

Population-Based Public Health Interventions: Innovations in Practice, Teaching, and Management. Part II

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Abstract The Intervention Wheel is a population-based practice model that encompasses three levels of practice (community, systems, and individual/family) and 17 public health interventions. Each intervention and practice level contributes to improving population health. The Intervention Wheel, previously known as the Public Health Intervention Model, was originally introduced in 1998 by the Minnesota Department of Health, Section of Public Health Nursing (PHN). The model has been widely disseminated and used throughout the United States since that time. The evidence supporting the Intervention Wheel was recently subjected to a rigorous critique by regional and national experts. This critical process, which involved hundreds of public health nurses, resulted in a more robust Intervention Wheel and established the validity of the model. The critique also produced basic steps and best practices for each of the 17 interventions. Part I describes the Intervention Wheel, defines population-based practice, and details the recommended modifications and validation process. Part II provides examples of the innovative ways that the Intervention Wheel is being used in public health/PHN practice, education, and

administration. The two articles provide a foundation and vision for population-based PHN practice and direction for improving population health.

Key words: population-based practice, public health interventions.

The Intervention Wheel, previously known as the Public Health Intervention Model, is a population-based practice model. It focuses on entire populations, is grounded in community assessment, considers determinants of health, emphasizes prevention, and intervenes at multiple levels. The model encompasses three levels of practice (community, systems, and individual/family) and identifies 17 public health interventions. Each intervention and practice level contributes to improving population health.

This article serves as a companion article to *Population-Based Public Health Interventions: Practice-Based and Evidence-Supported*, which describes the revised Intervention Wheel (see Part I for an illustration of the Intervention Wheel). The original Intervention Wheel was first published in 1998 (Keller, Strohschein, Lia-Hoagberg, & Schaffer, 1998). In 1999, an extensive literature review largely confirmed the original Intervention Wheel and identified basic steps and best practices for each of the 17 interventions.

In 2000, the Intervention Wheel was the focus of a series of three national satellite broadcasts on “Competency Development in Population-based PHN.” The

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Minnesota Department of Health produced the series in conjunction with the Division of Nursing, Health Resources and Services Administration (HRSA), the Centers for Disease Control/Public Health Training Network. Thousands of public health nurses in all 50 states and several countries viewed the satellite broadcasts. They defined the population-based PHN process, described the Intervention Wheel, and presented the best practices associated with its successful implementation. Videotapes of the satellite broadcasts were incorporated into a teaching kit that included a companion-learning guide and the Public Health Interventions Manual.¹ In the years since the broadcasts, the PHN community has purchased hundreds of kits. The Intervention Wheel is widely disseminated throughout the United States as a result of the satellite broadcasts and the distribution of the teaching kits.

This article illustrates the numerous ways that the public health community utilizes the Intervention Wheel. Selected examples of innovations in practice, teaching, and management provide inspiration and guidance for effective approaches to improve the health of populations.

INNOVATIONS IN PRACTICE

The Intervention Wheel has been a major influence on the practice of PHN across the country. It is being used as a basic framework for the work of numerous county and state health departments. It continues to be disseminated as a way to document and assess practice and is being used in innovative ways to tell the stories of PHN intervention with communities, systems, and individuals/families.

Public Health Nursing Frameworks for Practice

The Los Angeles County Department of Health Services, PHN Administration, recently spearheaded an effort to develop a new PHN practice model for 24 health districts (Avilla & Smith, 2003; Smith & Bazini-Barakat, 2003).² Their PHN practice model integrates the Intervention Wheel with other nationally recognized frameworks of PHN practice: (a) Scope and Standards of PHN Practice (Quad Council of Public Health Nursing Organizations, 1999), (b) Essential Public Health Services (Public Health

Functions Steering Committee, 1994), and (c) the Healthy People 2010 leading health indicators (United States Department of Health and Human Services, 2000). The LA County practice model is “grounded in the precepts that PHN practice uses a team approach, is population-based, and has its goal as the creation of the conditions in which healthy people can live in healthy communities” (website of Los Angeles Public Health Department of Health Services). They describe their model as a means of re-invigorating PHN practice for their 500 public health nurse generalists and specialists.

Another example of a health department that has incorporated the Intervention Wheel into their PHN practice frameworks is the South Carolina Department of Health and Environmental Control. The South Carolina framework uses the Intervention Wheel to describe the PHN functions within their multidisciplinary team. The model originated in Palmetto Health District in South Carolina³ but was incorporated statewide throughout the 12 health districts of the South Carolina Department of Health and Environmental Control. The South Carolina Nursing Staff Development Committee is in the process of developing an orientation for their public health nurses, who come from many different backgrounds. Their goal is to prepare their PHN workforce to provide services competently in any setting, across populations, with the nursing model guiding practice. When recent budget cuts reduced their public health workforce, the model gave direction and helped focus the efforts of a smaller PHN staff toward a population-based, multidisciplinary team approach.

In 2002, the Massachusetts Association of Public Health Nurses and the Massachusetts Department of Public Health published a *Leadership and Resource Guide for Public Health Nurses*.⁴ This document serves as a manual for orienting newly hired public health nurses, a resource for public health nurses established in their practice, a reference text for nurse educators, a guide for boards of health to understand the many roles and responsibilities of public health nurses, and standards for practice. The Massachusetts guide incorporates the Intervention Wheel and the criteria for population-based practice as a foundation for PHN. “It has been challenging for public health nurses to present their work to others in public health and to the general citizenry... This intervention model outlines and describes the broad expanse

1 Information about the PHN Teaching Kit is available on the MDH website at <http://www.health.state.mn.us/divs/chs/phn/abbygrant.html>

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3 For further information, contact Sandra Tucker, e-mail: tuckersl@dhec.sc.gov

4 For further information, contact Kaydee Schmidt, e-mail: kaydee_schmidt@bphc.org or website at <http://www.mapnh.org>

TABLE 1. *Advocacy: Best Practices Applied to an Immigrant Population (Aubey, 2001; pp. 6–7)*

| Best practice | Application |
|---|---|
| Advocacy first fosters the development of the client's capacity to self-advocate | Encourage members of the immigrant community who speak English to organize paid translation services or approach major health care providers on appropriate use of translation. |
| Advocacy utilizes the media to educate, support, promote and supplement an intervention | Contact the media to write a news story about new immigrant arrivals to develop support for meeting the needs of the population. |
| Advocacy assumes the adversarial role when appropriate | Pressure unresponsive health care providers to comply with civil rights law (letter from Health Officer). |
| Advocacy utilizes self-confidence, the strength of conviction, and commitment to social justice | Approach church groups to support and advocate for the needs of the immigrant population, assuring an emphasis on the moral aspect of fairness to those in need. |

Note. Advocacy pleads someone's cause or acts on someone's behalf, with a focus on developing the community, system, and individual or family's capacity to plead their own cause or act on their own behalf.

of PHN... Learning to inventory and describing PHN practice using this intervention model (with the levels of individual, community, and systems) provides public health nurses the context to present, describe, and substantiate their practice to a variety of audiences" (Public Health Nursing: Leadership Guide and Resource Manual, Chapter 5, 2002, pp. 1–2).

