforces in number and greater diversity among occupations than LPHAs in non-metropolitan counties. For example, mental health occupations are much more frequent in metropolitan area LPHAs than non-metropolitan LPHAs. In addition, the larger the population served by the LPHA, the larger and more diverse the workforce.

When analyzed by LPHA type, we also see differences in the size and composition of the public health workforce. For example, township LPHAs on average had the smallest workforce, while multi-county/district LPHAs and city-county LPHAs had the largest workforces.

CURRENT AND FUTURE OCCUPATION NEEDS

Respondents were asked to list the five occupational classifications they currently needed most, and the five

occupational classifications they predict they will need most in the next five years. Overall, public health nurses, environmental scientists or specialists, health educators, epidemiologists and administrative staff were listed as current top occupational priorities.

Non-metropolitan area LPHAs more frequently listed public health nurses as a top need than metropolitan area LPHAs. Environmental scientists or specialists were listed as a top need by both metropolitan area and non-metropolitan area LPHAs. Administrative/clerical staff were listed as a top need by 10% of non-metropolitan area LPHAs, and 5% of metropolitan area LPHAs.

Respondents also provided the reasons these staff were needed but not hired. Overall, 68% said they needed staff but could not hire them due to budget restrictions. Budget restrictions were more frequently listed as a problem for LPHAs serving small jurisdictions. LPHAs serving smaller populations and in non-metropolitan areas also more frequently reported not having hired staff because of difficulties attracting candidates to their location, and because of a lack of qualified candidates in their areas. Overall, 19% of LPHAs said that additional staff were needed because LPHA programs and services were being expanded.

Responses on predicted occupational classifications needed in the next five years yielded similar results to the analysis of the current workforce needs. For example, public health nurses and environmental scientists and specialists were cited as priority occupation needs for the future. Reasons for needing these classifications included local demand for new programs, changing community demographics, changes in the physical environment (suburban sprawl, environmental clean-up, wastewater facilities placement, global warming, etc.) and a reevaluation of the LPHA's mission. Future occupation needs varied little between metropolitan and non-metropolitan area LPHAs. Health information specialists were more frequently listed as a need by LPHAs serving large population jurisdictions. Epidemiologists were more frequently listed as a future need among multi-county and district LPHAs than other LPHA types.

WORKFORCE TRAINING

Respondents were asked if their LPHA budget included a line item for continuing education or other training programs for staff, and what percent of that line item was for clinical and non-clinical staff training. Seventy four percent (74%) of the respondents indicated they had a budget line for staff training (80% LPHAs serving metropolitan areas, and 70% LPHAs serving non-metropolitan areas). On average, 41% of LPHA's continuing education budget was for clinical staff training and 35% for non-clinical.

Respondents also were asked to list the top three workforce training needs of their LPHA. Sixty-one percent (61%) of all responding LPHAs listed job-specific training, such as continuing education programs to keep nursing or medical credentials current. Ten percent (10%) listed information technology training, such as computer or software program training. The remaining 29% indicated various other topics, such as customer service training, basic public health training (a basic curriculum or "Public Health 101" course), community involvement trainings, and administrative trainings, such as LPHA business processes and procedures. There was little difference in training needs between metropolitan and non-metropolitan area LPHAs.

In regards to information technology training, one should note that this survey was conducted prior to the emergence of national efforts to increase preparedness for bioterrorism, and the attendant interest in a national electronic disease surveillance system. Future research in this area is needed to understand better information technology training needs in today's environment.

This survey also asked questions regarding LPHA strengths and challenges. (See page 79 to 84 for a further discussion of LPHA workforce.) The agency workforce consistently was noted as one of the greatest strengths of many LPHAs, as well as one of the biggest challenges.

