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Population-Based Public Health Interventions: Practice-Based and Evidence-Supported. Part I

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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. 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/public health nursing practice, education, and administration. The two articles provide a foundation and vision for population-based public health nursing practice and direction for improving population health.

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

In this era of relentless change, the public health system is challenged to describe the full breadth and scope of public health practice. The Intervention Wheel, previously known as the Public Health Intervention (PHI) Model and more commonly known as "The Wheel," is a graphic illustration of population-based public health practice. It depicts how public health improves population health through interventions with communities, the individuals and families that comprise communities, and the systems that impact the health of communities. This article is the first of two articles that focus on population-based practice.

Keller, Strohschein, Lia-Hoagberg, and Schaffer (1998) originally proposed the Intervention Wheel in 1998 as a model for population-based public health nursing practice. During the past 5 years, public health nurses throughout the United States have utilized the Intervention Wheel in practice, teaching, and management. Health departments that are moving toward population-based practice are using the Intervention Wheel as a basis for orientation, documentation, job descriptions, performance evaluations, program planning/evaluation, and

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budgeting. Schools of nursing have integrated the Wheel into public health nursing curricula in innovative ways. Public health nurses around the country have endorsed the Intervention Wheel as a means to claim and describe the full scope and breadth of their practice. The use of the Wheel has empowered nurses to explain in a better way how their practice contributes to the improvement of population health (Part II).

The original 17 public health interventions that comprise the Wheel were first identified through a grounded theory process. However, they were not subjected to a systematic review of evidential support in the literature. A federal grant allowed a rigorous critique of the model that involved hundreds of public health nurses. The process validated the Intervention Wheel and also added a new dimension to the use of the model by delineating basic steps and best practices for each intervention.

This article introduces the revised Intervention Wheel and the evidence linking it to practice. It also describes the factors that led to the changes in the model, the systematic process used to integrate evidence from literature into the practice base of the model, and the linkages between the model and public health practice. This work is important because it provides research and/or practice-based evidence that can and should be used as a foundation for effective public health nursing practice.

POPULATION-BASED, PRACTICE-BASED, EVIDENCE-SUPPORTED

The fundamental premise underlying the Intervention Wheel is that it is "population-based." Keller, Schaffer, Lia-Hoagberg, and Strohschein (2002) proposed a definition of population-based practice: it focuses on entire populations, is grounded in community assessment, considers all health determinants, emphasizes prevention, and intervenes at multiple levels. A review of the literature indicates numerous references and recent work in this area. Public health nursing leaders have highlighted population-based practice, sometimes referenced as population-focused practice, as a way to address the current and future needs in health care systems (Gebbie & Hwang, 2000; Williams, 2000). A population-focused practice is advocated as a way to recapture Lillian Wald's vision of nursing in the community (Peters, 1995). There is also continuing discussion to clarify and describe population-focused or population-based nursing and public health (Baldwin, Conger, Abegglen, & Hill, 1998; Ibrahim, Savitz, Carey, & Wagner, 2001). In addition, Kosidlak (1999) described the implementation of a significant organizational change from a primary care clinic practice to a population-based public health practice.

The Intervention Wheel is "practice-based" because it originated from an extensive analysis of the actual work of practicing public health nurses. Public health nurses traditionally described their work by where they practiced. Examples include school nurse, clinic nurse, and home-visiting nurse. Over 200 public health nurses from a variety of practice settings (clinics, coalitions, correctional facilities, daycares, group homes, homes, hospitals, schools, shelters, and worksites) described "what" nurses actually did (Keller et al., 1998). The analysis of those data clearly identified a common core of the work of public health nursing, regardless of practice setting. This common core consisted of 17 interventions. The other key finding of the analysis was that public health nurses described working with communities, individuals and families, as well as the systems that impacted the health of the community. The interventions and the levels of practice combined to create the practice-based Intervention Wheel. This qualitative approach to describing the practice of public health nursing was used by Zerwekh (1992) in interviews with expert public health nurses. Another interpretive study by Diekemper, SmithBattle, and Drake (1999a, 1999b) focused on nurses' experiences as they worked to develop a population-focused practice.

