



**Association of State and
Territorial Directors of Nursing**

***Report on a Public Health
Nurse to Population Ratio***

September 2008

ASTDN extends a sincere thanks to the 60 public health nurses that completed the Public Health Nursing Task Analysis and to the 28 local and state health departments for their time, expertise, and contributions to the future of public health nursing practice.

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This report is supported by funding from a cooperative agreement with the U.S. Department of Health and Human Services; Centers for Disease Control and Prevention, Cooperative Agreement award number U50/CCU31903. Opinions in this report do not necessarily represent the official policy of the CDC.

The Association of State and Territorial Directors of Nursing (ASTDN) is an active association of public health nursing leaders from across the United States and its Territories. The mission of ASTDN is to provide a peer and collegial forum for public health nursing leadership, recognizing the authority as well as the responsibility of the governmental role in protecting and promoting the health of the public.

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Background

In the fall of 2005, the Association of State and Territorial Directors of Nursing (ASTDN) entered into a Cooperative Agreement with the Association of State and Territorial Health Officials to embark on a project funded by the Centers for Disease Control. The project documented the erosion of the public health nursing leadership infrastructure within state health departments and engaged numerous national stakeholders to develop strategies to ameliorate those gaps. The project delineated the significant contributions of public health nurses in promoting and protecting the health of populations. The culmination of the project is the establishment of a public health nurse to population ratio to assure an adequate number of public health nurses.

For many, the historical memory of the existence and utilization of a public health nurse (PHN) to population ratio in the United States has been lost. This paper (1) outlines the development and use of a PHN: population ratio over a 45 year period from 1927 to 1972; (2) presents examples of the utilization of population ratios by other professional disciplines; (3) describes the results of a public health nurse task analysis; and (4) proposes a set of recommendations for a public health nurse to population ratio.

RECOMMENDATIONS

1. Establish a standard national public health nurse to population ratio of 1 public health nurse to 5,000 population.
2. Establish a standard national ratio of one public health nurse supervisor to no more than 8 public health nurses.
3. Renew efforts to require the baccalaureate degree as the educational credential for entry into public health nursing practice.
4. Engage other public health disciplines to ascertain if they have or are considering a population ratio for their specific disciplines.

Overview of Public Health Nursing in the United States

Public health nurses (PHNs) have been the backbone of the public health system for more than one hundred years (Berkowitz, et al., 2001). Public health nurses in state and local health departments are an essential component of the solution to the population health problems of today---significant health disparities, threats of emerging and re-emerging infectious diseases, heightened demand for emergency preparedness and response, an epidemic of chronic diseases related to lifestyle, an aging population with mounting health needs, and increasing numbers of uninsured. The need for a consistent, effective and efficient public health nursing workforce is critical to address these population health needs.

The title “public health nurse” designates a registered nurse with educational preparation in both public health and nursing. “The baccalaureate degree in nursing is the educational credential for entry into public health nursing practice” (ANA, 2007, p. 10). In addition to licensure, public health nursing practice is guided by explicit professional standards including the “Scope and Standards of Public Health Nursing” (ANA, 2007).

Public health nursing practice synthesizes the art and science of both nursing and public health. Public health nurses incorporate mental, physical, emotional, social, spiritual, and environmental aspects of health into their practice. This holistic approach to health is grounded in their educational preparation in nutrition, normal growth and development, communication, prenatal care and pregnancy, mental health, injury, chemical use and abuse, violence, death and dying, grief and loss, human sexuality, family planning, chronic disease, immunizations, and environmental influences on health. Public health nurses’ clinical nursing experiences prepare them to work with communities, families and individuals across the entire lifespan. They integrate community involvement and insights about population health with their clinical understanding of health and illness (Allender & Walton, 2005).

As trusted professionals, PHNs are often able to move in communities in ways that are not possible for others (Salmon, 1993). They often serve populations that are marginalized by society and address differences in health status that are unnecessary, avoidable and unjust. “Nurses... have the privilege of working with the most vulnerable groups as well as with people at their most vulnerable moments” (Schim, et al., 2007, p. 78). Public health nurses often provide a voice for those who cannot advocate for themselves. Their commitment to social justice is often expressed through their advocacy and political involvement.

The Gallup’s survey on honesty and ethics in the professions has consistently shown that the American public rates nursing as the field with the highest standards of honesty and ethics over the past nine years.

The *2000 Public Health Workforce Enumeration* reported 36,921 nurses working in public health at the state and territorial level. Based on that data, nurses comprised 11 percent of the total public health workforce and 25 percent of all public health professionals. However, due to data collection issues, the 36,921 number is an undercount of nurses working in public health. A review of the *2000 Public Health Workforce Enumeration* data revealed public health nurse data was missing from 16 states: Arizona, Connecticut, District of Columbia, Georgia, Hawaii, Iowa, Maryland, Massachusetts, Nebraska, Nevada, New Hampshire, North Dakota, Oklahoma, Oregon, Rhoda Island and Washington. All of these states employ PHNs. Georgia alone, for example, reported 1578 PHNs in 2005, Oklahoma, 463 PHNs (ASTDN, 2007). There is not a current accurate, up-to-date enumeration of PHNs in the United States.

History of the Public Health Nurse to Population Ratio

History of Public Health Nursing: Census

The United States does not have a definitive enumeration of public health nurses for the year 2008 or a national standard for a ratio of public health nurse to population. But for many years in the not-so-distant past, public health nursing had both.

The earliest known count of public health nurses in the United States was reported by Harriet Fulmer at the International Congress of Nurses in Buffalo, New York in 1901. At that time, there were 58 public health nursing organizations (largely Visiting Nurse Agencies) employing about 130 nurses. In 1912, Mary Gardner found that approximately 3,000 nurses were engaged in what we now call public health nursing. (Division of Nursing, 1968, p.1)

From 1916 to 1931 periodic enumerations of public health nursing agencies and the nurses they employed were recorded by the Statistical Department of the National Organization for Public Health Nursing. For example, in 1926 there were 3,269 agencies in the United States practicing public health nursing and 11,171 public health nurses (AJPH, 1926).

Beginning in 1937 and continuing through 1972, the State Directors of Public Health Nursing and the Public Health Nursing Branch of the Division of Nursing, U.S. Public Health Service, systematically collected and compiled data about the number and the level of educational preparation of nurses employed for public health work in the United States. The “Census of Public Health Nurses” (Division of Nursing, 1968) data was reported annually from 1937 through 1953, in 1955, 1957, and biennially from 1960 to 1964. In addition to the numbers of public health nurses in the nation, each public health nurse census reported (1) ratios of public health nurse-to-population coverage, (2) the ratio of public health nurse supervisor to public health nurses and (3) the level of educational preparation of the public health nurse workforce.

Over a period of 27 years, the State and Territorial Directors of Public Health Nursing collected, summarized, and submitted data on the public health nurse workforce in their jurisdictions to the Division of Nursing. In 1966, the Division of Nursing altered their process for enumerating the public health nurse workforce, no longer involving the State and Territorial Directors of Public Health Nursing (Division of Nursing, 1968). The Division of Nursing directly surveyed agencies that employed public health nurses and independently analyzed the data. This process was repeated in 1968, 1970 and 1972.

In July 1975, the Division of Nursing moved from enumerating the public health nurse workforce to surveying all registered nurses in the United States. The first National Sample Survey of Registered Nurses was conducted in September 1977. The survey has been conducted every four years since 1980 (Division of Nursing, 1992). The National Sample Survey of Registered Nurses surveys approximately 1.2 percent of licensed registered nurses from each of the fifty states and the District of Columbia. In 2000, the National Sample Survey of Registered Nurses reported that 26,277 (1.2%) RNs reported working in official state health departments, and 40,321 (1.8 %) reported working in city or county health departments. This combined 3% of the sample translates into an extremely small sampling size for public health nurses, which limits the generalization of the data to the broader public health nurse workforce.

History of Public Health Nursing: Ratio

From 1927 to the mid-1970s, public health nursing utilized a recommended PHN to population ratio. One of the earliest documented ratios was established in 1927. Ira Hiscock was funded by the Commonwealth Fund to conduct a study on "Community Health Problems." This study recommended a ratio of one PHN for every 2000 persons in the population "on the basis of evidence already available as to the essentials for adequate community service" (Hiscock, 1927).

In the United States, the initial public health nurse to population ratio recommendation was one public health nurse to every 2,000 people.

In 1932, the Commonwealth underwrote another study, "Community Health Organization." Based on an analysis of time spent by PHNs on (a) communicable disease control, (b) venereal disease control, (c) tuberculosis control, (d) maternity and child hygiene, (e) school hygiene, and (f) bedside care (for chronic diseases such as cancer and heart disease), Hiscock arrived at a recommended ratio of 40 nurses per 100,000 population. This ratio translated into 26.6 public nurses for preventative care and 13.4 public health nurses for bedside care. Hiscock recommended five nursing supervisors for a staff of 40 field nurses. He also strongly recommended that the supervisors be well prepared in the fields that they supervised --maternity and child nursing, school nursing, communicable disease nursing, tuberculosis nursing, and venereal disease nursing (Hiscock, 1932).

Miriam Randall, a technical staff member for the Milbank Memorial Fund, conducted a task analysis of public health nursing in 1936. The task analysis included the number of home visits made, the number of clinic visits made by the patients, and the number of examinations given to school children. In her article, Randall states that,"It has been recommended that there should be one public health nurse to every 2,000 population. Thus the number of people in the district served by a public health nurse may be used as a unit for measuring the adequacy of public health services" (1936, p. 165). [Randall later went on to become the Executive Director of the Visiting Nurse Service of New York.]

George C. Ruhland, M.D., F.A.P.H.A., Health Officer for the District Department of Health, Washington, DC presented a paper to the Public Health Nursing Section of the American Public Health Association at the 67th Annual Meeting in Kansas City, Missouri, on October 25, 1938. In his presentation on the *Public Health Nursing Program of the Future*, Ruhland (1938) described a "generalized educational system under which the visiting nurse is to attend to all of the public health nursing problems in a district of not more than 2,000 population, dealing with the family as a whole" (1938, p.1016).

Ruhland used the ratio to make a case for the expansion of public health nursing services, particularly in the rural areas. He proposed that “if the present ratio of one nurse for each 2,000 of population is sound and justified then the expansion of the [public health nursing] service is clearly indicated since it appears that the prevailing ratio in urban communities is about 1 to 4,000 population, and rural areas have nursing service of only 1 to 9,000 to 1 to 11,000 of population. On the basis of the indicated standard ratio of public health nurse to population there can be no question that this [public health nursing] service needs expansion” (Ruhland, 1939, p.1016).

In 1943, the *Subcommittee on Local Health Units, Committee on Administrative Practice of the American Public Health Association* undertook the task “to suggest a way to cover a free society with full time health services at the community level” (p. v). Within the scope of effort, the committee designed a new method for delivering local health services. The Committee deemed the functions of a local health department to be:

1. Vital statistics, or the recording, tabulation, interpretation and publication of the essential facts of births, deaths and reportable diseases;
2. Control of communicable diseases, including tuberculosis, the venereal diseases, malaria and hookworm disease;
3. Environmental sanitation, including supervision of milk and milk products, food processing, public eating places, and maintenance of sanitary conditions of employment;
4. Public health laboratory services;
5. Hygiene of maternity, infancy, and childhood, including supervision of the health of the school age child; and
6. Health education of the general public so far as not covered by the functions of the department of education (Emerson, 1945, p. 2).

In order to fulfill these functions in a community of 50,000 persons, the Committee determined there would be a need for “one full-time professionally trained and experienced medical officer of health, a full-time public health or sanitary engineer and a sanitarian of non-professional grade, *ten public health nurses* (emphasis added), one of whom would be of supervisory grade, and three persons for clerical work” (Emerson, 1945, p. 2). The Committee also recommended ratios for laboratory workers, dentists, dental hygienists, veterinarian, and health educators for health departments with populations of 150,000 or more.

The public health nurse to population ratio recommendation was changed in 1943 to one public health nurse per 5000 population.

In 1942, the United States had a total of 14,274 public health nurses. This number represented a ratio of one nurse per 8,900 population, a ratio nearly 50% less than that recommended by the Committee. The Committee’s report concluded with an analysis of the existing public health workforce ratios for each of the 48 states and the District of Columbia. The Committee then recommended standard population ratios for each of the public health disciplines (Emerson, 1945).

The recommended nurse ratio from the 1943 *Subcommittee on Local Health Units* report based their recommended nurse ratio on a “generalized public health nursing program that includes school nursing but does not include bedside care of the sick or the special programs for the care of the crippled” (Emerson, 1945, p.7). This issue of differences in ratios for preventative services and bedside nursing care of the sick was also addressed by Pearl McIver in 1951.

For a number of years the National Organization for Public Health Nursing and the American Public Health Association have advocated one public health nurse to each 5,000 of the population for the usual preventive services rendered by a health department. On the other hand, when bedside nursing care of the sick is provided, the commonly accepted ratio is one nurse to each 2,000 of the population. The implication of these two ratios is that two and one-half times as many nurses are needed on a health department staff if a bedside nursing service is added to the usual health department services. (McIver, 1951, p. 67)

The ratio of one PHN to 5,000 every population was well accepted and utilized in the community. The 1955-1956 issue of *Facts about Nursing* reported “in programs for the prevention and control of disease, one public health nurse to 5,000 population is considered to be a reasonable and practical ratio” (McIver & Farris, 1954, p. 355).