Table 15. OVERALL FULL-TIME EQUIVALENT STAFF:
All LPHAs

	Mean FTEs	Median FTEs	n*
Direct Employees	67.18	13	676
Contract Employees	6.32	1	694
Volunteers	5.56	0	554
Others	3.49	0	556

**Total observations n=694, however, number of observations may be smaller due to missing observations and responses of "0" which were not included in the analysis.*

Table 16. MEAN AND MEDIAN DIRECT AND CONTRACTED FTEs BY OCCUPATIONAL CLASSIFICATIONS: All LPHAs

Occupational Classification	Mean FTEs (average)	Median FTEs (50th percentile)	FTE Range (smallest & largest values)	n*
All Direct and Contract FTEs	62.4	17	0 - 5600	593
Administrative or Clerical Staff	16.6	4	0 - 1233	582
Alcohol and Substance Abuse Counselors	10.3	3	0 - 250	69
Allied Health Professionals, not specified	6.0	1	0 - 194	168
Biostatistician	1.5	1	0.1 - 11.2	49
Environmental Engineer	2.0	1	0 - 30	113
Environmental Scientist and Specialist	6.4	2	0 - 535	528
Environmental Science Technician and Technologist	3.7	1	0 - 130	157
Epidemiologist	2.2	1	0.1 - 85	190
Health Educator with CHES certification	2.5	1	0 - 100	181
Health Educator without CHES certification	2.8	1	0 - 101	295
Health Service Managers, Administrators, Health Director	2.1	1	0 - 109	585
Health Information Systems Specialists	3.7	1	0 - 219	215
Mental Health Counselor	11.5	.8	0 - 175	34
Mental Health and Substance Abuse Social Worker	5.8	1	0 - 61.2	71
Public Health Attorney or Hearing Official	1.3	.5	0 - 50	71
Public Health Dentist	1.7	1	0.1 - 19	122
Public Health Dental Worker	2.3	1	0 - 34.3	170
Public Health Laboratory Scientist	6.8	2	0 - 235	93
Public Health Laboratory Technician or Technologist	3.0	2	0 - 105	185
Public Health Nurse	14.8	4.8	0 - 999	629
Public Health Nutritionist	3.0	1	0 - 56	383
Public Health Physician	2.8	.6	0 - 440	315
Public Health Policy Analyst	3.8	1	0.1 - 194	116
Public Health Social Worker	8.1	2	0 - 991	321
Psychologist, Mental Health Provider	5.6	1.5	0 - 223	43
Occupational Safety and Health Specialist	4.9	1	0.2 - 69	40
Occupational Safety and Health Technician or Technologist	1.3	1	0.2 - 10	13

*Total observations n=694, however, number of observations may be smaller due to missing observations and responses of "0" which were not included in the analysis.

Table 17. MEAN AND MEDIAN DIRECT AND CONTRACTED FTEs
BY OCCUPATIONAL CLASSIFICATIONS:
Metropolitan and Non-Metropolitan LPHAs