The Intervention Wheel is "evidence-supported" because it is verified by sound science and effective practices. The need for evidence-supported practice has been advocated for the past decade in public health and other health care fields. Review of the literature indicates that many practice disciplines and policy makers emphasize the need for interventions based on research, sound evaluations, and evidenced-based practice (Ciliska, Chambers, Hayward, James, & Underwood, 1996; Greenhalgh, 1997; Ingersoll, 2000; Jennings & Loan, 2001). Evidence of effectiveness is stressed as an important factor in the selection and use of population or community interventions (Barriball & Mackenzie, 1993; Deal, 1994; Bialek & Flake, 1995; Puska, 2000). Currently, however, the literature provides few tested, usable frameworks for public health nursing practice.

THE INTERVENTION WHEEL

The Intervention Wheel is composed of three distinct elements of equal importance (Fig. 1). First, the model is population-based. Second, the model encompasses three levels of practice (community, systems, and individual/family). Third, the model identifies and defines 17 public health interventions. Each intervention and level of practice contributes to improving population health (Table 1).

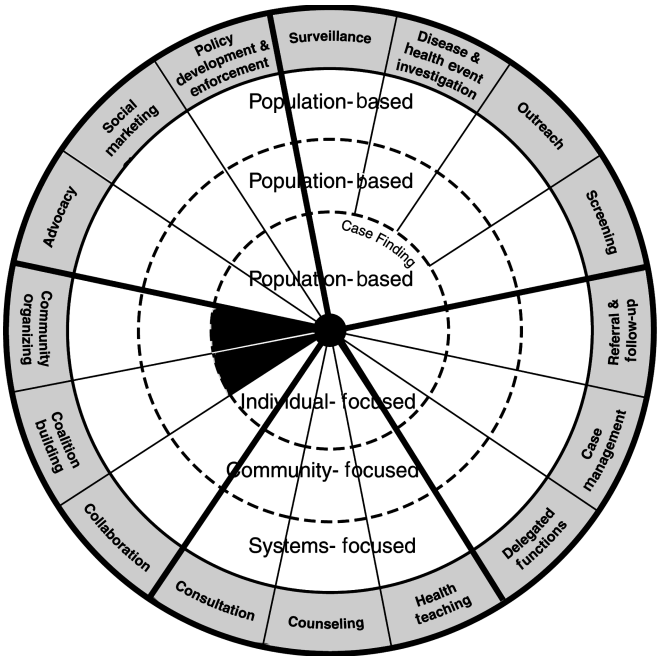

Figure 1. Intervention Wheel.

POPULATION-BASED

Interventions are actions public health nurses use to improve the health of populations. The assumption underlying intervention selection is that it focuses on entire populations, is grounded in an assessment of community health, considers the broad determinant of health, emphasizes health promotion and prevention, and intervenes at multiple levels.

Focus on Populations

Population-based public health practice focuses on entire populations that possess similar health concerns or characteristics. This includes everyone in a population who is actually or potentially affected by a health concern. Population-based interventions are not limited to only those who seek service, are poor, or otherwise vulnerable. For example, a population of adolescents includes all adolescents in the community, not just those who are referred to a health department.

Public health practitioners generally work with two types of populations. A "population-at-risk" has a common identified risk factor or exposure that poses a threat to health. For example, the goal to decrease preterm births rates is population-based if the focus is on all pregnant women, not just low-income pregnant women or women in a health department's caseload. The other type of population is a "population-of-interest." A population-of-interest is a population that is essentially healthy, but whose health status could be enhanced or protected. While public health programs have traditionally been problem-focused, there is a growing recognition that promoting protective factors is just as important as reducing risk factors. For example, many youth development programs increase assets, such as social competencies or refusal skills, which protect adolescents from engaging in high-risk behaviors.

