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Fostering Collaborative Evidence-Based Decision-Making: The Public Health Nurse's Role

By

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Abstract

The Canadian Nursing Association promotes the use of evidence-based decision-making (EBDM) as a component of quality nursing care. A shift to a population health approach encourages public participation in health-related decision-making. Public health nurses (PHNs) participate in joint health-related decision-making with community partners. The purpose of this exploratory and descriptive study was to gain an in-depth understanding of EBDM from the perspective of the PHN. The meaning of EBDM, the perceived barriers and facilitators of using evidence, and the role of the PHN in bringing evidence to the joint decision-making process that they share with community partners was explored. A qualitative methodology known as ethnography was used and data were collected from two sources: observations at team meetings and semi-structured interviews with PHNs. Analysis of the data led to the identification of three sub-themes: holistically knowing the community, bridging 'evidence' to context, and actively managing information. All three sub-themes contribute to the main theme: the PHNs' role in fostering collaborative 'evidence-based' decision-making in the community. The PHNs' holistic view of evidence, which includes hard and soft data, contextual data and professional experience, is discussed. Basic steps in a shared EBDM process are described and dimensions of the context in which PHNs practice are explored. Implications for education, practice, research, and policy are discussed.

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CHAPTER I INTRODUCTION

The National Forum on Health (1997) stated that the establishment of a culture of evidence-based decision-making (EBDM) in health services is a key goal of the health system for the 21st century. Numerous nurse scholars have voiced demands for evidence-based practice (EBP) and EBDM (Estabrooks, 1999a; Hickey, Ouimette, & Venegoni, 1996; Tenove, 1999). The Canadian Nurses Association's (CNA) policy statement on *Evidence-based Decision-making and Nursing Practice* emphasizes that using evidence to make practice decisions is an important element of quality nursing (Canadian Nurses Association, 1998).

Public Health Nurses (PHNs), a distinct group of community health nurses who work in official public health units, face different decision-making challenges than hospital based nurses (Bryans & McIntosh, 1996; Hansen & Thomas, 1968). A paradigm shift from a medical model to a Primary Health Care model of nursing has occurred (Laffrey & Craig, 2000; Rodger & Gallagher, 2000). As a result, the focus of practice for public health nursing has shifted to a population health approach with increased community participation and intersectoral collaboration in decision-making regarding the delivery of health promotion/illness prevention programs (Stewart, 2000). In addition, decentralization of decision-making in the health care system has led to an increase in public participation in health care decision-making at the community level. Public health nurses collaborate and participate in joint decision-making with partners (groups, coalitions, networks, councils) to set community priorities and plan health initiatives. They need to use evidence as the basis of their decision-making, and when collaborating with partners, they need to be able to bring evidence to that collaborative or joint decision-making process. CNA defines evidence as "information based on historical or scientific evaluation of a practice," and types of evidence include: "experimental (randomized clinical

trials, meta-analysis, and analytic studies); non experimental (quasi-experimental, observational); expert opinion (consensus, commission reports); and historical or experiential" (CNA, 1998, p.2).

Background

Evidence-based practice and EBDM have been described as emerging phenomena (French, 2000) and have received a great deal of attention in the past ten years. Origins of the EBP movement in nursing come from evidence-based medicine (EBM) (Jones et al., 1996; Kitson, Ahmed, Harvey, Seers, & Thompson, 1996; Newman, Papadopoulos, & Sigsworth, 1998). Some researchers believe that the principles from EBM are relevant or useful to nursing and public health practice (Brownson, Gurney, & Land, 1999; DiCenso, Cullum, & Ciliska, 1998; Glasziou & Longbottom, 1999), while others believe they are not for a number of reasons (Castledine, 1997; Clarke, H. F., 1999; Kitson, 1997a; Newman et al., 1998). These include: concerns that EBM relies too heavily on randomized controlled trials (RCTs) and systematic reviews; EBM may lead to a devaluing of the role of clinical expertise; and EBM may lead to 'cookbook' medicine. DiCenso, Cullum and Ciliska (1998) suggested that evidence-based practice is not really something new, as nurses have been using research evidence for years even though it has not been called EBP.

French (1999) described EBP as being problem-based and involving a combination of the practitioners' current experience, the context of the situation, and the best available evidence. She defined it as, "the systematic interconnecting of scientifically generated evidence with the tacit knowledge of the expert practitioner to achieve a change in a particular practice for the benefit of a well-defined client patient group" (French, 1999, p.74). Tacit knowledge refers to a practitioner's knowledge (Easen & Wilcockson, 1996). Jones (1996) stated that EBP is the result

of implementing evidence-based decisions, and Duff, Kitson, Seers and Humphris (1996) suggested that EBP requires EBDM.

The National Forum on Health (1997) defined EBDM as "the systematic application of the best available evidence to the evaluation of options and to decision-making in clinical, management and policy settings." The CNA (1998) defined it as "the explicit, conscientious and judicious consideration of the best available evidence in the provision of health care" (p.1). EBDM is not based solely on evidence, nor is it 'value free', but it is influenced by individual values, interests and judgements of the decision-maker, as well as the situational context and external pressures and conditions (National Forum on Health, 1997).

There is a major area of debate in the literature regarding the types and sources of evidence to be considered in EBDM. Although the randomized control trial (RCT) has been the 'gold standard' of evidence, other types of evidence also provide important and sound sources of information (National Forum on Health, 1997). Closs and Cheater (1999) stated that RCTs are not synonymous with evidence and others agree that a much broader range of evidence than scientific research should be considered in EBP in nursing (Estabrooks, 1998; Goode & Piedalue, 1999). Rafael (2000) stated that nurses need to determine what counts as evidence in nursing practice and she stated "we need to become more aware of non-evidential determinants of practice that affect and limit our clinical decision-making" (p.9).

Another area of debate revolves around the meaning of best available evidence. Estabrooks (1998) states that nursing does not have the answer to that question yet "nor is there necessarily one correct answer"(p.30). Evidence is always changing and requires constant seeking, evaluating, synthesizing, and reframing to fit the context. The context and the individuals involved are always changing as well. What is best evidence today may not be best tomorrow,

and what worked in one situation may not work in another. According to J. B. Clarke (1999), the best available evidence means using the full range of evidence available, including practitioner experience and clinical anecdotes to RCTs, systematic reviews and meta-analyses. Clarke (1999) states that these sources of knowledge "should not be in competition but where possible be mutually supportive and informative" (p.92).

A number of factors have encouraged decision-makers to focus energy on EBDM at this time. Some of the factors cited by the National Forum on Health (1997) include: increased access to new information and knowledge due to advances in technology, and an explosion of information requiring skilled professionals to evaluate, clarify and synthesize often conflicting or ambiguous information. Other benefits include: (a) increasing professionalism and demonstrating the value of nursing (Estabrooks, 1998; Kitson, 1997b); (b) improving individual and organizational performance (Castledine, 1997); (c) providing cost-effective high quality care (French, 2000; Taylor-Piliae, 1998); (d) maximizing use of limited health-care resources (Goode et al., 1999; Tenove, 1999); and (e) improving client outcomes (Camiletti & Huffman, 1998). Two additional benefits of importance in public health nursing practice are that the use of EBDM has the potential to enable PHNs to develop more relevant programs (French, 1999), and that the use of EBDM can provide support and demonstrate the importance of primary prevention (Camiletti et al., 1998).

There have also been various accounts of the challenges encountered when implementing EBP in nursing (Kitson, 1997b; Mitchell, 1997; Mulhall, 1998; Naish, 1997; Rafael, 2000; Rafferty, Allock, & Lathlean, 1996). Health care practitioners face difficulties related to their increased access to large amounts of information. It is challenging to keep up with the latest evidence. Glasziou and Longbottom (1999) stated, "we all experience an information overload,

but in the deluge often do not get the best available evidence for policy or daily decision-making" (p.436). Even when PHNs do keep up, they face the task of assessing the quality of the evidence. Determining what is the best available is complicated because often the evidence available is of varying degrees of rigour, requiring the practitioner to spend a considerable amount of time assessing and comparing pieces of evidence. A concern of particular importance for public health practice is that the best available evidence may not be relevant for the local community (Poland, Boutiler, Tobin, & Badgley, 2000, p.12).

The scope of practice and the roles and activities of the public health nurse described by the Canadian Public Health Association (CPHA, 1990) suggest that public health nurses have the potential to play a central role in the development of an evidence-based health system. Of key importance is the fact that they work in collaboration with community coalitions and networks, other professionals, voluntary organizations, self-help groups and informal health care providers, as well as with individuals and families. In addition to using evidence for their individual decision-making, PHNs can play a key role in bringing the best available evidence to the numerous collaborative decision-making processes in which they are involved.

The National Forum on Health (1997) describes a vision of an evidence-based health system in which "decision-makers at all levels of the health system are able to get access to relevant and timely information on population health strategies and both medical and non-medical health determinants" (p.8). They emphasize the necessity of having universal access to information, and the importance of skills, technology and tools to use that information or evidence in decision-making. The CNA (1998) states that individual nurses have the responsibility for contributing to the development of strategies that promote EBP and EBDM, and they have "the primary responsibility for evaluating and promoting evidence in the context of their practice" (p.1).

There is a need to develop the capacity of individuals and organizations to use evidence-based decision-making (Canadian Nurses Association, 1999; Glasziou et al., 1999; National Forum on Health, 1997). A review of existing literature on decision-making in public health nursing and the use of evidence in decision-making by public health nurses reveal a limited knowledge base related to EBDM. In addition, no framework was found to represent and guide the study of the EBDM process in the context of public health nursing practice. An exploration of the public health nurses' perspective regarding these issues will provide a beginning understanding of EBDM in public health nursing. Identifying the barriers to and facilitators of EBDM is an essential part of the foundational work needed to support capacity building for EBDM in public health nursing practice.

There were a number of assumptions that the researcher had at the beginning of this study. These included: the belief that evidence-based decision-making is an important competency for professional nursing practice; research is the strongest type of evidence for EBDM; and PHNs participate in joint decision-making with community partners.

Purpose

Understanding EBDM from the PHN's perspective will provide a comprehensive insider's view of EBDM in public health nursing practice. The objectives of this study are to explore the PHNs' understanding of EBDM in public health nursing practice, to describe PHNs' use of evidence in joint decision-making when collaborating with community partners, and to identify the barriers to and facilitators of EBDM.

Summary

This chapter has highlighted the importance of understanding the EBDM process in public health nursing and summarized some definitions and benefits of EBDM and EBP. A lack of

foundational knowledge hinders the development of effective strategies to promote EBDM by PHNs.

Thesis Outline

In Chapter II, the context for public health nursing practice in Ontario and literature related to decision-making and research utilization are discussed. Existing models and frameworks relevant to EBDM are examined and a proposed conceptual framework for EBDM in public health nursing is presented. In Chapter III, the descriptive, exploratory methodology based on an ethnographic tradition is described. In Chapter IV, the data collected from observations and interviews are summarized. The key theme and related sub-themes, derived from the data, are presented. Chapter V includes a discussion of the findings; a description of the study's limitations; and a summary of the implications and recommendations for practice, policy, education and research.

CHAPTER II LITERATURE REVIEW

The literature review described in this chapter focuses on EBDM in nursing and, more specifically, in public health nursing practice. The areas explored in this literature review include: (a) the context for public health nursing practice in Ontario, (b) an overview of the research-utilization and decision-making literature, (c) the elements or variables influencing research utilization and decision-making, (d) the barriers to and facilitators of research utilization and EBDM, and (e) the models and processes relevant to understanding EBDM. Findings from the literature review are used to develop a proposed conceptual framework for EBDM in public health nursing.

The review involved searching CINAHL, HEALTHSTAR and MEDLINE databases for the years from 1980 – 2000. The key words used were "evidence", "evidence-based", "research utilization", "research-based practice", "public health", "public health nursing", "public health nursing practice", "community health nursing", "decision-making", and "dissemination." Additional search strategies included: on-line searches for authors known to publish in this area, such as Lauri, Kitson, and Estabrooks; identification of relevant references from each article retrieved; and hand searches of relevant journals.

Context of Public Health Nursing

The context of nursing practice has been studied by many researchers (Baumann & Bourbonnais, 1982,1983; Benner, 1983; Henry, Schmitz, Reif, & Rudie, 1992; Pardue, 1987; Thompson & Sutton, 1985), and its influence on decision-making has been noted (Jenks, 1993). Public health nursing has been described as a unique nursing speciality (Lauri & Salantera, 1995,1998; Lewis, 1997) with a distinctive culture of its own (Schulte, 2000; SmithBattle, Diekemper, & Drake, 1999). Understanding the guiding principles for public health practice and

the expected standards of professional practice provide insights into the current context for public health nursing practice.

PHNs are community health nurses who work within the organizational structure of a Public Health Unit (Baumgart & Larsen, 1992). The Canadian Public Health Association (CPHA) (1998) discusses seven strategic principles that guide health promotion in Canada and public health nursing practice. These include: addressing health issues in context, supporting a holistic approach that recognises the broad determinants of health, having a long term perspective, having a balance between centralized and decentralized decision-making, using a multisectoral approach, drawing on both formal and experiential knowledge, and emphasizing public accountability.

The CPHA (1990) document, *Community Health/Public Health Nursing in Canada: Preparation and Practice,* provides a comprehensive description of the professional expectations of public health nurses practising in Canada. The roles, activities, and skills described by the CPHA provide a picture of the scope of practice for public health nurses (see Appendix A). PHNs are involved in a wide variety of activities related to health promotion and illness prevention. A number of these roles involve providing care to communities, consulting, collaborating, facilitating, advocating, and promoting community development. Some of the skills used to carry out these roles and activities include: team-building to foster collaborative, multidisciplinary relationships with peers, colleagues, individuals, families and communities; decision-making using the nursing process; and "joint decision-making with clients and community" (CPHA, 1990, p.12).

In Ontario, public health professionals currently use a population health approach to deliver a number of mandatory health promotion, and illness and injury prevention programs. These

programs address the broad determinants of health. The *Mandatory Health Programs and Service Guidelines* (Ontario Ministry of Health, 1989) describe the scope and minimum standards of public health practice. Rafael, Fox and Bewick (2000) reported the results of a recent survey that was mailed to all nurses who had indicated their place of employment as public/community health on their 1998 registration with the College of Nurses of Ontario. A reasonable response rate (77%) was reported and 1744 nurses were included in the their sample. Of these, 1360 (78%) were PHNs. The remainder of the sample consisted of other RNs, managers, nursing and program directors and those that gave no position or listed some other position. The survey results indicated that PHNs in Ontario are using a population health approach and strategies that involve community partners in health promotion and illness prevention activities.

The PHNs working in the adult health division of the City of Ottawa Health Department use a framework for health department programs (Appendix B) as a guide to program planning. The framework identifies key strategies for promoting collective capacity for health action. These strategies include building partnerships by: fostering coalitions; developing and supporting networks; mobilizing community action; adding health action to group agendas; and developing health awareness in policy makers (Region of Ottawa-Carleton Health Department, 2000). PHNs practising in this setting have the mandate to work with community partners and they are encouraged to bring health information and evidence to community partners and policy makers. However, we know little about how they use evidence-based decision-making in the community setting or how they use evidence in joint decision-making.

Research Utilization and Decision-making

The literature related to research utilization and decision-making reveals a number of

interrelated elements or variables that influence these processes. A number of barriers to and facilitators of research utilization and EBDM have also been identified. In addition, several processes, models and frameworks have been proposed to describe research utilization and decision-making in nursing and, to a lesser extent, in public health nursing. Many of the articles reviewed highlight the close relationship between research utilization and decision-making and discussed the use of research findings in decision-making (Lomas, 1993). Appendix C and D show a representative summary of the research utilization and decision-making literature reviewed for this study.

Overview of the Research Utilization Literature

Researchers agree that the effective transfer of research evidence into practice is very complex and inconsistent (Ciliska, Hayward, Dobbins, Brunton, & Underwood, 1999; Hatcher & Tranmer, 1997; Rafferty et al., 1996). An examination of that literature related to research utilization revealed limited generalizability to public health nursing practice. The majority of research utilization studies and interventions in nursing have focused on barriers and facilitators, but these studies were mostly related to nursing in acute care settings (Dufault, Bielecki, Collins, & Willey, 1995; Edwards-Beckett, 1990; Goode, Lovett, & Hayes, 1987; Hodnett et al., 1996; Pearcey & Drapper, 1996; Rutledge & Donaldson, 1995; Tranmer, Kisilevsky, & Muir, 1995). There has been a limited focus on research utilization in public health nursing practice (Champion & Leach, 1989; Funk, Champagne, Wiese, & Tornquist, 1991; Hatcher et al., 1997). The research utilization studies that were conducted in a community health (CH) or public health nursing setting (Camiletti et al., 1998; Ciliska et al., 1999; Glasziou et al., 1999; Lia-Hoagberg, Schaffer, & Strohschein, 1999; Mitchell, Janzen, Pask, & Southwell, 1995; Stolk & Mayo, 1995; Strohschein, Schaffer, & Lia-Hoagberg, 1999) will be emphasized in the discussion of the key

elements, barriers and facilitators, and processes and models of research utilization. The majority of the studies used quantitative methods, and the most frequently used data-collection tools were self-report questionnaires (Funk, Tornquist, & Champagne, 1995; Lacey, 1994; Pearcey, 1995; Pettengill, Gillies, & Clark, 1994; Rizzuto, Bostrom, Suter, & Chenitz, 1994). Questionnaires have the advantage of capturing general information from large samples, may have high reliability and validity, and they facilitate comparisons of decision-making across settings and countries. However, poor response rates (less than 63%) were common (Champion & Leach, 1989; Funk et al., 1991; Hatcher et al., 1997; Luckenbill Brett, 1989; Rizzuto et al., 1994).

Overview of the Decision-making Literature

Decision-making based on evidence is desired (Kitson & Currie, 1996; Nutbeam, 1996), yet some authors have argued that clinical decisions are rarely based on evidence (Goode et al., 1999). Decision-making in nursing has been described as a complex issue that is not well understood (Dobbins, Ciliska, & Mitchell, 1998; Lemmer, Grellier, & Steven, 1999). In addition, the research on decision-making has been described as being of poor quality and "the overall picture characterizing nursing's own research knowledge based on decision-making and the types of information within it is one of breadth but with a lack of commensurate depth" (Thompson, 1999, p.818).

The decision-making literature examined the influence of numerous variables, factors or elements on clinical decision-making (Benner, 1984,1987), and these variables will be discussed in the next section of this thesis (Corcoran, 1986; Dwyer, Schwartz, & Fox, 1992; Hughes & Young, 1990; Lemmer, Steven, & Grellier, 1998; Luker & Kenrick, 1992; Pardue, 1987; Rew, 1988; Tanner, Padrick, Westfall, & Putzier, 1987; Varcoe & Hilton, 1995). A number of the studies discussed the processes used in decision-making (Benner, 1984,1987; Boblin-Cummings,

Baumann, & Deber, 1999; Brownson et al., 1999; Bryans et al., 1996; Lauri, 1992; Orme & Maggs, 1993; Thiele, Holloway, Murphy, Pendarvis, & Stucky, 1991; White, Nativio, Kobert, & Engberg, 1992), and several studies focused on conceptual frameworks or models that describe the decision-making process (Garre, 1992; Hansen et al., 1968; Lauri et al., 1995,1997; Lewis, 1997).

The same methodological weaknesses found in the research utilization literature were also found in the decision-making literature. For example, many studies used survey methods with self-report questionnaires (Dwyer et al., 1992; Lauri et al., 1997; Lauri et al., 1995,1998; Pardue, 1987). Many had small, non-random samples, poor response rates and/or used paid volunteers (Corcoran, 1986; White et al., 1992), limiting external generalizability.

A number of data collection methods were used singly or in combination. These included: questionnaires (Dwyer et al., 1992; Lauri et al., 1997; Lauri & Salantera, 1998; Lemmer, 1998; Lemmer et al., 1998); interviews (Baumann et al., 1982; Benner, Tanner, & Chesla, 1996; Kenrick & Luker, 1996; Thompson et al., 1985); focus groups (Boblin-Cummings et al., 1999); hypothetical case studies (Lewis, 1997); observations (Luker et al., 1992; Tanner et al., 1987; Watson, 1994); and 'thinking aloud' verbal recall methods (Aitken & Mardegan, 2000; Corcoran, 1986; Fonteyn & Fisher, 1995). Questionnaires are less expensive, require less time, and offer complete anonymity. However, the use of interviews to collect data offers a number of advantages (Polit & Hungler, 1997). These include higher response rates, potential to provide additional information from observations, and less chance of misinterpretation of questions.