Occupational Classification	Metropolitan LPHAs		Non-Metropolitan LPHAs	
	Mean, Median FTEs	FTEs Range and n	Mean, Median FTEs	FTEs Range and n
All Direct and Contract FTEs	107.9, 28	0 to 5600 n=326	31.2 13	0 to 394 n=267
Administrative or Clerical Staff	29.5, 5.5	0 to 1233 n=332	7.2 4	0.3 to 121 n=250
Alcohol and Substance Abuse Counselors	13.4, 4	0 to 250 n=56	4.3 1	0 to 25.2 n=13
Allied Health Professionals, not specified	9.4, 2	0 to 194 n=106	3.0 1	0 to 72 n=62
Biostatistician	1.4, 1	0.5 to 11.2 n=42	1.8 1	0.1 to 4 n=7
Environmental Engineer	2.9, 2	0.2 to 30 n=79	1.0 1	0 to 4 n=34
Environmental Scientist and Specialist	10.2, 4	0 to 535 n=323	2.8 1	0.1 to 32 n=205
Environmental Science Technician and Technologist	4.8, 2	0 to 130 n=118	1.7 1	0.3 to 13 n=39
Epidemiologist	3.1, 1	0.1 to 85 n=144	1.0 1	0.1 to 7 n=46
Health Educator with CHES certification	3.2, 1	0 to 100 n=136	1.2 1	0.2 to 5 n=45
Health Educator without CHES certification	4.1, 2	0 to 101 n=183	1.7 1	0.2 to 17 n=112
Health Service Managers, Administrators, Health Director	3.2, 1	0 to 109 n=339	1.2 1	0 to 15 n=246
Health Information Systems Specialists	4.9, 2	0 to 219 n=160	1.4 1	0 to 5 n=55
Mental Health Counselor	18, 1	0 to 175 n=29	0.3 0.2	0.1 to 1 n=5
Mental Health and Substance Abuse Social Worker	9.1, 3	0 to 61.2 n=51	2.9 0.5	0.1 to 24.2 n=20
Public Health Attorney or Hearing Official	1.4, 1	0 to 50 n=56	0.9 0.2	0 to 5 n=15
Public Health Dentist	2, 1	0.1 to 19 n=99	0.8 0.8	0.2 to 6 n=23
Public Health Dental Worker	3.3, 2	0 to 34.3 n=126	0.9 0.5	0 to 7 n=44
Public Health Laboratory Scientist	7.6, 2.1	0 to 235 n=82	2.0 1	0.3 to 6 n=11
Public Health Laboratory Technician or Technologist	3.6, 2	0 to 105 n=147	1.6 1	0 to 8 n=38
Public Health Nurse	25.6, 8.5	0 to 999 n=345	7.8 4	0 to 152 n=284
Public Health Nutritionist	5.3, 3	0 to 56 n=209	1.7 1	0 to 20.6 n=174
Public Health Physician	4.4, 1	0.1 to 440 n=219	0.8 0.5	0 to 6 n=96
Public Health Policy Analyst	5.8, 1	0.2 to 194 n=90	1.2 1	0.1 to 6 n=26
Public Health Social Worker	14.1, 4	0 to 991 n=202	2.6 1	0 to 51.3 n=119
Psychologist, Mental Health Provider	9.5, 2	0 to 223 n=31	1.9 1	0.2 to 6 n=12
Occupational Safety and Health Specialist	5.2, 1	0.2 to 69 n=39	1 1	1 to 1 n=1
Occupational Safety and Health Technician or Technologist	1.6, 1	0.5 to 10 n=11	0.2 0.2	0.2 to 0.2 n=2

*Total observations n=694, however, number of observations may be smaller due to missing observations and responses of "0" which were not included in the analysis.

Table 18. MEAN AND MEDIAN DIRECT AND CONTRACTED FTEs BY
SELECTED OCCUPATIONAL CLASSIFICATIONS:
Population Size

Occupational Classification	Mean, Median FTEs and n				
	0 to 24,999	25,000 to 49,999	50,000 to 99,999	100,000 to 499,999	500,000 +
All Direct and Contract FTEs	13.9, 8.5 n=160	31.3, 18 n=100	57.8, 41 n=129	150.9, 110 n=144	612, 437 n=60
Administrative or Clerical Staff	3.2, 2 n=125	5.4, 4 n=105	11.6, 8.3 n=140	31.7, 21 n=149	183, 100 n=63
Alcohol and Substance Abuse Counselors	3.4, 0.5 n=7	2.3, 1 n=7	12.3, 1 n=11	11.4, 5.5 n=23	28.4, 18.5 n=21
Environmental Scientist and Specialist	1.3, 1 n=96	2.5, 2 n=96	4.9, 4 n=129	12.4, 10.5 n=145	50.5, 32.5 n=62
Epidemiologist	0.9, 0.7 n=17	1.5, 1 n=13	1.2, 1 n=26	1.5, 1 n=71	6.5, 2 n=63
Health Educator with CHES certification	0.7, 0.5 n=13	1.1, 0.5 n=15	1.2, 1 n=45	2.9, 2 n=70	9.5, 5 n=38
Health Educator without CHES certification	0.9, 1 n=22	1.1, 1 n=45	1.8, 1 n=69	3.8, 2 n=105	10.7, 6 n=54
Health Service Managers, Administrators, Health Director	0.9, 1 n=120	1.2, 1 n=99	1.5, 1 n=142	3.6, 2 n=154	13.6, 7 n=70
Health Information Systems Specialist	0.8, 1 n=6	1.5, 1 n=13	1.3, 1 n=38	2.3, 2 n=95	12.5, 4 n=63
Public Health Dentist	0.5, 0.5 n=6	0.9, 0.8 n=13	0.9, 1 n=20	1.4, 1 n=45	4.7, 3 n=38
Public Health Nurse	4.3, 2.22 n=150	6.4, 4.8 n=106	14.2, 10.5 n=149	30.2, 22.7 n=158	132.1, 83.8 n=66
Public Health Nutritionist	1.0, 0.6 n=48	1.3, 1 n=55	2.0, 1 n=96	4.6, 3 n=126	14.4, 11 n=58
Public Health Physician	0.7, 0.3 n=27	0.9, 0.3 n=37	0.9, 0.5 n=78	2.0, 1 n=113	18.5, 4 n=60
Public Health Social Worker	2.1, 1 n=30	2.4, 1 n=42	2.7, 1.8 n=80	6.3, 4.5 n=114	60.2, 16.8 n=55