In 1958, Madeline Pershing published a synopsis of the 1957 Census of Public Health Nurses. She describes the methodology as follows:

The data for this nineteenth census in public health work have been collected in the same manner as in previous years. Information was submitted by directors of public health nursing in state and territorial health departments, through the regional offices of the U.S. Public Health Service, and by nursing directors of national agencies and universities. (Pershing, 1958, p.71)

The data were submitted on prescribed forms and according to definitions, instructions, and interpretation decided upon by the Association of State and Territorial Directors of Public Health Nursing and the Public Health Nursing Branch of the Bureau of State Services, U. S. Public Health Service. This collaborative enumeration effort was only feasible because “on January 1, 1955, every state health department had a well organized nursing unit staffed by qualified consultants and supervisors” (Hagerman, 1955, p. 1494).

Despite efforts to achieve the recommended ratio of one public health nurse to 5,000 population, the PHN to population ratio hovered around twice that ratio (see Table 1).

Table 1.

Full-time nurses employed by state and local agencies for public health to population

Year	PHNs	U.S. Population	PHN per 100,000	Population per Nurse
1947			9.6	10,329
1950	15,867	150,720,000	10.5	9,500
1957			8.9	11,199
1960	16,341	178,729,000	9.1	10,937
1964	17,572	190,092,000	9.2	10,818

Data extracted from:

Pershing, M. (1958) The 1957 Census of Public Health Nurses. The American Journal of Nursing, 58 (1):70-74.

Bryant, Z. & Hudson, H. (1962). The Census of Nurses in Public Health. The American Journal of Nursing, 62 (12): 104-107.

Hudson, H. & Lester, R. (1965) Nurses in Public Health. The American Journal of Nursing, 65 (4): 103-107.

In 1965, the U.S. Public Health Service published the document, *Towards Quality: Needs and Goals. Report of the Surgeon's General's Consultant Group on Nursing*. The report reinforced the PHN to population ratio of 5,000. "An accepted minimum standard for public health work in local areas is one public health nurse to 5,000 people, a figure that does not provide for care of the sick. At this level [one public health nurse to 5,000 population] 43,000 qualified public health nurses would be needed in 1970" (U.S. Department of Health, Education & Welfare, 1963, p.17).

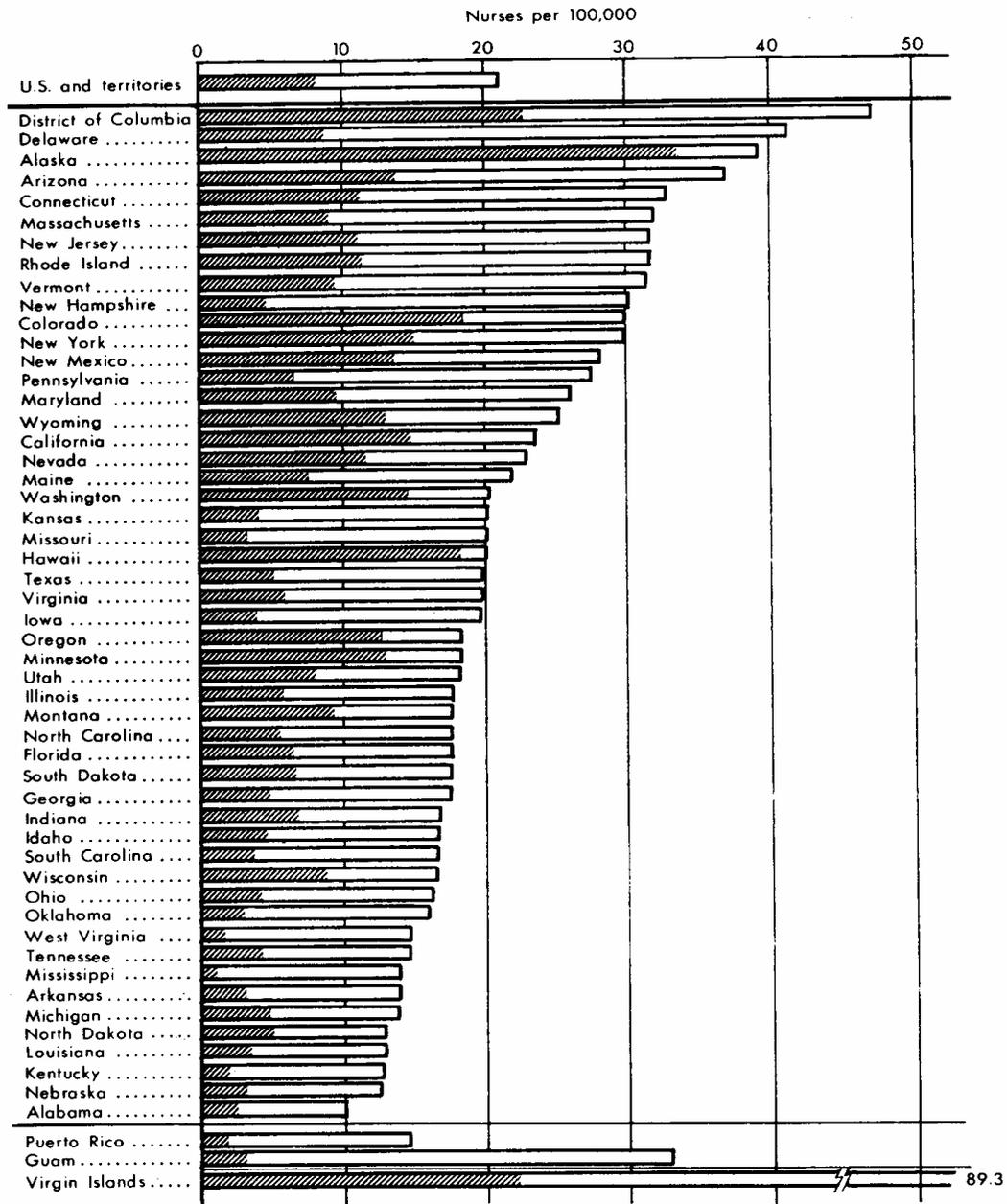
In 1968, the national goal for public health nurse to population was 40 per 100,000 or one nurse per 2,500 population. The actual 1968 ratio for the number of full-time nurses employed by state and local agencies for public health to population of the United States was 21.3 per 100,000 population, or one nurse per 4,703. This was the highest ratio ever reported. In the 1968 state by state analysis, both the District of Columbia &

Delaware had achieved the national goal. Only ten states had a ratio fewer than 15 nurses per 100,000 population (Roberts, Saba, & Allen, 1970) [see figure 1].

The 1970 ratio was 13.7 PHNs per 100,000, or 7,322 people per nurse. The increase in the number and ratio of public health nurses in 1968 and 1970 reflect the influence of Medicare and Medicaid, the Social Security Act Amendments of 1965, on the types and amounts of health services available to meet the needs of the community.

Figure 1.

Rank of States by ratios of full-time registered nurses employed for public health in State and local agencies, per 100,000 population, January 1968.



SOURCE Table 30

 Percent of staff prepared in public health
 Percent of staff not prepared in public health

Utilization of Population Ratios by Other Disciplines

Population ratios are currently utilized by various disciplines as (a) goals or standards, (b) measures for quality and effectiveness, and (c) staffing criteria. Population ratios are also used in legislation to advocate for additional funding and positions.

Police to Population Ratio

The police to population ratio is a standard measure for level of police protection in a community. It is typically expressed as number of sworn police officers per 1,000 population. “To maintain security in peaceful countries, the proper ratio of policemen to population is somewhere between one and four officers per 1,000 citizens with cities needing higher levels than other areas” (Broemmel, Clark & Nielsen, 2007, p. 110). The U.S. has approximately 2.3 sworn police officers per 1,000 citizens.

Similar to the public health nurse to population ratios, (1) the police to population ratios vary greatly among big cities, (2) there is no clear relationship between police to population ratios and crime rates (Walker & Katz, 2002), and (3) there is debate about utilizing officers-per-thousand population ratios as a basis for staffing decisions, Despite this debate, the Bureau of Justice Statistics (BJS), within the Office of Justice Programs (OJP), within the United States Department of Justice (DOJ) reports reliable data on state and local police personnel throughout the U.S. every three to four years. The 2003 BJS data on this topic by size of population served is illustrated in Table 2.

Table 2.

State and local police personnel data

Population Served	FT Officers per 1,000 Residents	Population Served	FT Officers per 1,000 Residents
250,000 or more	2.5	10,000 to 24,999	2.0
100,000 to 249,999	1.9	2,500 to 9,999	2.2
50,000 to 99,999	1.8	1,000 to 2,499	2.6
25,000 to 49,999	1.8	Average	2.5

Teacher to Student Ratio

Education utilizes population ratios in setting and evaluating class sizes. Student to teacher ratios refer to the number of teachers in a school per number of students who attend that school. For example, a student to teacher ratio of 10:1 indicates that there are 10 students for every one teacher. The term can also be reversed to create a teacher to student ratio. Class sizes are often used as a quality performance measure, for example, a high student to teacher ratio is often seen as an indicator of an under-funded school or as evidence of the need for a legislative change to increase funding for education.

Typically state student to teacher ratio averages in grades K-3 are approximately 20:1. Nevada has the lowest mandated student to teacher ratio, requiring no more than 15 students per teacher. In Michigan, if financially poor school districts reduce their student to teacher ratio to 17:1 (max of 19:1) the state will provide 75 percent of the funds to the school (National Conference of State Legislators, 1998).

Health Professional Shortage Area Ratio

The Bureau of Health Professions utilizes population ratios to designate Health Professional Shortage Areas (HPSAs). For example, in order to be designated as a Mental Health HPSA, a population must:

1. face access barriers that prevent the population group from use of the area's mental health providers; and
2. have a ratio of the number of persons in the population group to the number of FTE core mental health professionals serving the population group greater than or equal to 4,500:1 and the ratio of the number of persons in the population group to the number of FTE psychiatrists serving the population group greater than or equal to 15,000:1; or
3. have a ratio of the number of persons in the population group to the number of FTE core mental health professionals serving the population group greater than or equal to 6,000:1; or

4. have a ratio of the number of persons in the population group to the number of FTE psychiatrists serving the population group are greater than or equal to 20,000:1 (Bureau Health Professions, 2008).

Indian Health Service Staffing Ratio

The Indian Health Services (IHS) uses the Resource Requirements Methodology (RRM) to guide public health nursing staffing decisions. The RRM estimates the requirements for PHNs who practice disease prevention and the promotion and preservation of the health of the Indian population. The IHS utilizes the following ratios as staffing criteria for public health nurses:

1. Public Health Nurse (PHN) Manager - 1.0 FTE for every facility with over 1,250 population.
2. PHN - 1.58 FTEs for every 1,250 population.
3. PHN: School - 0.07 FTEs for every 1,250 population.
4. PHN: Specialty Clinic - 0.03 FTEs for each hour of PHN managed clinics. (United States Department Health Human Services, 2008)

School Nurse to Student Population Ratio

The United States Department of Health and Human Services recommends at least 1 nurse per 750 students in healthy populations, with higher ratios for students with known disabilities. *Healthy People 2010*, Objective 7.4 is to increase the proportion of the Nation's elementary, middle, junior high, and senior high schools that have a nurse-to-student ratio of at least 1:750 (Healthy People 2010, 2000).

The National Association of School Nurses (NASN) also recommends a maximum of 1 school nurse to 750 regular or traditional education students; meaning that each school nurse should have no more than 750 students in her or his care.

The NASN also recommends the following nurse-to-student ratios:

- One nurse for no more than 225 students in the mainstreamed population
- One nurse for no more than 125 students in the severely chronically ill or developmentally disabled populations

Currently, 12 state legislative bodies have established statutory guidelines for school nurse staffing ratios (see table 3). Although the ratios are required by law, funding is inadequate and often limits school nursing services. Despite the federal and professional guidelines recommending that schools employ one nurse for every 750 students, the 2008 national average for a nurse to student ratio is 1:1,151 (National Association of School Nurses, 2008).

Table 3.

State school nurse ratio summary

State	Statutory school nurse ratio
Arkansas	One nurse per 1,000 students
Delaware	One nurse per 800 students
Louisiana	One nurse per 1,500 students
Pennsylvania	One nurse per 1,500 students
West Virginia	One nurse per 1,500 students for K-7
Tennessee	One nurse per 3,000 students
Vermont	One nurse per 500 students
Minnesota	One nurse per school district if 1,000 or more enrolled student
Connecticut	At least one or more nurses per school or district, does not specify ratio
Massachusetts	
New Jersey	
Rhode Island	

The recommended student to nurse ratios serve as standards for evaluating the quality of school nursing services. The ratios have been used in legislation at the state and national level to improve school health nursing services. In addition to the statutory guidelines referenced above, the NASN and its partners are currently utilizing the ratio recommendation to advance legislation to increase the student to nurse ratios. The U.S. House Bill H. R. 6201, presently in Congress, supports reducing student-to-school nurse ratios in public secondary schools, elementary schools, and kindergarten. The bill would make grants available to states where the student-to-school nurse ratio is more than 1000:1 (www.govtrack.us, 2008).