Assessment of Community Health Status

A community assessment identifies and describes a community's unique health status, protective factors, risk factors, problems, and resources. The assessment also identifies relevant cultural and ethnic characteristics that must be considered in order to develop culturally relevant interventions. A community assessment process assesses the health status of all populations for all health-related areas in the community, regardless of whether the local health department has responsibility or programmatic efforts in those areas. The prioritization of assessment results serves as the foundation for planning how public health and the community will address these public health issues (Keller et al., 2002).

Broad Determinants of Health

Determinants of health are all the factors that promote or prevent health (Wilkinson & Marmot, 1998; Health Canada, 1999). Population-based practice considers everything that influences health, not just personal health risks or clinical factors related to disease. There are numerous health determinants such as income, social status, housing, nutrition, social support networks, personal health practices and coping skills, employment and working conditions, neighborhood safety, education, physical environments, social environments, healthy child development, health services, biology and genetic endowment, culture, and gender.

Emphasizes Health Promotion and Prevention

Population-based practice addresses health promotion and all levels of prevention, with an emphasis on health promotion and primary prevention. "Health promotion is commonly defined as a process for enabling people to take control over and improve their health" (Health Canada, 2002). "Prevention is anticipatory action taken to prevent the occurrence of an event or to minimize its effect after it has occurred" (Turnock, 2001). Not every event is preventable, but every event does have a

TABLE 1. *Public Health Interventions with Definitions*

Public health intervention	Definition
Surveillance	Describes and monitors health events through ongoing and systematic collection, analysis, and interpretation of health data for the purpose of planning, implementing, and evaluating public health interventions [adapted from MMWR, 1988].
Disease and other health event investigation	Systematically gathers and analyzes data regarding threats to the health of populations, ascertains the source of the threat, identifies cases and others at risk, and determines control measures.
Outreach	Locates populations-of-interest or populations-at-risk and provides information about the nature of the concern, what can be done about it, and how services can be obtained.
Screening	Identifies individuals with unrecognized health risk factors or asymptomatic disease conditions in populations.
Case finding	Locates individuals and families with identified risk factors and connects them with resources.
Referral and follow-up	Assists individuals, families, groups, organizations, and/or communities to identify and access necessary resources in to prevent or resolve problems or concerns.
Case management	Optimizes self-care capabilities of individuals and families and the capacity of systems and communities to coordinate and provide services.
Delegated functions	Direct care tasks a registered professional nurse carries out under the authority of a health care practitioner as allowed by law. Delegated functions also include any direct care tasks a registered professional nurse judges entrusts to other appropriate personnel to perform.
Health teaching	Communicates facts, ideas, and skills that change knowledge, attitudes, values, beliefs, behaviors, and practices of individuals, families, systems, and/or communities.
Counseling	Establishes an interpersonal relationship with a community, a system, and family or individual intended to increase or enhance their capacity for self-care and coping. Counseling engages the community, a system, and family or individual at an emotional level.
Consultation	Seeks information and generates optional solutions to perceived problems or issues through interactive problem solving with a community, system, and family or individual. The community, system, and family or individual select and act on the option best meeting the circumstances.
Collaboration	Commits two or more persons or organizations to achieve a common goal through enhancing the capacity of one or more of the members to promote and protect health [adapted from Henneman, Lee, and Cohen "Collaboration: A Concept Analysis" in *J. Advanced Nursing* Vol 21 1995: 103–109].
Coalition building	Promotes and develops alliances among organizations or constituencies for a common purpose. It builds linkages, solves problems, and/or enhances local leadership to address health concerns.
Community organizing	Helps community groups to identify common problems or goals, mobilize resources, and develop and implement strategies for reaching the goals they collectively have set [adapted from Minkler, M (ed) *Community Organizing and Community Building for Health* (New Brunswick, NJ: Rutgers University Press) 1997; 30].
Advocacy	Pleads someone's cause or act 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.
Social marketing	Utilizes commercial marketing principles and technologies for programs designed to influence the knowledge, attitudes, values, beliefs, behaviors, and practices of the population-of-interest.
Policy development	Places health issues on decision-makers' agendas, acquires a plan of resolution, and determines needed resources. Policy development results in laws, rules and regulation, ordinances, and policies.
Policy enforcement	Compels others to comply with the laws, rules, regulations, ordinances, and policies created in conjunction with policy development.