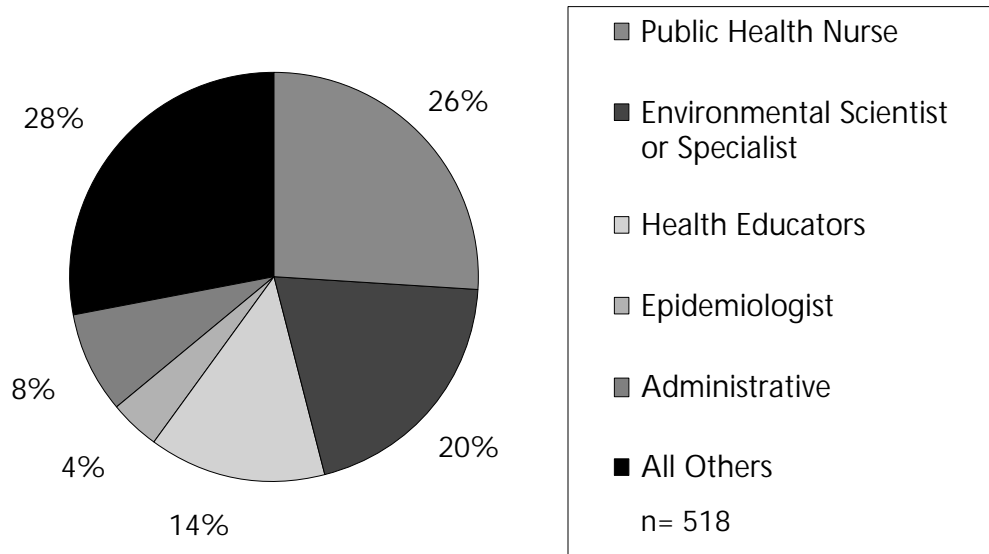
*Total observations n=694, however, number of observations may be smaller due to missing observations and responses of "0" which were not included in the analysis.