Rationale for a Public Health Nurse to Population Ratio

Throughout the many years of conducting public health nurse (PHN) censuses, the Division of Nursing recognized that the quality of health services available to communities was judged in terms of the attributes of agencies and personnel providing services, not on direct measures of the community's health. However, the Division asserted that "in spite of limitations inherent in such determinants, assessments of public health nursing have been based on...ratios of nurse to population coverage, on the amount of guidance available to staff through supervision and consultation, and on the educational preparation of the nursing personnel" (Division of Nursing, 1968. p.24).

The ideal PHN to population ratio would be linked to direct measures of population health, just as the ideal police to population ratio would be linked to lower crime and a lower student to teacher ratio would be linked to higher grades or college admissions.

It is currently unknown whether or not communities with higher ratios of PHNs have better health outcomes. A nationally accepted PHN to population ratio would allow such an analysis. A PHN to population ratio standard could also be used to test for any associations between staffing levels and nurse sensitive community-level outcomes such as immunity status, lead exposures, incidence of chronic disease, and communicable disease (Head, et al., 2004).

A PHN to population ratio will promote a common standard to evaluate and compare the public health nursing infrastructure across states and the nation. For example, in North Carolina, public health nurse to population ratios in local health departments range from 1:21,491 to 1:1541 (personal communication with J. Reed, 2008).

Moreover, a nationally accepted PHN to population ratio will serve other purposes: (1) similar to the school nurse ratio, the recommended ratio will serve as a guideline, not a legal mandate; (2) the ratio will assist in advocating with policy-makers for legislation to

support public health nursing; and (3) the PHN to population ratio could be used to track data trends and identify staffing needs.

For over 35 years, (a) the combination of a recommended PHN to population ratio, (b) a recommended supervisor to PHN ratio, and (c) the requirement for a baccalaureate degree for entry into public health nursing significantly advanced the development of public health nursing practice in the United States. This triad acknowledges that sheer numbers alone will not achieve the desired impact on the health of populations in the United States. A PHN workforce that is adequate in number but lacks the educational preparation or supervision necessary to assure quality PHN practice will not impact population health outcomes.

Proposed Recommendations for a Public Health Nurse to Population Ratio

RECOMMENDATION ONE

Establish a standard national public health nurse to population ratio of 1 public health nurse to 5,000 population.

RECOMMENDATION TWO

Establish a standard national ratio of 1 public health nurse supervisor to no more than 8 public health nurses.

RECOMMENDATION THREE

Renew efforts to require the baccalaureate degree as the educational credential for entry into public health nursing practice.

RECOMMENDATION FOUR

Engage other public health disciplines to ascertain if they have or are considering a population ratio for their specific disciplines.

RECOMMENDATION ONE

Establish a standard national public health nurse to population ratio of 1 public health nurse to 5,000 population.

Although the 1 PHN: 5000 population ratio was established many years ago, it is still meaningful. The 1:5000 ratio lies within the range of population-based ratios that the Health Resources and Services Administration utilizes to identify the minimum number of health professionals to population for designation as a Health Professional Shortage Area. For example: a dentist to population ratio is of 1:4000, a physician to population ratio is 1:3000, and a mental health professional to population ratio is 1:6000.

Public health nurse to population ratios in some health departments may already be at or above this standard. It is critical to note that the PHN to population ratio of 1:5000 is a **minimum** ratio. *This ratio may need to be lower for communities with higher risks.* For example, communities with high rates of children living in poverty, higher rates of

tuberculosis or sexually transmitted disease, or other key health determinants may require a lower PHN to population ratio, such as 1:3000.

A possible model that public health nursing could adapt is the “Index of Medical Underservice (IMU)” used by the Bureau of Health Professions. The index includes four variables:

1. ratio of primary medical care physicians per 1,000 population;
2. infant mortality rate;
3. percentage of the population with incomes below poverty level; and
4. percentage of the population age 65 or older.

The value of each of these variables for the service area is converted to a weighted value, according to established criteria. The four values are summed to obtain the area's IMU score (HRSA, 2008). This same methodology could be applied to develop a public health nursing population health index.

Table 4.

Number of public health nurses that would be necessary to achieve a ratio of one PHN per 5,000 people for each state.

State	Population (7/1/2007)	PHN Ratio per 5,000	State	Population (7/1/2007)	PHN Ratio per 5,000
United States	301,621,157	60,324	Missouri	5,878,415	1,176
Alabama	4,627,851	926	Montana	957,861	192
Alaska	683,478	137	Nebraska	1,774,571	355
Arizona	6,338,755	1,268	Nevada	2,565,382	513
Arkansas	2,834,797	567	New Hampshire	1,315,828	263
California	36,553,215	7,311	New Jersey	8,685,920	1,737
Colorado	4,861,515	972	New Mexico	1,969,915	394
Connecticut	3,502,309	700	New York	19,297,729	3,860
Delaware	864,764	173	North Carolina	9,061,032	1,812
District of Columbia	588,292	118	North Dakota	639,715	128
Florida	18,251,243	3,650	Ohio	11,466,917	2,293
Georgia	9,544,750	1,909	Oklahoma	3,617,316	723
Hawaii	1,283,388	257	Oregon	3,747,455	749
Idaho	1,499,402	300	Pennsylvania	12,432,792	2,487
Illinois	12,852,548	2,571	Rhode Island	1,057,832	212
Indiana	6,345,289	1,269	South Carolina	4,407,709	882
Iowa	2,988,046	598	South Dakota	796,214	159
Kansas	2,775,997	555	Tennessee	6,156,719	1,231
Kentucky	4,241,474	848	Texas	23,904,380	4,781
Louisiana	4,293,204	859	Utah	2,645,330	529
Maine	1,317,207	263	Vermont	621,254	124
Maryland	5,618,344	1,124	Virginia	7,712,091	1,542
Massachusetts	6,449,755	1,290	Washington	6,468,424	1,294
Michigan	10,071,822	2,014	West Virginia	1,812,035	362
Minnesota	5,197,621	1,040	Wisconsin	5,601,640	1,120
Mississippi	2,918,785	584	Wyoming	522,830	105

RECOMMENDATION TWO

Establish a standard national ratio of 1 PHN supervisor to no more than 8 PHN.

Public health nursing supervision is an essential requirement for exemplary public PHN. PHN supervisors direct and assign workloads, provide initial and ongoing orientation, oversees productivity and quality of care, facilitate professional development, and resolve problems as they arise.

The ratio of 1 supervisor to no more than 8 PHNs is based on the recommended supervisory ratios from two examples relevant to public health nursing. These are:

- a. The Nurse Family Partnership (NFP) is an evidence-based home visitation program. The NFP requires a ratio of 1 full-time nursing supervisor to no more than 8 nurse home visitors. Nurse home visitors and nursing supervisors are registered professional nurses with a minimum of a baccalaureate degree in nursing (Nurse Family Partnership, 2008).
- b. The National Incident Management System (NIMS) is utilized for emergency preparedness by all health departments in the United States. NIMS defines “span of control” as the number of personnel for which a supervisor is responsible. Span of control is often expressed as the ratio of supervisor to personnel. Appropriate NIMS span of control ranges between 1:3 and 1:7 (FEMA, 2008).

RECOMMENDATION THREE

Renew efforts to require the baccalaureate degree as the educational credential for entry into public health nursing practice.

The ANA (2007) *Scope and Standards of Public Health Nursing* states, “The baccalaureate degree in nursing is the educational credential for entry into public health nursing practice” (p. 10). This standard has been in place for many years. The Division of Nursing first included data on educational preparation in its 1940 *Census of Public Health Nurses* (Division of Nursing, 1968). ***Despite general agreement on the standard, the requirement for the baccalaureate degree as basic entry into public***

health nursing practice is not consistently enforced across the nation. The nurse practice acts of a few states (e.g., California, Minnesota, and New York) statutorily define the scope of public health nursing practice and reserves the use of the title, “public health nurse,” for nurses who meet the educational criteria.

RECOMMENDATION FOUR

Engage other public health disciplines to ascertain if they have or are considering a population ratio for their specific disciplines.

Public health is a multi-disciplinary field. Rarely do PHNs work without the involvement of other members of the public health team, such as social workers, health educators, nutritionists, environmental health specialists, and epidemiologists. The American Public Health Association 1943 study defined the functions of a health department and set recommended staffing ratios for all health department staff (Emerson, 1945). That study provides a model that is still relevant today. As local health departments move toward a voluntary national accreditation program, it seems appropriate for public health nursing to engage other members of the public health team in discussions about population ratios.

Support for a Public Health Nurse to Population Ratio

As part of the ASTDN project, a task analysis of public health nursing activities was conducted with 60 PHNs representing 28 states. The PHNs in the sample represented the broad scope of public health nursing practice - adolescent health, adult health, disease, prevention and control, emergency preparedness, family planning, immunizations, maternal and child health, tuberculosis, and women's health.

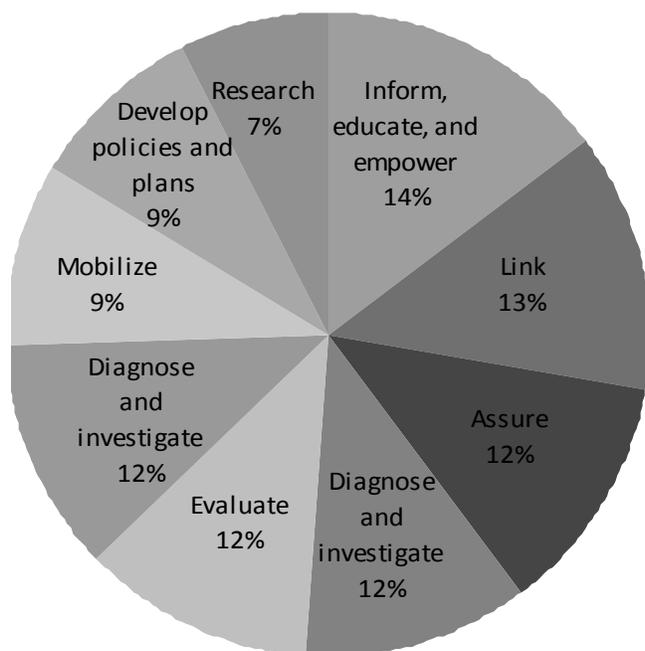
Participants in the study met the following criteria: (1) a baccalaureate degree in nursing, (2) at least three years of work as a PHN at the local or state level, (3) currently working as a staff PHN, and 4) responsibility for the day-to-day public health nursing activities in the setting in which he/she was employed (see Appendix A for detailed description of the sample).

Public Health Nursing and the Essential Services

The Essential Public Health Services describe the public health activities that should be

Figure 2.

Percentage of PHN time dedicated to essential services.



undertaken in all communities (Core Public Health Functions Steering Committee, 1994). The PHN activities documented in this report substantially contribute to the achievement of those essential services. Each of the PHNs in the survey estimated the percentage of time he/she spent on each essential service. Figure 2 illustrates the average time spent in each essential service.

It is notable that the PHNs in the sample reported time in every one of the ten essential services and

that no one essential service predominates over any other. This finding likely reflects the breadth of public health nursing practice – across many programs and populations – that covers the entire scope and range of the essential services.

Programs and Populations

Public health nursing practice is multifaceted and complex. To reflect that complexity, the task analysis was conducted by program and by populations. The PHNs in the sample reported the numbers of hours they spent each month in programs. Figure 3 illustrates the average proportion of time spent in each program area for all the PHNs in the sample. Undoubtedly, disease prevention and control - including immunizations - is a priority of public health nurses, regardless of their position.

The PHNs in the sample reported on the populations they typically serve. The most frequently reported population served was the “entire population.” Seventy percent of PHNs in the sample reported working on programs or projects that address the entire population. This refutes the unfounded belief that PHNs primarily focus on vulnerable individuals, not entire populations. Similar to the Essential Services, all populations across the entire lifespan receive services from PHNs. Figure 4 lists the populations across the lifespan and the percentage of PHNs that report working with each population.

Figure 3.