Communication Media

The Wisconsin Public Health Association *Communique* featured the Intervention Wheel in a newsletter article (Aubey, 2001).⁵ Aubey described how the interventions and their basic steps and best practices are used. For example, public health staff can: use the basic steps to assure efficiency and comprehensiveness, use the best practices to plan and evaluate programs, assure that the appropriate levels of practice are being used, assess the scope of their agency's practice, and assure a population focus. The article highlighted the basic steps and best practices for the advocacy intervention and illustrated their use with an immigrant population (Table 1).

Illustrating the Scope of Practice: Stories of the Wheel

The Intervention Wheel was developed from descriptions of the "work" of over 200 public health nurses from a variety of practice settings: clinics, coalitions, correctional facilities, daycares, homes, hospitals, schools, shelters, and worksites (Keller et al., 1998). The analysis of these data clearly established two key concepts underlying the

Intervention Wheel: (a) the work of public health nurses is similar, regardless of practice setting, and (b) PHN practice is very broad, encompassing work with communities, systems, and individuals/families. The original intent of the Intervention Wheel was to give public health nurses a means to describe the full scope and breadth of their practice. This central feature continues to be the most compelling use of the Intervention Wheel. These stories help public health nurses understand and apply the Intervention Wheel to their own practice. Table 2 depicts examples of actual PHN practice for each intervention and practice level.

The following vignettes, excerpted from *Stories of the Intervention Wheel* (in press)⁶ expand on an example from the table for each level of practice.

Community-Focused Interventions

I am part of the Leech Lake Band of Ojibwe. I coordinate the Leech Lake Health Division's Infant/Toddler Program that includes a targeted home visiting program for at-risk infants and toddlers called "Baby Tracks."⁷ The program is funded through a variety of grants. Our goals are to provide a system to monitor for appropriate growth and development, to facilitate referrals needed for further assessments and early intervention services, to monitor immunizations and well child exams to assist parents in their efforts to keep children healthy, to support positive parenting methods, and to promote traditional parent practices and role clarification. We also operate a

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⁷ For further information, contact Karen Moses, e-mail: kmoses@paulbunyan.net

TABLE 2. Public Health Nursing Examples: Levels and Interventions

| | Systems | | Community | Individual |
|-----------------------|--|---|---|---|
| Surveillance | Together with the mosquito control board and environmental health, a PHN used geographic information system software to map out areas where adult triseriatus mosquitoes (transmit LaCrosse encephalitis) had been detected. The PHN notified homeowners about the spraying schedule to eliminate the mosquitoes and provided information about cleanup of probable breeding sites and disease symptoms. | | PHNs implemented a program that tracks the growth and development of all newborns in the county. Questionnaires are sent to parents at regular intervals that they complete and return to the public health office. PHNs screen the questionnaires for potential problems or delay and contact the families when further action is indicated. | <p>Case finding: A rural population-based immunization registry used by health departments, school, and clinics notifies PHNs when children fall behind on their immunizations. They conduct home visits to determine why the child is not receiving their immunizations and assure the child is immunized.</p> |
| Disease investigation | A PHN worked with the state health department and the federal vaccine program to coordinate a response to cases of rubella in a migrant population. They trained outreach workers and private providers to assure that foreign-born persons were referred to public health. The PHNs arranged for a local migrant health office to be a satellite vaccine provider site. | The lone PHN in a rural county health department investigated a physician's concern about cancer clusters by working with the high school—the English class designed a countywide survey, the computer class compiled the results, and the math class analyzed the data and plotted them on a county map. Their report, which found no cancer clusters, was presented at a community meeting. | <p>Case finding: PHNs initiated a contact investigation to a young woman, a native of Vietnam, diagnosed with pulmonary TB. The women had just visited Vietnam with 15 members of her extended family. The PHNs made four visits to test all family members with additional follow-up for five family members, each of who had a different worldview about whether or not to cooperate.</p> | |
| Outreach | State public health nursing consultants conducted focus group interviews with new moms that revealed the best ways to encourage women to participate in universally-offered home-visiting program. | A PHN worked with Hmong health care professionals to conduct culturally sensitive outreach for depression to the elderly at an annual Hmong health fair. | <p>Case finding: PHNs travel to 15 towns each month in custom-built van to reach residents of a rural community. They deliver screening, health education, and referral services to individuals who would not otherwise receive them.</p> | |
| Screening | A rural community of 15,000 experienced a dramatic increase in their gonorrhea rate and a change in the characteristics of clients: increased transience and a pattern of commuting back and forth from a large city. The health department worked with five surrounding counties to provide training for PHNs to improve skills in obtaining contact identification information. | PHNs worked with the physical education to screen a high school population and give each student a profile of their health. This provided a baseline for the educational, nutritional, and physical activity lifestyle changes component of the program. | <p>Case finding: PHNs make home visits to older adults to prevent falls. Together the PHN and the older adult make a plan to remove or reduce injury risks that include: a review of medications that may affect balance, home modifications to reduce fall hazards, and exercise to improve strength, balance, and coordination.</p> | |

Referral and follow-up

PHNs participated in a community effort to investigate why children that failed school-based vision screening did not receive the recommended follow-up. Their 22-point action plan included arranging for eye clinic weekend and evening appointments, sending letters to notify parents before screening occurred, and financial assistance information in the referral letter.

PHNs in a rural health department focus their environmental work on referring people to the correct agency and then assuring that the conditions have been corrected. They receive calls on concerns such as controlling rodents and cockroaches, septic tank problems, and peeling paint. Referrals are made to a variety of resources that range from the city hall to furnace installers to their own health department.

A PHN received a referral on a mentally ill young man from a small town. He needed regular injections to prevent rehospitalization. Using investigative skills, the PHN located him at his regular "hangout" (where he only drank soda pop). She then worked with the local barkeeper (while maintaining confidentiality) to set up regular appointment times.

Case management

PHNs from health agencies representing 10 county health departments, medical clinics, a large health plan company, and the state health department worked together to provide coordinated prenatal care to improve birth outcomes. The group created an integrated prenatal care system that promotes early prenatal care, improves nutrition, and links women to services in the communities.

PHNs provide case management for all frail elderly and disabled persons at risk of institutionalization but deemed eligible for community placement. Case management maintains this vulnerable population in their home or community and assures that their needs are met within the allotted amount that would otherwise be spent on hospitalization or nursing home care.

A PHN coordinated the services of clinic providers, a WIC nutritionist, and a family health aide to provide ongoing support and appropriate parenting and feeding to a young mother who was overfeeding her infant. The PHN videotaped a feeding interaction assessment and obtained a high chair for the family through a nutrition program grant.