Table 19. MEAN AND MEDIAN DIRECT AND CONTRACTED FTES BY SELECTED OCCUPATIONAL CLASSIFICATIONS:
LPHA Type

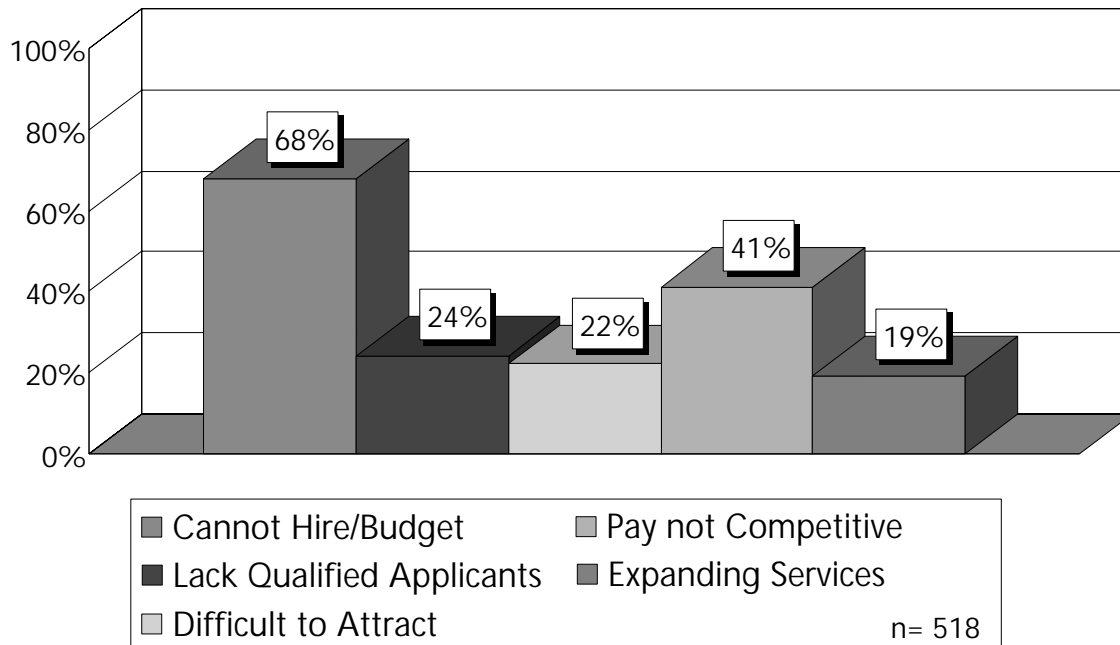
Occupational Classification	Mean, Median FTES and n				
	County	City	City-County	Township	District/ Multi-County
All Direct and Contract FTES	65.2, 18 n=358	66.1, 15 n=62	97.9, 33 n=57	7.0, 4 n=51	100.3, 69 n=65
Administrative or Clerical Staff	14.3, 5 n=350	27.8, 3 n=67	31.4, 9 n=60	1.7, 1 n=32	21.2, 13 n=73
Alcohol and Substance Abuse Counselors	13, 6.48 n=34	12.8, 2 n=15	5.1, 2 n=9	4.2, 1 n=4	3.8, 3 n=7
Environmental Scientist and Specialist	6.3, 2 n=312	6.0, 2 n=66	9.5, 4.5 n=54	1.4, 1 n=29	9.0, 6.5 n=67
Epidemiologist	1.8, 1 n=109	4.6, 1 n=25	2.5, 1 n=28	1.0, 1 n=2	1.6, 1 n=26
Health Educator with CHES certification	2.4, 1 n=105	3.7, 1 n=27	4.0, 3 n=15	0.6, 0.5 n=7	2.0, 1 n=27
Health Educator without CHES certification	2.7, 1 n=185	3.9, 1.39 n=26	3.6, 1 n=38	0.3, 0.3 n=3	2.4, 1 n=43
Health Service Managers, Administrators, Health Director	1.9, 1 n=350	3.4, 1 n=66	3.6, 1 n=60	0.8, 1 n=33	2.2, 1 n=76
Health Information Systems Specialist	3.6, 1 n=121	5.0, 1 n=24	5.6, 1 n=25	2.0, 2 n=2	2.2, 1 n=43
Public Health Dentist	1.6, 1 n=65	1.5, 0.8 n=19	2.6, 1 n=20	0.6, 0.5 n=4	1.7, 1 n=14
Public Health Nurse	13.4, 5 n=387	19.0, 3 n=69	23.7, 6 n=66	2.7, 1 n=36	25.9, 17 n=71
Public Health Nutritionist	2.6, 1 n=244	6.4, 2 n=29	3.4, 1.8 n=44	1.1, 0.7 n=4	3.6, 2 n=62
Public Health Physician	1.9, 1 n=183	4.6, 0.5 n=38	7.6, 0.5 n=41	0.6, 0.3 n=7	1.3, 1 n=46
Public Health Social Worker	5.7, 2 n=195	24.0, 3 n=37	12.9, 3 n=36	1.4, 1 n=6	5.6, 4 n=47

*Total observations n=694, however, number of observations may be smaller due to missing observations and responses of "0" which were not included in the analysis.