Percentage of PHN time by program per month

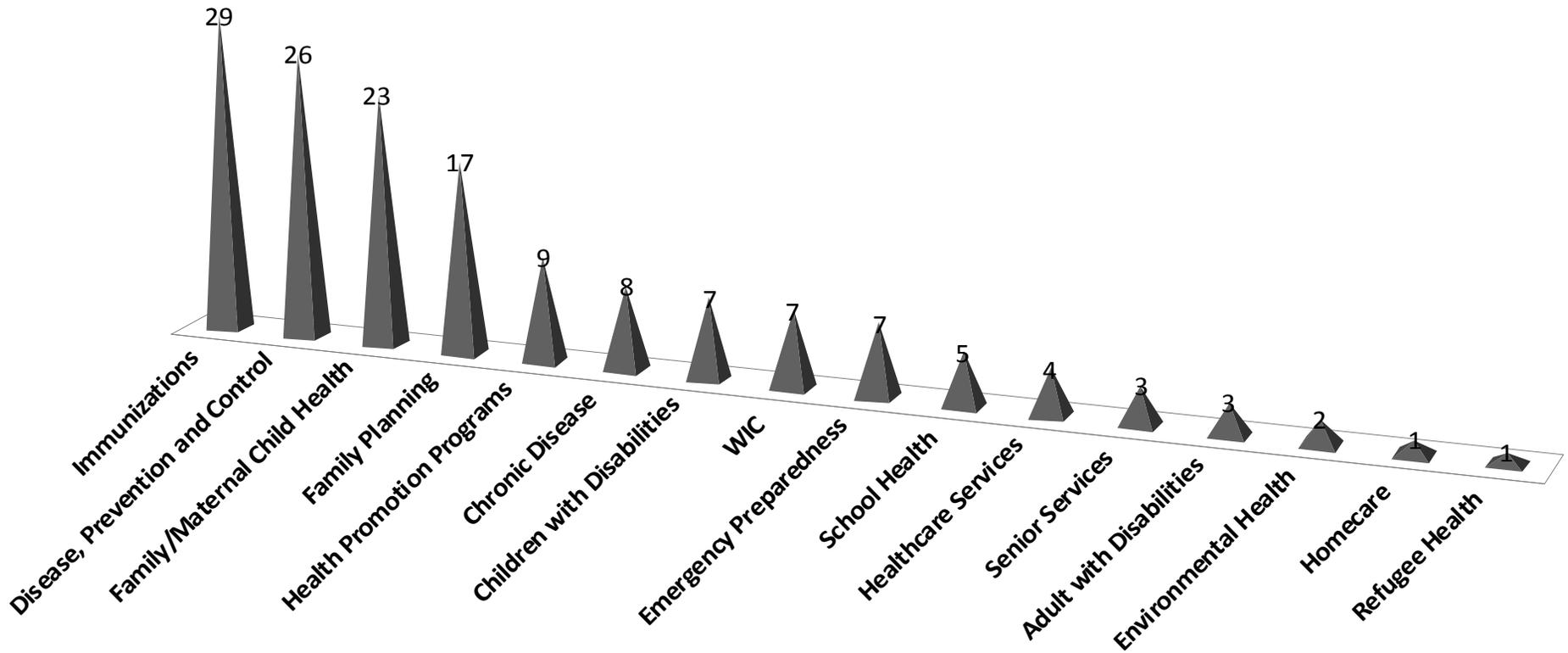
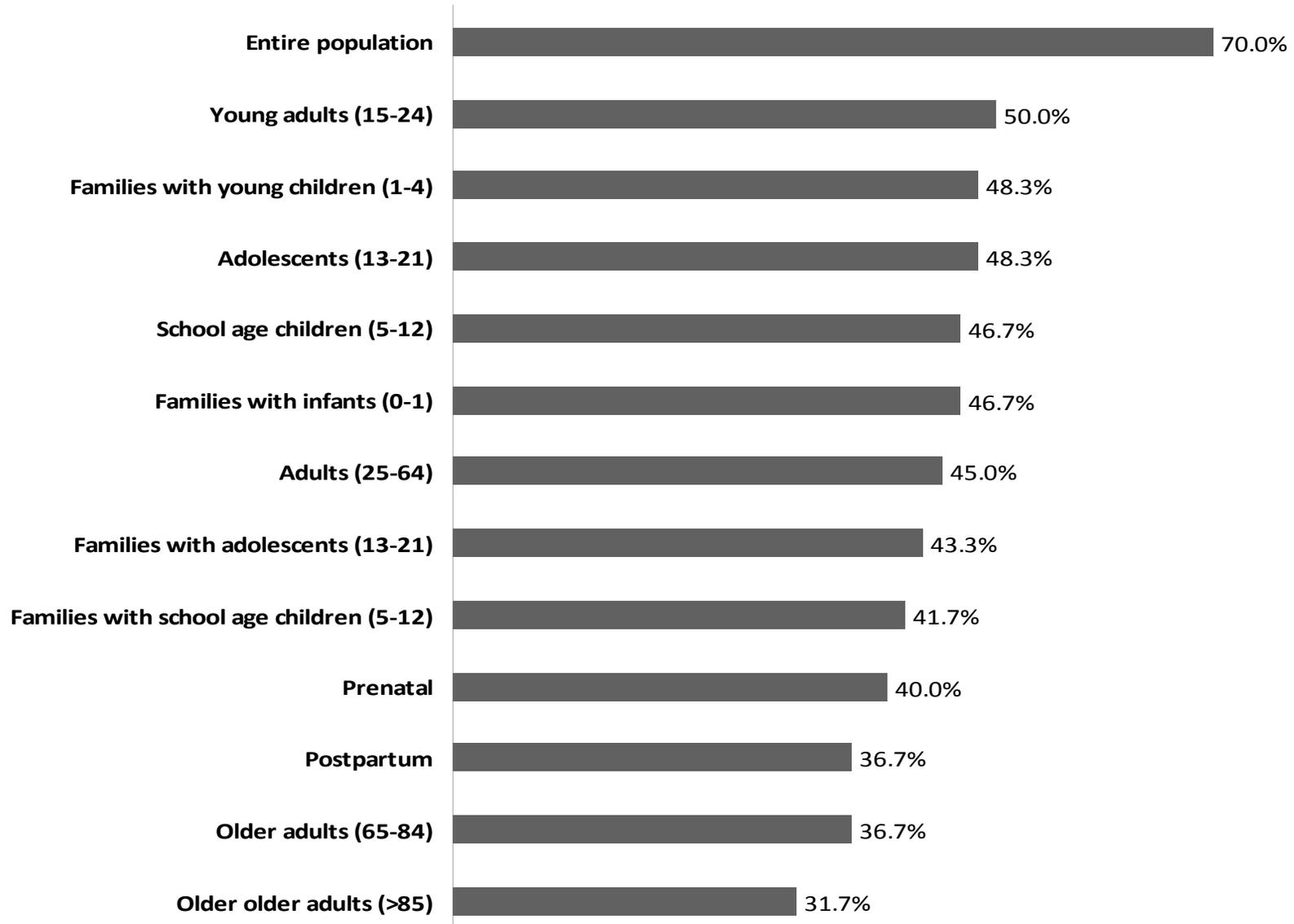


Figure 4.

Percentage of PHN Service by Population



Public Health Nurse Task Analysis

One of the barriers to establishing a national standard for public health nursing staffing has been the lack of data on the typical activities of practicing PHNs across the United States. The daily activities of a PHN have often been vague and difficult describe. It has been even more ascertain to determine if the work of PHNs across the nation is similar or vastly different.

Despite the considerable differences in geography and population size, the task analysis revealed remarkable similarities in the work of PHNs across the nation.

The task analysis documents the enormous contributions of public health nurses to the health of populations. Figure 5 summarizes the key findings of the task analysis. Each finding will be described in greater detail in the report.

Figure 5.

Summary of PHN Task Analysis (n=60)

- 100% of PHNs participate in emergency preparedness activities
- 100% of PHNs provide health teaching to individuals and families
- 100% of PHNs receive and make referrals
- 93% of PHNs work in immunization clinics
- 88% of PHNs work in health promotion/prevention programs in the community
- 83% of PHNs conduct home visits
- 88% of PHNs perform case management
- 87% of PHNs facilitate and assist vulnerable individuals' access to services and basic life needs
- 87% of PHNS *serve on or work WITH* groups related to public health issues
- 82% of PHNs provide health teaching to groups
- 81% of PHNs perform activities related to vulnerable children and/or adults
- 78% of investigate disease and other health threats
- 78% of PHNs conduct health screenings
- 73% of PHNs conduct educational classes, meetings, workshops for providers
- 70% of PHNs advocate for improved increased health care availability and access
- 60% of PHNs participate in community organizing activities
- 47% of PHNS *chair or lead* groups related to public health issues

The Public Health Nurse Role in Community Health Promotion & Prevention

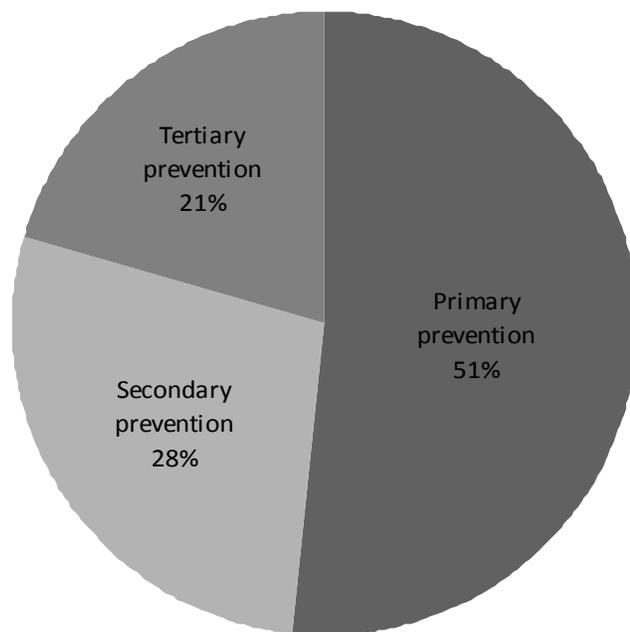
Health Promotion & Prevention Programs

Prevention and health promotion activities are core to public health nursing practice. As figure 6 illustrates 51% of all PHN activities are primary prevention. Primary prevention promotes health and keeps

problems from occurring in the first place. Eighty-eight percent (88%) of PHNs work in health promotion/prevention programs in the community. They work in prevention programs that center on lead, tobacco use, teen pregnancy, and perinatal Hepatitis B. PHN prevention activities also include programs in infant car seat safety, dental health, and worksite wellness.

Figure 6.

Percent of PHN effort by prevention level (n=57)



Public health nurses play many important roles in the execution of health promotion/ prevention programs in the community:

- 89% of PHNs **implement** health promotion/prevention programs
- 72% of PHNs **plan** health promotion/prevention programs
- 50% of PHNs **manage** health promotion/prevention programs
- 46% of PHNs **evaluate** health promotion/prevention programs.

Community coalitions and groups

Public health nurses facilitate the development of coalitions and the mobilization of communities. Their established relationships allow public health nurses to create

alliances with key members of community groups. Through contacts with multiple organizations and agencies, PHNs solicit concerns of community members and organize coalitions and other community groups to respond to community needs.

Findings:	
✓	87% (52/60) of PHNs serve on or work with groups related to public health issues
✓	47% (28/60) of PHNs chair or lead groups related to public health issues
✓	60% (36/60) PHNs participate in community organizing activities

Table 5.

Types of community groups and percentages of PHNs that lead or serve

Type of community group	PHNs lead or chair	PHNs serve on
Internal committees within health department	53%	81%
Community coalitions	46%	67%
Work group	50%	56%
Planning committee	28%	50%
Advisory committees	32%	48%
Task force	32%	35%
External committee	21%	27%

The types of health issues that PHNs address through their community level public health nursing activities are extensive and intersect all populations. A sampling of community level activities described includes: (a) Healthy Family Coalitions, (b) Senior Fairs, (c) Safe Routes To School Collaboration, (d) Library Board, (e) Rural Health Coalition, (f) Kid Safety Bike Rodeo, (f) Asian Immunization Coalition, (g) Local Coat Drive, (h) TB Awareness Project, (i) Homelessness Fundraisers, (j) Talking Circles On Birth Traditions, (k) Breastfeeding Coalition, (l) Teen Dating Violence Committee, Advisory Committee on Medical Issues for Children in Foster Care, (m) Childhood Obesity Coalition, and (n) Community Baby Showers.

The Public Health Nurse Role in Emergency Preparedness

One-hundred percent (100%) of the PHNs in the survey (n=60) participate in emergency preparedness (EP) activities. Ninety-seven percent (97%) of PHNs participate in their local or state health department response trainings and 90% in local or state health department response drills. This data illustrates the importance of emergency preparedness in the work of all public health nursing positions. Despite the fact that the PHNs in the sample worked in many different areas - adolescent health, adult health, disease, prevention and control, emergency preparedness, family planning, immunizations, maternal and child health, tuberculosis, women's health - they all were extremely involved with emergency preparedness activities.

Public health nurses are a vital component of the community response to emergencies. In the past year, 29% (15/51) of the PHNs in the survey had implemented their local health department response plan and 23% (12/51) had implemented their community/city/county response plan. Public health nurses had participated over the last year in all-hazard events that included natural disasters such as tornados, flooding, hurricanes, fires, avalanches, and disease outbreaks such as Hepatitis A, measles, and food borne.

Public health nurses play many important roles in EP and response:

- 60% promote and utilize the incident command/management system
- 45% act as a resource for local, regional and state organizations
- 45% coordinate with other health care providers and emergency personnel
- 30% alert contacts via the health alert network 24 hours a day, seven days a week (24/7)
- 23% recruit and train volunteer health care professionals

One of the most essential EP roles that PHNs perform is staffing mass clinics and shelters. Over two-thirds of PHNs work in mass clinics, 53% in shelters, and 28% in screening sites. Over 48% triage individuals in mass clinics and screening sites.

Approximately two-thirds (67%) of PHNs participate in EP functions. Forty-seven (47%) of PHNs are involved in planning EP functions and 42% coordinate EP functions. Seventy percent (70%) of PHNs in the sample have been fit-tested for respiratory protection. Table 6 identifies the types of EP functions that PHNs plan, coordinate and conduct.