Delegated functions

PHNs worked with hospitals, clinics, and emergency responders to design a regional plan and administer small-pox vaccinations as a counter-terrorism measure. Hundreds of nurses were trained to be proficient in screening, vaccination, and exit interviewing.

PHNs administered influenza immunizations at "drive thru" flu clinics held in a county highway garage. Residents received their assessment and flu shots in their vehicles. This unique access increased the number of immunizations in the community and was especially important to elderly residents with limited mobility.

In a frontier territory, a rancher was exposed to rabies. The rancher lived 140 miles from the nearest health facility and had no health insurance. After he arranged to purchase immunoglobulin from the hospital, the PHN worked with the rancher and his physician to administer the rabies series at his ranch in a timely manner.

Health teaching

PHNs worked with the epidemiologist in their health department to develop "best practice" guidelines for lice treatment from the perspectives of the scientific literature and the practice community. Clinics, schools, and pharmacists use the new guidelines.

PHNs participated in a campaign to teach communities to put babies on their backs to sleep, which prevents SIDS. It is vital that this effort reaches entire communities, not just parents.

PHNs taught weekly prenatal and life skills classes to pregnant and parenting teens at an alternative high school program, which resulted in a repeat pregnancy rate significantly lower than the national average.

TABLE 2. Continued

| | System | Community | Individual |
|--------------------|---|---|--|
| Counseling | PHNs partnered with a community family center to promote prenatal attachment for families who are isolated, have experienced previous pregnancy loss, or have other attachment issues. The project promotes attachment to the baby through the use of doulas, guided videotaping, nutrition counseling, and relaxation through music and imagery. | In response to multiple deaths within an American Indian community, a tribal health department worked with the community to design and implement a culturally appropriate grief and loss program. | "Never to have seen, but to have dreamed. Never to have held, but to have felt. Never to have known, but to have loved." These are the words on a card that a PHN sends to mothers whose babies died at birth. The card is followed up with a home visit for grief counseling and support. |
| Consultation | After hearing about the risk for serious infectious disease for children in daycare, public health nursing day-care consultants from eight local health departments developed a curriculum on handwashing for children. They obtained a grant to develop a video in several languages and distributed the handwashing materials. | An employer contacted public health nursing with a concern about prenatal health of their workers and their rising insurance rates. The PHN director worked with the factory management to identify the factors contributing to the problem and helped the employer plan an employee incentive program for behavior change. | A PHN/social worker team worked with frail elderly and their families to determine the appropriateness of nursing home placement versus home care alternatives and the level of care needed. |
| Collaboration | PHNs changed the way they had traditionally related to the 26 clinics in their community. They visited each clinic quarterly to provide information, answer questions, promote disease prevention programs, and resolve problems together, such as vaccine shortages. This relationship benefited the public health department and the clinics. | A PHN worked with a community action team to develop community assets (a caring, encouraging environment for youth and valuing of youth by adults) through strategies such as a mentoring program for at-risk elementary school students and a revitalized orientation program for ninth graders entering high schools. | Over a period of years, a PHN was able to establish a trusting relationship with a Haitian client with HIV. Through her transactions with this client, the PHN came to understand her own values differently and honored his spiritual values and practices. |
| Coalition building | In a small rural county with a high proportion of elderly, a public health department formed a coalition composed of ambulance directors, hospitals, and the county sheriff. They received a grant to address the issues of insufficient funding, the need for more advanced communication equipment, and inadequate staffing. | PHNs facilitated the development of a parent coalition in ENABL (Education Now and Babies Later). The parent coalition influenced the community's attitudes and behaviors about delaying sexual activity and promoting life goals. | |

| | | | |
|----------------------|---|--|--|
| Community organizing | <p>A health department mobilized nearly 30 community agencies that were all stakeholders in the direct care worker shortage in the community. The group formed action teams that educated legislators, kept the shortage visible to the public, and generated strategies to assuage the shortage of direct care workers.</p> | <p>PHNs operated a community center called the Wadiswan or “nest” where young mothers can exchange points they earn for maintaining a healthy lifestyle for diapers, infant clothing, toys, and other supplies. They promote traditional Ojibwe nurturing child-rearing methods and provide an annual “welcoming feast” for all infants born within a year.</p> | |
| Advocacy | <p>Club 100 is a voluntary organization of community women associated with a visiting nurse association. The club provides “gifts” such as high chairs, strollers, diapers, books, toys, and tools to support family self-sufficiency. It personally connects community women with the PHNs who identify families’ needs and deliver the gifts.</p> | <p>A population of predominantly Latino and non-English-speaking people lived in an apartment complex with deplorable living conditions for which they were being overcharged. PHNs who served this population worked with interpreters to convince clients to connect with legal services as a group, which resulted in improved conditions and refunding of some money.</p> | <p>PHNs staffed psychiatric clinics at a health care clinic in a large shelter. They encouraged and arranged for homeless people to receive treatment for their mental illness, stay on their treatment plan, and become connected with community resources.</p> |
| Social marketing | <p>A partnership of health departments, managed care organizations, pharmaceutical companies, health care insurers, and others sought to decrease unnecessary antimicrobial use and reduce the spread of antimicrobial resistance. “Moxie Cillin” and “Annie Biotic” are mascots that appear on pamphlets, posters, stickers, and in person. They urge a stop to inappropriate requesting and prescribing of antibiotics.</p> | <p>PHNs worked with committees of teens and adults to help youth incorporate healthy diet and exercise into their lifestyle. The Toilet Paper Document, a monthly nutrition and health tip sheet, was displayed in 152 community bathrooms. The high school students also produced a videotape for a health fair that featured community members participating in exercise and healthy eating.</p> | <p>PHNs routinely conduct home safety checks with pregnant and parenting families to prevent childhood injuries. As an incentive, they distribute safety kits that include items to child-proof a home. In a situation that may be considered intrusive to families (checking contents in cupboards and water temperatures), the kits increased the number of families who were receptive to home safety checks.</p> |

TABLE 2. *Continued*

| | Systems | Community | Individual |
|------------------------------------|--|---|--|
| Policy development and enforcement | PHNs and health educators partnered with the law enforcement community to establish ordinances prohibiting the sale of tobacco to underage youth, and then organized youth to conduct compliance checks, in which underage youth attempt to purchase cigarettes. | A PHN investigated a public health complaint about a fly problem coming from the manure pit of a farm that housed million of chickens. The PHN inspected the manure pits and found masses of maggots. After issuing a public health nuisance, the PHN successfully worked with the business owners to find a solution that involved the drying of manure to prevent the maggots from surviving. | A PHN received a referral regarding the safety of an 80-year-old woman living alone on a littered farm site with 18 cats in a house without heat that was ankle-deep with cans, clothes, and cat feces. The PHN initiated a vulnerable adult evaluation that resulted in a "not sufficiently vulnerable" finding under state statute. Through repeated contacts, the PHN was able to establish a trusting relationship and a referral for care to a physician. However, she was not successful in changing the woman's living situation. |