Several studies found in the literature used qualitative methodologies to examine the "invisible cognitive processes" nurses use when making decisions (Boblin-Cummings et al., 1999; Corcoran, 1986; Jenks, 1993; Luker et al., 1992). Jenks (1993) conducted a naturalistic

inquiry into the phenomenon of nurse clinical decision-making. Although her sample consisted of 23 nurses working in an acute care setting, her findings were relevant to public health nursing decision-making. She found that for the nurses in her study, clinical decision-making was a social phenomenon dependent on the nurses' relationships with patients, other nursing staff, and physicians, and it was situation and context dependent. In examining decision-making for PHNs who work with community partners and participate in joint decision-making, the interactive and social factors involved in decision-making, as well as the situation and context, need to be considered.

In the Boblin-Cummings, Baumann, and Deber (1999) study, 14 focus groups with 64 nurses who worked in hospitals, visiting nurse agencies, and public health, explored the nature of decision-making in nursing. The focus groups were audio-taped and transcribed, and ethnographic content analysis was used to code and categorize the data. The use of concept mapping and matrices to display the data assisted the authors in examining, comparing, and contrasting concepts and identifying patterns. Although they purposively sampled nurses from very diverse settings (hospital, community and public health), responses were combined rather than compared across settings.

The acute care setting has been the focus of most of the studies about clinical decision-making (Lauri et al., 1998). However, the CH/PHN setting has received more attention in the past few years (Boblin-Cummings et al., 1999; Brownson et al., 1999; Bryans et al., 1996; Langley, 1997; Lauri, 1992; Lauri et al., 1997; Lauri et al., 1995; Lemmer et al., 1999; Lemmer et al., 1998). Studies undertaken in the CHN/PHN setting will be emphasized in the following discussion of the key elements, processes and models, and barriers and facilitators related to decision-making.

Elements Known to Influence Research Utilization and Decision-making

Research Utilization Elements

The most commonly cited elements involved in research utilization in nursing include: (a) the individual practitioner characteristics, (b) organizational factors, (c) environmental factors, (d) other aspects of the context, and (e) the nature of the evidence (Brunton et al., 1997; Dobbins et al., 1998; Kitson et al., 1996; Kitson, Harvey, & McCormack, 1998). In addition, Kitson, Harvey and McCormack (1998) cited facilitation as a key element involved in research utilization.

According to Dobbins, Ciliska and Mitchell (1998), any one of the first three elements (individual, organizational, and environmental) may be significant in one setting but not in another. For example, they state that organizational size is an important factor in hospital settings, but not in public health departments. There is also a general consensus in the literature that organizational characteristics are significantly associated with research utilization more often than individual or environmental characteristics (Dobbins, 1998; Hunt, 1996; Kitson et al., 1996; Luckenbill Brett, 1989; Royle, Blythe, Ciliska, & Ing, 2000; Stocking, 1992). However, the lack of research utilization studies focused on public health nursing raises questions about the generalization of findings to that setting. Only one of the research utilization studies that Dobbins, Ciliska and Mitchell (1998) included in their systematic review was based on a public health nursing setting (Stolk et al., 1995), and that study was rated as being methodologically weak.

Varcoe and Hilton (1995) studied the relationships between organizational and individual factors and staff nurses' use of research. The organizational context was influential, but individual characteristics of the nurse sometimes mediated this influence. Both Dobbins, Ciliska and Mitchell's (1998) and Varcoe and Hilton's (1995) studies support the need to take a holistic

approach in studying research utilization. They argue that there is a need to consider both organizational and environmental context in any study of the individual practitioner factors involved in research utilization.

The need to take a holistic approach in studying research utilization, that is to consider all the elements influencing it, is also supported by Kitson, Harvey and McCormack (1998). They stated that the three 'core' elements involved in research utilization are the evidence, the context, and facilitation. Evidence includes the combination of research, clinical experience and patient preferences. The context concerns the environmental variables of culture, leadership roles and measurement. The facilitation element pertains to the characteristics, role and style of the facilitator. According to these authors, each of the components of the three core elements can range from low to high support for the implementation of research in practice. Kitson et al. argued, "that instead of a hierarchy or linearity of cause and effect, each of these dimensions has to be considered simultaneously" (p.150). Their definitions of the context and the evidence include aspects of the five elements of decision-making discussed previously. However, facilitation is a new element. Facilitators are defined as "typically external experts in the management of change who work with teams to help them introduce new research based practices." According to Kitson et al., external and internal facilitators have the ability to compensate for either poor or low evidence and contextual conditions. They stated that this facilitator role, and the element of facilitation, has not received much attention. In their preliminary analysis, they suggested that facilitation may exert a substantial influence on implementation, but they cautioned against generalizing this finding, as we do not know the relative contribution of each element. They suggested that more rigorous studies, which consider all the elements influencing the research utilization, need to be conducted.

Decision-making Elements

There are many factors involved in decision-making in nursing practice (Dobbins et al., 1998) and some of them have received more attention than others (Royle et al., 2000). The key variables identified in the literature can be grouped into five categories including: (a) decision-maker variables, (b) environmental variables, (c) organizational variables, (d) information-based variables, and (e) the complexity of the decision.

Decision-maker variables have received the most attention. Included in this category are the study of items such as: clinical expertise, cognitive and intuitive processes (Benner, 1984; Benner, 1987; Corcoran, 1986; Watson, 1994); past experience and knowledge (Baumann et al., 1982; Kerrigan, 1991; Lauri et al., 1997; Lauri et al., 1998; Pardue, 1987); personal values and attitudes (Dobbins et al., 1998; Kerrigan, 1991; Tranmer, Coulson, Holtom, Lively, & Maloney, 1998); decision-making skills (Pardue, 1987); and individual differences (Dobbins et al., 1998; Lewis, 1997).

Environmental variables studied include the context in which the decision occurs, task complexity, practice context and political interests (Bryans et al., 1996; DiCenso et al., 1998; Dobbins et al., 1998; Lauri et al., 1997; Lewis, 1997; Rafael, 2000; Thompson, 1999). Organizational variables include the support of the organizational environment as evidenced by infrastructure and processes (Dobbins et al., 1998; Lewis, 1997; Tranmer et al., 1998).

Information-based variables have received quite a bit of attention in the last five years. This category includes measures of the availability and quality of evidence, and the dissemination and transfer of evidence (DiCenso et al., 1998; Dobbins et al., 1998; Lewis, 1997; Thompson, 1999; Tranmer et al., 1998).

Another element or group of variables is the influence of others on clinical decision-making.

Luker and Kenrick (1992) studied community nurse decision-making in the United Kingdom using a comprehensive strategy that included observations, home visits, interviews, group discussions and scrutiny of nursing records. In their exploratory study, a convenience sample of 47 CHNs identified 35 sources of influence on their decision-making. The majority of the sources of influence cited were from practice-based knowledge (57.5%), which included clinical experience (82%) and situational variables (76%). Another interesting finding was that the CHNs identified discussions with colleagues and other health professionals as 2 of 35 sources of influence on clinical decision-making. More recently, the recognition of the need to involve another group of others (i.e. stakeholders) in decision-making regarding health care has been emphasized (Butcher, 1997). However, there are no studies looking at the influence of these other individuals on the decision-making process. There is a gap in our understanding regarding this element.

In public health nursing practice, the influence of others who participate in joint decision-making needs to be examined. An exploration of PHNs' perceptions regarding the joint decision-making process and the partners involved will provide some background information. It may give some insight into: identifying variables that might affect the joint decision-making process; determining whether power differentials, formal training, access to resources, and/or experience with joint decision-making affect the process; and determining how evidence is incorporated in joint decision-making. Exploring this issue with PHNs will help us understand the joint decision-making process that they share with community partners. It will add to our understanding of the elements affecting joint decision-making, and it will contribute to the development of the culture of evidence-based decision-making that the National Forum on Health (1997) promotes.

Summary of the Elements

A number of elements influencing research utilization and decision-making have been identified and studied. Table 2-1 presents a table of the elements identified as influencing research utilization and decision-making. Dobbins, Ciliska and Mitchell (1998) stated that research utilization behaviours and decision-making variables are related, but very little is known about interactions among the elements. Exploring the elements involved, and their interactions, is an important foundation for understanding evidence-based joint decision-making in public health nursing practice.

TABLE 2-1
Identified Research Utilization and Decision-making Elements

Research Utilization Elements	Decision-making Elements
Individual Practitioner Characteristics	Decision-Maker Variables
Environmental Factors	Environmental Variables
Organizational Factors	Organizational Variables
Setting or Context	Information-Based Variables
Nature of the evidence	Nature of the Nursing Task
Facilitation	Discussions with Others

Barriers and Facilitators Known to Influence Research Utilization and Decision-making

Barriers to and Facilitators of Research Utilization

A number of barriers to and facilitators of research utilization have been identified in public health nursing. Stolk and Mayo (1995) used a survey to determine the perceived barriers to research utilization by staff PHNs in South-western Ontario. The greatest barriers to research utilization identified included: (a) the contextual barriers related to the nurse's lack of time to read research, insufficient time on the job to implement new ideas, feelings that she/he did not

have enough authority to change patient care procedures, and beliefs that physicians will not cooperate with implementation; (b) individual barriers related to the nurse not feeling capable of evaluating the quality of the research; and (c) the accessibility related to the PHN's view that relevant literature is not compiled in one place and that research reports/articles are not readily available. Other items rated as substantial barriers by over half of the PHNs included: difficulty understanding statistical analyses; lack of awareness of research; concern that results may not be generalizable to the PHN setting; facilities that are inadequate for implementation; and uncertainty about implications for practice. The validity of these findings is questionable due to the methodological difficulties the authors noted in the questionnaire they used. It was originally designed for use in an acute care setting, and the scale did not function as well in the PHN setting. The researchers recommended that future research focus on developing an appropriate and valid tool for assessing barriers to and facilitators of research utilization by PHNs.

Camiletti and Huffman's (1998) study of PHNs from the Middlesex-London Health Unit supports Stolk and Mayo's (1995) finding that time was the greatest identified barrier to research utilization. However, they also found that nurses' attitudes towards research utilization as a component of daily practice affected their research utilization behaviour. They stated that the time barrier may fade into the background when research utilization is valued by the PHNs. A positive attitude towards research has also been described as one of the most influential factors in determining whether or not decision-making is evidence-based (Tranmer et al., 1997). Camiletti and Huffman (1998) also identified a lack of computer skills as a barrier to research utilization. Less than half (47.5%) of the PHNs knew how to use word processing software. They stated that PHNs will be able to access existing data bases on the internet only as they become more proficient in using computers. However, the facilitating effects of using computers to improve

access to quality research evidence may not be as beneficial as anticipated. Harden, Peersman, Oliver, and Oakley (1999) stated that conducting a systematic search via electronic databases "is a highly complex, skilled and time-consuming task" (p.298) and "that substantial effort is required to conduct comprehensive searches of the evidence in health promotion" (p.300). Manske, Lovato, Shoveller, and Velle (2000) stated that public health staff need more than quality materials such as online journals and Internet access. They need skills to make the most use of electronic media.

Many strategies to facilitate the use of research in nursing practice have been described in the literature (Edwards-Beckett, 1990; King, Barnard, & Hoehn, 1981; Logan & Graham, 1998; Tranmer et al., 1995). However, the use of these strategies has had only minimal to moderate positive influence on actual research use (Kitson, 1999). Two strategies that have been successfully used in public health are disseminating systematic reviews (Ciliska et al., 1999) and providing practice guidelines containing research-based information (Lia-Hoagberg et al., 1999; Strohschein et al., 1999). Lia-Hoagberg, Schaffer and Strohschein (1999) identified the availability of administrative support and structure, a simplified clinical practice guideline format and mentorship on guideline use as facilitators of research use.

The Canadian Nurses Association (1999) sponsored a meeting in February 1999 that facilitated the development of a research agenda based on Estabrooks' (1999a) framework that maps the research utilization field. The purpose of the integrated research agenda was to guide the development of the needed content for a proposed Canadian Nurses Knowledge Network (CNKN). The CNA identified a need to build capacity in the research utilization field, and they recommended a more comprehensive review to identify current research activity and to determine research priorities. A commitment has been made by the CNA to focus energy and

attention on developing the knowledge base related to the research utilization field in nursing.

Estabrooks (1999b) stated, "despite more than two decades of investigation, our accumulated knowledge about what influences the use of research by clinicians is meagre" (p.758). She developed a set of structural equation models to look at 26 concepts thought to affect research utilization by nurses, and found that only three of the 26 concepts exerted a significant effect on research utilization. These included a positive attitude toward research, belief suspension, and number of in-services attended. Belief suspension was measured by looking at participant responses to six questions examining their willingness to use research findings when they contradicted information acquired prior to, in, or after nursing school. Estabrooks concluded that our study of the determinants (barriers and facilitators) of research utilization is underdeveloped and this limits the design of effective strategies to increase research utilization in nursing practice. Understanding the nature of research utilization by PHNs within the public health setting could provide direction for the development of instruments to identify barriers and facilitators.

Barriers to and Facilitators of EBP and EBDM

Simpson (1996) classified the barriers to EBP as: (a) attitudes, including personal beliefs about EBP and about the nurse's ability to find, read and critique research; (b) resources, including time, availability of information, usefulness of information, access to information, access to consultants and change agents; and (c) support, including institutional and administrative commitment to research utilization, and effective management of change.

Ciliska, DiCenso, and Cullum (1999) classified the barriers to using evidence in practice as individual, organizational, environmental and informational factors. Appendix E presents a list of recognized barriers to EBP and EBDM classified according to Ciliska's et al. four categories.

The variables most recognized and discussed in the literature include: the individual barriers related to a lack of time and skills; the information-based variables related to access to information or evidence; environmental variables related to resources, political interests and opportunities for professional development; and organizational variables related to leadership and support.

Brownson, Gurney, and Land (1999) discussed the barriers and facilitators for the implementation of evidence-based public health (EBPH). The barriers identified included: a lack of leadership in setting a clear and focused agenda for EBPH; a lack of time to gather information, analyze data, and review the literature for evidence; a lack of comprehensive, up-to-date information on the effectiveness of programs and policies; a lack of data on the effectiveness of many public health interventions; a short term view for program implementation and evaluation; and external pressures that drive the process away from an evidence-based approach.

Royle and Blythe (1998) stated that research utilization is more likely if multifaceted interventions targeted at individual, organizational and environmental variables are used. The same holds true for the use of evidence in decision-making. Comprehensive strategies that target as many specific barriers as possible are more likely to foster EBDM. Appendix F presents a list of suggested facilitators of EBP and EBDM.

Training in information management and the provision of appropriate information resources are recognized facilitators that can improve evidence-based decision-making in nursing (Reid, 1999; Royle, Blythe, DiCenso, Baumann, & Fitzgerald, 1997). One initiative that facilitates access to quality evidence is the *Evidence-based Nursing Journal* published by the Centre for Evidence-Based Nursing in the United Kingdom and Canada. The purpose is to provide high

quality, critically appraised, clinically relevant research in a user-friendly format. In addition to abstracts, the journal provides commentaries from nurses that address the relevance to clinical practice of each new piece of research. The use of systematic reviews and clinical guidelines and many of the other facilitators to research utilization are also facilitators of EBP and EBDM.

Manske et al. (2000) suggested that in addition to providing quality information, practitioners need skills to access electronic resources as well as skills in searching, appraising and synthesizing evidence. Royle et al. (2000) evaluated a system that provided information resources to nurses. Their results suggest that peer mentorship, organizational support, and collaboration were the most effective strategies for promoting the use of that information system. Nurses were willing to use information systems if they were relevant to their needs and user friendly. Less is known about whether nurses' use of those information systems has a positive impact on their use of evidence in decision-making.

In the public health setting, primary research on effectiveness is not always easily accessible, and Harden (1999) recommends the need for wide dissemination of search strategies and specialized registers of health promotion studies. Clarke (2000) suggested that CHNs participate in the development of a health information system to provide them with data to support EBDM.

Comprehensive strategies that provide more than just computer training and resources are required to foster EBDM (Reid, 1999). Manske et al. (2000) suggested that educational systems need to foster skill development to enable practitioners to manage information in the most effective and efficient ways. There is limited information about decision-making in public health nursing included in current textbooks used in the education of new nurses.

In their activities related to decision-making, PHNs facilitate communities to actively participate in determining their health issues, and as community developers, they promote

community involvement in decision-making (CPHA, 1990). As a team member and collaborator, the public health nurse uses strategies to promote "joint decision-making in all interactions with the public, peers and colleagues." (CPHA, 1990, p.10) A review of the literature regarding decision-making and public health nursing indicates that there has not been very much attention focused on understanding this complex process, and there has been no attention focused on understanding joint decision-making with community partners. No reference to barriers to and facilitators of the use of evidence in joint decision-making was found in the literature.

The lack of research regarding decision-making, and especially joint or shared decision-making, by PHNs is a challenge that needs to be addressed. Exploration of the elements, development of conceptual models, and identification of the barriers to and facilitators of joint decision-making and evidence-based decision-making are needed. Knowledge regarding these issues will provide guidance for developing effective strategies to foster EBDM by public health nurses. Incorporation of that knowledge into the texts and educational programs for new PHNs will foster a culture of EBDM.

Models, Frameworks and Processes Related to Research Utilization and Decision-making

Numerous theoretical frameworks and conceptual models have been developed and used to describe, and in some cases facilitate, the research utilization and decision-making processes in nursing. Again, the public health setting has received little attention and there are few public health nursing frameworks or models (Brownson et al., 1999; Bryans et al., 1996; Camiletti et al., 1998; Hansen et al., 1968; Lauri et al., 1997).

Camiletti and Huffman (1998) describe the use of a model for the utilization of research findings in public health nursing at the Middlesex-London Health Unit. The model they used was targeted towards the individual public health nurse. It did not consider the influence of

community partners sharing in the decision-making process regarding the use of research evidence as the basis of those joint decisions. In public health nursing practice, the PHN's relationship with community partners who participate in joint decision-making adds to the complexity of the research utilization process, and none of the models or frameworks here has considered this variable.

Decision-making is a highly complex phenomenon (Lauri et al., 1998). Decisions within decisions, as well as decision activities that occur simultaneously (Boblin-Cummings et al., 1999), contribute to the complexity of the decision-making process. The literature indicates that the public health nursing decision-making process is different than decision-making by hospital based nurses (Bryans et al., 1996; Hansen et al., 1968). In addition to describing the decision-making process, numerous models and frameworks have been developed and studied to aid in the conceptualization of this complex process (see Table 2-2).

Hansen and Thomas (1968) presented one of the earliest conceptualizations of public health nursing decisions. They grouped all the factors that influence decision-making into three constellations: (a) situational variables, (b) contextual variables, defined as the context or the conditions when the decision is made, and (c) decision-maker variables. Their schematic representation of a public health decision shows the interrelatedness of the many variables. More recently, Lauri (1992), Lauri and Salantera (Lauri et al., 1995,1998), and Lauri et al. (Lauri et al., 1997) have conducted several studies examining the individual PHN's decision-making processes. However, they did not examine the role of the PHN in decision-making with groups or with community partners.

Gallaher (1999) used phenomenological methodology to study expert PHN practice and described it as a complex tapestry. She stated that we need to be very cautious about generalizing

from models and concepts developed in different contexts than the public health setting. The context for Byrans and McIntosh's (1996) analysis is very different than that of public health nursing practice and the applicability of this conceptual base to public health practice has not been explored.

Dobbins et al. (1998) developed a conceptual framework for research dissemination and utilization in nursing. They showed a number of factors that mediated the relationship between the dissemination and the utilization of research. The mediating factors included individual, organizational and environmental variables. Dobbins et al. stated that we have very little knowledge about how each factor interacts with the others or how the decision-making process in general interacts with individual, organizational, environmental and cultural characteristics. They discussed the importance of understanding both individual and organizational decision-making in research dissemination and utilization. Dobbins et al. stated, "decision-making may have a significant impact on the process of transferring research evidence into practice, and therefore should be included in models of research dissemination and utilization" (p.19). However, they do not include decision-making in their framework. They state, "Until there is greater understanding of the links between these mediating factors, dissemination strategies and research utilization, there will be limited opportunities to make significant progress in evidence-based decision-making and practice"(p.31).

The existing models and frameworks related to research utilization and decision-making provide some foundational knowledge relevant to EBDM in PHN practice. They demonstrate the complexity of the relationships between our ability to use research evidence, personal experience and client preferences (Kitson, 1999). The models highlight the importance of the individual practitioner context and demonstrate the depth of understanding and knowledge that is required

about individual adopters or practitioners and the many influences on their research-utilization behaviour. These models do contribute to our understanding of EBDM, but none of them addresses the current public health nurse's context. The existing frameworks and models do not consider the influence of community partners who share in decision-making with PHNs.

Proposed Conceptual Framework for EBDM in PHN

Within the qualitative research community there is much debate about the role of theory (Mitchell & Cody, 1993). Porter (1996) argued that pure inductive reasoning or reliance on data to generate theory "leads to a tendency for researchers to continually re-invent the wheel" (p.332). Descriptive and theoretical literature is there to be used and "researchers should make the most of it, without allowing it to predetermine the outcome of their research" (p.332). Concepts from the frameworks and models discussed in the literature reviewed aided in the conceptualisation of a framework for EBDM in public health nursing. The proposed conceptual framework guided the choice of methods.