Table 6.

PHN EP functions

Functions	Plan	Coordinate	Conduct
Mass dispensing sites (e.g. staffing, location, security)	41.7%	41.7%	60.0%
Off-site care facilities/shelters (e.g. staffing, location, security)	28.3%	15.0%	33.3%
Isolation/Quarantine locations and protocols	26.7%	13.3%	26.7%
Resource management and allocation (i.e. ventilators, Strategic National Stockpile)	18.3%	13.3%	20.0%
Respiratory protection programs	16.7%	10.0%	15.0%

The Public Health Nurse Role in the Prevention and Control of Infectious Disease

Public health nurses are a vital component of the public health responsibility to prevent and control infectious diseases. An important aspect of this is real-time disease detection. Surveillance - the collection, analysis, interpretation, and

dissemination of public health data- is a primary activity of PHNs working in disease prevention and control. The most frequent conditions for which PHNs

Findings:

- ✓ 87% of PHNs in the sample work with tuberculosis
- ✓ 60% of PHNs in the sample work with sexually transmitted disease
- ✓ 42% of PHNs in the sample work with HIV/AIDS

conduct ongoing surveillance are (1) tuberculosis [53%], (2) vaccine preventable diseases [52%], (3) sexually transmitted diseases (35%), (4) pediculosis (lice) [33%], (5) food borne diseases [31%], (6) elevated blood lead levels [28%], (7) vector borne diseases such as West Nile and Lyme [26%], and (8) HIV/AIDS [26%].

In addition to conducting surveillance, over 72% of the PHNs in the sample report notifiable diseases to local or state health departments. In addition to processing and monitoring disease reports in their communities, 25% of PHNs train disease reporters (e.g., clinic staff, school health personnel, infection control practitioners) on case definitions and reporting requirements.

Disease Investigation

When surveillance detects potential disease, a disease investigation ascertains the source of the threat, identifies cases and others at risk, and determines control measures. Over 78% PHNs in the sample investigate disease and other health threats, most frequently in the community (67%). Other settings in which PHNs conduct disease investigations include (1) schools [50%], (2) childcare facilities [48%], (3) clinics [42%], (4) workplaces [35%], (5) long-term care facilities [30%] and (6) correctional facilities [23%].

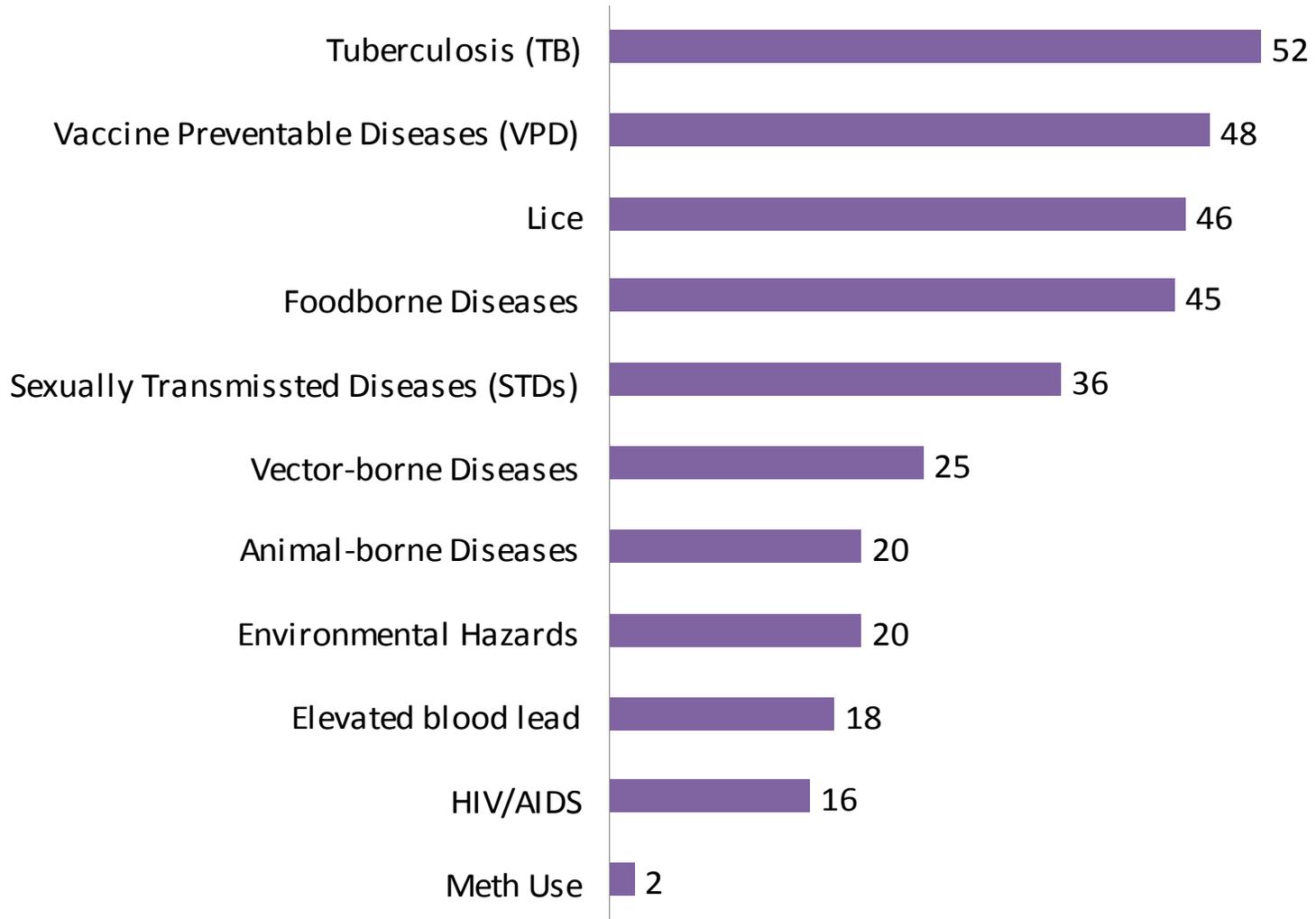
The diseases and conditions that PHNs most frequently investigate are:

1. Tuberculosis [57%]
2. Vaccine Preventable Diseases [53%]
3. Sexually Transmitted Diseases [45%]
4. Food borne Diseases [45%]
5. Lice [42%]
6. Elevated blood lead [33%]
7. Vector-borne Diseases [32%]
8. Animal-borne Diseases [28%]
9. HIV/AIDS [25%]

Figure 7 illustrates the percentage of PHNs who conduct contact investigations and the types of investigations they conduct. Tuberculosis and vaccine preventable disease are the two most common diseases investigated by PHNs. Within the scope of disease investigation, PHNs: (a) identify contacts; (b) assure treatment; (c) collect specimens; (d) assess contact's level of risk; (e) send specimens to laboratory; (f) review laboratory data; (g) locate contacts; (h) activate identified control measures for containment; and (i) administer appropriate treatment.

Figure 7.

Percent of PHNs conducting contact investigations by type of investigation



The Public Health Nurse Role in Preventing and Controlling Vaccine Preventable Diseases

Public health nurse activities substantially contribute to the prevention and control of vaccine preventable diseases (VPD), including mumps, measles, rubella, diphtheria, pertussis, tetanus, polio, Hepatitis A, Hepatitis B, varicella (chicken pox), HIB (influenza B), pneumococcal pneumonia, and influenza. Table 7 outlines the types of immunization clinics in which PHNs report working.

Table 7.

Types of immunization clinics where PHNs work

Type of immunization clinic (n=60)	Percent of PHNs
General immunization clinics that administer vaccines to all who present at clinic	47%
Influenza only immunization clinics from October to January for high risk populations such as the elderly or chronically ill	47%
Hepatitis A or B immunization clinics for people who have been exposed to disease in the community	30%
School immunization clinics	28%
Hepatitis A or B clinics for worksites, restaurant employees, and childcare employees	23%
Travel clinics for individuals who will be traveling	10%

Public health nurse VPD activities include immunization clinics, surveillance, disease investigation, school and clinic audits, and population-based registries:

- 93% work in immunization clinics
- 63% plan immunization clinics
- 55% utilize immunization registries to identify immunization delays

- 53% conduct disease investigation for VPD
- 52% conduct surveillance for VPD
- 43% conduct audits of immunization records in schools
- 31% conduct audits of

clinics to determine compliance of recommended immunization standards for the Vaccine for Children Program (VFC)

- 30% contact families of children with

immunization delays to assess for barriers and arrange immunizations

- 25% work with schools, clinics, health plans, and parents to develop or promote population-based immunization registries

Findings:

Public health nurses also have an essential role in the management of vaccines within the provider community:

- ✓ 82% monitor vaccine temperature and supply
- ✓ 58% pick-up or ensure vaccine delivery
- ✓ 53% order vaccine supply
- ✓ 52% return or transfer unused vaccine prior to expiration
- ✓ 43% distribute vaccine to off-site locations

The Public Health Nurse Role in the Prevention and Control of Tuberculosis

The detection, prevention and control of tuberculosis (TB) are critical public health nursing activities. The most frequent condition for which PHNs conduct surveillance is tuberculosis (53%). Despite the broad range of positions of the PHNs in the sample, three fourths (75%) report that they work with clients with latent or active TB. Almost a quarter of those PHNs who work with TB clients do so on a daily basis - 23% daily; 15% weekly; 28% monthly.

Findings:

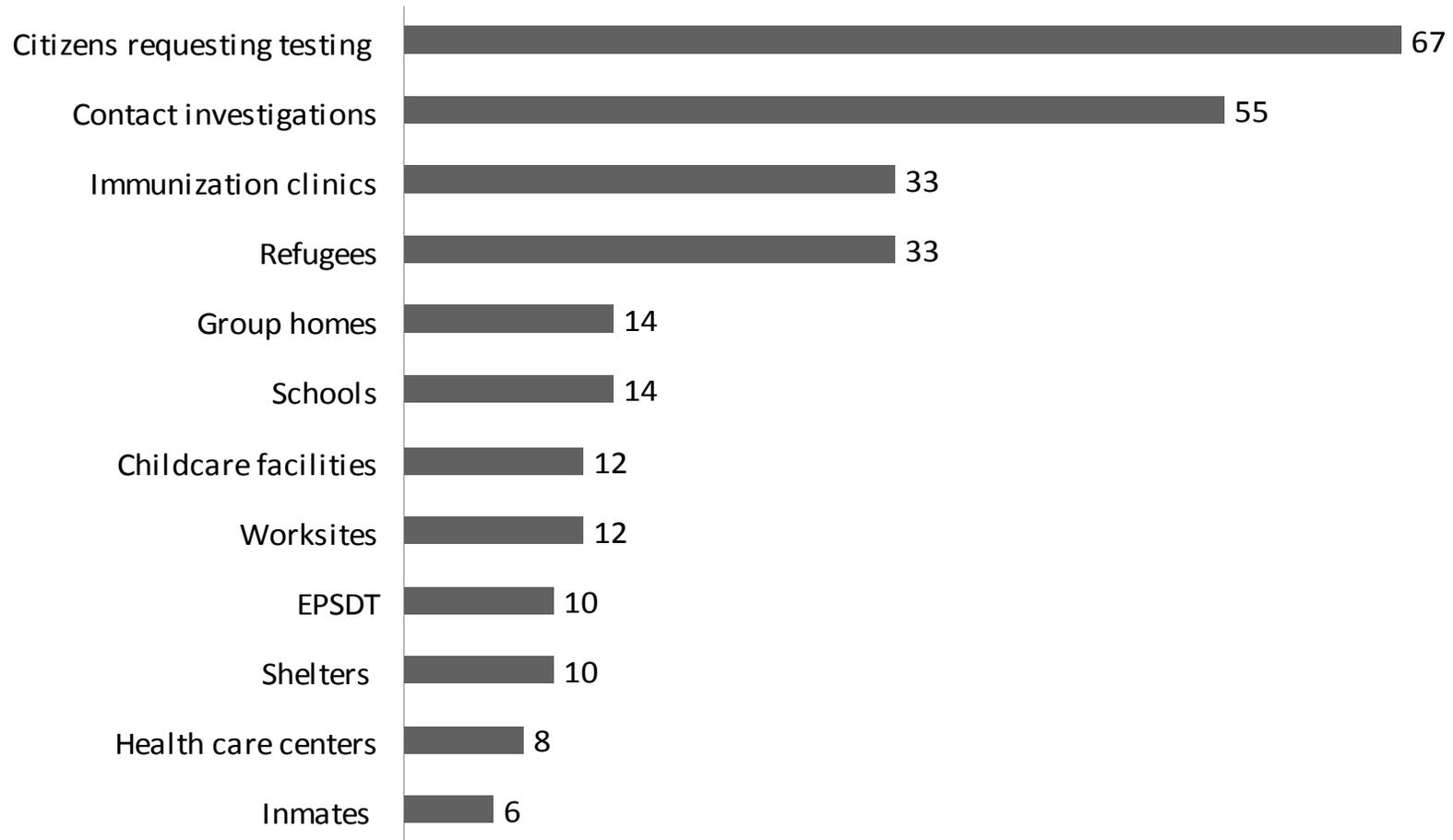
- ✓ 68% of PHNs conduct Directly Observed Therapy (DOT) home visits
- ✓ 68% of PHNs investigate TB contacts

Tuberculin Skin Testing

The most frequent PHN activity performed related to tuberculosis is the administration and reading of tuberculin skin tests (83%). In addition to the tuberculin skin tests administered for contact investigation, PHNs routinely administer tuberculin skin tests at (a) immunization clinics, (b) childcare facilities, (c) group homes; (d) schools, (e) worksites, (f) health care centers, (g) EPSDT clinics, (h) correctional facilities, (i) homeless shelters, and (j) residential drug treatment programs. Figure 8 illustrates the average number of tuberculin skin tests administered by site per week.