community center called the Wadiswan or “Nest” where young mothers can exchange points they earn for maintaining a healthy lifestyle for diapers, infant clothing, toys, and other supplies. We provide books for infants and toddlers and developmentally appropriate toys along with needed baby items. We have long understood the importance of providing services to our people in ways that fit within our Ojibwe culture and expectations, so we’ve adapted the ways in which our home visiting is provided. We support and promote traditional nurturing child-rearing methods. For instance, infants often sleep in a baby swing or hammock hung over the parents’ bed. An Ojibwe prayer is offered so that the family may guide the child down the right path. We also provide an annual “welcoming feast” for all infants born within a year. It is usually held in the spring to signify new life. At this time all the women elders sit in a circle. The infants are passed around one at a time; each is held, kissed, and blessed by each elder in turn. It is an honor for a young mother to have her infant so welcomed by those women in the tribe older than she; it underscores the importance of continuity within the culture. After the ceremony, we feast on a meal of traditional and Western foods and listen to traditional songs by a drum group. This intervention is an example of community-focused interventions. The primary interventions used by the public health nurse were community organizing, health teaching, referral and follow-up, surveillance, and advocacy.

Systems-Focused Interventions

In 1992, I, along with several other public health nurses from our metropolitan area, attended a Centers for Disease Control sponsored conference on child day care health.⁸ The message we heard was that children in childcare settings are at an increased risk for potentially serious infectious diseases, and that hand washing is the cheapest, easiest, single most effective way to prevent the spread of infectious disease. In conjunction with the state health department, we developed a curriculum called “Why How When To Wash Hands.” The curriculum, along with the book “Those Mean Nasty Dirty Downright Disgusting. . . . But Invisible Germs” were used together to teach young children how to wash their hands. Over the next seven years, we wrote and managed three grants that expanded the use and distribution of the project materials. Videos were made of storytellers reading the book and using the curriculum to teach hand washing in English,

Hmong, and Spanish. As of 1999, over 2000 copies of videos had been distributed. Copies of the book and videos are available statewide through childcare resource networks and libraries. Most professionals involved in childcare throughout the state have the materials and use them frequently. This public health nursing program is scientifically based, reflects the cultural diversity of the community, and is affordable, readily available, and fun. Best of all, it motivates behavior change. Evaluations from child care centers, homes, and parents all report an increase in thorough hand washing after using the materials. Our challenge now is to keep the momentum going. This intervention is an example of systems-focused interventions. The primary interventions used by the public health nurse included consultation, coalition building, social marketing, provider education, and health teaching.

Individual-Focused Interventions

I received a referral from a county social worker regarding a mentally ill individual who was not coming to the clinic for his Prolixin injections.⁹ He was not coming because the clinic was 30 miles away and he had no transportation. The physician and social worker requested that a public health nurse visit the individual every two weeks to administer the injections at home. I made an appointment with him, but when I arrived at his home, he was not there. Since I had not met the man, I didn’t know what he looked like. After driving around the small town in search of a person I could not describe, I called the social worker. He told me to look for a man in his 20’s who walked with a “Haldol shuffle.” As we were talking on the phone, I saw a man walking like that on the opposite side of the street. The social worker suggested I follow him and if he went into the local tavern, it was probably him. I followed him slowly in my car, and as he had his hand on the door of the tavern, I called his name. He turned around. I introduced myself and explained why I was there. I ended up administering his injection while he sat in my car. The social worker and physician and I agreed that this individual was not successful in sticking with a conventional treatment plan. Nor was he successful in remembering when public health nursing visits were to occur. We all knew from the history of this man that if he did not receive his medication, he would end up hospitalized. We resorted to less conventional means and, without allowing the tavern staff to know what my visits were for, convinced them to remind him when our visits were scheduled. If he were at the tavern—where he always drank soda pop—the

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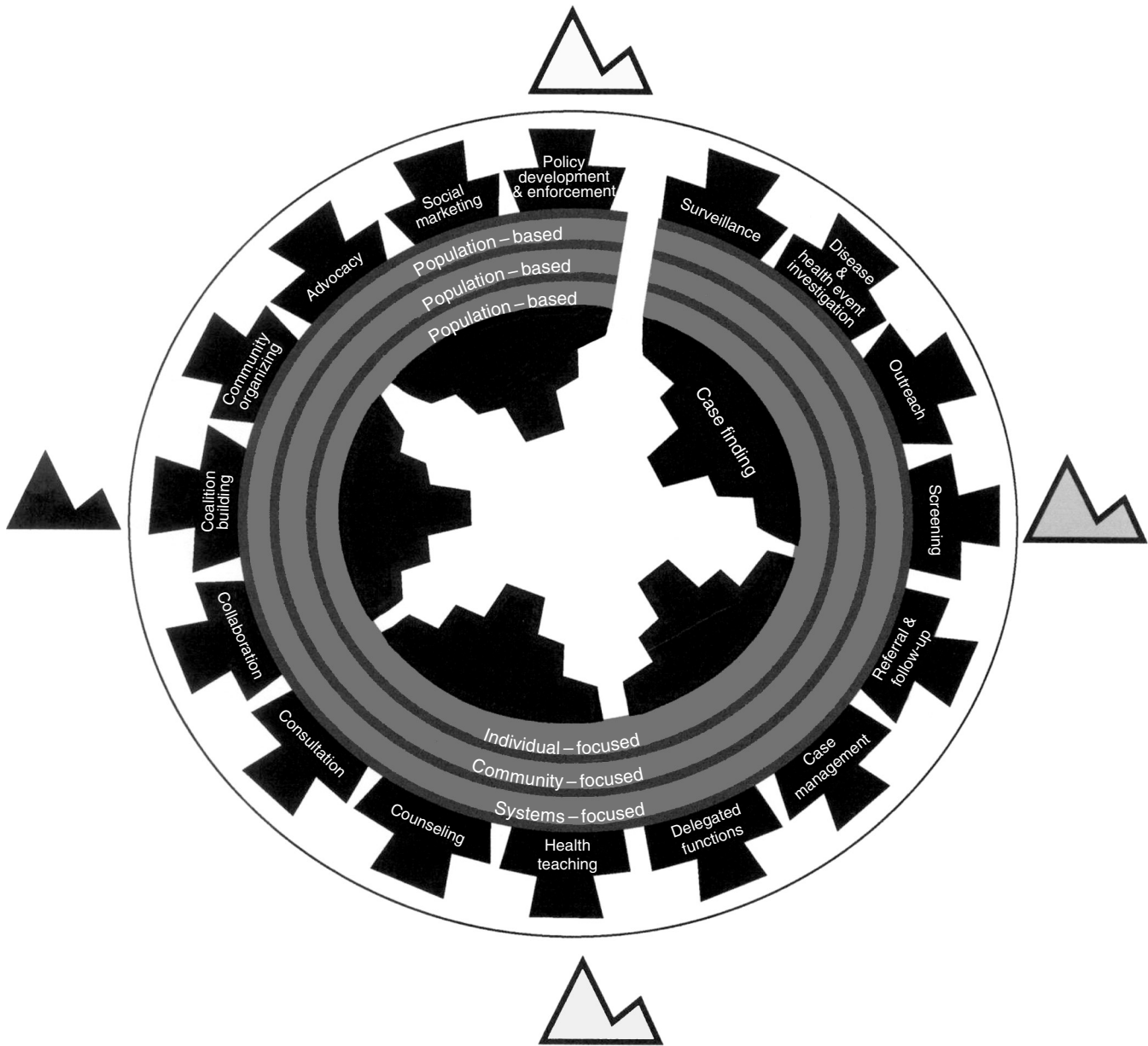