The framework presents a holistic view of all the elements involved in EBDM, including two unique elements not found in the other frameworks and models. Figure 2.1 displays the schematic representation of this framework. The dotted boxed-in area represents the potential sources of barriers and facilitators expected to affect the EBDM process. The largest box in the framework represents the EBDM process from the perception of the PHN. The seven elements in the proposed framework included: the individual PHN, organizational variables, the context, other environmental variables, evidence, others (including peers, stakeholders), and community partners involved in joint decision-making. The public health nurses' role with numerous collaborative partnerships and the importance of joint decision-making warrants the inclusion of community partners as an element in the public health nursing framework.

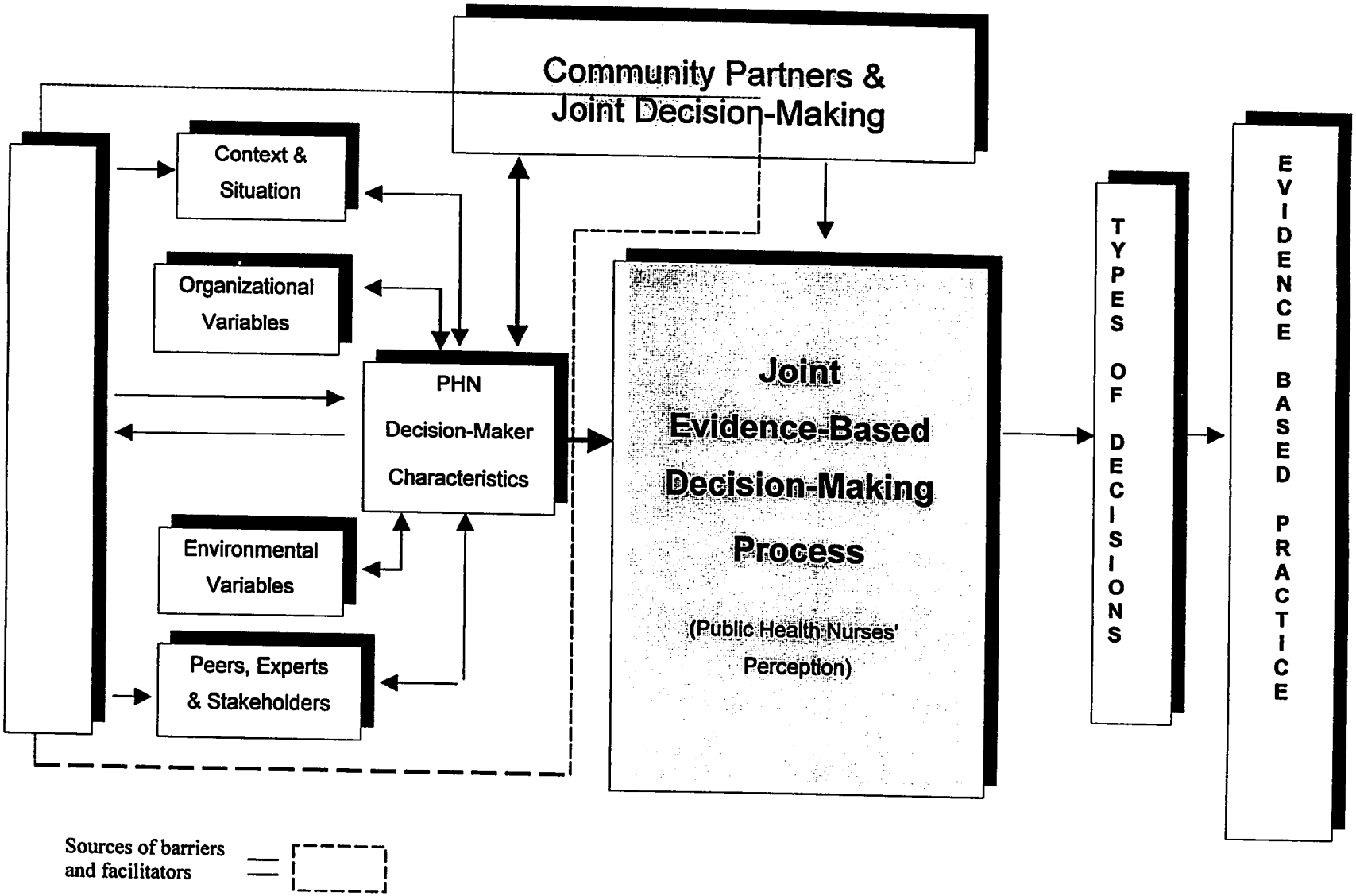


Figure 2.1
Conceptual Framework for Joint Evidence-based Decision-Making in Public Health Nursing Derived from the Literature

The PHNs individual characteristics such as their attitudes, values, interests, skills and experience, are all influencing elements involved in decision-making. Organizational variables refer to the influences of management and the infrastructure of the health department, as well as support and resources available within the organizational practice environment. Context refers to the specific situation in which the decision is being made. Environmental variables refer to those influencing factors outside the organization and the community context for the specific problem or issue. Community partners refer to members of the various groups, and committees and coalitions that the PHNs are involved with in joint decision-making in their practices. Evidence will include the PHNs' interpretation of what evidence encompasses and its key features.

Summary of Literature Review

Recognizing the importance of EBP in public health nursing encourages the profession to build capacity among PHNs to facilitate EBDM. Research utilization studies have focused on nurses in acute care settings, and there is a lack of studies in the public health nursing field. There are few studies on the decision-making process utilized by public health nurses. The literature emphasized the complexity of the EBDM issue but did not provide information about effective strategies to foster EBDM by public health nurses.

A comparison of models and frameworks relevant to understanding EBDM led to the development of a proposed conceptual framework for EBDM in public health nursing. The proposed framework incorporates the PHN perspective, and includes the individual PHN, organizational variables, context, environmental variables, evidence, peers and stakeholders, community partners and the decision-making process. The last two elements are unique because they are not included in any of the other frameworks. Logan and Graham (1998) emphasized the need to view the research utilization process from the perspective of the potential adopters

(practitioners and clients). The current study describes the PHN perspective regarding EBDM and the barriers to, and facilitators of, that process. The study also looks at how PHNs bring evidence to collaborative decision-making situations. While this thesis discusses the role of the PHNs' interactions with community partners in the decision-making process, the community partners' perspectives, while important, are outside the scope of this thesis.

In discussing recommendations for achieving a culture of EBDM in health, the National Forum on Health (1997) emphasized the necessity of having universal access to information and the skills, technology and tools to use that information or evidence in decision-making. Mulhall (1998) asked, "Can practitioners act on the evidence, or are they being made responsible for activities beyond their control?" (p.5). Thompson (1999) recommends that future research in decision-making in nursing "develop an appropriate level of depth to compensate for the apparent breadth of the existing literature" (p.816). This exploratory study aims to increase the depth of nursing knowledge about EBDM in public health nursing from the practitioner perspective.

Research Questions

This study will examine PHNs' perceptions and definitions of evidence and EBDM, and their perceptions of how they bring evidence to the decision-making process when working in partnership with community members. The research questions for this study include:

1. What does evidence-based decision-making mean?
2. How do public health nurses bring evidence to the decision-making process when working in partnership with community members?
3. What are the perceived facilitators of and barriers to using evidence for clinical decision-making in public health nursing?

CHAPTER III METHODS

Using an ethnographic approach, a descriptive, exploratory, qualitative study was undertaken. The research was conducted over a four-month period in a public health nursing setting. Qualitative methods were used for three reasons: knowledge about EBDM by public health nurses is limited; a qualitative approach has the potential to provide a more complete understanding of the complexity of clinical decision-making (Stein, 1991); and the practice of nursing provides an ideal environment for qualitative research using ethnography (Aamodt, 1982; Abdellah & Levine, 1994). Ethnography has been used previously to study public health nurses' perspectives of nursing (Field, 1983) and decision-making in nursing (Stein, 1991).

There are many types of ethnographies and they share several common characteristics (Roper & Shapira, 2000). They are holistic, contextual and reflexive (Boyle, 1994), involve fieldwork and multiple data collection methods, and generate thick description. In addition, data collection and analysis occur simultaneously and, through an inductive approach, data analysis moves from the identification of codes, to categories, to clusters, to themes. Ethnography is an approach to understanding the insider's (emic) view of the phenomena of interest. This study is a micro or mini ethnography (Streubert & Carpenter, 1999) with a specific focus on EBDM in public health nursing practice.

McSkimming (1996) stated that it is crucial for the nursing profession to have a comprehensive understanding of the existing culture in which its professionals practice, and strategies to change and improve practice will be more effective if they are developed from an in-depth understanding of the current culture. In this study, the use of observations and semi-structured, in-depth interviews with public health nurses aided the researcher in focusing on the EBDM culture and obtaining the PHNs' perceptions of the EBDM process.

Sample and Setting

Ten public health nurses working with the City of Ottawa, People Services Department, Public Health and Long Term Care Branch, Chronic Disease and Injury Prevention Division, were recruited. Criteria for inclusion were a minimum of one-year experience as a PHN and having a current position with one of the following programs or teams: Alcohol and Injury Prevention, Community Action for Isolated Seniors, Urban Community Health, Rural Health, Workplace Health Promotion, and Health Protection and HIV Prevention. The study population was chosen because of participants' involvement with community partners, the researcher's clinical experience, and the availability and accessibility of this group of public health nurses.

The researcher attended team meetings in order to maximize opportunities to observe and be exposed to a variety of nurses. The researcher chose which meetings to attend. Nurses were given the opportunity to volunteer for the study. Study participants were also chosen in a deliberate manner, using the technique of maximum variation (Polit & Hungler, 1997) to elicit a wide range of data and obtain a more complete understanding of EBDM. The researcher actively sought out key informants who appeared to have the potential to provide in-depth relevant data.

Ethics

Ethics approval for conducting this study was obtained from the University of Ottawa (see Appendix G) first and then from the Research Ethics Board, Public Health Branch, City of Ottawa (see Appendix H). Several documents were submitted to the program manager for the Adult Health Division for her assessment of desirability, feasibility and approval to conduct this study with the public health nurses in her division. Included in the submission was a letter of introduction to the program manager (Appendix I), a table outlining requested PHN time (Appendix J), a letter of introduction to team/committee meeting members (Appendix K) and a

copy of the study proposal. Approval was given for the researcher to conduct the study with six teams belonging to the Chronic Disease and Injury Prevention Division. Participation by the PHNs who were interviewed in this study was voluntary. Initial informed consent giving written permission to audio-tape participant responses was obtained from the participants at the beginning of each interview and prior to the tape recorder being turned on (see Appendix L). Participants were free to withdraw from the study at anytime. One participant asked to have the tape recorder turned off for a period of 15 minutes during the initial interview. The tape recorder was turned back on only when the participant requested that the researcher continue taping the interview. Privacy, anonymity and confidentiality of participants was maintained during data collection, analysis, and reporting phases of the study. An identification number was assigned to each participant and names did not appear on any forms. All participants were given a copy of their transcript to review prior to a second shorter follow-up interview or phone contact. The transcript was reviewed, clarified, and verified by the participant. Some of the participants chose to make minor corrections and revisions to their transcripts. Some of the participants made numerous changes, mostly grammatical corrections, to their transcript. Participants deleted any statements that they were not comfortable with and inserted statements that they felt better reflected what they were trying to convey. One participant went on sick leave after the first interview and withdrew from the study prior to the follow-up interview. This participant's paper and electronic transcript were destroyed. All other participants initialled that they had revised and clarified their transcript and all transcripts were returned to the researcher.

Procedures and Data Sources

Following the example of Miles and Huberman (1994), and in an attempt to detail the sequence of steps and processes used in this study, a schematic diagram was developed (see

Figure 3.1). The process of conducting the study included numerous tasks and sub-processes and has been divided into three phases to aid in the presentation and description of the methodological process. However, the phases were intimately connected and overlapping. The top of the schematic shows the first phase: beginning with the literature review; coming up with the research question; developing a conceptual framework; choosing the methodology; and developing the proposal. The first phase also involved the development of data collection forms, pilot testing the questionnaire, and choosing qualitative software. The middle section shows the second phase in this study: obtaining ethical approval; entering into the field; and data collection through observations and interviews. The bottom section shows the third phase: data analysis, inductive theme development, and verification of findings with the participants. In reality data collection (phase two) and data analysis (phase three) often occurred simultaneously. Dye, Schatz, Rosenberg and Coleman (2000) used the metaphor of a "kaleidoscope" to describe their analytic process of inductive theme development. The use of that metaphor aided the researcher to seek clarity and make sense of the emerging data. A constant comparison method (Goetz & LeCompte, 1981) of analyzing the data led to the identification of categories and clusters, and eventually, sub-themes and one main theme.

Phase One

Development of Data Collection Forms

Several forms were developed to aid data collection and analysis. The forms were simplified and refined throughout the data collection process to accommodate the researcher's needs and new insights. The forms assisted in the management of all the data gathered throughout the study and aided in the synthesis of the collected material. The forms used for collection, storage and retrieval of notes and reflections included: a recording tool for field notes; a meeting summary

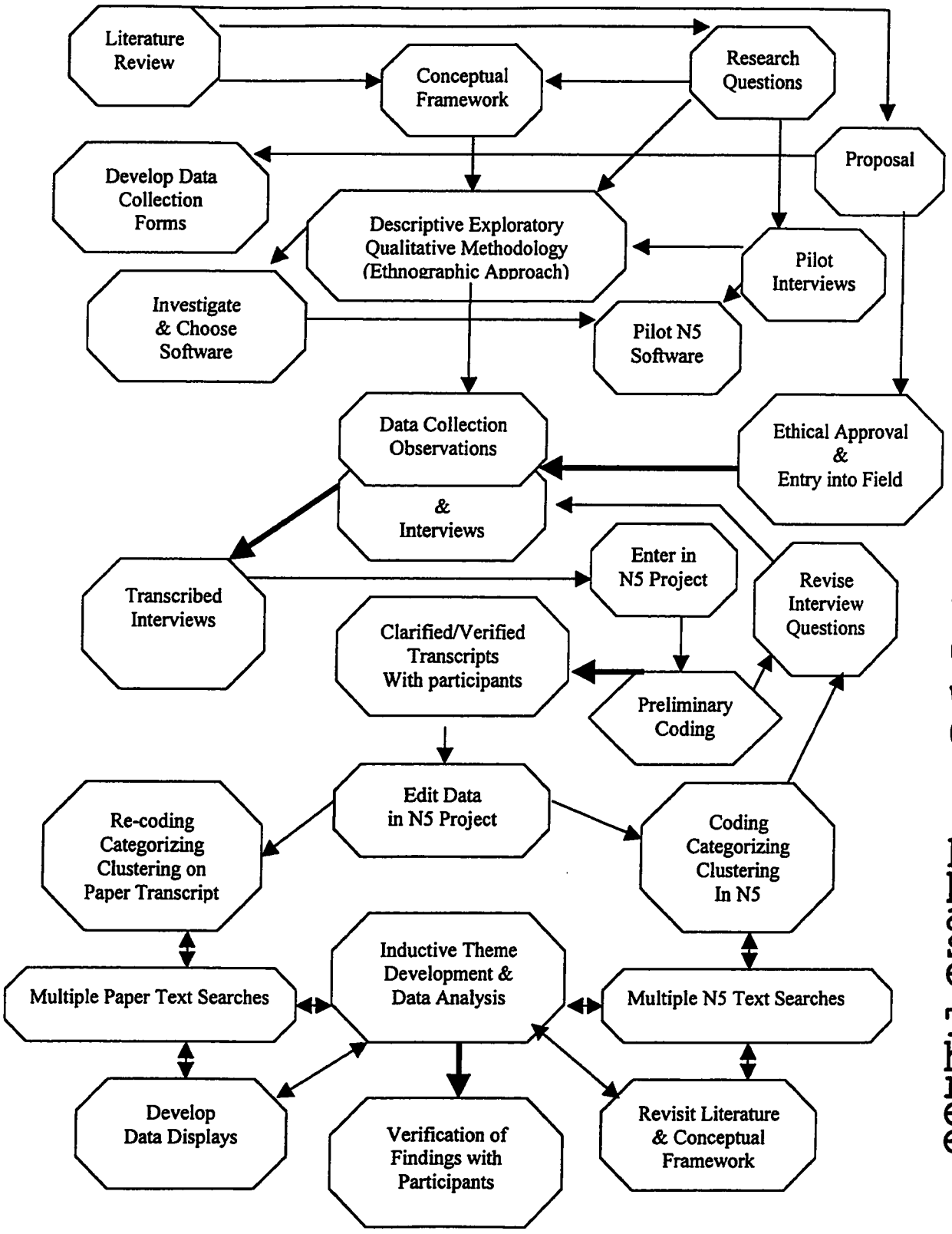


FIGURE 3.1
Overview of Study Methods

form; a document summary form; an interview reflection form; and an interview summary form. Appendices M and N contain a copy of the demographic questionnaire and a listing of the various data collection forms and their purposes.

Pilot Testing

A set of interview questions and probes were prepared and piloted with three volunteer PHNs. These pilot interviews were 15 minutes long and were taped and transcribed. The researcher had the opportunity to test the order and wording of the questions and make revisions after each pilot interview. Piloting assisted the researcher to gain experience in conducting, taping and transcribing interviews and using the qualitative software for preliminary analysis. These pilots also helped the researcher in developing and revising some of the data collection forms. The results of these pilot interviews were not used in the final analysis.

Qualitative Software

The QSR N5 (2000) was chosen to aid data analysis for a number of reasons including: ease of use; favourable documented reports from others who had used the program; reasonable price; and availability of on-line resource help. The researcher transcribed interviews with the aid of voice-activated software, Dragon Naturally Speaking Preferred V.5 (1999). N5 was used to label segments of text with codes and then to organize those codes into categories. The program assisted in conducting searches, retrieving related passages, and in identifying relationships among the codes and nodes. The basic analytic process in N5 consisted of importing the raw text (interview transcripts) and coding the text at various nodes or categories. The tree system of nodes was built and reorganized throughout the entire project including all stages of data analysis. Appendix O shows an example of the node tree structure at one point in the study. As each interview was entered and coded, the researcher returned to the preceding interviews

frequently and re-coded or reclassified text, searching for confirming and disconfirming text units.

Phase Two

This phase primarily involved the tasks of data collection and preliminary data reduction. The researcher was given a list of eight team or project leaders to contact as well as twenty-three meeting dates at which she was welcome to observe. She entered the field as a participant observer and began data collection through observations at the meetings. The average length of the meetings was one hour, and the researcher documented field notes during the meetings and reflexive notes immediately following the meetings. These observations assisted the researcher to gain insight into the context, aided the researcher in identifying key informants for individual interviews, and provided examples of potential decision-making situations and possible probes that were later used to get in-depth responses from the PHNs who were interviewed. A sample of the interview questions, a tracking form for gathering field notes and reflections, and an interview reflection form are found in Appendices P, Q and R.

An introduction to the study was presented at each team meeting the researcher attended. Business cards with the researcher's phone number and e-mail address were given to the PHNs. Three respondents contacted the researcher in person at the health department after the meetings. The researcher contacted the other seven participants by phone and e-mail over a period of four weeks. The researcher conducted semi-structured interviews at a time and location of the participants' choosing. Participants were offered the opportunity to draw their conception of the EBDM process and then use it as an aid to describe the process. Participants were also asked to complete a demographic questionnaire.

A copy of the transcript was given to each participant. A follow up interview or contact was

made with each participant, at which time the transcript was discussed, clarified and verified by the participant.

Phase Three

Many integrated overlapping procedures and simultaneous processes occurred during this phase. The main tasks of this final phase involved further data reduction (through coding and categorizing), data display and analysis. Some of the many tasks of the data analysis process included coding, categorizing, theme development, text searching and documentation. The process involved a downward funnelling from all the data bits in the interviews to the final documentation and display of the categories and themes.

The edited text of each verified interview was further coded and categorized, and numerous program features of N5 were used to facilitate data reduction. Simultaneously, inductive analyses of the data led to the formulation of initial conceptualizations of themes. It is important to note that these inductively derived conceptualizations of the themes provided a 'sound grounding in practice' for the final themes and study findings.

The researcher used a parallel paper re-coding process, which included a rereading of the edited transcript and coding, categorizing and searching for themes. Use of this traditional paper and marker style of coding served two purposes. It allowed the researcher to compare her N5 coding and categorizing with the paper coding and categorizing. The process increased the confidence of the evolving conceptualisations of themes and at the same time allowed the researcher to become more immersed in the data.