Figure 22. OCCUPATIONS MOST CURRENTLY NEEDED :
All LPHAs

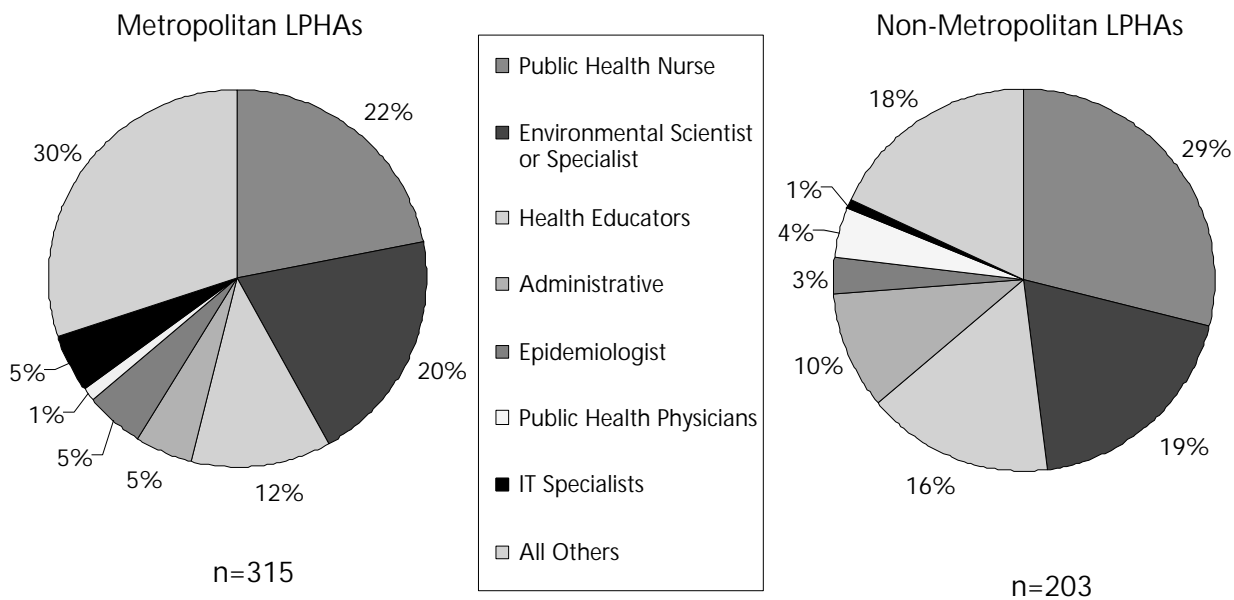


Reasons why occupation is needed...

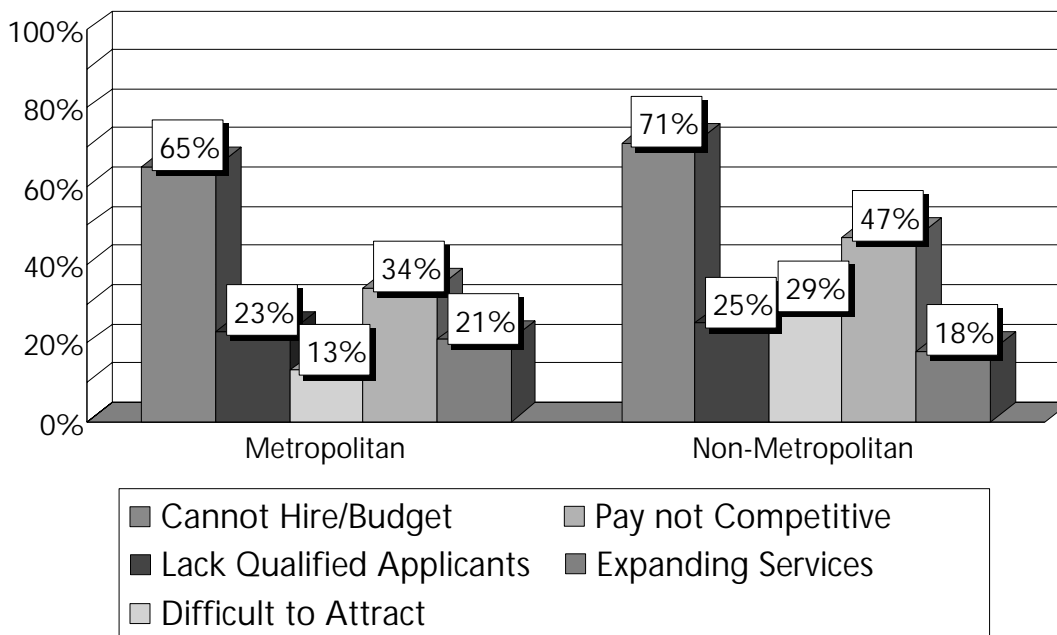


Note: Percentages add to greater than 100% because respondents could choose more than one reason.