preventable component. Prevention occurs at primary, secondary, and tertiary levels:

1 Health promotion fosters resiliency and protective factors. Health promotion targets essentially well populations.
2 Primary prevention protects against risks to health. It keeps problems from occurring in the first place. It reduces susceptibility and exposure to risk factors and is implemented before a problem develops.
3 Secondary prevention detects and treats problems in their early stages. It keeps problems from causing serious or long-term effects or from harming others. It identifies risks or hazards and modifies, removes, or treats problems before they become more serious. Secondary prevention is implemented after a problem has begun but before signs and symptoms appear. It targets populations that have risk factors in common.
4 Tertiary prevention limits further negative effects from a problem. It keeps existing problems from getting worse and alleviates the effects of disease and injury. It restores individuals to their optimal level of functioning. Tertiary prevention is implemented after a disease or injury has occurred and targets populations that have experienced disease or injury.

Multiple Levels of Practice

The last criterion for population-based practice is that public health nurses intervene at multiple levels of practice: community, systems, and individual/family.

LEVELS OF PRACTICE

Public health interventions may be directed at entire populations within a community, the systems that affect the health of those populations, and/or the individuals and families within those populations. With only a few exceptions that will be discussed later, the model assumes that all public health nurses use the interventions at all three of these levels. Interventions at each level of practice contribute to the overall goal of improving population health.

At the time the Intervention Wheel was developed, public health nurses were being challenged to explain how services such as home visiting fit within a population-based model. Public health nurses have traditionally documented their work with individuals and families for reimbursement, reporting, or productivity purposes. However, public health nurses' work with communities and systems has equal, if not more, impact on improving population health. The Intervention Wheel encompasses public health nurses' work with communities and systems, not to the exclusion of individuals and families, but in combination with them.

Population-based system-focused practice changes organizations, policies, laws, and power structures. The focus is on the systems that impact health, not directly on individuals and communities. Changing systems is often a more effective and long-lasting way to impact population health than requiring change from every individual in a community. An example of systems level of practice is a public health nurse who works with health care providers and schools to establish immunization standards that they all agree to follow. Another example, driven by the increasing evidence of the benefits of breastfeeding, is the policy work public health nurses do with worksites to establish breastfeeding policies and breastfeeding rooms. Other public health nurses facilitate coalitions that lobby city councils for ordinances regulating cigarettes sales to youth.

Population-based community-focused practice changes community norms, community attitudes, community awareness, community practices, and community behaviors. It is directed toward entire populations within the community or occasionally toward target groups within those populations. Community-focused practice is measured in terms of what proportion of the population actually changes. Examples of community level practice include coalitions that change a community's tolerance for adults giving alcohol to minors, a media campaign supporting a community norm that "good parents take their kids in for their shots on time," and screening all school-age children for vision and hearing to identify those children who would benefit from early intervention.

Population-based individual-focused practice changes knowledge, attitudes, beliefs, practices, and behaviors of individuals. This practice level is directed at individuals, alone or as part of a family, class, or group. Examples of individual/family practice are case management of frail elderly, home visits to improve parenting skills, immunizations at a clinic, administering Mantoux tests in a jail, facilitating a caregiver support group, and teaching classes on preventing sexually transmitted infections.

Services to individuals and families are population-based only if they meet these two specific criteria: individuals receive services because they are members of an identified population and those services clearly contribute to improving the overall health status of that population. Public health professionals determine the most appropriate level(s) of practice based on community need and the availability of effective strategies and resources. No one level of practice is more important than another; in fact,

most public health issues are addressed at all three levels, often simultaneously.