The next step involved revisiting the literature and thematic analysis. It also involved developing data displays in the form of tables, charts and matrices. Modifications and revisions were made to these displays throughout the rest of the study to aid in analysis and theme

development. Revisiting the literature helped ensure that the themes developed and the study findings were building on existing knowledge related to EBDM. The data in both N5 and the paper transcripts were searched for confirming and disconfirming evidence to support theme development and the process of developing and modifying the tables, charts and matrices that would be used to display the data and aid further analysis.

During the final step the researcher returned to the field and presented results to the participants at the various team meetings. This allowed the participants the opportunity to validate the findings. A copy of the presentation notes given to the participants can be found in Appendix S.

Summary of Methodology

A detailed description of the methodology used in conducting this study, as well as a detailed schematic of the numerous tasks and processes involved, has been presented. Three phases of the methodological process were described along with the main tasks involved in each phase. A constant comparative methodology and inductive theme development process were used.

CHAPTER IV PRESENTATION AND INTERPRETATION OF FINDINGS

The purpose of this study was to explore the PHN's understanding of EBDM in public health nursing practice; to identify from the perspective of the PHN, how PHNs bring evidence to decision-making when collaborating with community partners; and to describe the barriers to and facilitators of EBDM. This chapter presents the data collected and an interpretation at the content level and then at the thematic level. The findings will be presented in the following order: (a) demographics of the participants; (b) the context for EBDM; (c) the meaning of EBDM; (d) the evidence in EBDM; (e) the EBDM process, (f) three interrelated sub-themes: holistically knowing the community, bridging evidence to context, and actively managing information, and (g) the main theme: fostering collaborative, evidence-based, health-related decision-making in the community. In the following discussion the data are presented in the PHNs' words as much as possible.

Demographics of Participants

The researcher observed at six team or program meetings, all part of the Chronic Disease and Injury Prevention Division. The six teams or programs included Alcohol & Injury Prevention, Community Action for Isolated Seniors, Urban Community Health, Rural Health, Workplace Health Promotion, and Health Protection and HIV Prevention. A total of 30 PHNs and various other health department staff, participated in the meetings. Observing at the meetings assisted the researcher to identify potential key informants and to gain insight into the probes and questions to use in the individual interviews.

Ten PHNs were recruited for the interviews; however, one public health nurse dropped out of the study due to personal illness. Findings are thus based on a sample of nine public health nurses. All the PHNs were English-speaking or bilingual females. Table 4.1 displays the age and

educational levels of participants. One PHN was under the age of 35, six were aged 35-49 and two were 50 years or older. The PHNs in this study all had earned at least a BScN, and one PHN had an MEd.

TABLE 4.1
Participants' Ages and Highest Educational Levels
(n=9)

	BScN	MEd	Total
Under 35	1		1
35-49	5	1	6
50+	2		2
Total	8	1	9

Table 4.2 presents the PHNs' work and research course experience. Seven of the PHNs had six or more years of experience as a PHN and two of the participants had 20 or more years of experience. Sixty-six percent of the PHNs had completed their last research methods course more than ten years ago.

TABLE 4.2
Participants' Experience (frequencies)
(n=9)

	Years as an RN	Years as a PHN	Years in agency	Years since last research course
Less than 1 year			1	
1-5 years	2	2	3	2
6-10 years	1	4	3	1
11-15 years	1	1	1	*6
16-20 years	1			
20+ years	4	2	1	

* = 10+ years

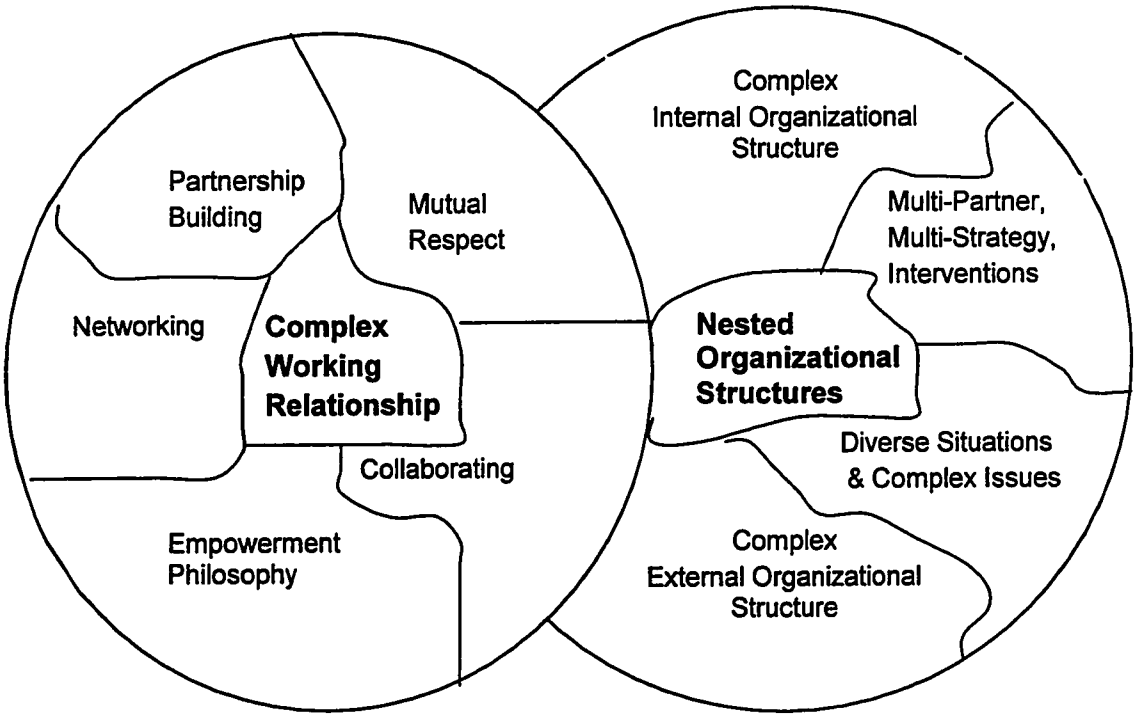
The Context for EBDM

The PHNs in this study emphasized the importance of the context in which EBDM occurs. These contextual influences included: the complexity of the internal and external organizational structure; the complexity of the relationships of those involved in decision-making; the empowerment philosophy that is imbedded in the PHNs' practice; diverse situations and complex issues they make decisions about; and their involvement in multi partner and multi

channel interventions targeted at the community.

The data collected from observations and interviews was grouped into a number of categories and clusters. The categories of data associated with this complex context were grouped into two clusters: (a) nested organizational structures, and (b) complex working relationships. Figure 4.1 illustrates how the many influences contribute to a very complex context for PHN decision-making. The following discussion looks closely at these clusters and the categories of data associated with them.

FIGURE 4.1
Dimensions of Context



Nested Internal and External Organizational Structures

The PHNs worked in a very complex internal organizational system within the health department and in an equally complex external system in the community. Although the PHNs were working primarily on one team belonging to the Chronic Disease and Injury Prevention

Division, they reported representing their team on one of many internal committees or work groups that included members from a variety of teams.

> *So, for instance, the woman alive workgroup includes staff from different areas of the health department, representing urban health, rural health and staff working with the Francophone population. We meet regularly and pool our varied perspectives and our experiences.*

The team meetings were often multidisciplinary. For example at one team meeting in addition to the PHNs, there was a nutritionist and at another meeting there was a physical activity promoter and an individual whose expertise was program evaluation. The PHNs interacted with other health department staff across all programs and divisions, both formally at various committee and team meetings, and informally when they contacted other staff for information.

> *There are places where we overlap but we don't always work together. When I am working in the community for example, I might consult with the heart health project officer for information or I might contact someone from healthy sexuality.*

Within the community they were involved with equally complex organizational structures. They interacted with many different partners on committees and coalitions. The partners came from every sector in the community and represented their individual organizations.

The PHNs described decision-making both within the health department and in the community. Several of the PHNs indicated that many decisions in public health were made jointly. One PHN stated, "*We are always working with a group. You don't ever really make a singular decision in public health.*" This emphasises the complexity of the decisions they do make when working in the community with partners.

Local restructuring had an impact on both the internal health department structure and the external structure of the local committees and coalitions. Within the health department, the PHNs described many organizational changes that affected the decision-making structure. The effects

of restructuring on the current organizational setting were discussed at four of the meetings the researcher observed.

There were also significant changes in the community organizational structure due to an amalgamation of a group of cities into one large city, which meant that the composition of existing coalitions and committees was constantly changing. The PHNs spoke about the implications of these changes. In some instances the community leaders were no longer employed in the same position, and thus contacts that the PHNs had were disrupted. Local councillors were no longer in office and, in some instances, the local municipal offices were closed and local services that had once been available were no longer. Restructuring had effects on the community infrastructure as well.

> *There are so many decisions. I think the most recent issue is related to the new subsidy policy at the city. The one-city amalgamation has affected the types of programming that women can access. So as a group we've had to sit down and decide how we are going to meet our main objectives and what is the best approach now, and who do we need to network with? Even the composition of our committee has changed now that [name] is not working in that position anymore.*

Within these nested organizational structures, the PHNs were involved with multiple partners and with multi-level interventions. The PHNs described their participation in a multi-strategy approach to targeting community health issues and promoting the health of the community. Several of the PHNs from different teams discussed their current involvement in targeting the community around the adoption of a smoke-free public places bylaw. Sharing strategies and challenges regularly within the health department kept the PHNs up to date and involved as a part of the approach. For example, one PHN described her role in getting information to a local councillor so he could influence other councillors to vote for a non-smoking bylaw. The PHN stated that the councillor was already well informed from all the work done by the health

department, and she explained that she was just a part of the health department's multi-level intervention aimed at protecting the public from the effects of second-hand smoke through implementation of a smoke-free public places bylaw. In a second example, the PHN discussed the process of getting smoke- free places on campus. She stated that it was part of the overall approach to getting smoke-free places throughout the city.

> *So that was something he wasn't aware of and that was an argument he could then present to the business community, to support his stance in support of our bylaw proposal... I also mentioned lots of other points and he was fortunately already aware of them. But if he hadn't been then I would have felt comfortable in passing that information on to him as well. He was just well- informed in general about the issue, because of the work that the rest of the health department staff had done. I was able to augment that information.*

In addition, PHNs were working with community partners on diverse health issues. Examples include: working with members of a minority group to assist them in applying for funding for the development and support of a community based healthy lifestyle initiative; addressing access to physical activity resources for low-income women; working on the development of community infrastructure to meet the needs of a very vulnerable group of individuals; and working to train peer helpers in reducing drug use. Community partners included representatives from small businesses, recreation, heart and stroke foundation, police and fire department.

The decision-making examples described by the PHNs occurred both within the health department organization, and with community partners. The PHNs described a wide variety of issues that involved EBDM. These included internal programming decisions such as which partnerships to form, how to target the stakeholders, which strategies to use, and when to approach the community partners to raise their awareness regarding health issues. The focus of analysis in this study is on PHN's collaborative decision-making with community partners.

However, it is important to note that the PHNs also described making individual decisions regarding what, when, where and how to bring information or evidence forward to be used in decision-making with or by community partners.

> *The intensity and the reach usually are issues that we have to grapple with... the decisions that we make are reaching out to a broad audience so we're looking at different levels of intensity of strategies. [Some strategies] may have more impact but you wouldn't have the same reach.*

Many of the issues discussed involved making group decisions with partners regarding the same issues as those being decided internally. Sometimes a team made a decision internally, but implementing that decision involved the community partners also agreeing to the decision. The PHNs would bring a recommendation forward at a community meeting, it would be discussed, and then a shared decision would be made regarding the issue. Examples of the decisions involved the formation of new partnerships and strategies to target stakeholders. The discussion and decision could be related to how to build "*the case to get funding to carry out an initiative.*" Sometimes there would be "*decisions around the direction the committee would take and [decisions about] the specific activities that [they would] pursue.*" Other times a group discussion and eventual decision involved "*where do we focus our energies first.*"

> *Sometimes the decisions are around new directions in terms of partnerships that we want to pursue. Sometimes there are decisions made about resources that need to be developed. There are a variety of different decisions that we make with that particular coalition.*

Complex Working Relationships

Numerous issues and challenges related to the PHN's relationships with community partners were discussed at the meetings the researcher observed. Their peers and other health department staff provided support and advice. Some of the challenges related to continuous changes in

community group membership; while others concerned the struggle to empower community members to take on the ownership of certain initiatives. The PHNs discussed whom they might approach within their communities to participate on existing committees or coalitions.

> *Looking at a macro-level, looking at strategies across the whole city of Ottawa and looking at what kinds of partnerships do we need to build in order to have a broad reach.*

In the interviews, the PHNs described a number of activities that were intended to establish positive relationships with community partners. These activities involved collaborating, networking and partnership building. According to the PHNs, activities had to be based on mutual respect among those involved.

The PHNs had a very positive attitude towards working with multiple community partners. They spoke about having a "*neutral role*" in that they "*do not promote any one partner's agenda over another.*" This "*neutral*" role helped them keep their groups focused towards the goals they had decided to work on. The PHNs described their role in providing "*continuity*" by "*keeping the group on task*" and coming "*back to the original goals and objectives so [as] not to stray.*"

> *Through discussion, sharing of ideas and respecting the role and contribution of each partner, we were able to reach a consensus.*

The PHNs felt that they were generally well respected in their communities, and that their community partners were open to most of their ideas around health promotion and illness prevention. *"The community looks at you and respects you. They look at you as the expert."* They had no concerns bringing up any issue with their partners and they felt that the community partners "*highly valued [their] contribution.*"

The PHNs felt that participating in decision-making with community partners had many benefits and that the end decisions were much better because of everyone's contribution to the solution.

So the more we partner, the more people we work together with, then the better the decision will be for whatever we plan to do.

The PHNs described making decisions in collaboration with others. "*In my practice, decision-making happens at a group level.*" In drawing the EBDM process, one of the PHNs placed the public health nurse along with management, community agencies, key informants, team members, colleagues and the community, in the center of her picture. She stated:

I'm going to put down decision-makers in the center here including the PHN because she is only one of many important decision-makers.

Encouraging the participation of community members, facilitating collaborative partnerships, and networking within the community were all activities that the PHNs spoke about. They spoke about trying to "*foster collaborative partnerships where the decision-making [was] done in consensus*". They felt it was important to be "*making linkages with people*" and to "*be tapping into those diverse populations to have every one working together.*" All of these activities involved the PHN establishing and maintaining positive relationships with the community partners. One PHN stated, "*It's a strong partnership that we have fostered over the years*".

It was the fire chief and I that initiated that program... eventually we included the police...I hope we can get the seniors involved.

<u>The Empowerment Philosophy</u>

The PHN's descriptions of their relationship with community partners reflected their philosophy and commitment to the principles of primary health care. The PHNs discussed their role in providing comprehensive, coordinated, affordable and accessible healthcare that encouraged community participation. They provided examples supporting the adoption of healthy public policy through their initiatives to attain a smoke-free public places policy for the City of Ottawa. They discussed their activities aimed at creating supportive environments, for example, their work involving the reduction of barriers to physical activity amongst low-income

women. In another example, a PHN described her ongoing activities aimed at increasing the accessibility of health promotion programs to women in a distinct cultural group. In all of these activities, the PHNs described their role in empowering their community members to actively participate in decision-making regarding the broad range of the determinants of health.

The PHNs stated that most of their work in the community was "*done in partnership with community agencies and organizations.*" They described their role in encouraging community citizens to become involved and committed to the goal of a healthy community. The PHNs discussed their activities related to identifying community needs and resources, enhancing collaboration and increasing networking among members, encouraging partners to take responsibility for their healthcare.

The PHN's were very conscious of the need to empower community partners to take ownership for solving their problems. They stated that sometimes they started a group or coalition themselves, when they saw a need, but they always worked towards empowering the members to take the lead as soon as they were able.

> *So we felt that by working with them to develop those skills, they would be more successful in creating that type of an environment.*

One PHN stated that the partners had to "*take on the ownership*" of the group in order to promote sustainability of any initiatives the group became involved with. Another PHN described her activity with a newly formed ethnic group and her role in empowering the group to apply for funding for a project they were interested in.

> *We know that unless the community takes ownership, the initiative won't last. So for me it was constantly to keep in mind, how do I make this initiative, one that these community partners want to take ownership of, have the resources to take ownership of, and that my role becomes one of being a resource person for the group but that eventually, I'm able to diminish my role and fade into the background. And this is*

really a struggle... to enter into a group and have them look at me for leadership because of the expertise that I have in this area, but at the same time, constantly giving it back to them so that they will take it and run with it. It's a real struggle. But it's based solidly on the decision that it's the best thing for the community.

The Meaning of Evidence-Based Decision-Making

The PHNs did not spontaneously use the term EBDM, although most of them were familiar with the term. The one PHN who was not familiar with the term did, however, describe making evidence-based decisions similar to the way the other PHNs did. The PHNs felt that the term itself was a relatively new way of describing something they had always used in their practice.

When I first heard it, I thought, this looks like new jargon for me, but when I think about it, we are doing it all the time.

The PHNs felt that you could not practice public health nursing without using EBDM. They spoke about the need to make a strong case based on solid information in order to get the support or funding required to carry out the activities with which they were involved. One PHN felt that especially when you did new groundbreaking things for which little research evidence had already been assembled, it was especially important to use the best available evidence for decision-making.

I think it's when you develop new initiatives or things that are out of that box of the mandated programs, that you need to spend a fair amount of time, developing those and justifying them and proving that they are important and you need to find the evidence to support that.

The majority of the PHNs expressed positive attitudes and perceived advantages or benefits to using evidence as the basis of decision-making in their practice. They felt that referring to EBDM was a good thing because it focused their attention on the need to base their decisions on evidence of effectiveness. They expressed their need to always consider the outcomes of their decisions and the term EBDM reminded them of this.

> *I think it's very good for the profession to be calling it evidence-based decision-making even if we have been doing that all along for most of our practice. Just calling it evidence-based decision-making, I think, helps in terms of the public's perception of nursing and other professionals' perceptions of nursing; that it is a science and not just an art.*

Some of the PHNs found the interview to be helpful in assisting them to think about a part of their practice upon which they had not previously reflected.

> *By responding to your questions, it's become clearer to me that lots of our decisions are evidence-based. They are not based on just pulling ideas out of the hat, but there are subjective and objective inputs into that decision.*

According to the PHNs, EBDM meant consciously choosing to make informed decisions that were based on the best available evidence. They talked about making decisions that were "*based solidly on a body of evidence that has been researched and [was] tried-and-true, and that [you] know [is] the best course of action to take within the context of that problem.*" The following quote captures the essence of the PHNs' definition of EBDM.

> *Evidence-based decision-making means that you make an informed decision. You try to make a decision that is coming out of some kind of research base and that you are not just plucking it out of the air. You are doing a review of practice or existing practices, existing research. You're consulting with colleagues and key informants, in order to make an informed decision that will have [the] highest chance of an outcome that you hope to develop.*

The Evidence in EBDM

In the researcher's field notes, a number of observations regarding the PHNs activity related to evidence and the sources and types of evidence were recorded. Table 4.3 shows the main categories of the observations from each meeting. Note that the teams were labelled A-F according to the date the researcher observed at the meetings. A total of 30 PHNs, and various other health department staff, participated in the meetings. There was a sharing of information

(and evidence) and ideas throughout the meetings, and the PHNs heard about activities happening in other initiatives and programs. In some cases the other staff acted as resource people, giving the PHNs ideas on how to approach an issue within their team or in their community.

Various materials and resources were circulated and discussed at the meetings. These

TABLE 4.3
Collated Observations From Meetings
(n= 30 PHNs + team leaders and other Health Department staff)

Observations	A	B	C	D	E	F
➢ PHN activities						
· Facilitating of distribution of EB materials		+		+	+	+
· Developing awareness of needs & resources of community	+	+	+	+		+
· Developing awareness of sources of evidence	+	+	+	+	+	+
· Actively seeking out evidence				+		+
· Evaluating effectiveness of evidence	+		+			
· Acting as a resource to peers	+	+	+	+		+
➢ Relationship with community partners						
· Discussing challenges	+	+	+	+	+	
· Acting as a resource to community		+	+		+	
➢ Importance of evaluation	+	+		+	+	+
➢ Sources of evidence						
· Community associations, groups		+		+		
· Other experts		+		+		
· Other health departments			+	+		
· Evaluations	+	+			+	
➢ Forms of evidence						
· Newsletters, bookmarks, survey results, fact sheets, mail- outs, kits, other data collection forms, research reports, conference materials	+	+	+	+	+	+
➢ Brainstorming ideas with peers to solve problems	+		+		+	
➢ Use of theory based practice (models and frameworks)	+	+				

+ indicates observed, blank space indicates not observed

included government reports and newsletters, other reports from task force groups, fact sheets, policy guidelines, journal articles, survey results, research reports, conference materials, pamphlets, videos, and resource kits. There was a great deal of information flowing between the PHNs, other staff and their peers. There was an understanding that the PHNs would take the information to their communities and in many cases share it with their community partners.