Figure 1. Navajo Intervention Model (Shiprock Service Unit, Community Health Services, Public Health Nursing).

bartender would have him stay there until I arrived. This intervention is an example of individual-focused interventions. The primary interventions used by the public health nurse were referral and follow-up, case finding, advocacy, case management, and collaboration.

reflect the Navajo culture (Fig. 1).¹⁰ The Shiprock Unit serves native people in Arizona and New Mexico. The Navajo Intervention Wheel is presented as a Navajo basket and uses the traditional colors of the Navajo nation (illustrated in black and white for this article). The white background represents mother earth, which is tan in the

Cultural Applications

Public health nurses in the Shiprock Service Unit of the Indian Health Service adapted the Intervention Wheel to

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colored version. The black design represents the sacred mountains that surround the Navajo Nation. The gray areas, red in the colored version, represent the rainbow, which symbolizes harmony. In Navajo philosophy, one should not enclose oneself without an opening. Therefore, the basket has an opening, or doorway, to receive all that is good and positive, and allow all the bad and negative to exit (Neva Kayaani, personal communication). The Shiprock Unit also produced a video on PHN, which uses the Navajo Intervention Wheel as their framework for practice. The video premiered at the National Council of Nurse Administrators conference in Albuquerque, New Mexico in the summer of 2003.

The Intervention Wheel is also being used internationally. Nicolette Sheridan, faculty member at the University of Auckland, is currently examining the relevance of the Intervention Wheel for nursing practice in New Zealand (personal communication). The Intervention Wheel was presented to eight countries at a Pan American Health Organization (PAHO) nursing conference in 2003. As a result, the Intervention Wheel is being translated into Spanish through a collaboration involving the Center for PHN at the Minnesota Department of Health, the Pan American Health Association (PAHO), and nursing faculty at the School of Nursing at Zaragoza, Mexico.

INNOVATIONS IN TEACHING

Numerous graduate and undergraduate schools of nursing throughout the United States have adopted the Intervention Wheel as a framework for teaching PHN practice. Colleges and universities from over 30 states have ordered products from the satellite broadcasts, including manuals, videos, and teaching kits. This section highlights some of the novel ways that educators are using the Intervention Wheel to prepare the PHN workforce of the future through classes, textbooks, and collaboration.

Bethel College

Bethel College, a private liberal arts college in St. Paul, Minnesota, integrates the Intervention Wheel into classroom and clinical experiences for senior nursing and RN degree completion students.¹¹ The Intervention Wheel is provided to students as a framework to help them organize their knowledge base about nursing actions in community settings. Video clips from the satellite-learning conferences, shown throughout the semester, illustrate

how nurses provide interventions with communities, systems, and individuals/families. In the clinical setting, senior students complete an Intervention Wheel assignment that requires them to describe interventions implemented by the student or agency public health nurses. Students in the RN degree completion program use the Intervention Wheel as a framework for reflecting on their clinical experiences in web-based discussion forums.

Students in all settings complete a community project that incorporates interventions at the community and/or systems levels. As an example of consultation, students participated in a local health department's effort to survey and identify head lice control practices of providers and school nurses in the community (Monsen & Keller, 2002). Using information obtained from the survey, the health department developed a brochure for families and providers that was based on the epidemiology of the louse. It contained both chemical and natural control recommendations for successful elimination of lice. This is an example of policy development. Students also participated in presenting this information to the community, which exemplifies health teaching at the systems level. Students in another local health department participated in a community level surveillance intervention in which they collaborated with the PHN staff to identify local restaurant smoking policies. Students presented certificates to smoke-free restaurants, an example of social marketing. They also offered information to restaurants with an interest in becoming smoke-free, which is health teaching at the community level.

South Dakota State University

South Dakota State University College of Nursing (2004) (SDSU) features the Intervention Wheel as a framework for application of population-based practice interventions.¹² In clinical groups, students assess the health risk or needs of a selected population. After prioritization of the health needs, students choose the relevant interventions and practice levels from the Intervention Wheel. The students then identify best practices related to the selected interventions. The population-based project includes planning and implementing the intervention, and evaluating outcomes (Fahrenwald, Boysen, Fischer, & Maurer, 1999). SDSU also uses the Intervention Wheel in a creative social justice assignment. Students select a population-based social justice issue such as universal access to family planning education and resources.

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Students explore and apply the public health interventions that have the greatest potential impact on the selected social justice issue. For example, students applied the intervention of advocacy when they contacted legislators to support funding for international women's health programs. (Fahrenwald, 2003).

Washington State University

Faculty at the Intercollegiate College of Nursing/Washington State University College of Nursing in Spokane, Washington incorporated the Intervention Wheel into a new curriculum.¹³ The Intervention Wheel is reinforced by the use of a three-dimensional tic-tac-toe game that experientially conveys the concepts of population-based practice. An instructor and a student play the game on a three-tiered game board in front of the class. Students report the game to be challenging, complicated, and fun. Playing the game leads to discussions of practice levels (community, systems, and individual/family) and levels of prevention (primary, secondary, and tertiary). The game visually illustrates the challenges and rewards that public health nurses encounter in developing competency in population-based practice. For example, when a public health nurse repeatedly identifies a problem among individual clients, a systems or community intervention may be indicated.

In their weekly clinical journal, students identified one or two interventions they had used at their clinical sites. Students described the interventions, level of practice, level of prevention, and the outcomes of the interventions. In addition, they reflected on one or two significant experiences and identified how their learning will impact their clinical practice. Students reported that the format was concise, concrete, and helped them recognize "what public health nurses do." Faculty reported that the short but meaningful clinical journal entries encouraged students' critical thinking by stretching and expanding their consideration of various levels of practice.

University of Minnesota

The Intervention Wheel is used as an organizing framework for the graduate PHN Program at the University of Minnesota School of Nursing.¹⁴ PHN students and all other master's students, including nurse practitioner, education, and administration students, are required

to take the course, Population Focused Health Care Delivery Systems. This course provides a population-based framework for their education and practice; the Keller et al. (1998) article is required to be read and used for class discussions.