For example, all three levels of practice may be used to address the problem of domestic abuse during pregnancy. The population of interest for this problem is all pregnant women; the health status goal is to reduce the incidence of domestic abuse. A media campaign to change community awareness about domestic abuse during pregnancy is an example of a community-focused strategy. For instance, public health nurses collaborate with pharmacists to include inserts on prenatal abuse and community resources when packaging all prenatal vitamin prescriptions. Recent media campaigns have included targeted outreach in women's bathrooms, especially behind the doors of the stalls, which are "safe" places to post messages for women in unsafe relationships. These women often report that they dare not stop and look at any message directed to them while they are with their partners. At the systems level, public health nurses collaborate with health plans, medical clinics, and the Women, Infant, and Children's Food Supplement Program (WIC) to assess the safety of pregnant women using a consistent screening instrument and protocol. Women may not respond to safety questions at first, but hearing the same questions from various providers at repeated times in the pregnancy provides multiple points at which the women may seek help. At the individual level of practice, public health nurses make home visits to women involved in domestic abuse situations who have been referred to them by law enforcement. The public health nurses assess the situation, discuss options, refer to community resources, and negotiate an acceptable safe plan (Fig. 2).

INTERVENTIONS

Interventions are actions taken on behalf of communities, systems, individuals, and families to improve or protect health status. The 17 interventions are surveillance, disease and other health investigation, outreach, screening, case finding, referral and follow-up, case management, delegated functions, health teaching, consultation, counseling, collaboration, coalition building, community organizing, advocacy, social marketing, and policy development and enforcement. Public health nurses implement these interventions at all three levels for almost all of these interventions (with the exception of case finding, which only occurs with individuals, and coalition building and community organizing, which only occur with communities and systems).

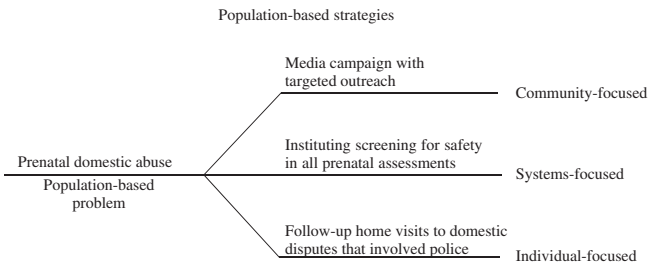

Figure 2. Population-based Strategies.

The interventions are grouped into five "wedges." The five wedges are:

1. Surveillance, disease and other health event investigation, outreach, screening, and case finding;
2. Referral and follow-up, case management, and delegated functions;
3. Health teaching, counseling, and consultation;
4. Collaboration, coalition building, and community organizing;
5. Advocacy, social marketing, and policy development and enforcement

The wedges are placed so their order reflects their relationship. The surveillance intervention is positioned at the top of the wheel, as surveillance is where most public health work begins.

It is important to note that the Intervention Wheel describes the breadth of public health practice and that other public health disciplines such as nutritionists, health educators, planners, physicians, and epidemiologists use these same interventions, frequently in interdisciplinary teams. Public health nurses, however, utilize the following assumptions in their use of the interventions: (1) all public health interventions are population-based; and (2) the public health nursing process applies at all levels of practice. These assumptions are critical to the selection and use of the interventions.

THE SEARCH FOR THE EVIDENCE

The original intent of the Intervention Wheel was to give public health nurses the means to describe the full scope and breadth of their practice. It created a structure for identifying and documenting interventions performed by public health nurses, captured the nature of their work, and gave public health nursing a voice. Both the practice and academic communities enthusiastically embraced the Intervention Wheel. As adoption and utilization of the model increased, the Section of Public Health Nursing of the Minnesota Department of Health (MDH) recognized that the model could be enhanced by a thorough investigation of the existing evidence that supported the Intervention Wheel.

In July 1998, the Section of Public Health Nursing received a federal Nursing Special Project grant, "Public Health Nursing Practice For The 21st Century" to promote population-based public health nursing practice. Part of that grant included a rigorous critique of the Intervention Wheel and synthesis of the evidence relevant to the interventions in the literature. The goal of the critique process was to examine the evidence underlying the interventions and levels of practice. The following questions guided the process: (a) did the 17 interventions encompass the breadth of public health practice; (b) did the interventions occur at all levels of practice; (c) were there missing interventions, or were there public health nursing activities that could not be classified into the existing interventions; (d) were there overlaps or duplications among the interventions; (e) did the evidence support the original definitions; and (f) how could these interventions be implemented with excellence. This process incorporated approaches that were refined in the Minnesota Practice Enhancement Project, which included identification of evidence-supported public health nursing practice guidelines (Strohschein, Schaffer, & Lia-Hoagberg, 1999). The entire process was carried out in a series of phases over an 18-month period. Figure 3 outlines the process that was followed, which involved hundreds of public health nurses throughout the nation.