In some situations the PHNs discussed the source of the materials and the validity of the

information. They frequently discussed the relevance of the information for their community and they shared ideas on how the materials could be adapted for their use.

When describing their practice, the PHNs spoke about making decisions based on evidence. They identified several types of evidence that had been considered in making a particular practice decision.

In the interviews the PHNs defined evidence very broadly stating that, "*decisions need to be based on both objective and subjective information or evidence*" that they judged to be "*sound or solid*" and "*relevant or applicable*" to their context, and that they could use to support or base their decisions on. However, at the same time they stated that evidence is "*something solid,*" they also said, "*evidence is not always provable,*" "*some evidence weighs more than other evidence,*" and some "*evidence suggests there is a better way of doing things.*" These statements demonstrate the complexity involved in defining the evidence that is used as the basis of decision-making in public health nursing. They also highlighted the subjectivity involved in deciding what counts as best evidence. One PHN stated that she was "*confused by the word evidence.*" She commented:

> *For me it's not just traditional research evidence because it is also information from community members; information about their needs; wants and interests; and information about the community's history.*

A text search of all the interviews for the word evidence revealed that the PHNs did not use the term evidence as much as the researcher did. Table 4.4 shows the results of the text searches for the three terms: data, information and evidence. Out of all occurrences of the term evidence, the researcher used it the majority of the time (72.5 %), whereas the PHNs used it less frequently (27.5 %). The PHNs preferred using the term information and to a lesser degree, the term data in their responses.

TABLE 4.4
Text Units Using the Terms: Data, Information and Evidence

	Data	Information	Evidence
Researcher	0 (0%)	34 (21.3%)	292 (72.5%)
PHNs	28 (100%)	126 (78.7 %)	111 (27.5 %)
Total	28 (100%)	160 (100%)	403 (100%)

Many times the PHNs used the three terms data, information and evidence, interchangeably. For example, they stated that "*these are all sources of data or subjective information*" and "*you need to get that information or evidence.*"

The PHNs used many different words to describe the nature of the evidence used in EBDM. The use of the term evidence and evidence-based in the rest of this thesis will be in single quotation marks to denote that it refers to the PHNs' definition and meaning of the term 'evidence,' 'evidence-based,' and 'EBDM.'

> *I would have to say I was using information from a variety of sources and those would include quantitative data, qualitative data, ... like the client base, the practitioner base.*

The 'evidence' could be objective or subjective, hard or soft, quantitative or qualitative. Having any one of these dimensions did not necessarily imply one was better than the other. Table 4.5 lists the dimensions of 'evidence' described by the participants. In addition to describing these dimensions of 'evidence', the PHNs used words to describe the reliability, timeliness and weight of the 'evidence'. They stated that the 'evidence' needed to be *"solid, sound and up to date", "timely", "relevant"*, and "*sensitive to the context.*"

TABLE 4.5
Dimensions of Information and 'Evidence'

Objective	⟷	*Subjective*
Hard	⟷	*Soft*
Quantitative	⟷	*Qualitative*
Formal	⟷	*Informal*
Published	⟷	*Unpublished*
Documented	⟷	*Not documented*

Considering various types of information, along with their applicability to the current situation, was an important part of making informed decisions that were based on some 'evidence.' In describing a decision that one PHN felt was 'evidence-based', she stated, *"it appeared to be a fit with what we know and where we are in the current project."* The information had to be "*applicable to*" the PHNs' target population, as well as being relevant to their current situation. One PHN stated that "*analyzing data to see if it could be applied to your particular community*" was an important part of EBDM.

> *I think that these are all the places that you look to. These here are all the sources of data and subjective information, objective information, experience, just a wealth of places that you would look to as data sources of information about an issue or a topic. And I see this as the public health nurse initially doing exploration, looking at all of the sources of data and compiling them.*

The PHNs stated that, "*there are numerous ways to collect evidence and you need to be open to them all,*" and "*evidence encompasses a lot of things.*" All the types and sources of 'evidence' that the PHNs identified throughout the interviews were collated and categorized from the objective to the more subjective. The categories of the types of 'evidence' identified were hard and soft data, contextual information, and professional experience.

> *I'm going to look at what is known about that issue, I'm going to look at all the stakeholders, all the written documentation, what do we know as far as research and*

what can I gather from coworkers and where can I look at other programs to give me input, and what are my past experiences with this issue and these people.

The types of hard and soft data named by the PHNs included: research, best practice guidelines, statistics, epidemiological data, morbidity/mortality and rates, cost effectiveness information, written documentation, peer reviewed journals, published and non-published literature, formal and informal evaluations, focus groups, surveys, and information from conferences and other health departments. Models and frameworks were also cited.

I believe as nurses, [when] quantitative data is available then it becomes very important but it's not the only evidence-based data. I think that as nurses we look at qualitative data as well. And that becomes the really important part of the practice that we do because there's no way you can measure everything quantitatively.

Types of contextual or setting-specific information identified included: needs assessments, community agendas, stakeholder input, current thinking and current trends. This category also included information about other similar initiatives; funding and resources available; and information from peers, experts, other professionals, and community partners.

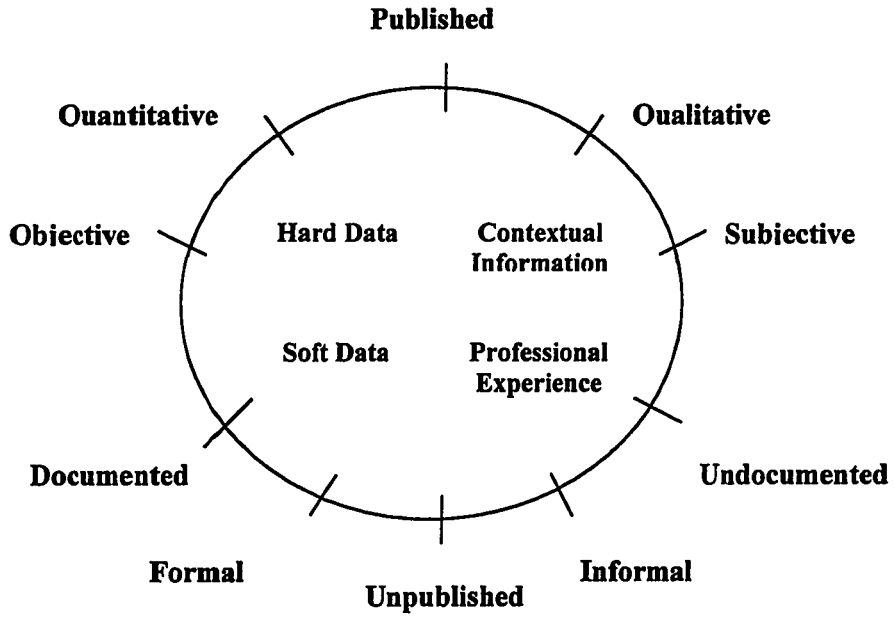
A third type of information or 'evidence' came from the PHNs' professional experience.

I would say it was evidence based [because] I did look at my past experience and I looked at the track record of these particular organizations. Certainly any reading that I've done just in terms of my own professional development such as my attendance [at] conferences.

The PHNs' responses demonstrated their belief that "*the term evidence needs to be viewed broadly.*" Figure 4.2 shows a schematic representation of the PHNs' holistic view of 'evidence', including the main types of 'evidence' and the various dimensions discussed previously.

We [public health nurses] have always been known to have a more holistic approach to our client care and so I think it [referring to the definition of evidence] needs to reflect that.

FIGURE 4.2
The PHN's Holistic View of 'Evidence'



The PHNs generally named several types of 'evidence' in one sentence. For example, one PHN cited the types of 'evidence' on which she based one of her decisions as, "*the literature review and clinical observations and input from partners, community environmental scans...and research and evaluation.*" All of the PHNs identified all of the three types of 'evidence' in their interview (see Table 4.6). For example, participant #1 named examples of 'evidence' that were categorized as hard and soft data, contextual information, and professional experience.

It is interesting to note that in spite of the researcher's prominent ingrained idea that evidence was equivalent to research, the PHNs made it very clear that they felt that 'evidence' encompassed far more than research evidence.

TABLE 4.6
PHN References to Key Types and Sources of 'Evidence'

Types & Sources of 'Evidence'	#1	#2	#3	#4	#6	#7	#8	#9	#10
Hard and Soft Data									
Research, statistics, morbidity/mortality	+	+	+	+	+	+	+	+	+
Best Practices	+	+	+		+	+	+	+	
Mandates	+	+	+	+			+		+
Evaluations, focus groups, surveys,	+	+	+	+	+		+	+	+
Written documentation, literature, reports	+	+		+	+	+	+	+	+
Contextual Information									
Community needs, agenda, experiences	+	+	+	+		+	+	+	+
Existing resources, funding available		+			+		+		+
Contacts with peers/experts/community	+	+	+	+	+	+	+	+	+
Professional Experience									
Past experiences, relationships	+	+	+	+	+	+	+	+	
"What we know"		+		+	+	+		+	+
Intuition, gut feelings	+		+				+	+	+

Note: # represents participant number

The 'Evidence-Based' Decision-Making Process

In this section an overview of the EBDM process is presented. Although some of the PHNs discussed EBDM that occurs within the health department at the team level, and one PHN described her role with management in EBDM, the focus of this discussion is on the shared EBDM process that occurs with community partners.

The EBDM process starts with "*a specific issue or question*" and then the PHNs (and often the community partners as well) become involved in a number of activities. The process is not linear; it is iterative. Upon embarking into the EBDM process the PHNs described the steps of : (a) identifying the issue, (b) accessing or retrieving data/information and 'evidence', (c) assessing or critiquing data/information and 'evidence', (d) tailoring information to the context and transferring it, (e) utilizing the 'evidence' for decision-making, and (e) evaluating the outcome.

It's a system that's very fluid and it's a cycle that keeps repeating itself all the time.

In one diagram drawn by a PHN (see Figure 4.3), EBDM was shown as occurring "*within the*

context of public health, which includes all the health promotion and illness prevention initiatives we are involved in." There are numerous two-way arrows, which represent the idea that the stakeholders [community partners] are involved, or are encouraged to be involved, in all steps of the EBDM process that occurs in the community.

> *The partners, the coalition, each have equal participation and the decision-making is done as a group.*

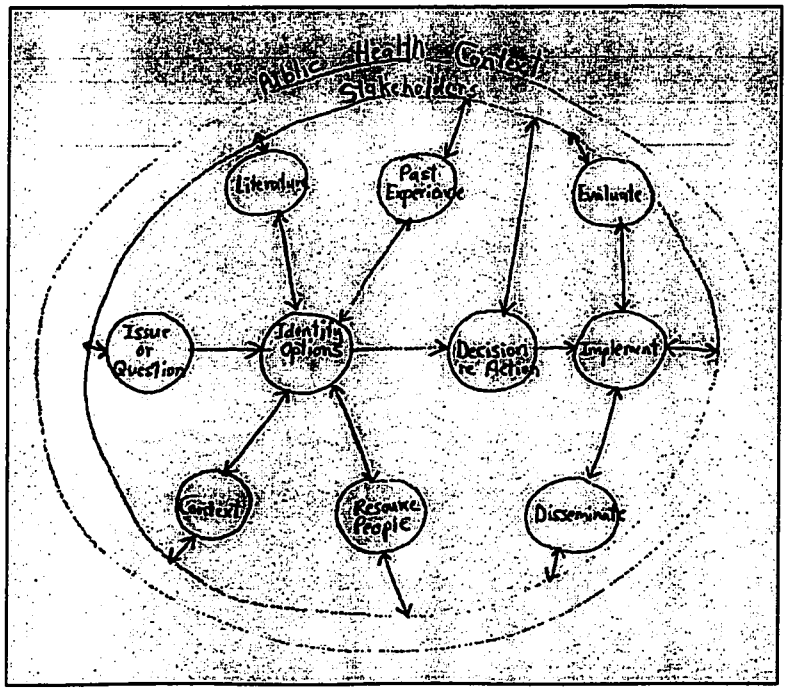
Accessing Data/Information and 'Evidence'

The public health nurses felt that EBDM includes actively seeking information or 'evidence.'

> *Obviously the first point is to research this issue, to look at it from a variety of sources, what is the specific issue and [whom] is it affecting, and what can be done about it.*

They spoke of "*looking at other research,*" "*looking at other people's expertise,*" "*looking at best practices,*" and "*looking at past experiences*" of others involved in similar situations. The process of accessing the information required the PHN to ask lots of questions and then seek

FIGURE 4.3
PHN Drawing of 'Evidence' Based Decision-making and Public Health Nursing



answers to those questions. One PHN stated, "*Generally you ask what does the literature tell us, what do we know about other communities like this.*" Another PHN said:

> *We went into a fair amount of detail trying to decide...we went back to the data that we had some earlier access to. We looked at the current issue, and current articles in the newspapers around...and trends...and looked at the actual numbers from our planning department at the region.*

Once the issue was established or the questions were formulated, the PHNs discussed their activities related to retrieving the information. One PHN stated, "*we have different ways of getting information*" for decision-making and another PHN stated, "*you're gathering the soft data but you are gathering the hard data as well.*" Accessing also included "*doing a review of practice or existing practices*" and "*consulting with colleagues and key informants.*" The PHNs felt it was important for them to "*keep abreast*" of their field of work and keeping abreast included reading, attending conferences, networking and sharing with peers and other experts.

Assessing Data/Information and 'Evidence'

Once the information or 'evidence' was accessed, the PHNs actively assessed it. This involved several tasks including compiling, synthesizing, analyzing and appraising the data or information and then generating options or "*pros and cons*".

Compiling the data or information was described as "*pulling together the case.*" The PHNs described getting the information or 'evidence' from many sources and then putting it together in some logical order.

> *She is compiling the information and analyzing what she has compiled using her conceptual maps and conceptual frameworks and often that can be something that's very automatic if it's a quick easy decision, or sometimes it can be a very thoughtful and a reflective process...then there [are] options generated.*

Making a value judgement about the quality of the 'evidence' was an important part of

assessing the 'evidence.' PHNs described judging if the 'evidence' or information was "*adequate,*" "*credible,*" or "*reached a certain standard.*" The PHNs also felt that they needed, "*to use strategies that had been evaluated and judged to be successful*", or were "*proven to be successful*", or "*had a positive impact*".

Most of the PHNs felt comfortable appraising the literature. "*Once I have the information I feel fairly comfortable appraising it but I always feel that research and statistics are not my forte... when it gets into detailed analysis I would probably need some help with it.*" When asked to rate their critical appraisal skills (see question 10 of the demographic questionnaire in appendix M), the PHNs rated their ability to be between seven to ten; one represented poor and ten represented excellent. One PHN stated that assessing information off the web was no different than assessing any other literature. However, another PHN stated that "*there are many documents circulated electronically and you must ask yourself where is it from? Is it reliable? You really have to be careful.*" Appraising the literature also involved "*analyzing it to see if it could be applied to your particular community.*"

The PHNs felt that it was very important for them to get the correct information out to the community partners. They described their role in pulling together several pieces of information to present at the table. One PHN stated "*you need to synthesize what you're going to present to the committee,*" so they understand and accept the information that you bring to the table.

"Synthesizing information that goes out of the community is really important."

The PHNs stressed the importance of considering the context of the situation and judging the relevance of that 'evidence' to their current situation. In describing a decision that one PHN felt was 'evidence-based,' she stated, *"it appeared to be a fit with what we know and where we are in the current project."*

Well, I think there are practices that have occurred, let's say in other health departments. For example, say there's been a no smoking initiative that has occurred elsewhere. You can look to those examples to see what the outcome was of the initiative. You can analyze the initiative, to see how it could be applied to your particular community, and if the outcome is what you're hoping to get then you're going to try to repeat the successful aspects of that. On the other hand, if an initiative happens, say in Toronto, where their bylaw wasn't effective, then you're going to analyze why it wasn't effective and try to improve upon that so that the outcome will be different.

Tailoring and Transferring Data/Information and 'Evidence'

The PHNs described their role in tailoring the information they were bringing to the community to be used for decision-making. Tailoring encompassed the activities of translating, adapting, modifying, and framing the information. Transferring the information involved providing or passing the information on to community partners.

The PHNs felt that in most cases they had to adapt the information or 'evidence' to fit their particular context.

It may be an approach that worked well with a specific target group but might not be appropriate for a particular group that we want to use it with. But then I guess we would look at, [and] adapt.

They were very aware of the need to "*keep the essence*" of the 'evidence' when tailoring or modifying it to the context.

I think it's important to keep the essence without changing that, otherwise it loses its validity. It becomes modified so that it's no longer what it's supposed to be. It's walking that fine line between using the information that was learned from the research, applying it by keeping it's essence, but applying it so that it can be practically applied.

Some of the PHNs talked about the need to frame the 'evidence' in a certain manner for community partners that share in the decision-making. One PHN described her role with a

coalition as "*looking at ways to take the evidence and frame it in such a way that it makes sense to the target audience.*" The target audience referred to here were members of a coalition she works with.

> *Because most of the issues that are tabled are to do with ...as opposed to health, generally my reports are a little different than anybody else because I'm usually bringing up a little different perspective.*

The PHNs described their role in bringing or providing health information. "*It was something that I brought forward as a suggestion to the planning committee and they agreed to focus some energy on supporting that promotion.*" They were often the only health voice at the table and they were looked to as the provider of health expertise and 'evidence'. They often provided a holistic view of health. Their role included raising awareness and promoting a broad determinants of health perspective with numerous community partners.

> *Actually a lot of times the health department is looked to as the provider of evidence, as the provider of the bottom-line regarding health impacts and possible strategies and interventions. At least that's what I found, in the coalition I have been involved with, I have been looked to, to provide that kind of help and expertise so that the decision can be well grounded in evidence and makes sense to everyone. So they get their information from their members, they get bits and pieces from all of the members, and they probably get the more specific information from [the health department].*

Utilizing Data/Information and 'Evidence' to Make Decisions

Utilizing involved "*ultimately deciding,*" based on the information or 'evidence'. The PHNs did speak about actual decisions they have made which they felt were 'evidence' based.

> *Well I think the inclusion of the physical activity is a decision that we made based on our knowledge about its importance in heart disease control and prevention.*

I would consider what's going on now around our establishing a partnership with [group] to be an evidence based decision, because it comes out of our work on this project and the project findings relating to that work....what we're doing is formulating a proposal. And it's a complex process because this involves three main partners already.

Other examples of decisions that PHNs described as 'evidence' based included: making a decision regarding the choice of a specific sector to target, making a decision with team members regarding the type of media to use to get their message out, and making a decision with a community group about focusing energies for the next year on women's heart health.

I will give you an example, with the PSA [public service announcement], we consulted with a number of other public health program areas that had done PSAs and the kind of populations they targeted, and what the impact was, and we had to weigh everything. You know, how many people did they actually reach, what was the response, how much did it cost? So you have to weigh how much it costs versus how much reach you can have.

We talked about program related findings, so that's observations and clinical evaluation made by practitioners in the field. We talked about qualitative and quantitative research findings... So it's the research findings and the program related findings that have been gathered during our previous project. To make that decision but there are so many things... I probably should have picked a simpler decision.

There were times when the PHNs described many of their partners equally sharing in all steps of the process, and there were other times when the partners only participated in making the decision. In some cases the information or 'evidence' was used as the basis of decision-making and the decision-making was done by consensus. At other times the actual decision was not made at the committee or coalition level; instead community members took information discussed at the meetings back to their agencies and organizations, where the actual decision was

made. The PHNs felt that they were still a part of the EBDM process in the community, even if they did not participate in making the final decision. In one situation, the PHN spoke about her role in passing on information to a local community leader who was involved in making a health-related decision. In this situation the PHN was not directly involved in making the actual decision; she did not actually use the information for decision-making. However, she described her role in facilitating and supporting an 'evidence-based' health-related decision that was being made in her community.

> *Because often people around the table are not the decision-makers for their organizations so if it's not something that has to be decided on the spot, then they're going to take that ... information to their organizations and people that make the decisions, and present the position from their perspective. It needs to be understood and needs to be relevant, and it needs to be just the key points. And framed in a way that makes sense to them and they can see whether their participation is valued and is valuable and they need the written form.*

Evaluating the Results

The PHNs described evaluation as an important step in the EBDM process. There were two very different meanings associated with evaluating. The first was related to evaluating the results of initiatives implemented after a decision was made. The second meaning of the term evaluation related to the PHN looking at how successful she was with bringing and transferring information and 'evidence' forward and framing it for the community partners. This discussion will look at the PHNs' use of these two forms of evaluation.

The evaluation of various PHN activities was discussed at five of the team meetings. These discussions demonstrated the importance of evaluation in their practice. The PHNs spent time reflecting and discussing what worked and what did not, and considering how they could do things differently in the future. They also discussed the evaluation of programs they were

responsible for implementing. In one case the team members discussed their plan to carry out an empowerment evaluation where they were considering all the stakeholders as partners in evaluating their program.