Figure 8.

Percentage of PHNs who Administer Mantoux per Month (n=51)



Directly Observed Therapy

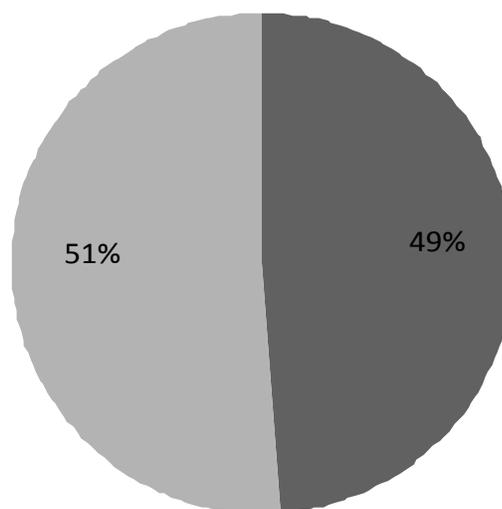
Sixty-eight percent of PHNs report performing Directly Observed Therapy (DOT) as part of their position responsibilities. As figure 9 indicates, 49% of PHNs report conducting DOT monthly; 41% report weekly and 57% report yearly. National TB treatment guidelines from the Centers for Disease Control strongly recommend using a patient-centered case management approach - including directly observed therapy (DOT) - when treating persons with active TB disease. DOT is especially critical for patients with drug-resistant TB, HIV-infected patients, and those on intermittent treatment regimens (i.e., 2 or 3 times weekly). In directly observed therapy, a public health nurse directly administers, observes and documents the patient's ingestion of the prescribed tuberculosis medication.

Other public health nursing activities related to tuberculosis include (1) follow-up on positive tuberculin skin tests [60%], (2) monitor TB medication compliance [57%], (3) administer TB treatment regimen [53%], (4) distribute TB medications [53%], (5) assure treatment of TB contacts [52%], (6) refer individuals to the state health department or clinic to obtain medication for TB treatment [48%], and (7) locate and assess all known TB contacts [47%].

Figure 1.

Percent of PHNs who conduct DOT per month (n=51)

■ Do Conduct DOT ■ Do Not Conduct DOT



The Public Health Nurse Role in the Prevention and Control of Sexually Transmitted Diseases and & HIV/AIDS

Sixty percent (60%) of PHNs in the sample work with individuals and communities impacted by sexually transmitted diseases (STD) and 42% work with individuals with HIV/AIDS. In addition to surveillance and disease investigation, the most common PHN activities related to STD and HIV/AIDS are (a) case management, (b) contact follow-up, (c) counseling, (d) testing, and (e) treatment. Tables 8 and 9 identify the percentage of PHNs who perform those activities.

Table 8:
PHN activities with STDs

PHN Activities with STD	
n=36	
Counseling	53%
Screening	47%
Treatment	42%
Testing	40%
Contact follow-up	40%
Case management	27%

Table 9:
PHN activities with HIV/AIDS

PHN Activities with HIV/AIDS	
n=25	
Counseling	53%
Testing	48%
Screening	47%
Contact follow-up	23%
Treatment	11%
Case management	11%

The Public Health Nurse Role in Health Screening

Screening identifies individuals with previously unrecognized health risk factors or asymptomatic disease conditions so that the risks or conditions can be modified, removed, or treated before a problem becomes more serious. Over 78% of the PHNs in the sample perform health screenings. Screenings are conducted for a range of conditions that cross the life span from infancy to old age. The types of health screenings PHNs conduct are:

- | | |
|--|--|
| 1. Immunization status [94%] | 17. Dental [43%] |
| 2. Tuberculin Skin Test [68%] | 18. Blood sugar [40%] |
| 3. Hypertension/Blood Pressure [68%] | 19. Home Safety Checks for Children [38%] |
| 4. Infant/Child Growth and Development [66%] | 20. Level of need for home or community services [36%] |
| 5. Lice [62%] | 21. Cervical Cancer [34%] |
| 6. Nutrition [62%] | 22. Breast Cancer [34%] |
| 7. Anemia [57%] | 23. Mental Health [32%] |
| 8. Prenatal health [53%] | 24. Preschool [32%] |
| 9. Post partum depression [55%] | 25. Speech [30%] |
| 10. Hemoglobin [55%] | 26. Newborn Metabolic [28%] |
| 11. Abuse and neglect [49%] | 27. Cholesterol/triglyceride [28%] |
| 12. Body Mass Index [49%] | 27. Scoliosis [21%] |
| 13. Elevated blood lead levels [45%] | 29. Lipid profiles [21%] |
| 14. Vision [45%] | 30. Audiograms [19%] |
| 15. Hearing [45%] | 31. Asthma [17%] |
| 16. Risk for interpersonal violence [43%] | 32. Home Safety Checks for Older Adults [15%] |

The most common sites where PHNs conduct health screening are the public health office, clinics, homes, schools, childcare facilities, worksites, senior centers and shelters.

The Public Health Nurse Role in Health Teaching

Health teaching communicates facts, ideas, and skills that change knowledge, attitudes, values, beliefs, behaviors, practices and skills of individuals, families, communities (Keller, et al., 2004). Public health nurses utilize health teaching with all populations and across all areas of their practice.

PHNs provide health teaching to individuals and families at public health clinics (82%), home visits (70%), through school visits to individual students, at private clinics (12%) and in correctional facilities (8%).

PHNs provide health teaching to community groups (74%), health fairs (63%), schools (50%), worksites (55%), community organizations (51%), support groups (33%), and county fairs (18%).

Seventy three percent (73%) of PHNs conduct provider education classes, meetings, workshops for providers to clinic staff (48%), school nurses (35%), other school staff (28%), social service staff (23%), physicians and nurse practitioners (15%), hospital staff (12%), other health care providers [dentists, therapists] (12%), First Responders [i.e. fire, police] (8%), and Emergency Medical Services personnel (7%).

Public health nurses provide health education classes to community organizations (46%), childcare facilities (46%), schools (43%), clinics, hospitals (32%), Headstart/Evenstart (32%), worksites (29%), Early Childhood and Family Education (11%), and businesses (11%).

Findings:

- ✓ 100% PHNs provide health teaching to individuals and families
- ✓ 82% PHNs provide health teaching to groups
- ✓ 73% PHNs conduct educational classes, meetings, workshops for providers
- ✓ 47% PHNs provide health education classes

Public Health Nursing Interventions with Communities, Families and Individuals

Referral and follow-up

Referral and follow-up assists individuals, families, groups, organizations, and communities to utilize necessary resources to prevent or resolve problems or concerns.

Public health nurses have extensive knowledge of resources and linkages in a community and are experts in connecting individuals and families and groups and partners with a vast network of resources.

Findings:

- ✓ In a typical week, a PHN makes 7 referrals
- ✓ In a typical week, a PHN receives 5 referrals

Consultation

Over 65% of PHNs provide consultation - generate options and possible solutions -- on public health issues or concerns to numerous groups and members of the community, including: (1) other health department staff/colleagues [72%]; (2) child care providers [67%]; (3) clinic staff [64%]; (4) school nurses [62%]; (5) social workers/ human service providers [56%]; (6) physicians and nurse practitioners [49%]; (7) hospitals [44%]; (8) school teachers [41%]; (9) community leaders [39%]; and (10) long-term care facilities [36%].

Public health nurses provided consultation on a variety of public health issues, including: (1) immunizations, (2) communicable disease control, (3) tuberculin skin testing, (4) tuberculosis control, (5) community resources, (6) nutrition, (7) emergency preparedness, (8) illness prevention, (9) family planning, pregnancy, (10) chronic disease prevention [e.g., obesity, smoking], (11) parenting, vision and hearing screening, (12) injury prevention, (13) violence prevention, and (14) asthma and allergies.

Findings:

Of the 65% PHNs reporting community activities:

- ✓ 58% PHNs participate in case conferences
- ✓ 23% Child protection team meetings
- ✓ 17% participate in maternal or infant mortality review committees
- ✓ 12% participate in child abuse review committees

Counseling

In the sample, 88% of PHNs report that they counsel *individuals* or *families* regarding their emotional response to health and life circumstances on issues related to: (1) reproductive health [66%], (2) birth [59%], (3) chronic disease diagnosis [57%], (4) sexuality [57%], (5) violence [55%], (6) children experiencing illness [53%], (7) grief and loss [49%], (8) chemical dependency [49%], (9) adoption [42%], (10) life transitions [40%], and (11) death [32%].

Finding:
✓ No PHNs reported facilitating support groups

Over 45% of PHNs counsel community groups and organization regarding health issues or concerns such as reproductive health, violence, children experiencing illness, birth and sexuality.

The Public Health Nurse Role in Home Visiting

For over 100 years PHNs have delivered services to individuals and families in their homes. A growing body of evidence supports the positive health outcomes associated with home visits, particularly in maternal child health (Olds, 2002 & Olds, 2004).

Eighty-three percent (83%) of PHNs reported conducting home visits (HV). The ten most frequent types of HV are: (1) health promotion [74%], (2) case management [72%], (3) Directly Observed Therapy [68%], (4) contact investigation [68%], (5) families with newborns [66%], (6) abuse and neglect [64%], (7) parenting [62%], (8) prenatal [58%], (9) child growth and development [58%], (10) special needs child [54%], and (11) lead [50%].

Figure 10 shows the types and

frequency - daily, weekly, monthly, yearly - of PHN home visits.

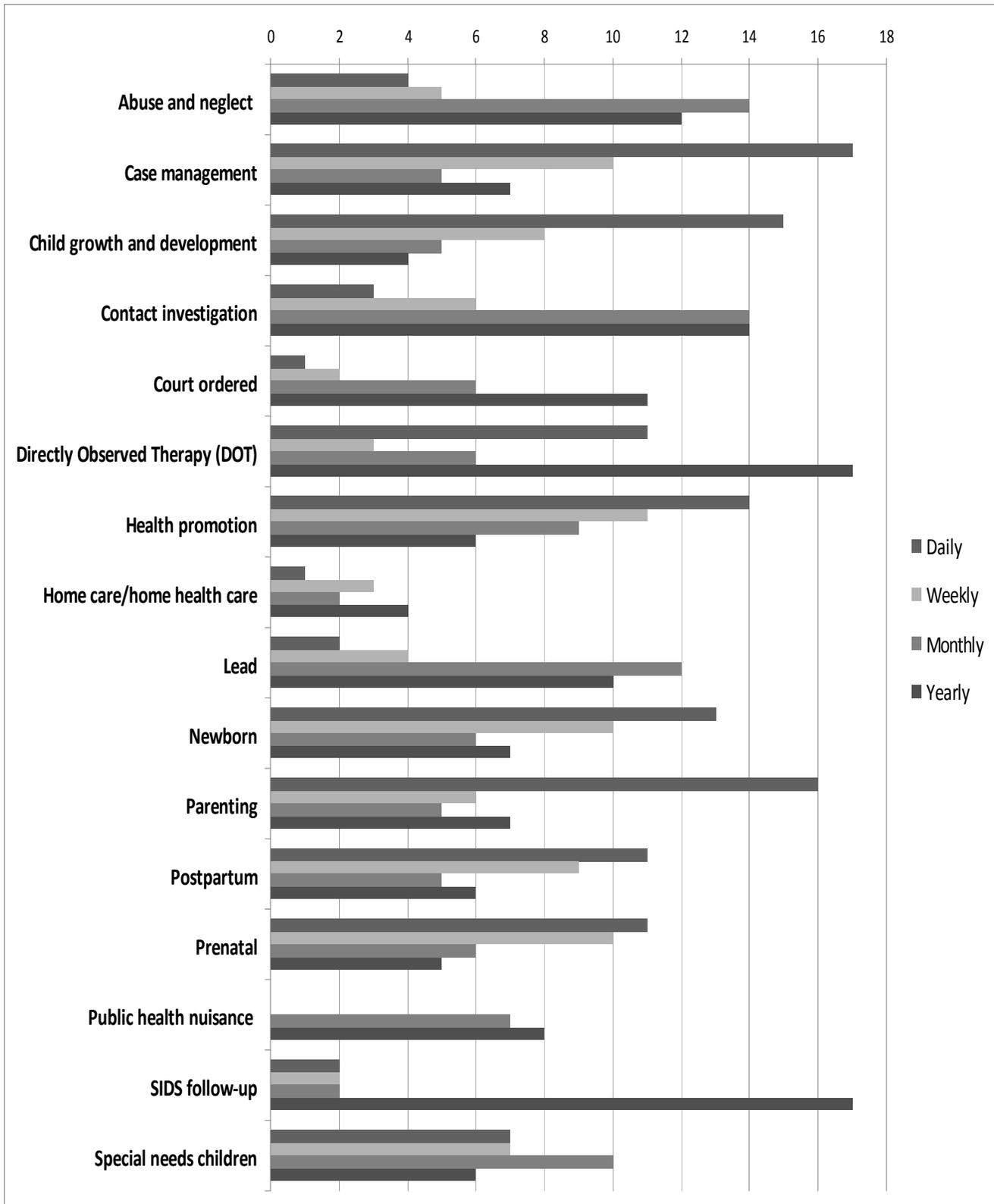
Findings:

- ✓ 7% of PHNs in the sample provide home health care services
- ✓ No PHNs in the sample provide hospice services in the home

Maternal Child Health Home Visiting

Home visits are one of the primary activities utilized by public health nurses with the with maternal child population. PHNs in the sample reported conducting a daily total average of 75 home visits relating to parenting, growth and development, newborn, prenatal, postpartum, children with special health care needs, SIDS follow-up, and lead. The types of prevention and interventions included in a maternal child health promotion home visit include anticipatory guidance on infant and child growth and development, assessment of infant/child's environment, home safety, infant-child car seat safety, breastfeeding, family planning, development of healthy relationships & secure attachments between caregiver and child, accessing emergency and health care resources, social supports, addressing preventative health, immunizations, healthy eating/nutrition, and hand washing.