The first course in the graduate PHN track focuses on advanced community assessment as a foundation for population-based practice. Working in pairs, students use population demographics, determinants of health, community resources, and other components to conduct a detailed assessment. In the subsequent course, the Intervention Wheel is presented as one of several conceptual models for practice and research. Students analyze and compare their own model for practice with the Intervention Wheel.

In another required course, Interventions for the Health of Populations, students view and discuss a web cast featuring Keller as well as excerpts from the satellite-learning conferences. Students use the Intervention Wheel in conjunction with other conceptual models, such as the Health Belief Model, to plan health teaching for a defined target population. An example is planning a smoking intervention program for a community that incorporates demographics, knowledge level, health belief data, and interventions at the community, systems, and individual/family levels.

Textbooks

Several recently published textbooks incorporated aspects of the Intervention Wheel. Clark (2003) offers the Intervention Wheel as one of several theoretical foundations for PHN practice. She developed examples of nursing interventions at the individual, community, and systems levels of practice. Lundy, Janes, and Hartman (2001) identified the three levels of practice and provided examples of population-based care for each of these levels. Schoon's (2003) chapter in Kelly Heidenthal's leadership and management text incorporated the Intervention Wheel into a framework for population-based nursing practice using the steps of the nursing process. Population-based nursing goals are identified as access, quality, cost, and equity. Her template of population-based nursing diagnosis and care plans included interventions at all three levels of practice.

INNOVATIONS IN MANAGEMENT

The Intervention Wheel has been utilized to structure job descriptions, orient and train staff, plan and evaluate programs, document and report, budget, and other aspects of health department management.

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Position Description

Carver County Community Health Services, a suburban health department in Minnesota, used the interventions from the Intervention Wheel as a basis for their position descriptions for public health nurses.¹⁵ After attending a conference that highlighted the Intervention Wheel, staff public health nurses proposed that they redefine their job descriptions based on the Intervention Wheel. The staff believed that the Intervention Wheel captured the complexity and diversity of their PHN experience. Table 3 illustrates a sample of their nursing functions as they relate to the Intervention Wheel (Carver County PHN Job Description, 2000).

Orientation and Staff Development

The Minnesota Department of Health incorporated the Intervention Wheel into the Minnesota Modules, a series of public health training modules for state and local health department staff.¹⁶ These modules (Public Health Principles and Authority, Population-based Community Assessment, Program Planning and Evaluation, and the Cornerstones of PHN) have been presented to over half of the local health departments in Minnesota during the past 3 years. Colleges, universities, and state and tribal health departments across the country use the Minnesota Modules.

Public Health—Seattle and King County (PHSKC), which serves a large, metropolitan area in Seattle, Washington, employs over 450 registered nurses in a variety of roles and programs. To define in a better way the work of nurses in public health, PHSKC adopted the Intervention Wheel for population-based practice.¹⁷ Following participation in the 2000 satellite broadcast series, PHSKC nursing leaders developed a process that incorporated the Intervention Wheel into practice for all nurses within their health department. Beginning in May of 2001, the Intervention Wheel was shared with over 150 nurses at the annual “Nurse Recognition Day.” For this event, the committee solicited stories of PHN as practiced in Seattle–King County. An audio-visual presentation illustrated each of the interventions with pictures of the nurses and excerpts from their stories. The committee distributed booklets of the complete stories, with definitions of the interventions and color copies of the wheel.

Since the Nurse Recognition Day introduction to the framework, PHSKC has included an overview of the population-based public health practice model in the orientation of all licensed professional staff—nurses, physicians, social workers, health educators, and nursing students. The Intervention Wheel provides new staff with a common frame of reference. The PHSKC nurse recruiter uses the presentation developed for Nurse Recognition Day to illustrate current public health

TABLE 3. *Public Health Nurse Job Description—Carver County Public Health*

Typical duties and responsibilities (selected)

- Consults with individuals, organizations, committees, and multidisciplinary teams to identify needs, problem solve, and plan solutions.
- Promotes and maintains health of individuals, families, and communities through extensive knowledge of health teaching, counseling, and applying appropriate preventive, restorative, and maintenance measures.
- Is proficient in case management. Assesses needs, designs and implements plans, and facilitates the delivery of services. Reduces or resolves barriers and continually evaluates progress needed to establish continuity of care across diverse settings.
- Delegates and supervises family support worker’s direct care tasks and functions.
- Advocates for clients to access services that assist in moving them toward independence.
- Receives and initiates referrals to assist with utilization of necessary resources through the public health nurse’s extensive knowledge and established linkages within the community.
- Conducts social marketing, outreach, and surveillance related to community health needs and priorities. Activities include public speaking and developing and marketing outreach through brochures, displays, computer presentations, and the mass media.
- Systematically gathers and analyzes data for investigation of disease and other health events in populations such as public health nuisance, disease outbreak, and immigration follow-up. Activates appropriate control and prevention plans.
- Collaborates with a wide array of organizations to develop linkages, solve problems, develop programs, and enhance leadership to address individual or community health concerns.

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practice when she visits schools of nursing. PHSKC managers are also using the model to develop and update position descriptions, to serve as the basis for defining appropriate nursing practice, and to design a performance review that also reflects the core functions and the 10 essential services.

Another example of how health departments utilize the Intervention Wheel for staff development comes from Scott County Public Health Department in Minnesota.¹⁸ The staff was introduced to population-based practice by viewing the satellite broadcast series. At a subsequent inservice, staff identified the interventions and levels of practice that they used in their own practice. Public health nurses colored in the interventions and levels that represented their practice. The director did not expect any one nurse to perform every intervention at all three levels. She did, however, assume that within the health department every intervention would be utilized at every level. The director compiled the Wheels that her staff had colored, and indeed, the entire circle was filled. As a second part of the inservice, the staff colored in the interventions and levels in which they thought they needed additional skill development. Based on this feedback, the director identified the interventions that staff felt least prepared to implement: (a) social marketing and (b) policy development and enforcement. The leadership team selected social marketing as the focus of an inservice plan for the entire public health department. Laminated wheels at each nurse's desk have become an ongoing reminder to staff in their thinking, planning, and evaluating at all levels of interventions.

The Missouri Department of Health and Senior Services, in partnership with the University of Missouri/Columbia Sinclair School of Nursing, integrated the Intervention Wheel into the design and implementation of an online career mobility project.¹⁹ The project, which is funded by an HRSA/Division of Nursing grant, enhances the educational mix and utilization of the Missouri PHN workforce. Non-BSN-prepared nurses currently employed by local health departments enroll in an online course in population-based principles of PHN and then are mentored by experienced public health nurses. The Intervention Wheel was highlighted in a 2-day statewide PHN practice workshop in May 2002 sponsored by Missouri Department of Health and Senior Services, the Council of Public Health Nursing, and the Missouri

Public Health Association. The 2003 annual Missouri practice workshop, "Keeping the Wheel Turning: Enhancing Your Skills," offered skill-building sessions on case management, health teaching, and coalition building as well as a preconference session offering an introduction to the Minnesota Model for those unfamiliar with it.