> *There may be articles or literature that they are familiar with, maybe from a whole different discipline that could have an impact on this. A decision regarding the action most definitely would involve the stakeholders, if it is a joint decision. And around evaluation... they would be interested... They are going to have a stake in wanting to evaluate and know what worked well and what didn't.*

All of the PHNs discussed the need to evaluate any 'evidence-based' decisions they made and to use the evaluation results as a piece of new 'evidence' for future decisions. Many of the PHNs included evaluation results as an example of 'evidence', stating that, "*we evaluate to see if our results are strong enough to be evidence for continuing.*" Another PHN stated, "*so this is where a lot of the evidence comes from*", referring to the evaluation component. The PHNs felt that there was a need to "*evaluate the project on an ongoing basis.*" One PHN commented that the community partners involved in joint decision-making are "*going to have a stake in wanting to evaluate and know what worked well and what didn't.*"

> *Through the process of evaluation, feedback leads to development of "Best Practices" and continual improvement of practice over time, I think as a public health nurse, the evaluation pieces that we do are very important. We are the ones that are out there doing and implementing changes based on feedback on a day-to-day basis.*

In addition to evaluating the results of a decision, the PHNs also spoke about evaluating whether they tailored and transferred the information and 'evidence" adequately. Often they needed to bring the information and 'evidence' to the table a number of times and in a number of formats before it was acceptable or usable for decision-making. There were times when the 'evidence' was not acceptable to the partners, and they had to wait to bring up that 'evidence' at

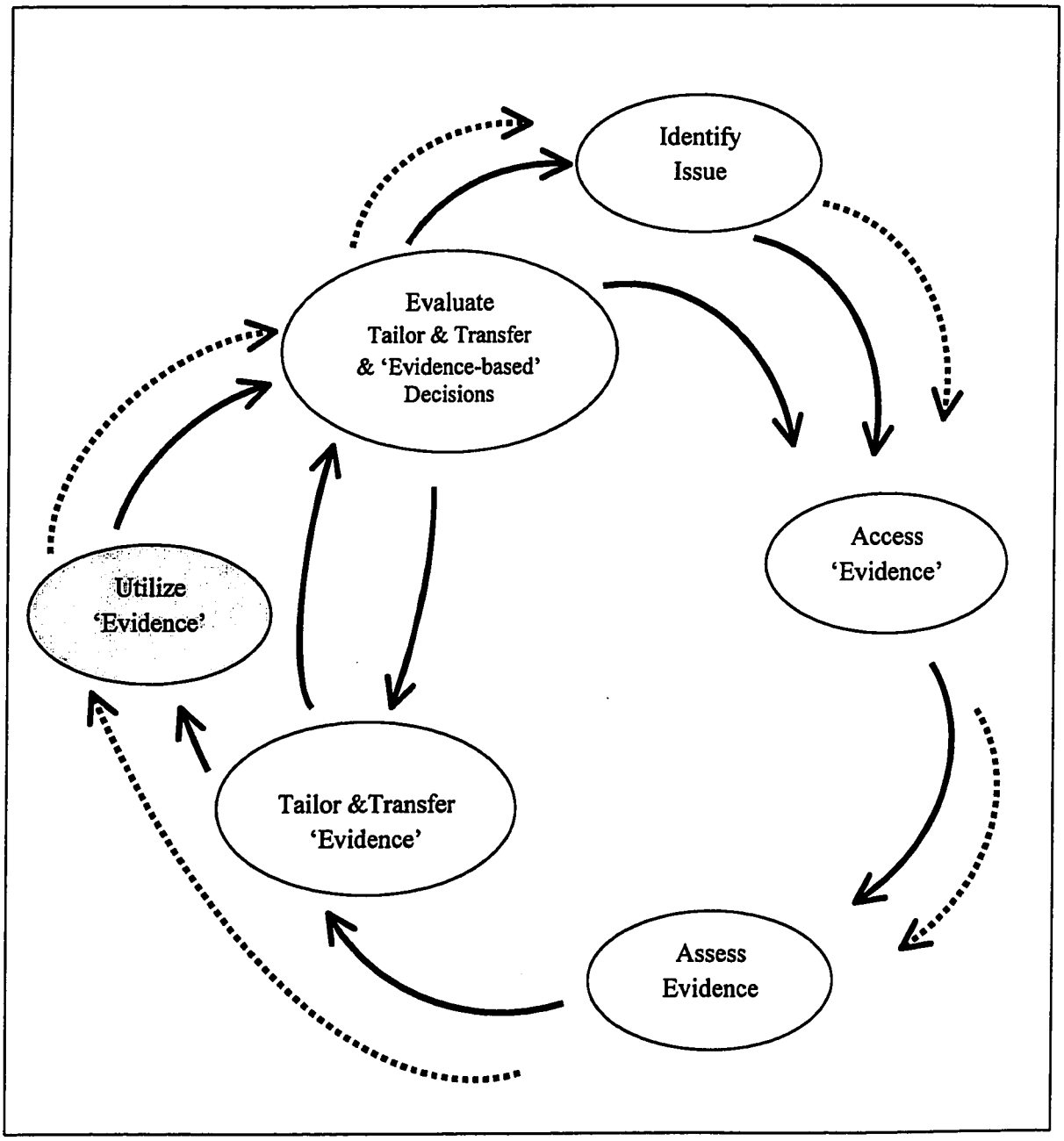
a later time. One PHN discussed her activity in bringing forward some recent information on the use of methadone to a committee meeting. "*They were just not interested, so we are looking to try to build partnerships among agencies and slowly change attitudes among people who are working on some of the agencies.*" Another PHN stated:

> *There have been occasions where it's their agenda that can't allow them to hear what ever it is that you are bringing to the table. It may be quite valuable but it's just not a priority for them, it's not the way they work or they can't get their heads around it, it isn't going to work, and sometimes you just can't find that common ground, to dialogue.*

PHN Role in the Shared 'EBDM' Process

Figure 4.4 shows the main steps in the "EBDM" process that PHNs encourage partners to fully participate in. The tailor and transfer step is specifically related to the PHNs' activities. The partners may share in the other steps, but the activities related to tailoring and transferring information are referring to a PHN activity. The dotted line represents the potential for participation by the partners. This discussion has looked systematically at the PHNs' involvement in these activities. The different shading for the utilizing step shows that the PHN may or may not actually participate in making the decision or "*untimately deciding.*" The PHNs still felt they were a part of the 'EBDM' process even if they did not actually make the decision. This would occur when community partners would take the information or evidence brought forward by the PHN, back to their own agencies or groups where the decision may be made.

FIGURE 4.4
Role of the PHN in the Shared 'Evidence-based' Decision-Making Process



Represents PHN Role
Represents Role that Partners Are Encouraged to Participate In
PHN May or May Not Be Present For Ultimate Decision-making

Three Interrelated Sub-themes and Fostering Collaborative 'Evidence-Based' Health-Related Decision-making in the Community

Three sub-themes emerged from further analysis of the data. Together these sub-themes contribute to the main theme: the PHNs' role in actively fostering collaborative 'evidence-based' health-related decision-making in the community. The three sub-themes include: (a) holistically knowing the community, (b) bridging 'evidence' with context and (c) actively managing information. Figure 4.6 highlights the interrelated nature of the three sub-themes that emerged from the data and their contribution to the main theme, fostering EBDM in the community.

Holistically 'Knowing the Community'

'Knowing the community' encompassed many things. It involved the PHN's understanding of the needs, interests and resources of the community. It involved knowing the leaders, key informants, and existing networks. 'Knowing the community' allowed the PHN to judge what, when, where and how to introduce information or 'evidence' to be used in the community EBDM process. However, 'knowing the community' encompassed more than knowing all these individual things. It involved treating the community as a unique whole entity. It meant having a holistic view, seeing the many organizations and groups as a part of the whole community.

> *I think we are able to have a broader perspective of situations. Our committees and partners are diverse and they come with very different perspectives, which impact the decision-making process.*

'Knowing the community' involved the active role of the PHN in raising the community's awareness of their needs, and choosing when to introduce or promote some piece of information or 'evidence'.

FIGURE 4.5
Fostering Collaborative 'Evidence-Based' Health-Related Decision-Making in the Community: Main Theme and Three Interrelated Sub-themes

It's bringing those numbers to them. It's almost like you're identifying their need to them, based on their own experiences. So we personalize it for them, and then you bring in the other information.

You might want to do something tomorrow and your community is not ready. You kind of have to slowly introduce something and keep coming back with something, and say 'Well look at this. It's still around, it's still an issue and how do you see it now?' And then, they kind of warm up more.

'Knowing the community' involved "*getting the right information for them.*" The information had to be timely and relevant. It involved the role of the PHN in framing or adapting 'evidence' to fit their community. One PHN stated, "*you need to know when they are ready. You might want to do something and your community is not ready.*" Another PHN said, "*sometimes you need to*

do something you do not like because they are just not ready to do what you know research says is the best way."

'Knowing the community' encompassed having a deep understanding of the community's agenda. They had to know what the interests were for each community partner and they had to work to find the "*common ground*" or a goal in order to get the partners united to look at any particular issue.

The PHNs described their role in remaining "*neutral*," meaning that they tried not to put any one person's or agency's agenda above any others. They described this as "*seeing the bigger picture.*" They talked about their need to understand the community's history and current affairs. "*It's through understanding where they are coming from that I can make things sound relevant to them.*"

> *But unless I keep in mind what other people come to the table with in terms of their own agenda and their experience and their background, the idea is to blend that together so that you have something in common. And so it's really important to be sensitive to other's agendas and to really come to some consensus as to how we can make that happen so that everyone's needs are being met.*

In addition to speaking about their communities' agendas, the PHNs talked about their communities' ways of doing things. "*Its just not done that way in my community.*" They talked about their communities as though they were individuals, with their own unique characteristics and particular strengths and weaknesses.

Bridging 'Evidence' to Context

Bridging the 'evidence' to the context required the PHN to understand the 'evidence' pool and the specific context related to her community. It required her to have established a close relationship with the community and its members. Having that close relationship with the community assisted the PHN to know her community. Through 'knowing the community' the

PHN was able to bridge the 'evidence' to the specific community context. The PHNs' tailoring and transferring activities related to the EBDM process were two of the implementation steps involved in bridging 'evidence' to context. Through 'knowing the community' the PHNs were able to access and assess the 'evidence', and then tailor it to fit the context. Transferring the 'evidence' to the community partners to use in decision-making required the PHN to bridge or link the 'evidence' to the context.

> *I think being able to provide statistics and evidence that was relevant to the people around the table made it hit home for them, where they could see that this is an issue that they could be and should be concerned about.*

> *We do the background work for them and then bring it to the meeting so the decision becomes based on what you have presented to them.*

Actively Managing Information

The PHNs were involved in a number of activities, which informed EBDM (see table 4.7). These activities represent the PHNs active role in information management throughout the EBDM process.

The PHNs stressed the importance of considering the context of the situation in which EBDM was occurring. One PHN explained that she "*would identify options looking very much at the context or the specific situation in which this particular issue or question was pertinent.*" The PHNs described judging the relevance of evidence to their current situation. They said the evidence for EBDM had to fit the context of their particular community. The PHNs said that they often had to "*frame it [the information or evidence] in a way that makes sense to them [the community partners].*"

TABLE 4.7
PHN Information Processing Activities in the 5 Steps of the EBDM Process

Accessing Data/Information or 'Evidence'
Retrieving Seeking Searching Getting Obtaining
Gathering Collecting Finding Keeping up to date
Assessing Data/Information or 'Evidence'
Compiling Analyzing Critiquing Validating
Looking at the pros and cons Synthesizing
Tailoring & Transferring 'Evidence'
Adapting Framing Translating Bringing to the table
Presenting Passing along
Utilizing 'Evidence'
Using Ultimately Deciding
Evaluating Tailor & Transfer Activity and 'Evidence-Based' Decision
Evaluating Analyzing

Most of the PHNs spoke about their role in "*bringing the information to the table*", or to the groups that they worked with once they had accessed and assessed the information. They also spoke of their role in providing 'evidence' to community partners. In many of these instances the PHN then participated in decision-making at the group level.

> *You're bringing the information, and linking them up. If they want to link up directly to the source, then you link them up with the articles and that sort of thing. But often you're translating the scientific information into layman's terms. That's often your role. And then maybe you're joining different sources together, to come up with information for them. You're interpreting it, but you're also linking them back to the original source.*

One of the PHNs talked about going to a conference and bringing back material to present to a coalition that she was working with.

> *I'm on a coalition right now for [issue] and I went to a conference. I collected information from that conference and we have a meeting next week. I picked up some great information that I think we can use at our coalition, so I will present that. Basically that's what we do when [we] get together, when we have meetings, we*

come with something, and [present]the information that [we] have collected. [I will say], ' this is what I suggest, and here's why, because of A, B, C and D'.

The PHNs described having a complex network of relationships, both within the health department and within the community, through which information flows. The network includes internal health department participants (all PHNs, other public health professionals such as the physical activity promoter or the nutritionist, and management), and various community partners (individuals, groups and coalitions). The PHNs described taking relevant information to their community committees and coalitions. They presented the information in a manner that was acceptable and relevant to the community partners, who then, in many cases, took that information back to their own agencies or committees.

These same partners also brought information to the community group. They shared the relevant information with other community groups and partners, and with teams at the health department. There was a continual flow of information among all the members of the internal and external networks.

We share regularly within the health department, with the assurance therefore that you are reaching out to a large number of partners as well. Because PHNs carry information out to their communities through all the different links that are established, so sharing within the health department I think, is very valuable in helping us get evidence externally out to our partners.

The PHNs described instances where they brought information forward to their community partners and for whatever reason, the partners were not interested in it at that time. They spoke of the need to frame the information differently and bring it back to the community partners multiple times. They spoke of the need to strategically bring information forward when the right opportunity arose.

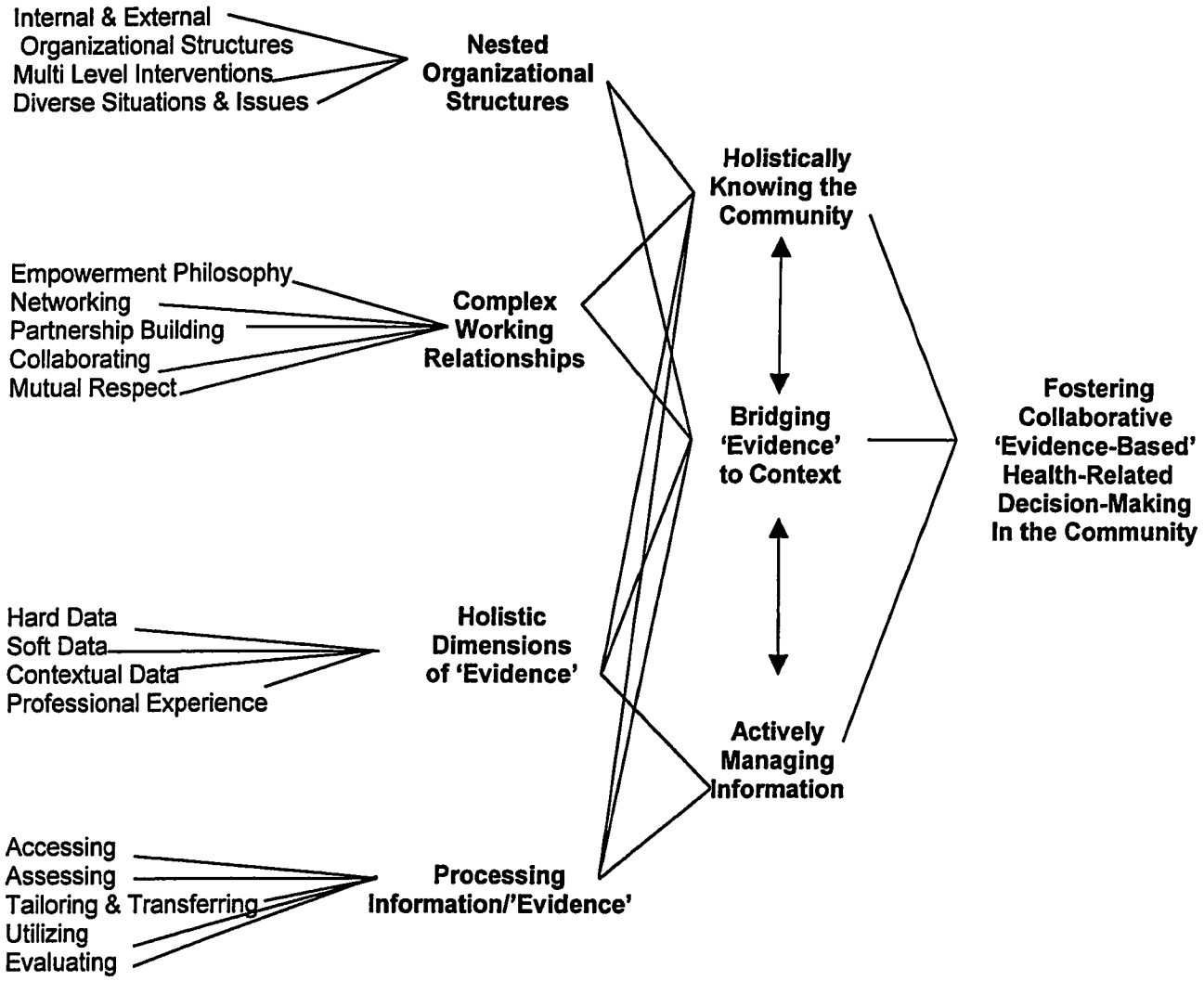
I wanted to raise the smoking issue. But you can't do it as you would normally with a health group... it's much more complex when you are with people who do not have health on their agenda.

A conceptual map showing the main categories and clusters of data, the three sub-themes and one main theme that emerged from the data is presented in figure 4.5. It shows the links among the sub-themes and their contribution to the main theme.

Fostering Collaborative 'Evidence-Based' Health-Related Decision-Making in the Community

The main theme, the PHNs' active role in fostering collaborative, 'evidence-based,' health-related decision-making in the community evolved from the three sub-themes. To foster means to encourage, to nurture, to promote and to sustain. The PHNs were very cognizant of their need to encourage and empower community partners to participate in decision-making related to their health needs. They were very aware of the need to make initiatives sustainable. The PHNs described their role in nurturing an 'evidence-based' decision-making process in the community. Nurturing involved establishing and maintaining positive relationships with their partners and enabling their community partners to fully participate in health-related decision-making. They welcomed and honoured the expertise of the community partners. Fostering collaborative 'evidence-based' health-related decision-making in the community involved the PHN blending her clinical expertise with the expertise of the community partners. Fostering involved the tasks of keeping partners focused on health goals, bringing them information that was timely and relevant, and framing or tailoring it so it could be better understood. Sometimes the PHN was directly involved in making the decision. However, many PHNs described occurrences when they were just the providers of 'evidence,' with partners making the final decision when they were ready. Sometimes PHNs had to bring many pieces of information "*to build the case*" or the

FIGURE 4.6
Conceptual Map of Categories, Clusters, Sub-themes and Main Theme: Fostering Collaborative 'Evidence-Based' Health-Related Decision-Making in the Community



'evidence' pool so that when the actual decision-making occurred it would be 'evidence-based'. One PHN stated that, "*if it's out there long enough and you talk about things, attitudes change, and then you start seeing people say it is actually a real need.*"

Ideally when we are sitting on committees it's not so much to direct and tell people what to do, it's to enable them, to facilitate things and to be a support.

One of the PHNs described her role in the making of a recent 'evidence-based,' health-related decision with community partners. The decision had to do with determining which business sector in the community should be the focus of attention or targeted by this coalition. The PHN discussed potential choices with other members of her team prior to bringing her recommendation forward to the coalition members she was collaboratively working with.

We went into a fair amount of detail trying to decide on what would be an appropriate sector to work with. We went back to data from the workplace safety and insurance board that we had some earlier access to. We looked at current issues in the workplace... current articles in the newspaper around businesses, and trends in businesses and so on. And [we] looked at actual numbers from our planning department at the region in terms of what sector had what numbers and where were accidents and injuries a concern. And ultimately decided that it was the high-tech sector, the small business high tech sector, that we would suggest the coalition target. We felt comfortable proposing that as our choice for the sector and when we brought forward that information and our reasons, we were in fact successful in helping the other organizations to also see that as an important sector.

In another example, a PHN described the collation of materials she gathered from peers, other health department teams, and some community partners. The collated material was used to develop a Tobacco Bulletin or fact sheet. The fact sheet was then distributed to some key decision-makers who were discussing and formulating some new policies. The PHN described the bulletin as a tool to get key information out to those decision-makers who needed it for 'evidence-based' policy decisions.