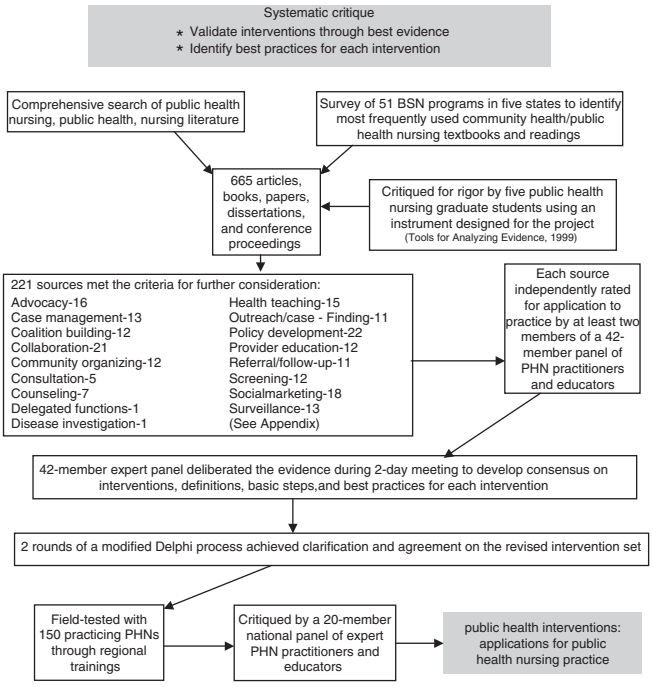

Figure 3. Systematic Critique.

RESULTS OF THE EVIDENCE CRITIQUE

The extensive critique resulted in minor modification of the Intervention Wheel. The expert panelist review provided the following answers to the questions that guided the critique process.

(a) Did the 17 interventions encompass the breadth of public health practice?

The expert panel agreed that the Intervention Wheel captures the breadth and scope of the work of population-based public health nursing. The revised model retains its practice-base but also reflects the evidence that emerged from extensive literature review and expert panel critique. The Intervention Wheel provides a solid foundation for public health nursing practice that integrates public health nursing research with public health nursing practice expertise.

(b) Did the interventions occur at all levels of practice?

The assumption for the original interventions was that all the interventions occurred at all levels. The revised model reflects the three interventions that are exceptions to this assumption. The evidence supports that coalition building and community organizing are implemented only at the community and systems levels. Therefore, the individual level is blocked out on the Wheel for these two interventions. Also, the evidence supports that case finding occurs only with individuals and families. Case finding is actually the individual/family level of practice for surveillance, disease and other health event investigation, outreach, and screening, and is not implemented with communities and systems. As a result of this evidence, case finding appears only in the individual/family level of the Wheel and is the only intervention not located on the outside ring.

(c) Were there missing interventions or public health nursing activities that could not be classified into the existing interventions?

There were no missing interventions, although there was a recommendation that the original "policy development" intervention be expanded to "policy development and enforcement" to reflect the experts' strong consensus that without enforcement, policy development is ineffective.

(d) Were there overlaps or duplications among the interventions?

While the expert panelists determined that the interventions were distinct and separate, they also concluded that many of the interventions were interrelated, or tended to frequently occur simultaneously or sequentially. As a result, the interventions on the outside of the wheel were reordered to show their relationship. (The original model positioned interventions on the wheel by alphabetical

order). In addition, several of the interventions were modified:

1 Provider education was integrated into the health-teaching intervention, recognizing that provider education is actually health teaching at the systems level;
2 Delegated medical was expanded and renamed "delegated functions" to reflect the public health nursing responsibility for delegating to others as well as accepting delegation;
3 Disease investigation was expanded to "disease and other health event investigation" to encompass other threats to health including acts of bioterrorism, chemical or other hazardous waste spills, and natural disasters.