The PHN Section of the Public Health Association of Nebraska (PHAN) was awarded a grant from the Nebraska Health Care Cash Fund entitled "It's My Bag! Public Health Nursing Across Nebraska."²⁰ The grant partners were PHAN, the Nebraska Nurses Association, and the Nebraska Rural Health Association. The goal of the grant was to strengthen PHN in Nebraska through improvement of PHN educational opportunities. "It's My Bag!" specifically targeted public health nurses working in rural Nebraska. The training featured the Minnesota Modules, which includes the Intervention Wheel. In the first year, a three-session workshop was provided via satellite to 40 public health nurses across Nebraska. During the second year, the training was repeated to 37 public health nurses at two sites using videotape. The videotapes continue to be used for orientation purposes.

Alaska does not have local health departments but has health centers in larger communities and itinerant public health nurses who periodically travel to smaller villages. The teaching kits (which include videos of the satellite broadcasts and the Intervention Wheel manual) were distributed to the four regions and the public health center grantees throughout Alaska. The goal was to expose every public health nurse in the state to the Intervention Wheel.²¹ At health centers, management used the videos to provide training on the core functions of public health and the Intervention Wheel. Public health nurses endorsed the fit of the Intervention Wheel with their own practice; the videos validated the value and diversity of their experiences. The nurse managers used the interventions and levels of practice to collaboratively develop PHN classifications and competencies and to rewrite position descriptions.

The Wisconsin Department of Health and Family Services has featured the Intervention Wheel in a series of annual workshops intended to promote population-based PHN practice. The conferences, which began in 1998, were each attended by over 300 public health nurses. They presented the critical features of population-based

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TABLE 4. *Wisconsin Public Health Conferences Utilizing the Intervention Wheel*

| Year | Title | Focus | Breakout sessions |
|------|--|--|---|
| 1998 | Moving forward: Strengthening public health nursing for the 21st Century | Public health core functions, levels of population-based practice, and public health nursing interventions were used as a framework for the future. Participants reflected on their work at the individual, system, and community levels. In the closing session, nurses made a commitment in writing about how they would move forward in the next year to address population-based practice. | Local examples related to the public health interventions included perinatal outreach, community surveillance of population health indicators, case management of children with special health care needs, an immunization coalition, and tobacco control policy development. |
| 1999 | Stepping out of the box: public health nursing in the new millennium | Public health nurses were challenged to meet the population needs of their communities through innovative and creative strategies consistent with nursing practice standards. | Collaboration between school of nursing and local setting; women's health outreach; referral, follow-up, and case management of high-risk infants; and diabetes guideline policy development and health teaching with providers. |
| 2000 | Acknowledging our tradition . . . building our future | PHNs were inspired and challenged to build on the history, traditions, and values of public-health nursing. PHNs integrated public health nursing cornerstones, essential public health services, and interventions as a foundation for future practice. | Interventions including screening, community organizing, policy development, health teaching, referral and follow-up, surveillance, and collaboration related to issues including dental health, migrant health, home care, fluoridation, and newborn screening. |
| 2001 | Achieving excellence through standards and best practices | PHNs were introduced to the new "Wisconsin Public Health Nursing Practice Model" that incorporates the ANA Scope and Standards of Public Health Nursing, the state health priorities, the public health nursing interventions, and the public health essential services. | All public health nursing interventions on topics such as brain development, sexual health education, special populations, human health hazards, academic partnerships, newborn home visiting, and emergency response. |

PHN, public health nurse.

practice, highlighted the interventions, and showcased local examples. Table 4 identifies the content and structure of the conferences.²²

Program Planning and Evaluation

Use of the Intervention Wheel in planning requires the consideration of all interventions and all three levels of practice. Washington County Department of Public Health and Environment (2002) applied the Intervention Wheel to monitor and redirect their strategies to prevent unintended pregnancies. A retrospective analysis of the department's planning documents over the past decade demonstrated a deliberate shift from individual/family strategies to a pre-

dominance of community and systems strategies and use of an expanded variety of interventions.²³

In 1992, about 85% of agency activities, or staff time allocation, used health teaching at the individual level to prevent unintended pregnancies. In 1996, there was a dramatic change in new interventions, with 60% directed toward systems level consultation, 20% to community level consultation, and 20% to community level health teaching. By 2000, there was a further shift with a move from health teaching, consultation, and collaboration to increased emphasis on outreach and advocacy, with a balance between the levels of practice. The Intervention Wheel can help planners and evaluators follow trends in population-based public health services.

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TABLE 5. *Core Public Health Roles and Services Dakota County, Minnesota Public Health 2004 Budget*

| Intervention level | Roles |
|--|--|
| Individual/family Creating changes in individual attitudes/beliefs, knowledge/skills, practice, or behavior | Outreach/case finding Disease investigations Targeted outreach/screening or risk assessment Clinical services (WIC, Child Health, Senior Screenings, and Immunization) |
| Target population(s) Infants/children, including those with special needs Adolescents, including those with special needs Families Elderly, disabled, and vulnerable populations | Home visits Community settings (shelters, child care, homes/centers) Information and referral Service coordination Health teaching/health promotion (individuals, groups, communities) Quality assurance/service tracking/monitoring |
| Community Creating changes in community awareness, norms, attitudes, practices, or capacity | Community needs assessment Communicable and chronic disease education/surveillance Community health promotion Information/education Risk reduction |
| Target population(s) and/or all persons | Resiliency factors/developmental assets Citizen mobilization Leadership/skill development Problem solving Community action Interdepartmental/interagency teams and collaboration Resource development |
| System Creating changes in organizations, policies, laws, or structures | Public health plan development/implementation Planning/policy development/advocacy Contract management System coordination |
| Systems serving individuals/communities | Data collection/analysis/reporting (population-based and utilization) Outcomes/performance measurement (internal and external) Resource development Partnership or system management/coordination Population-based health care access/publicly funded health care programs, e.g., PMAP, MNCare, etc. |

Note. Within its broad authorities and roles, public health works at three different levels: individual/family, community, and system.

Dakota County (Minnesota) Public Health Department utilizes performance-based outcome planning and budgeting with measures of effectiveness, efficiency, and responsiveness for each public health program area.²⁴ To capture the full scope of their activities, Dakota County Public Health categorizes its public health activities by the three practice levels. Table 5 describes the breakdown of the health department activities by community, systems, and individual/family.

Dakota County Public Health also utilized the practice levels for evaluation. For example, "community level" indicators for their Youth Tobacco Prevention Program included the number of compliance checks completed by cities/counties and the number of vendors holding licenses issued by the county. In collaboration with several other organizations, Dakota County Public Health developed a software program to track these indicators that is now being used statewide.