What we did was develop the Tobacco Bulletin that went out to the campus leaders. It outlined, here is where young adults are across the country and this is where our young adults from the University are and this is what [the students are] saying. We

> *got that out to the population of young adults, but we also got it out to the decision-makers who were about to decide should more places on campus be smoke-free and they were developing the campus smoke policies. We used that bulletin as a tool to get the research information out there.*

In order for the PHNs to optimally foster collaborative 'evidence-based' health-related decision-making in the community, they required support. The remainder of this chapter examines the barriers to and facilitators of EBDM that the PHNs identified.

Barriers to and Facilitators of 'Evidence-Based' Decision-making

Several categories of barriers to and facilitators of accessing, assessing, utilizing, and evaluating 'evidence' in the EBDM process were identified (see Table 4.8).

Perceived Barriers

The most commonly cited barriers concerned accessing information. They included: a lack of time, not having the support of a clinical nurse specialist (CNS), difficulty keeping up to date with the latest research, and not having information or 'evidence' accessible in the workplace. The PHNs also discussed some community concerns as a barrier to utilizing 'evidence' for decision-making. A lack of support for evaluation activities was also cited as a barrier.

> *But to have the support of the experts readily available makes our job much easier, and that piece has been significantly diluted for us.*

The PHNs described the lack of readily available and supportive experts within the health department as a perceived barrier to accessing 'evidence' and evaluating outcomes related to EBDM. Several of the public health nurses discussed the loss of the CNS and her supporting role due to restructuring over the past few years. They had previously experienced the benefits they had by having access to this source of expertise. The public health nurses felt the CNS assisted them in accomplishing a variety of activities including for example, facilitating access to a wide variety of sources and types of 'evidence', and keeping them informed about new research. This

TABLE 4.8
Perceived Barriers to and Facilitators of 'Evidence-based' Decision-making

EBDM Steps	Barriers	Facilitators
Accessing Information	Lack of or limited resources: lack of time Lack of or limited access to support: CNS, difficulty keeping up to date Lack of or limited access to 'evidence': not accessible in the workplace	Maximizing exposure/access: having access in the workplace Availability of resources and support Having CNS support and networking opportunities Educational opportunities related to attaining information management skills and computer skills
Assessing Information	Minimal	PHN skill development for assessing web based materials and critiquing the literature
Tailoring and Transferring 'Evidence'	Appropriateness	Minimal
Utilizing 'Evidence'	Community concerns	Minimal
Evaluating	Lack of support	Increased resources and support for evaluation

section combines the PHNs' responses related to whether they had CNS support, the lack of which is a key theme identified as a barrier to 'EBDM.'

> *Previously I've found that having a clinical nurse specialist on board was helpful, because that person could be consulted and would often be an expert in that field and could refer you to appropriate resources that you would need. So I really miss that particular function here and that resource at the health department.*

The PHNs reported that it was very difficult "*keeping up to date on new research findings and activities.*" They felt it was very important to their practice that they be informed. A lack of

access to the information and 'evidence' needed for decision-making was the third most frequently cited barrier to EBDM.

> *We used to have a CNS who constantly kept our team abreast of new research and anything that was new in the field that we needed to include in our practice. Now that those pieces have been cut back so much, it's really up to the practitioners to keep on top of those pieces and I find that a struggle.*

Some of the PHNs felt that the 'evidence' was "*probably out there*" but that they did not have access to it. The public health nurses did acknowledge the supportive role of the librarian in helping them track down research-based information, but they felt that they did not have the support people to help them get other types of information that they needed and, as a result, they struggled to find out the information on their own.

> *But I think having it accessible, right in the workplace would be really helpful. We've done things here at the health department before where we've had to scurry around and find data on the cost-effectiveness of programs. And we've all had to sort of scrape and search through our own personal contacts for knowledge of where things are, but I think it would be beneficial if that pool of knowledge can be somehow centralized for us to access.*

The PHNs felt that it was difficult to keep up with what was happening with other relevant programs and projects, which were occurring in other areas within the health department. However the main form of information that the PHNs felt they did not have enough access to was information from other health departments. This meant that PHNs had to "*reinvent the wheel.*"

The CNS was credited with keeping the nurses informed about what initiatives were successfully happening at other health departments and with knowing whom the PHN could talk to to find out more about areas of concern or interest. The loss of this key support person who had been available for the PHN within the health department meant that the PHN had to

"*struggle*" to keep current in her field of practice. "*It's hard keeping up-to-date on all of the various initiatives. It's a constant challenge.*" This challenge is harder now that the PHNs have limited access to a CNS.

> *We could all benefit from having some information about what ... health initiatives are going on in other parts of the country. What's been successful? How do our demographics compare to other demographics? That kind of thing so that when we are dealing with our own communities, we have some general knowledge of what else is going on out there.*

In discussing the benefits of having instant access to volumes of information with the use of the Internet, one public health nurse expressed her concerns that filtering all the material to find what was important and relevant to her practice was too time consuming. She stated that even when she did find something of interest she was not always sure about the usefulness of the information and asked whether it was "*worthwhile considering it as a possible strategy for our project.*"

> *I find that the way the health department was structured prior to this huge shift that's going on, we had access to the research results more quickly because we seemed to have more support. For example, if I went to [the CNS] when she was working with us here, she would know who I could contact to get the information I needed.*

Evaluation was another area where the PHN expressed a need for added support. One PHN stated that her team currently needed some help in developing an evaluation plan for a project that they are involved with. They just did not have the time to adequately develop the plan. She stated that in the past her team could have accessed the support of the CNS to help them.

> *We need to increase resources so that we can do adequate evaluation. We just don't have the time... Evaluation is so time intensive and costly. So we need to be adequately resourced to be able to do that. I believe that it is our role, definitely.*

The appropriateness of the 'evidence' to their particular context or setting was the main

barrier related to tailoring and transferring 'evidence'.

> *Well it might be [a] really effective approach but maybe [it is] too costly, maybe [it is] a language issue and it may be a tool that's available only in one language and not available in French and in our program we need to provide resources in both English and French. It may be an approach that worked well with a specific target group but may not be as appropriate for a particular group that we want to use it with. But then I guess we would look at, what could we adapt from it.*

Community concerns was the main category for barriers to utilizing 'evidence'. Grouped in this category were barriers related to a "*lack of resources to work with partnerships*", "*the workload of partner agencies*" and the different mandates and philosophy of other agencies.

> *Barriers may exist if you have a partner that shares a very different philosophy than you do, who is around the table, but perhaps [for] a very different reason. This could affect the decision-making process as a whole.*

Two PHNs discussed the need for the participants on community committees to delay decision-making until they had time "to check back with their agencies." They included the need of the PHN to also check back with the health unit in some instances, before making a final decision on some committees. One of the PHNs clarified her thoughts on what she meant, by describing systemic problems that were barriers to collaborative decision-making. These included "red tape", "reluctance to change", and "ownership."

> *Some times there are systemic problems. For example, this is the way it's been done [before] and this is the way our agency works. Sometimes it's a little bit of an ownership kind of thing. This is mine and I don't want to share.*

Perceived Facilitators

The most commonly cited facilitators were also related to accessing information or 'evidence'. They included: maximizing access in the workplace, having increased support, increasing networking opportunities, and having more educational opportunities to learn

information management skills. The PHNs focused their discussions on the benefits of having CNS support.

The PHNs felt that having access to a consultant and other resource people could help link the PHN to resources and research 'evidence'. Having a CNS was considered a facilitator to accessing 'evidence'.

The PHNs identified several activities that either increased their access to 'evidence' now or that would increase their access if they were more available. These included *"going to conferences", "presenting at conferences", "using the library"* and *"working on-line to access information."*

One PHN stated, "*It's quite easy now to access information through the use of computers and the Internet. We have a wide array of community health sites.*" Another PHN was aware of a current resource that facilitated her access to quality 'evidence' at work, but she also acknowledged that this resource was only available to a few nurses. Most of the PHNs interviewed were not aware of this resource.

> *They have set up on their G. drive so that I can automatically go to all of the health journals. The nursing journals, the medical journals, and so there was a whole database there with the number of journals and key areas that I could look for information. And with just a quick click of the mouse I'd be in there. And so for me, for the first time I have access to those very quickly... I will get on there and have a quick look at what's new and what's just come out in terms of, whether it's cervical cancer, prostate cancer, or any other new research. And it's great. I wish every nurse here could have that kind of set up where they could access those resources at a fingertip.*

One PHN spoke about the need to have an accessible centralized "*pool of knowledge*" to facilitate access to 'evidence'.

I think knowing a place where I could go and look at some of the research that's been correlated I think having it accessible, right in the workplace would be helpful. We've done things here at the health department before where we've had to scurry around and find data on the cost-effectiveness of programs. And we've all had to sort of scrape and search through our own personal contacts for knowledge of where things are, but I think it would be beneficial if that pool of knowledge can be somehow centralized for us to access.

Facilitators, identified by the PHNs, can provide the support that they need in order to optimally foster collaborative 'evidence-based' health-related decision-making in the community.

Revised Conceptual Framework for Collaborative 'EBDM' in Public Health Nursing

Several categories and clusters of data, and the sub-themes related to 'EBDM' in the community, have been discussed in this chapter, along with the barriers to and facilitators of 'EBDM.' Through the process of data analysis and interpretation, one main theme evolved: fostering collaborative "evidence-based" health-related decision-making in the community. The sub-themes associated with it include: holistically knowing the community; bridging 'evidence' with context; and the role of the PHN in actively managing information. The clusters of data related to the nature of context, the complexity of 'evidence', the EBDM process steps, and the activities of the PHN in those steps, have been discussed in detail. A revised conceptual framework showing a schematic representation of the relationships among many of these categories, clusters, sub-themes and the main theme is shown in Figure 4.7. The figure also shows the need for a supportive infrastructure to enable the PHN to optimally foster shared EBDM in the community level. It also shows that it is through the PHN's active role in bridging 'evidence' to context, knowing the community and active role in information management, that the PHN is able to foster EBDM at the community level.

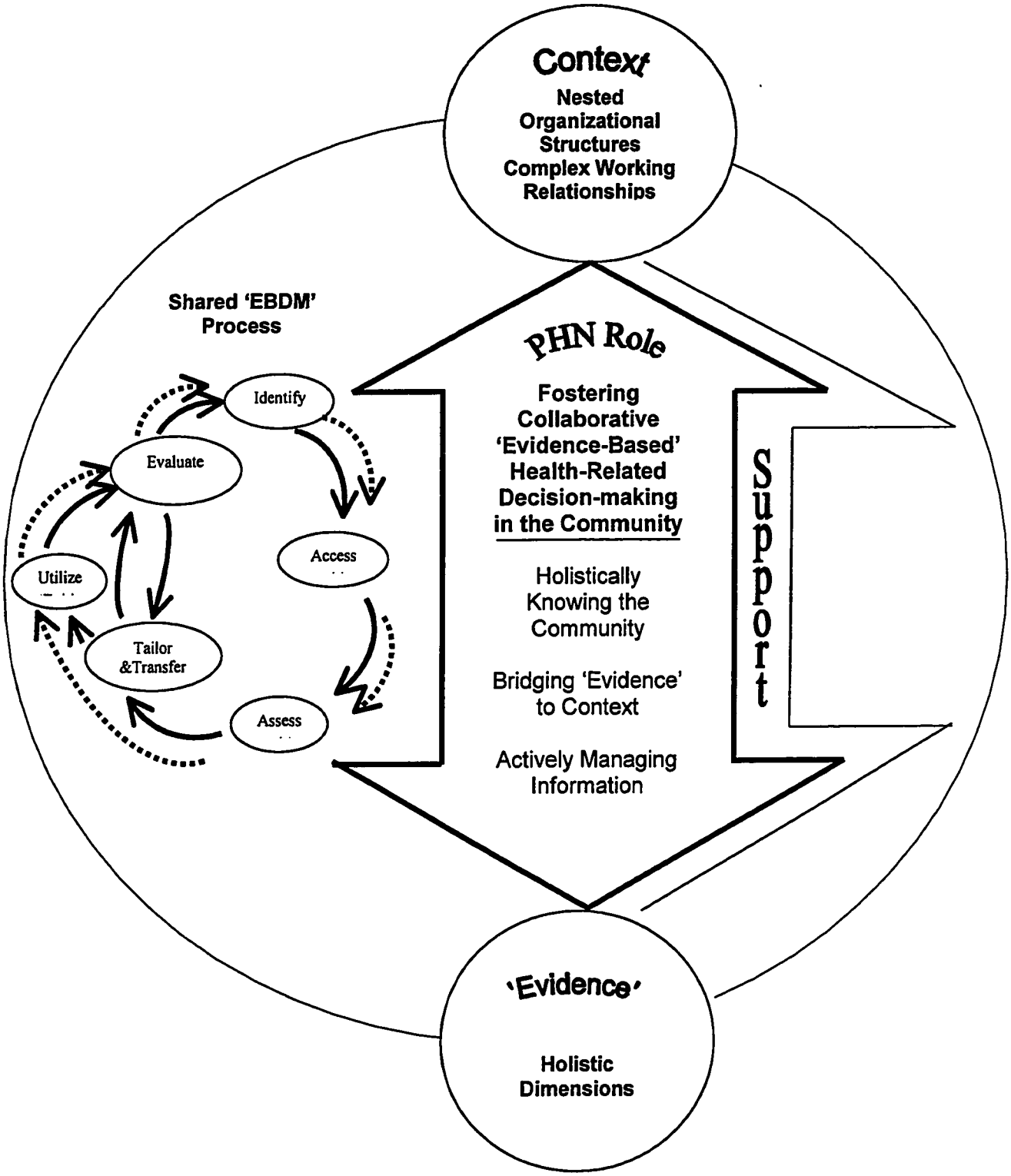


FIGURE 4.7
Revised Conceptual Framework for Collaborative 'EBDM' In Public Health Nursing Practice

CHAPTER V DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS

In this chapter the three research questions and the revised conceptual framework, along with choice of study methodology, and the study limitations and rigor are discussed. The chapter concludes with the implications and recommendations for practice, education, research, and policy.

Study Purpose and Rationale

Langley (1997) stated, "without insight as to what expert behaviour is or how it has developed, organizations cannot nurture the development of expertise, reward and retain members, or facilitate the diffusion of this expert knowledge among employees" (p.8). The same holds true for EBDM. If we do not have insight as to what EBDM is in public health nursing and what the barriers to and facilitators of EBDM are, we cannot develop a culture of EBDM in public health nursing.

The purpose of this study was to explore and describe from the perspective of the PHNs, the meaning of EBDM, the barriers to and facilitators of EBDM, and how PHNs bring 'evidence' to the decision-making process when they work with community partners.

Research Question #1

The first research question explored the PHNs' interpretation of the meaning of EBDM. The PHNs said that EBDM was a new name for something they had always done in their practice. It meant making informed decisions based on the best available information or 'evidence' and consideration of the outcomes they were seeking. They also described EBDM as a multi-step process that they sometimes shared with community partners.

The PHNs' definition of EBDM is very similar to that of the CNA. The CNA policy statement speaks of the "explicit, conscientious and judicious consideration of the best available evidence"

(CNA, 1998, p.2). The PHNs in this study had to reflect on their practice and the decisions they made; they had to think about the term EBDM and its relationship to their decisions. Although most were familiar with the term EBDM, and had made informed decisions in which they were very conscious of the use of best available 'evidence', they had not previously considered making explicit the 'evidence' base for their decision-making. PHNs need the opportunity to reflect on their decision-making and to discuss EBDM in relation to their practice if they are to make explicit their use of evidence.

J. B. Clarke (1999) put forward a pluralistic view of evidence, and the PHNs in this study have presented such a view. They defined 'evidence' holistically to include hard and soft data, contextual 'evidence' and professional experience. This holistic definition of 'evidence' is very similar to the view of several other scholars, for example, Estabrook's "entire gamut of evidence" (Estabrooks, 1998, p.28) and Kitson, Harvey and McCormack's (1998) definition of evidence.

Estabrooks (1999) discussed Carper's classification of nursing knowledge and its similarities with the conceptualization of evidence. Carper's (1978) four fundamental patterns of knowing included the empirics or science of nursing, the aesthetics or art of nursing, the ethics or moral component of nursing, and personal knowledge. The PHNs' holistic definition of 'evidence' fits with these four patterns of knowing and supports Estabrook's conceptualization.

The PHNs described EBDM as a multi-step circular process. This process is discussed in the section that examines the findings for the third research question.

Research Question #2

The second research question was what are the perceived barriers to and facilitators of using 'evidence' for clinical decision-making in public health nursing practice.

The barriers identified by the PHNs were very similar to the barriers to EBP identified by Simpson (1996). Additionally, the barriers cited covered all four of Ciliska, DiCenso, and Cullum's (1999) categories of barriers: individual, organizational, environmental and informational.

Most of the barriers reported by the PHNs in this study, related to accessing the information or 'evidence'. The number one barrier was a lack of time to actively access the information and to keep up-to-date. That is not surprising, as previous studies (Camiletti et al., 1998; Stolk et al., 1995) also found this to be the greatest barrier. The PHNs also felt that not having access to 'evidence' available in the workplace and not having information about similar initiatives at other health departments were barriers.

A lack of access to supportive experts was also reported to be a barrier. The PHNs reported previously having support from a CNS and they felt that the CNS had helped them access 'evidence' and keep up-to-date. Brownson, Gurney, and Land (1999) found that a lack of leadership in setting a clear and focused agenda for evidence-based public health was a barrier. The CNS role described by the PHNs provided both leadership and encouragement for the adoption of EBDM.

In terms of assessing the information, the PHNs in this study felt that they had only minimal difficulty with this task. They expressed some concerns with assessing material retrieved from the Web and interpreting statistical reports, but overall they felt confident in their ability to critique the literature. This finding is contradictory to Stolk and Mayo's (1995) study indicating 58.1% of PHNs did not feel capable of evaluating the quality of the research literature. Another difference noted is that in Stolk and Mayo's study, 58.7% of PHNs felt that study results could not be generalized to their setting. The PHNs in the current study did not express that concern.

They felt comfortable framing the findings in a manner that would be applicable to their particular context while not losing the essence of the original findings. There are several possible reasons for these contradictory findings. Either the PHNs in this study did not feel comfortable enough to verbalize their concerns to the researcher about assessing retrieved material, or it may be that the PHNs in this study were more experienced with research.

The PHNs expressed a positive attitude towards the use of EBDM. In previous studies (Camiletti & Huffman, 1998; Tranmer et al., 1997), having a positive attitude towards research was found to be one of the most important factors in determining whether decision-making was evidence-based or not. All but two of the nurses in this study spontaneously spoke about some current or recent research project that was happening in their health department. Four of the PHNs discussed their involvement in past research studies. Having past experience and familiarity with research may explain the PHNs' positive view about the use of 'evidence' as the basis of decision-making. It is possible that less experienced PHNs would not feel as positive towards EBDM.

The PHNs identified having increased access to information via the Internet, and having educational opportunities to improve their information management and evaluation skills as facilitators to EBDM. These have been previously identified as facilitators to EBDM in nursing (Manske, Lovato, Shoveller, & Velle, 2000; Nutbeam, 1996; Reid, 1999; Royle et al., 1997). Although they expressed a need for more training on using the Internet, all of the PHNs felt comfortable using a word processor and e-mail, and all but one PHN spoke about going to the Internet to look up information. The PHNs in this study displayed a greater comfort level with the use of computers in general, than did the PHNs in Camiletti and Huffman's (1998) study, in which less than half of the PHNs knew how to use a word processor. There are several possible

reasons for this difference. First, it is likely that the computer literacy of PHNs has increased considerably in recent years, as reflected in the general population. Second, the PHNs from this study may be very different than the general PHN population. In Rafael, Fox and Bewick's (2000) survey of nurses in public health, 72.2% of the PHNs ranked individual health counselling as the number one strategy that they use and 35.8% ranked coalition development and maintanence as the seventh strategy that they use. All the PHNs in this study were involved primarily in coalition development and maintenance and development of community supports. Only two of the PHNs spoke of their role in individual health counselling, and in both cases they stated that they were involved in that role only once and awhile. It may be that PHNs who use population health approaches and work with community partners may be a unique group of PHNs, and may have different skills and interests than PHNs working in other areas of practice.

An aspect that the PHNs did not consider is how they would handle all the information they would collect if they had increased opportunities and skills to access information from the Internet. Glasziou and Longbottom (1999) have stated concerns that when practitioners are faced with an information overload they may in fact not get the best information that they actually need for EBDM. The PHNs suggested that having a centralized database would facilitate their access to quality information. If the database contained quality information such as systematic reviews of the literature, it could assist the PHNs to access timely, relevant, quality information and help avoid the challenges of information overload.

Research Question #3

The third research question asked how do public health nurses bring 'evidence' to the decision-making process when working in partnership with community partners. In analyzing the data to find the answer to this third question, several themes were identified. This discussion

explores the process of bringing 'evidence' to the decision-making process described by the PHNs and their role and activities in that process.