Figure 10.



The Public Health Nurse Role in Clinic Services

Public health nurses provide a variety of clinical services to populations, often to people who are among the nations most vulnerable. Over 88% of PHNs report working in public health clinics (see Table 10). In a typical clinic, PHNs see an average between five to nine clients.

Table 10.

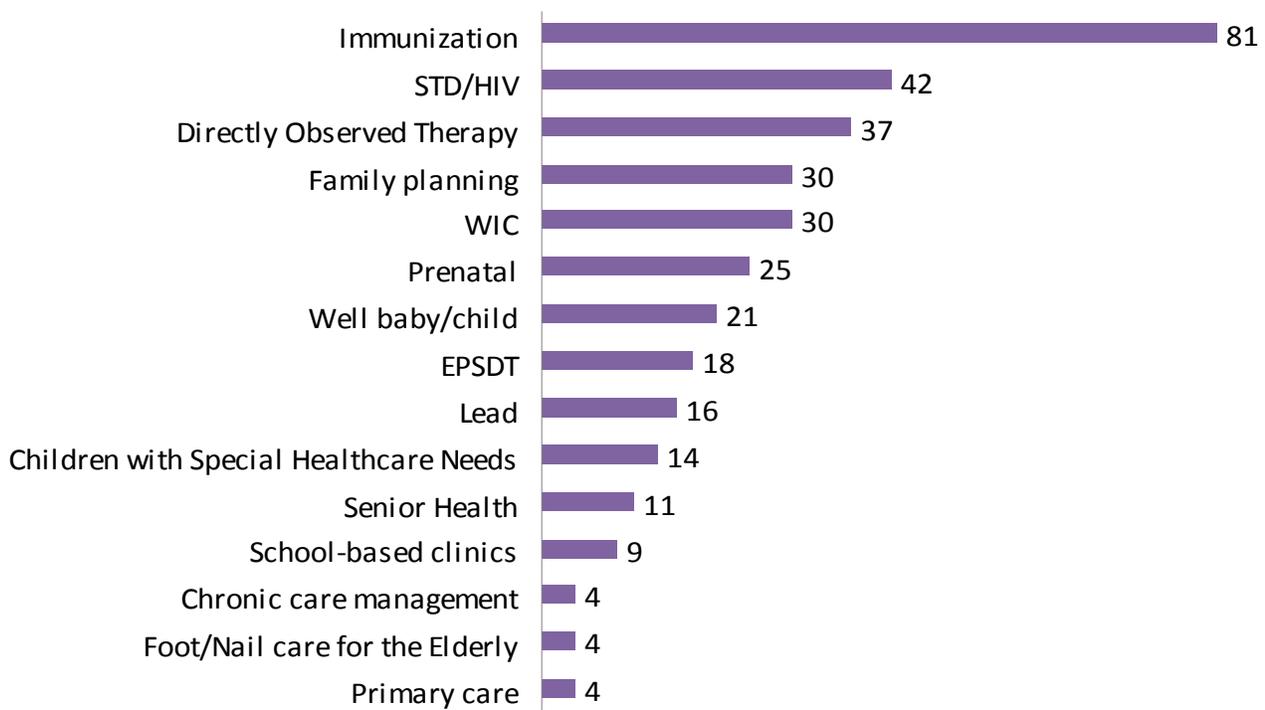
Types of clinics PHNs work in on a daily, weekly and monthly basis.

Daily	Weekly	Monthly
1. Immunization (48%)	1. Prenatal (30%)	1. Directly Observed Therapy (30%)
2. Sexually Transmitted Disease [STD/HIV] (28%)	2. Immunization (24%)	2. Lead screening and follow-up (24%)
3. Directly Observed Therapy (19%)	3. Family Planning (22%)	3. School-based (24%)
4. Family Planning (17%)	4. Sexually Transmitted Disease (19%)	4. Well baby/child (22%)
5. Prenatal (17%)	5. Women, Infant, Children (17%)	5. Immunization (20%)
6. Women, Infant, Children (17%)	6. Senior Health (15%)	6. Senior Health (20%)
7. Well baby/child (13%)	7. Children with special health needs (11%)	7. Children with special health needs (19%)
8. EPSST (11%)	8. Directly Observed Therapy (11%)	8. Sexually Transmitted Disease (15%)
9. Lead screening and follow-up (11%)	9. Well baby/child (11%)	9. Women, Infant, Children (13%)
10. Primary care for vulnerable populations (7%)	10. Lead screening and follow-up (9%)	10. Family Planning (9%)

In addition to the direct care of clients, PHNs perform numerous activities related to the execution of clinics: (a) assemble supplies, equipment, vaccines, forms, charts, and other records [80%], (a) conduct intake interviews [78%], (c) follow-up on results [78%], (d) document findings [77%], and (e) set up/take down the clinic [75%]. Figure 11 illustrates the types of clinics that PHNs conduct on a monthly basis.

Figure 11.

Percent PHNs who conduct clinics monthly



The Public Health Nurse Role in Case Management

Case management is the arrangement and coordination of services that effectively and efficiently meet the comprehensive needs of clients (Keller, et al., 2004). Public health nurses provide significant amounts of case management for many of the community's most vulnerable and at-risk populations. Eighty-eight percent (88%) of PHNs in the sample perform case management.

The ten most frequent types of case management performed by PHNs are: (1) individuals with latent or active TB [52%], (2) pregnant women [47%], (3) families with newborns or young children [45%], (4) breastfeeding women [37%] (5) children with elevated blood lead levels [33%], (6) children with disabilities [33%], (7) individuals with chronic disease [25%], (8) individuals with mental illness [18%], (9) frail older adults [17%], and (10) individuals with HIV/AIDS [13%].

Some programs provide funding specifically for public health nursing case management. Most programs do not have a separate reimbursement source, as shown in Table 11.

It is evident that the overwhelming majority of public health nursing case management is performed as a standard of practice to assure that clients receive the appropriate and necessary set of services in the most cost effective manner.

Table 11.

Reimbursement sources for case management

Programs	None
Individuals with latent or active TB	74%
Pregnant women	59%
Families with newborns or young children	42%
Breastfeeding women	76%
Children with elevated blood lead levels	83%
Children with disabilities	45%
Individuals with chronic disease	62%
Individuals with mental illness	74%
Children with an interagency plan	80%
Frail older adults	75%
Individuals with HIV	72%

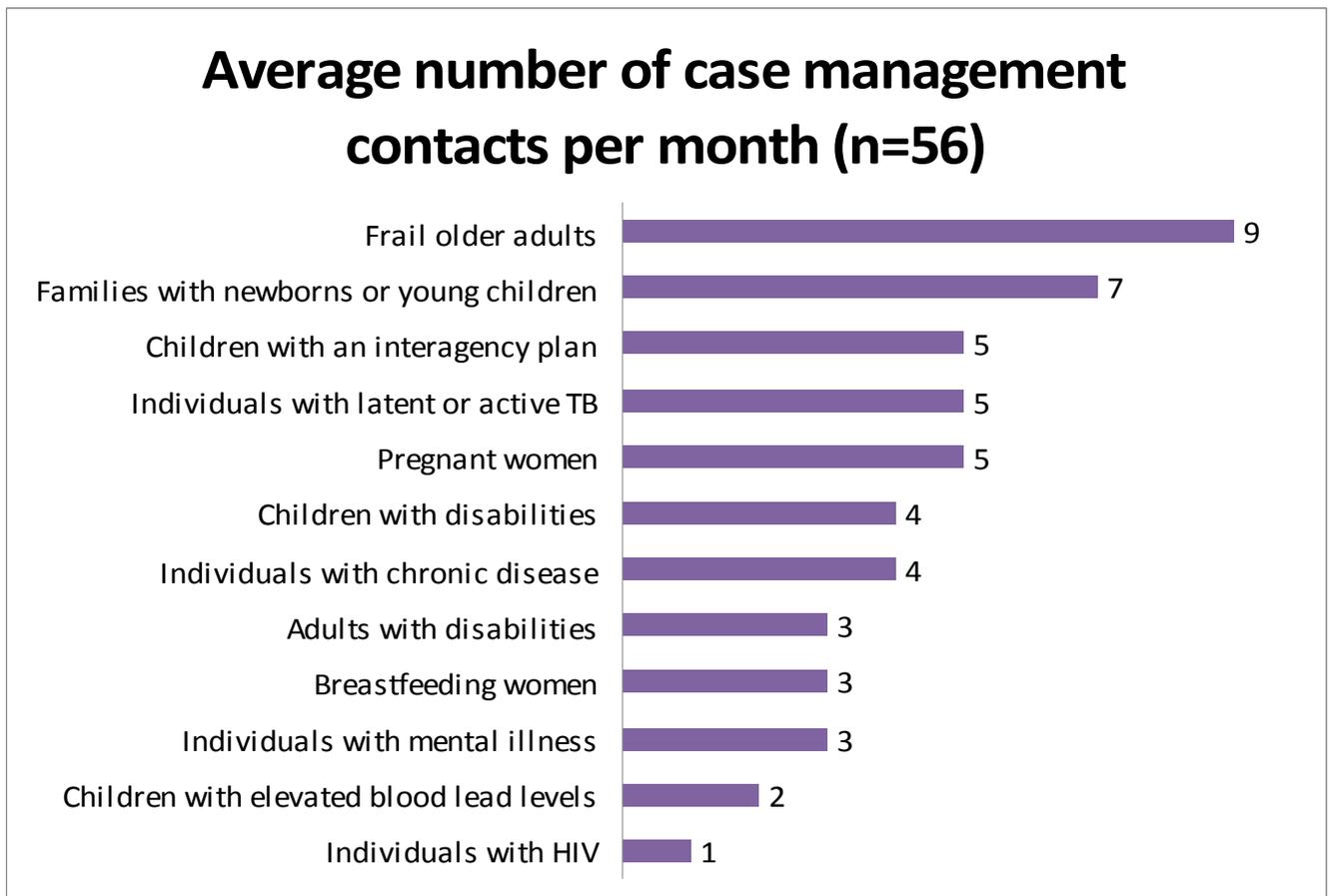
Case management for at-risk or vulnerable populations is a complex public health nursing intervention. The most frequent PHN case management activity reported was reducing or resolving barriers to the plan of care (80%). Routine case management involves a vast array of activities, including:

- a. Consulting with clients, families, physicians, other health care providers, and payers to formulate overall goals [78%];
- b. Assessing client compliance [76%];
- c. Monitoring service delivery [75%];
- d. Developing a plan of care for ongoing services based on assessment of need and community resources [68%];
- e. Monitoring the health status of clients who receive case management on a regular basis [67%];
- f. Assisting clients with the authorization process for needed services or medications [65%];
- g. Assessing client satisfaction [65%];

- h. Participating in interdisciplinary teams to achieve identified client outcomes [62%];
- i. Contacting providers to assure services [57%];
- j. Initiating or conducting an interdisciplinary conference [45%];
- k. Planning discharge from case management/care coordination services [37%];
- l. Authorizing or requesting services [30%]; and
- m. Pursuing prior authorization for client services from health maintenance organizations, insurance companies, and other payors [28%].

Figure 12 shows the types of populations that receive public health nursing case management and the average number of case management contacts (phone and home visits) per population in a typical month.

Figure 12.



The Public Health Nurse Advocacy Role

Advocacy is core to public health nursing practice. Advocacy pleads someone’s cause or acts on someone’s behalf, with a focus on developing the client’s capacity to plead their own cause or act on their own behalf (Keller, et al, 2004). Public health nurses promote self-reliance in clients such as (a) serve as a liaison with community agencies and other professionals to advocate on behalf of vulnerable individuals and populations [75%], (b) their ability to make physician appointment or arrange transportation [73%], (c) assure the adequacy of basic life needs such as food/nutrition, housing, clothing, and transportation for assigned populations [62%], and (d) arrange for interpreters [63%].