Figure 23. OCCUPATION MOST CURRENTLY NEEDED:
Metropolitan and Non-Metropolitan LPHAs

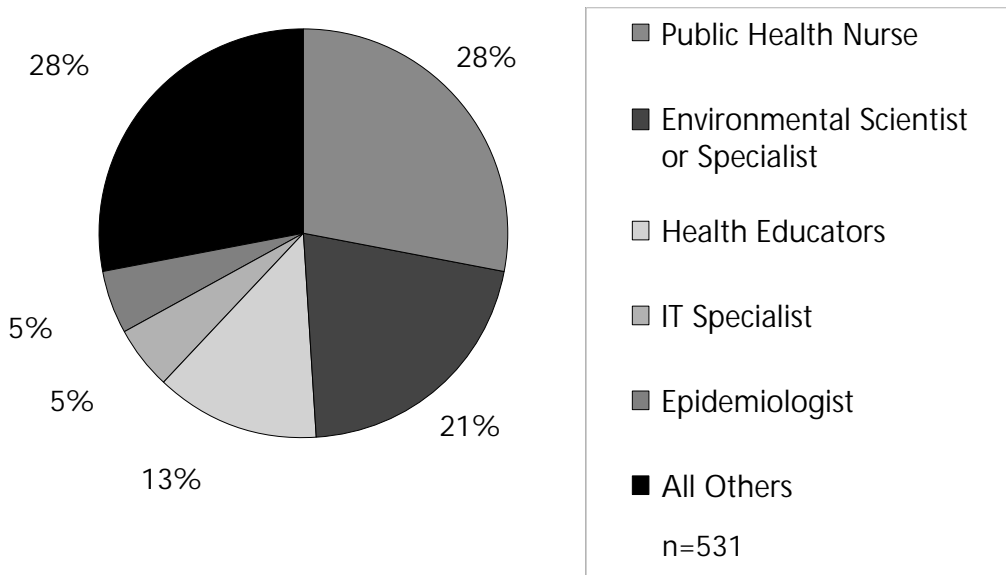


Reasons why occupation is needed...



Note: Percentages add to greater than 100% because respondents could choose more than one reason.

Figure 24. OCCUPATIONS MOST NEEDED IN FIVE YEARS:
All LPHAs



Top reason why occupation will be needed...