(e) Did the evidence support the original definitions?

The evidence confirmed the definitions of the interventions. Several of the definitions were clarified, streamlined, and strengthened.

(f) How could these interventions be implemented with excellence?

The expert panelists used the evidence to identify basic steps and, more importantly, recommend best practices for each intervention. Best practices, based on Marek's definition of practice guidelines, are "recommendations for what is thought to be best at a given point in time and reflect the science on which the intervention is based" (Marek, 1995; p.14). Use of best practices increases the likelihood of a public health nurse's success in implementing an intervention. A significant challenge to documenting the best practices was a lack of evidence. Many practices of public health nursing are either not researched or, if they are researched, not published. This project recognized this limitation and met the challenge with the use of expert practitioners and educators. Therefore, the best practices for the interventions are a combination of research and other evidence from the literature and/or the collective wisdom of experts. Table 2 outlines an example of a set of best practices, some supported by evidence and others supported by practice expertise.

TABLE 2. *Best Practices for Referral and Follow-up*

Best practice	Evidence
Successful implementation is increased when the: PHN respects the client's right to refuse a referral.	McGuire, Eigsti Gerber, Clemen-Stone (expert opinion); Wolff (expert opinion); Will (expert opinion); Stanhope and Lancaster, 1984 (text)
PHN develops referrals which are timely, merited, practical, tailored to the client, client-controlled, and coordinated.	Wolff (expert opinion)
Client is an active participant in the process and the PHN involves family members as appropriate.	McGuire, Eigsti Gerber, Clemen-Stone (expert opinion); Wolff (expert opinion); Will (expert opinion); Stanhope and Lancaster, 1984 (text)
PHN establishes a relationship based on trust, respect, caring, and listening.	Expert Panel Recommendation
PHN allows for client dependency in the client–PHN relationship until the client's self-care capacity sufficiently develops.	McGuire, Eigsti Gerber, Clemen-Stone (expert opinion)
PHN develops comprehensive, seamless, client-sensitive resources that routinely monitor their own systems for barriers.	Expert Panel Recommendation
	[McGuire, S., Eigsti Gerber, D., Clemen-Stone, S. (1996). Meeting the diverse needs of clients in the community: Effective use of the referral process. *Nursing Outlook, 44*(5), 218–22. Stanhope, M., & Lancaster, J (1984). *Community health nursing: Process and practice for promoting health*. St. Louis: Mosby, 357. Will, M. (1977). Referral: A process, not a form. *Nursing 77*, 44–55. Wolff, I. (1962). Referral – a process and a skill. *Nursing Outlook, 10*(4), 253–2]

PUBLIC HEALTH INTERVENTIONS: APPLICATIONS FOR PUBLIC HEALTH NURSING PRACTICE

The results of this extensive critique are published in the manual *Public Health Interventions: Applications for Public Health Nursing Practice* (Minnesota Department of Health, 2001). For each of the 17 interventions, the manual presents: a definition of the intervention, examples of the intervention at the three levels of practice, the relationship between the intervention and the other interventions, basic steps (how to do this intervention), best practices (how to do this intervention with excellence), best evidence (citations and abstracts for the articles and texts that were reviewed by the expert panel), and "Notes from Abby" (resources, tips, and related research findings for enhancing public health nursing practice).

CONCLUSION

The evidence critique, which involved hundreds of public health nurses, resulted in a more robust Intervention Wheel. The practice-base of the Intervention Wheel appeals to the character and spirit of public health nurses and its evidence links public health nursing practice to its underlying research and expert knowledge. State and local health departments and schools of nursing throughout the nation are applying the Intervention Wheel in a variety of innovative ways. Part II, which follows, highlights real-life applications of how the public health nursing community is using the Intervention Wheel to advance population-based practice.

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APPENDIX

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