Within their advocacy role, 87% PHNs facilitate and assist vulnerable individuals’ access to services and basic life needs. In addition to advocating for individuals’ needs, 70% of PHNs reported advocating at the system’s level for improved availability and access to services. Table 12 illustrates the percentage of the populations on their caseloads that PHNs consider to be vulnerable.

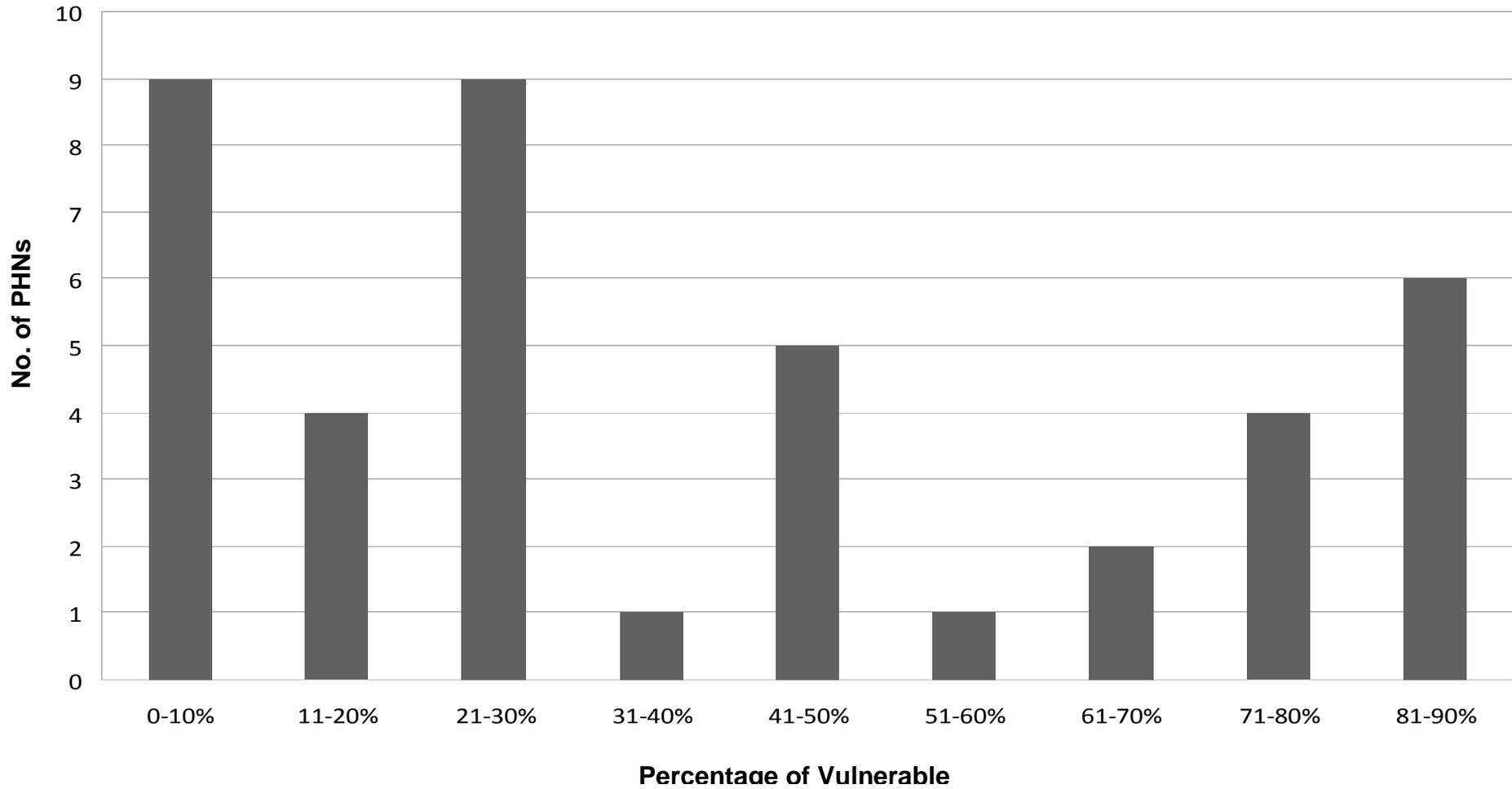
Table 12.

Percent of the population of caseload to be vulnerable

Service n=52	Facilitate or assist access	Advocate for improved availability & access
Health care	85%	63%
Social services	75%	38%
Dental care	68%	50%
Food	68%	38%
Financial assistance	61%	33%
Education	48%	31%
Employment	36%	16%
Interpreters	60%	25%
Translated materials	60%	25%
Housing	51%	35%
Interpreters	60%	25%
Transportation	56%	327%

Figure 13.

Percentage of populations on PHN caseload considered to be vulnerable (n=47)



The Public Health Nurse Role with Policy Development and Enforcement

Thirty-seven percent (37%) of PHNs in the sample report that they present information and data to policy-making boards or decision-makers; 20% promote or lobby for public health legislation; and 13% testify for public health issues to city, county, regional, state, or national policy-makers. *These numbers clearly indicate that many staff level PHNs are involved in policy.*

Public health nurses enforce policy through a variety of activities:

- 53% conduct assessments of vulnerable children and/or adults
- 52% follow-up on referrals for potential neglect or abuse for vulnerable children and/or adults.
- 50% provide information to court officials in cases of child and/or adult protection
- 27% perform activities related to elevated blood lead levels, including conducting case follow-up, inspecting residences, or assuring and participating in clean-up or abatement
- 18% perform activities related to public health nuisance, including assessing for potential vulnerable adults or children, conducting case follow-up, investigating the notification or complaint, determining the validity of the notification or complaint, assuring or participating in clean-up or abatement
- 15% perform activities related to methamphetamine use, including assessing for potential vulnerable adults or children and conducting case follow-up

Proposed Next Steps

1. Implement a national online survey to identify existing public health nurse ratios, supervisor ratios, and educational preparation of public health nurses across the United States.
2. Convene a task force to recommend a set of community criteria that would require a PHN to population ratio less than 5,000:1.
3. Engage stakeholders (e.g., Quad Council of Public Health Nursing Organizations, Division of Nursing, American Public Health Association, Association of State and Territorial Health Officers, National Association of County and City Health Officials, Centers for Disease Control) in discussion on potential strategies for implementing the public health nurse to population ratio.
4. Explore options for enforcing the baccalaureate educational requirement as the entry credential for public health nursing practice.

Conclusion

Public health nurses make up the largest component of the public health workforce (IOM, 2003) and comprise the “largest identified professional group” (Gebbie, et al., 2001). A 2006 survey conducted by the National Association of County and City Health Officials (NACCHO) found that almost every health department in the United States employs public health nurses and that the smaller the health department, the more likely the health department staff includes PHNs (NACCHO, 2006). Public health nurses’ sheer number and broad distribution throughout the country places them in a unique position to influence the health of the population.

Public health nurses protect and promote the health and well being of almost every community in the nation. The results of this task analysis document the depth and breadth of public health nurse activities. The public health nurses roles in community health promotion, the prevention and control of infectious disease and emergency preparedness are of particular importance for the health of the country. A nationally accepted public health nurse to population ratio will strengthen and maintain the capacity of the public health nursing infrastructure, assuring that public health nurses will continue to make a difference in the health of the nation now and in the future.

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Appendix A

Task Analysis Methodology

A total of 103 nominations were received from 31 states and one territory (see Table 1).

Criteria for participation in the task analysis included:

1. A baccalaureate degree in nursing;
2. At least three years of work as a PHN at the local level (for a local health department or in a local health office of a state health department);
3. Currently working as a staff PHN;
4. Responsibility for the day-to-day public health nursing activities in the setting in which he/she was employed; and
5. A commitment to complete the Delphi survey process in its entirety.

The goal was a sample size of 60 PHNs that represented as many states as possible. All states with two or fewer nominees were automatically selected. Additional participants were selected for geographically representation, years in practice, and the full scope of PHN job responsibilities. Of the 72 nominees selected, 60 consented to participate in the project.

The final sample was comprised of 60 participants representing 28 states. Using a Delphi process, each participant completed two one-hour online surveys. The first survey identified the PHN activities participants typically performed in their public health nursing job. The second survey presented the results from the first survey, requested feedback and probed deeper into each PHN activity. The completion rate for the first survey was 100% (60/60) and the completion rate for the second survey was 82% (49/60).

Table 2 lists the numbers of participants by state. Table 3 identifies the categories of job responsibilities for the 60 participants.

Table 1.

Nominations per State/Territory

State/Territory	# of Nominees	State/Territory	# of Nominees
Alaska	6	Arkansas	1
Arizona	1	Colorado	3
California	6	Georgia	4
Connecticut	1	Kentucky	1
Illinois	5	Maine	3
Louisiana	8	Minnesota	6
Massachusetts	4	Missouri	4
Mississippi	3	New Jersey	4
Montana	2	New York	1
New Mexico	1	North Dakota	1
North Carolina	4	South Carolina	8
Ohio	5	Texas	1
Tennessee	1	Virgin Islands	2
Utah	2	Washington	2
Virginia	7	Wyoming	2
Wisconsin	4		

Table 2.

Participants by state

State	No. of Participants	State	No. of Participants
Alaska	3	Montana	2
Arizona	1	New Jersey	2
Arkansas	1	New Mexico	1
California	2	New York	1
Colorado	2	North Carolina	1
Connecticut	1	North Dakota	1
Georgia	2	Ohio	3
Illinois	2	South Carolina	3
Kentucky	1	Tennessee	1
Louisiana	3	Texas	1
Maine	2	Utah	2
Massachusetts	4	Virginia	4
Minnesota	4	Washington	2
Mississippi	2	Wisconsin	3
Missouri	2	TOTAL	60

Table 3.

Job Responsibility Categories

**The participants may have selected more than one category.

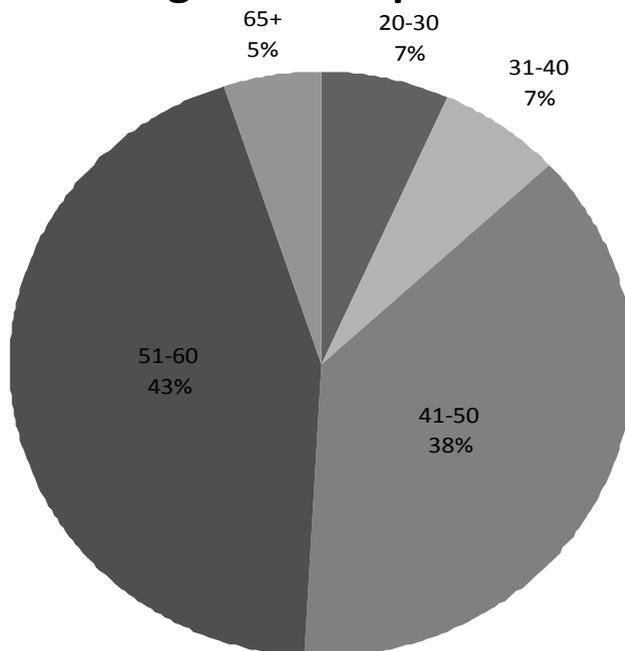
Categories	Number of Participants**
Adolescent Health	6
Adult Health	6
Disease, Prevention And Control	11
Emergency Preparedness	7
Family Planning	6
Generalist	16
Immunizations	17
Maternal And Child Health	19
Tuberculosis	8
Women's Health	18

Summary of Participant Demographics

Fifty-nine of the 60 participants (98.3%) were female. 92% (55/60) identified themselves as “white”.

Figure 1.

Age of Participants



The majority of the participants were between the ages of 51-60 (43%) and 41-50 (38%). This accurately reflects the aging public health nurse workforce (The average age of nurses in the United States in 2004 was 46.8 years. Just over 41 percent of RNs were 50 years of age or older. Only 8 percent of RNs were under the age of 30 in 2004 [HRSA, 2004]).

Although more than half of the participants (53%) reported 26 or more years in practice as a nurse, 50% reported less than 15 years as a public health nurse. See Figure 2 for length of employment in health department.

Education

- 78% (47/60) bachelor's degree in nursing
- 18% (11/60) master's degrees in nursing
- 3% (2/60) associate degree in nursing.

Size of population in public health jurisdiction

- 12% (7) participants between 10,001 and 25,000
- 17% (10) participants between 25,001 and 50,000
- 13% (8) participants between 50,001 and 75,000
- 20% (12) participants between 100,001-250,000
- 12% (7) participants between 250,001 and 500,000
- 8% (5) participants over 1,000,000

Health department structure (see Figure 2)

- 29 participants (48%) county health departments
- 12 participants (20%) state health departments
- 10 participants (17%) city/town health departments
- 4 participants (7%) district health departments
- 1 (2%) participant parish health department

Size of public health nursing staff

- 52% (31) participants had 10 or more PHNs in their health department
- 48% (29) participants had less than 10 PHNs on staff; of those PHNs with less than 10 PHNs on staff, 28% (17) had less than five PHNs on staff

Figure 2.

Length of time employed with health department