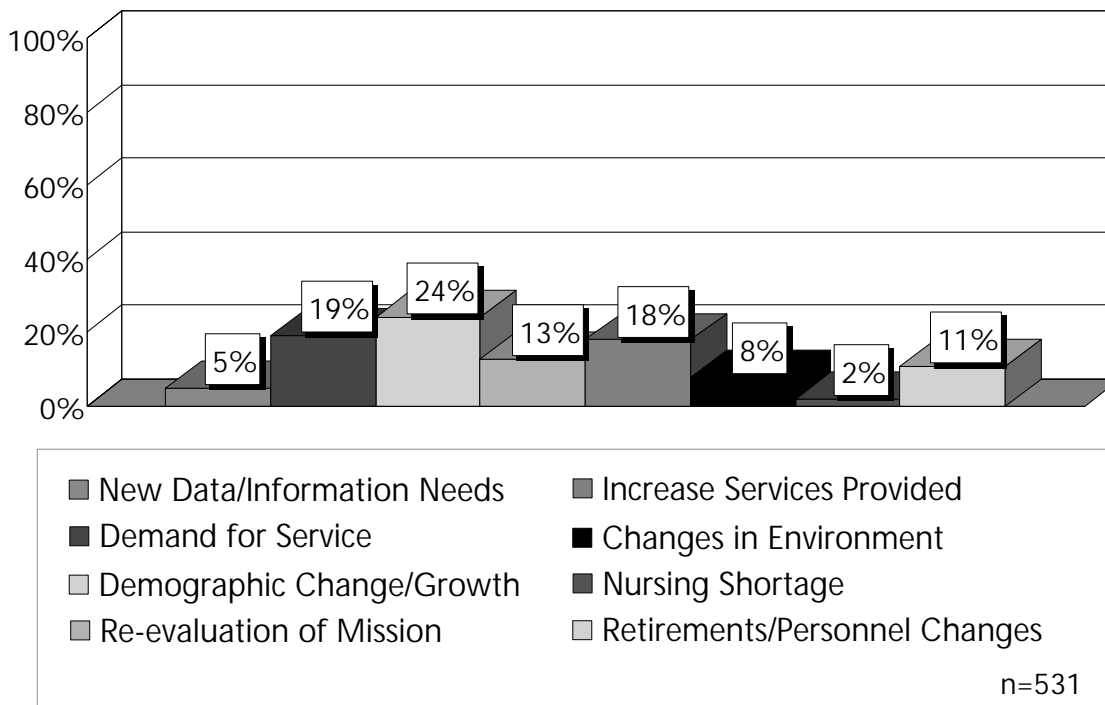
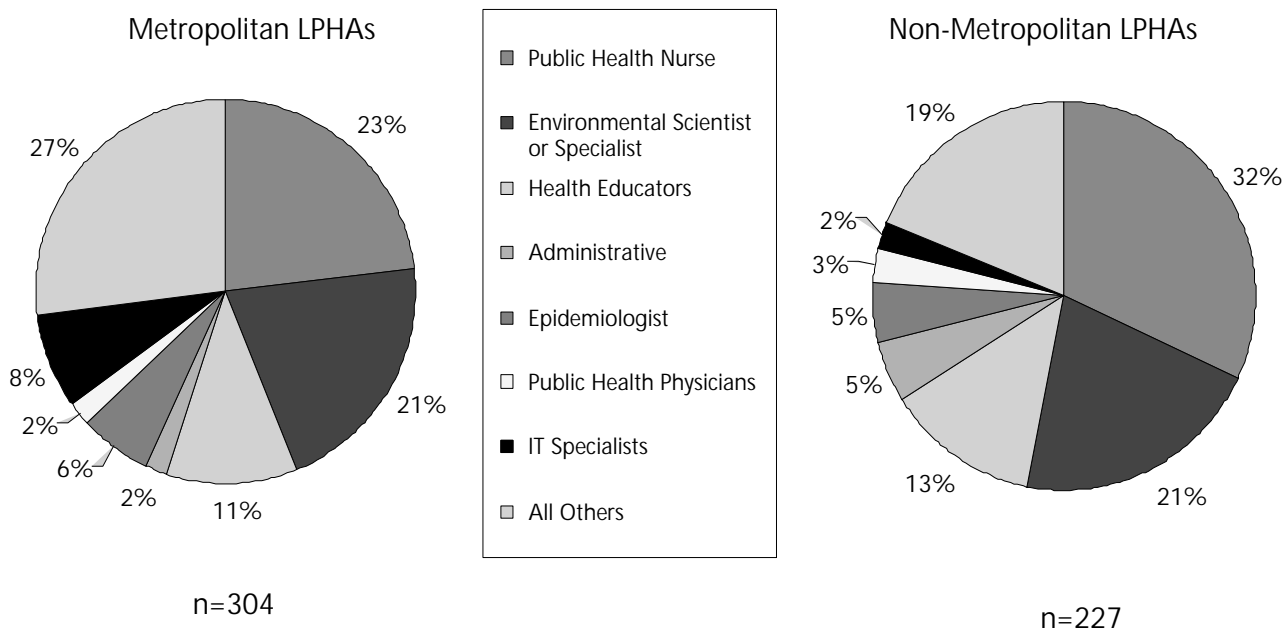


Figure 25. OCCUPATIONS MOST NEEDED
IN FIVE YEARS:
Metropolitan And Non-Metropolitan LPHAs



Top reason why occupation will be needed...