Integrating the Intervention Wheel into Daily Management of a Health Department

A Marathon County (Wisconsin) public health nurse read about the Intervention Wheel in *Public Health Nursing*

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(Keller et al., 1998) and introduced it to the health department staff.²⁵ The Intervention Wheel provided a common language for the interdisciplinary staff of the department to communicate about the true nature of their work. Instead of “doing home visits” and “going to meetings”, staff were able to describe their work as health teaching or counseling and collaboration or policy development. The Intervention Wheel strengthened the description of PHN practice and offered a meaningful common language for public health educators, social workers, and epidemiologists.

The Intervention Wheel has been and continues to be integrated into the daily practice of the department. The language of the Wheel is used in population-based care and management protocols to describe possible interventions with individuals and families. For the first time, these protocols have been expanded to include a community/systems focus. For example, the Care and Management Protocol (2000) for the Postpartum Family identified community/systems interventions for coalition building: (a) perinatal services, (b) networking, (c) NTC, a coalition to keep young moms in school, and (d) a breastfeeding coalition. Documentation flow sheets also include the intervention language. Staff daily reports identify the specific intervention and practice level for each activity, which is directly entered into a database. In times of shrinking fiscal resources, the ability to describe the essence of public health has strengthened administration’s position to preserve public health staff and their important work.

The Intervention Wheel is an integral and concrete method for orienting new public health staff to their practice arena. The compilation of best practices in a manual has become a key resource for new public health

nurses. The Intervention Wheel is also currently being used to update job descriptions and design performance planning and appraisal tools.

Documentation

The Wisconsin Division of Public Health is using the Intervention Model as the basis for Secure Public Health Electronic Record Environment (SPHERE), a new Web-based data reporting system.²⁶ SPHERE utilizes all 17 interventions. For coding purposes, the intervention of policy development and enforcement is divided into two separate interventions, policy development and policy enforcement. In SPHERE, activities are entered at all three levels of practice: Individual/Household, Community, and Systems. Public health staff selects an intervention, then a subintervention category within that intervention, and then the subintervention within that category that best describes the activity that occurred. For example, “Abuse and Neglect,” a subintervention category of case finding, includes the subinterventions of “Child Abuse and Neglect, Domestic Violence or Elder Abuse.” Table 6 illustrates an example of selected subintervention categories for three interventions.

Linking Grant

A Division of Nursing grant, “Linking PHN Practice and Education to Promote Population Health,” was awarded to the Center for PHN at the Minnesota Department of Health for 2001 to 2004. This grant provided support to

TABLE 6. *Secure Public Health Electronic Record Environment (SPHERE) Documentation—Selected Sub-Intervention Categories*

| Disease and other health investigation | Referral and follow-up | Counseling |
|--|---------------------------------------|-----------------------------------|
| Acute and communicable disease: non-reportable | Basic needs/support | Access to care |
| Acute and communicable disease: reportable | Community resources | Alcohol, tobacco, and other drugs |
| Acute and communicable disease: sexually transmitted infections | Education and vocation resources | Health hazards |
| Acute and communicable disease: toxic substance-related diseases | Health benefits and funding resources | Injuries and violence |
| Deaths | Health care services | Mental health |
| Emergency response | | Nutrition |
| Other | | Sexual behavior |
| | | Social and economic factors |

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TABLE 7. *Linking Public Health Nursing Practice and Education to Promote Population Health*

| Linking project | Project focus |
|--|---|
| Bi-State Prairie Project* | An experienced agency partnered with a four county agency, new to hosting students, to promote population-based clinical experiences for SDSU students that contribute to the goals of the health departments' public health plans. Students can do their public health practicum in their hometown community. Students incorporate the Intervention Wheel and Cornerstones of Public Health Nursing into their clinical assignments. |
| Henry Street Consortium† | The consortium developed a set of core competencies for PHNs that encompass the needs of both the workforce and schools of nursing and a "menu" of clinical learning experiences for students in all of the participating health departments. The clinical experiences relate to public health plans and offer opportunities to assess identified populations, reflect on the three levels of practice and prevention, and address the broad determinants of health. Students document evidence of their competencies in a portfolio to be used as a curriculum guide by schools and as documentation of public health nursing competencies for employment. |
| NorthStar Cornerstone Project‡ | Clinical experiences focus on community assessment. Student activities, assignments, projects, and seminar discussions apply the community assessment process or address the priority needs identified in the assessment. Together health department staff and faculty plan clinical experiences for students to observe and participate in the roles of the PHN as identified in the document, <i>Public Health Interventions: Applications for Public Health Nursing Practice</i> . |
| Partners with Passion for Public Health§ | Partners designed a student "logbook" to help students analyze their experiences related to interventions, levels of prevention, levels of practice, essential services, cornerstones, and public health plans. The students use the logbook to communicate with their instructor and preceptor. Additional activities included the development of population-based opportunities for students, a list of projects relevant to community priorities that students could design and implement, and a resource guide of materials/media useful in supporting population-based practice. |
| South Central Linking PHN Education and Practice Project¶ | Focusing on community assessment, students collect and analyze data and then select methods of change from three levels of practice and three levels of prevention to meet health department priorities. Faculty jointly developed a generic framework to introduce students to the cornerstones of public health nursing and the criteria for population-based practice. |

PHN, public health nurse.

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†Schools: Augsburg College, Bethel College, Metropolitan State University, College of St. Catherine, University of Minnesota; Agencies: Anoka, Bloomington, Carver, Chicago, Dakota, Isanti, Kanabec, Minnesota Visiting Nurse Association, Ramsey, Scott, Sherburne, Washington, Wright.

‡Schools: Bemidji State University, College of St. Scholastica; Agencies: Fond du Lac Human Services, Leech Lake Public Health Nursing Agency, Itasca County Health and Human Services, St. Louis County Public Health Department, Polk County Public Health Department.

§School: Winona State University (WSU)/Winona Campus; Agencies: Wabasha, Winona, and Houston Counties; School: WSU/Rochester Campus; Agencies: Dodge and Olmsted Counties; School: Augsburg College; Agency: Olmsted County.

¶School: Minnesota State University (MSU); Agencies: Blue Earth, Brown, Freeborn, LeSueur, Nicollet, Sibley; School: Minnesota Intercollegiate Nursing Consortium (MINC-St. Olaf College and Gustavus College; Agencies: Nicollet, Rice, Sibley, Steele.

bring together 14 schools of nursing and 35 local and tribal health departments to facilitate the development of regional project teams.²⁷ These teams have developed new models of clinical experiences that effectively prepare nursing students to practice population-based PHN. The grant supported five local linking projects that all include

several schools of nursing and local and tribal health departments (Table 7).

CONCLUSION

Public health nurses across the United States are using the Intervention Wheel in innovative ways to guide population-based public health practice. Publication of the original model in 1998, the subsequent validation of the interventions through an extensive literature review and

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critique by experts, and a national grant all contributed to effective dissemination of the Intervention Wheel. Practitioners, educators, and managers have responded enthusiastically to the Intervention Wheel because it provides a language to describe, organize, explain, and document the work of public health. The Intervention Wheel is a straightforward and comprehensive practice model that is transforming the public health's capacity to improve the health of populations.

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