The PHNs described an iterative process that involved a series of activities. The process has some similarities to the strategic six-step analytic decision-making approach to public health program planning described by Brownson, Gurney, and Land (1999). Brownson et al. developed their sequential, iterative process with the goal of providing public health practitioners with a framework and training course to increase the use of evidence in day-to-day decision-making regarding program planning. Their first step involved developing a concise statement of the issue. The PHNs in this study identified the issue as the starting point for the 'EBDM' process, however, they did not detail the importance of clarifying the issue that Brownson et al. describe. The PHNs did talk about keeping groups focused on the original goals, and they did describe the importance of always referring back to the goals. Had the researcher used different probes, she may have captured a more in-depth description of this step.

Brownson, Gurney, and Land's (1999) second step involved determining what is known from the scientific literature; the third step involved quantifying the issue; and the fourth step involved developing program options. In the process described by the PHNs in this study, activities similar to these three steps were described, but not in as much detail as in Brownson's et al. study. The second step described by the PHNs in this study involved accessing data/information and 'evidence.' The PHNs stated that it was very important to access the scientific literature, which included hard and soft data, but they also felt that it was important to consider contextual data/information and professional experience. In Brownson's et al. fourth step, several factors should be considered when examining the options. These include: "political/regulatory, economic, social values, demographic, and technological considerations" (p. 92). They also said

that for community interventions, key informant interviews, focus groups, and coalition member surveys should be considered as additional planning data.

Brownson, Gurney, and Land's (1999) fifth step required developing an action plan and step six involved evaluating the program or policy. The PHNs in this study did not describe formulating an action plan. They spoke about utilizing the 'evidence' to make the decision and they did include evaluation as a last step. The lack of description about developing a plan may be that the PHN focus was not program planning. Brownson et al. are speaking about public health practitioner's deciding on program planning priorities, rather than the evaluation of and use of evidence for collaborative decision-making, which was the focus of questioning for this study.

The PHNs' descriptions of the EBDM process reflected the complexity of the decision-making process in public health nursing that has previously been acknowledged by Lauri et al. (1998) and Bryans and McIntosh (1996). When the process is shared with community partners, the complexity is even greater.

The PHNs described EBDM as a shared process in which the community partners were encouraged to participate in each step. The CPHA booklet (1990) discussed in the literature review indicates that public health nurses participate in joint decision-making with community partners. The PHNs described their role in empowering partners to fully participate in all steps of the process, not just in making a joint decision. The PHNs described various levels of participation by their partners, from minimal participation where the PHN accessed and assessed the information or 'evidence' and then brought it to the partners to use, to full participation where the PHNs and partners shared in all steps of the process. Regardless of the current level of participation by the partners, the PHNs performed a unique activity in tailoring and transferring 'evidence' to their partners.

This tailoring and transferring step involved matching 'evidence' to the context; adapting the 'evidence' as needed but keeping the essence, and passing the 'evidence' on to community partners and decision-makers. The activity involved in this step is very much like Wallinder, White and Salveson's (1996) description of community health nurses as "translators or interpreters" for communities and policy makers. But the PHNs went beyond translating and interpreting; they carefully considered the community context and tailored and framed the 'evidence' to make it relevant. The tailoring and transferring activities were not just a one time effort to provide 'evidence' to the community partners. The PHNs often had to repeat the activity and frame the 'evidence' in another manner the next time to have it accepted and used in shared EBDM or in EBDM by the partners alone. Further research needs to be done looking at the tailoring and transferring concept with nurses in a variety of settings.

Three sub-themes and one main theme were identified. The main theme inductively derived from the data was the PHNs active role in fostering collaborative 'evidence-based' health-related decision-making in the community. The three sub-themes, holistically 'knowing the community', bridging 'evidence' with context, and actively managing information, are all interrelated components of the main theme.

Holistically 'knowing the community' involved the PHN knowing her community as a unique entity and having a broad determinants-of-health perspective. This concept of knowing the community is very similar to Hanchett's (1988) definition of community as an energy field whose identity is greater than the sum of the individuals and families in the community. It is also similar to Eng, Salmon and Mullan's (1992) understanding of the community as "a living organism" (p.1).

Bridging 'evidence' with context and actively managing information involved the PHNs

tailoring and transferring 'evidence' so that community partners would have access to quality information to use in decision-making. Maloff, Bilan and Thurston (2000) stated that community decision-makers need access to up-to-date, accurate information when they are participating in decision-making. The PHNs in this study described their role in enabling community partners to have that access.

Kitson, Harvey and McCormack (1998) described facilitators "as people who make things easier, help others towards achieving particular goals, encourage others, and promote action" (p.152). This accurately describes the PHNs role with community partners. Kitson et al. suggested that facilitation was an important influence on the successful implementation of 'evidence-based' practice and the findings of this study suggest it is also an important influence on the use of 'evidence' in community decision-making.

Braunstein, Young and Beanlands (2000) stated that public health nurses need to develop a new relationship with their communities in order to fully implement the primary health care principle of public participation. They indicated that there must be a balance between the expertise of community partners and the professional knowledge of public health nursing practice. The fostering role of the public health nurse appears to be the means by which PHNs enhance the expertise of community partners and enable them to fully participate in collaborative EBDM.

Conceptual Framework

A review of the literature regarding existing research utilization and decision-making frameworks provided some insight into the elements expected to influence joint EBDM in PHN practice. A proposed conceptual framework for joint EBDM in public health nursing practice was developed. The proposed framework also showed a beginning conceptualization of the

relationships expected to exist among the elements. This framework served several purposes. It aided the researcher in explicating the conceptualization of the elements expected to be involved in the EBDM process and thus served as a form of bracketing. It influenced the choice of a methodology that permitted a holistic examination of the subject from the participants' perspective. Finally, it aided in the analysis and interpretation of data.

A revised conceptual framework was developed via an inductive process of data analysis. This revised framework, based on the participants' interview responses and observations at team meetings, shows the PHNs' perceptions of and roles in the EBDM process. The elements from the original framework can all be accounted for in the revised framework. The revised framework elements are derived from the clusters and sub-themes that emerged from the data. They are presented in a manner that reflects the PHNs' roles in fostering shared EBDM with community partners. The largest box in the proposed framework represents the EBDM process. The revised framework shows that process as a shared multi-step circular process. The community partners have the potential to, and in some cases actually do, fully participate in all the steps of the process. To reflect that idea, the term shared, as opposed to joint, EBDM appears in the title of the process steps. The revised framework also captures the important role of the PHN in fostering that shared EBDM process by bridging 'evidence' to context. The framework highlights the PHN's need for organizational and environmental support if she is to successfully carry out her role in fostering shared EBDM in the community. This revised framework represents the synthesis of the PHNs' descriptions of their role, and it shows the key theme and the related sub-themes identified in this study. The revised framework presents a holistic view of the shared EBDM process. It emphasizes several understudied aspects of the PHN's role regarding EBDM in the community: bridging evidence to context, actively managing

information, tailoring and transferring 'evidence' to the community, and the 'knowing the community' concept.

The revised framework has many similarities to Logan and Graham's (1998) interdisciplinary model of research utilization. The interaction between the elements and the iterative processes are similar to those inductively derived from the findings in this study. Logan and Graham include the practice environment, potential adopters, and the evidence-based innovation as three elements requiring assessment for barriers and supports prior to any research transfer effort. In the revised framework in this study, the importance of the context (which includes community partners), the evidence and the PHN role, can be viewed as three parallel elements to Logan and Graham's first three elements. Logan and Graham also include transfer strategies as an element in their model. They discuss the need to tailor transfer strategies to the specific barriers and supports within the practice setting. The PHNs described their role in tailoring and transferring evidence to community partners for use in evidence-based health-related decision-making, and bridging evidence with context. The findings from this study suggest that Logan and Graham's interdisciplinary model of research utilization would be a useful tool to assess, monitor, and evaluate the research transfer of a new innovation to evidence-based health-related decision making in the community.

Methods

An ethnographic approach using observations, interviews and participant drawings as data collection tools, was the methodological approach used in this study. This approach allowed the researcher to explore in-depth the participants' perceptions about EBDM and the EBDM process that they share with community partners.

The researcher used purposive and opportunistic sampling. It was a successful technique in

that the participants chosen for the interviews were very involved in collaborative initiatives with a range of community partners. Hence they were able to provide in-depth descriptions of their shared decision-making situations.

The use of technology assisted the researcher with data reduction and analysis. A concern voiced by some qualitative researchers is that the use of computer software distances the researcher from the data (Polit & Hungler, 1997). The researcher found this to be an unfounded concern. In fact the researcher feels that integrating various software programs into the study methodology actually enhanced the analysis process. One of the strengths of the methodology used in this study was taping and transcribing interviews with voice activated software. This allowed the researcher to become more intimately familiar with the data. In addition to hearing and seeing the participants responding to the questions during the interview, the researcher was able to speak and hear the participants' words over and over as she transcribed the interviews using voice-activated software. Through the process of coding the interview text in N5, the researcher read the participant's words on the computer monitor. Through the multiple processes of hearing and seeing in person, hearing by tape, speaking into the computer, reading and coding via the computer the researcher became 'intimately involved' with the participants' words. The use of technology combined with traditional data analysis approaches was advantageous and strengthened the methodology of this study.

Another strength of the methodology was the use of a parallel coding technique that the researcher used to incorporate another level of checking the coding for each interview. The researcher first coded the data with the use of N5 software and searched for early conceptions of categories, concepts and themes. The researcher then used a printed copy of the transcript reading the text from a fresh perspective and allowing new insights to surface. The combined

coding technique assisted the researcher to immerse herself in the data so as to gain an in-depth understanding of the participants' responses.

Assurance of Rigor

A number of techniques were used to ensure scientific rigor. Lincoln and Guba (1985) propose four criteria for establishing trustworthiness of a study's findings: credibility, transferability, dependability and confirmability. The techniques used in this study will be discussed with respect to these four criteria.

Credibility refers to the truth or believability of the findings. Data triangulation involving interviews of multiple participants, method triangulation involving observations and interviews and the use of participants' in-depth descriptions aided in establishing credibility. In addition, two levels of member checks strengthen the credibility of the findings. The first level of member check occurred at the follow-up interview during which time the participants' clarified and verified the content of the transcript to reflect what they had intended it to reflect. The second level of member check occurred at the end of data analysis, when the researcher returned to the field and presented the preliminary findings regarding the main theme and the three sub-themes that emerged from the data. Thirty-six PHNs had the opportunity to discuss and confirm or disconfirm the researcher's interpretation of the data. Appendix S contains a copy of the handout given to the PHNs at the discussion of the preliminary findings. Note that the names of the sub-themes and the details contained in the handout are different then those used in the final interpretation presented in this thesis because the analysis presented was more preliminary.

Morse and Field (1995) recommend that existing theory be used as a template in the later stages of data analysis as an additional procedure to enhance credibility. This involves comparing or relating the findings to existing literature and theories. The participants' definition

of EBDM and 'evidence', the barriers and facilitators that they identified, and the emergent theme and sub-themes were all discussed in relation to differences and similarities with the existing literature.

Transferability, the qualitative equivalent of generalizability, refers to the ability of the findings to be applicable to other contexts. The findings from this study do have limited transferability. The purpose was to gain a deeper understanding of EBDM from the PHNs' perspective. However the researcher did provide thick description of the context throughout the study. The characteristics of the sample in terms of the activities they are involved in, the range of sampling from six teams and the descriptions of those teams' programs and planned activities (see Appendix T) will assist any researcher to judge the applicability of the findings to another population.

Dependability and confirmability refer to the auditability of the study findings. This means that if another researcher were given the data and a similar situation they would come to comparable conclusions (Sandelowski, 1986). The data collected for this study, including field and reflexive notes, interview transcripts, tapes, printed coding charts and matrices, as well as notes regarding the data analysis process, and drafts of the final report are organized and easily retrievable. The data will be kept for a period of five years.

Marshall and Rossman (1999) add an additional criterion for establishing trustworthiness. They suggest that the researcher explicitly describe the methodology and study design. Following Miles and Huberman's (1994) recommendation that qualitative researchers put more work into describing the methodological process used to conduct their study, a schematic diagram showing the methodological process used to conduct this study and a detailed description of the three phases of this study was presented. This adds to the dependability and

confirmability of the study's findings.

Study Limitations

The purpose of this exploratory study was to obtain PHNs' perspective of EBDM. The conceptualization of the process and the themes developed cannot be generalized beyond the parameters from which the findings are drawn. Generalizability is limited due to several factors. The sample of PHNs comes from the first teaching health unit affiliated with a university in Ontario and as such the PHNs have had increased resources (CNS support) in the past. They have also had more exposure to research projects. The sample is also drawn from only six teams within the Chronic Disease and Injury Prevention Division, which is a very limited scope of PHN practice.

Another area of concern is that the descriptions of the PHNs' decision-making experiences were based on those that they could recall within the allotted interview time. Although the descriptions encompassed a very limited range of the initiatives that they are involved with, the depth of descriptions they did give may compensate for this.

Observations as a data source were very limited due to the small amount of time the researcher spent in the field. With more time, the researcher would have been able to collect corroborating evidence to support the study's findings. Observations of actual decision-making in the community could also provide insight into the PHNs' involvement in fostering EBDM.

An additional limitation was that the researcher had minimal prior experience with interviewing and this affected her ability to probe the participants for in-depth responses. This was evident to the researcher when transcribing the interviews. There were times when the semi-structured interview format was followed too closely and questions were asked either too rapidly or prematurely. The researcher did notice that by the last interview she was able to use more

probes that encouraged participants to discuss their experiences in more depth.

A final limitation was related to the researcher's preconceived idea that 'evidence' equals research evidence. In examining the transcripts, it was evident that this idea did affect the wording of the questions and probes. This bias may be the reason that the analysis revealed that the researcher used the term evidence far more than the PHNs did. In spite of having this preconceived idea, the participants did however, identify, and confirm in the final verification, a holistic view of 'evidence'.

Implications and Recommendations

Given these limitations, a number of implications and recommendations will be discussed related to practice, education, research and policy. These recommendations are based on the study findings.

Practice

The PHNs responded favourably to the opportunity to reflect on their decision-making and they suggested that it would be beneficial for other PHNs to have similar experience. Such opportunities increase PHN awareness of EBDM and the importance of basing their decisions on solid 'evidence'.

The PHNs suggested that having increased access to CNS support would be a facilitator of EBDM. The CNS activities could include increasing awareness of EBDM and acting as role models and mentors to guide PHNs to access, assess, tailor and transfer, and utilize the best available 'evidence'. With limited access to CNS support, then more attention needs to be focused on a number of other strategies to support the PHNs' role in fostering EBDM. These include strategies aimed at increasing PHN access to quality information. The PHNs suggested that establishing a database of PHN resources, current initiatives, evaluations, systematic reviews

and studies would improve their access. Another method of increasing their access to pre-screened, quality information includes the development and dissemination of practice guidelines specific to health promotion and illness prevention. The PHNs also suggested that they need opportunities to network with peers from other health departments. Communication links to peers at other health departments could be facilitated with the use of the Internet and discussion groups. The PHNs suggested that they need opportunities to access information on evaluated initiatives. Developing a standardized reporting system for public health initiatives and evaluations could facilitate the sharing of information and it would build the 'evidence' base for practice. PHNs also need professional development opportunities to learn about EBDM, evaluation and disseminating strategies. They need hands-on opportunities to learn information processing skills (accessing, critiquing, synthesizing skills) as well as skills to maximize their use of technology.

One of the recognized roles for the PHN is advocating for clients. This advocacy role can be expanded so that PHNs consciously advocate for their communities to have access to 'evidence' to use in their decision-making.

Education

Nursing curriculum could provide opportunities for students to discuss EBDM in all courses and could emphasise the need to make explicit the quality 'evidence' used for decision-making. Curriculum development could incorporate teaching strategies that foster EBDM skills, in particular synthesizing, compiling, tailoring and transferring skills. PHNs need to learn how to integrate clinical judgment with contextual data and existing 'evidence'. The undergraduate curriculum should offer structured opportunities to use technology to access quality information and it should emphasize the need to critically appraise that information. Graduate education

should prepare CNSs to have the skills needed to support the PHNs' role, as well as the skills required to advocate for the needed support. Educational strategies to support EBDM need to be evaluated as part of the accreditation system for schools of nursing.

Brownson, Gurney, and Land (1999) provided their six-step analytic decision-making framework in the form of a new course on evidence-based public health. They received positive feedback from the participants and are in the process of revising the course. Following their example, further refinement of the revised framework presented in this study and the development of a similar professional development course in EBDM, targeted at PHNs, may lead to a greater use of EBDM in public health nursing practice.

Research

Poland, Boutiler, Tobin, and Badgley (2000) have expressed concerns that the best available 'evidence' may not be appropriate for the local community. However, the PHNs in this study felt confident that they could assess available 'evidence' and, if it was not appropriate for their community, they could adapt it or frame it in a manner that would make it useful and acceptable to their community. This would involve a complex cognitive activity. This function by PHNs has not been identified and studied previously. Research regarding the PHN role in framing and adapting information, and research examining their role in tailoring and transferring 'evidence' is needed.

Another area for the nursing profession to focus attention on is the study of knowledge utilization, which refers to the utilization of information. This may be important to study because it reflects the broader, more holistic view of 'evidence' that the PHNs described.

Future research using the interdisciplinary model of research utilization developed by Logan and Graham (1998) could provide evidence of the effectiveness of the PHNs transfer strategies.

Research using their model in the public health setting could also provide important information about the EBDM process, the barriers and facilitators, and the outcomes of PHN activities related to fostering evidence-based health-related decision-making in the community.

Future research on the community partners' perspectives on EBDM could contribute additional insights into the PHN role in shared EBDM. In addition to these specific areas for future research, there is a need for a both quantitative and qualitative research on the effectiveness of PHN initiatives to expand the pool of 'evidence' to guide decision-making. Also recommended is future research to refine the framework developed in this study.

Policy

A number of recommendations for policy level changes are suggested by the study findings. The CPHA should consider revising the *Community Health/Public Health Nursing, Preparation and Practice* (CPHA, 1990) booklet. The current listing for PHN activities does not include EBDM. In addition, the listing of skills could be expanded to include information retrieval, information provision for decision-making, tailoring and framing of 'evidence' to meet community needs, information management, and computer skills. This guide is used to define the scope of practice for PHNs and it needs to reflect the reality of current practice. Revising this key document would send a clear message to the educational institutes that they need to incorporate skill building in these areas.

The findings from this study suggest that the development of a centralized database would be beneficial. The Community Health Nurses Interest Group (CHNIG) along with CNA, could take on the role of advocating for such database support but more importantly, they could advocate for funding to increase resources for PHNs' networking opportunities with peers, experts and community partners. They could also advocate for increasing resources for evaluation of current

public health nursing practice. Specifically, they could take the lead in securing funding to develop a standardized reporting system for initiative outcomes in public health practice. They could advocate for incentives to encourage PHNs to publish their strategies and evaluations, and to organizations to improve professional development programs to teach PHNs skills for evaluating and publishing results. These activities could aid in developing the pool of 'evidence' available for decision-making. Both CNA and CHNIG need to advocate for increased funding for CNSs that could support PHNs' role in fostering EBDM in the community.

Conclusion

Tranmer, Squires, et al. (1997) stated that members of the Canadian health care system should clearly articulate the definition of EBDM. This descriptive, ethnographic study explored public health nurses' perception of EBDM and it presents a beginning articulation of their activities in fostering EBDM in the community. The findings indicated that for the PHNs in this study, EBDM means consciously making informed decisions that are based on solid evidence that is relevant and timely to their particular context and setting. The main theme inductively derived from the data highlights the PHNs' role in fostering EBDM in the community. Through holistically knowing the community, actively managing information, bridging evidence to context, and facilitating EBDM, PHNs enable community partners to fully participate in shared EBDM.

The National Forum on Health (1997) describes a vision of an evidence-based health system in which all decision-makers have access to relevant and timely information. They envision a health system where all decision-making is evidence-based. In order to have such a health system, they identified a number of decision-maker needs. Community decision-makers need evidence that is as specific as possible to their situation and that takes into account cultural,

regional and individual differences. PHNs are uniquely positioned to assist in making this vision a reality. Through their role in fostering EBDM in the community, PHNs are able to build capacity for EBDM and they are able to maximize the use of quality evidence as the basis of health related decision-making that happens in the community. PHNs need access to quality information, they need skills and technology, and they need adequate support and resources to enable them to optimally perform this important role.

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Appendix A

Role of the Community Health/ Public Health Nurse
(CPHA, 1990)

PHN Roles

Health Promotion

Illness and Injury Prevention

PHN Involvement in Activities

Care/Service Provider	Educator	Communicator
Consultant / Resource Person	Social Marketer	Community Developer
Team Member/Collaborator	Policy Formulator	Researcher/Evaluator
Facilitator: leader, enabler & advocate	Resource Manager	Planner, Coordinator

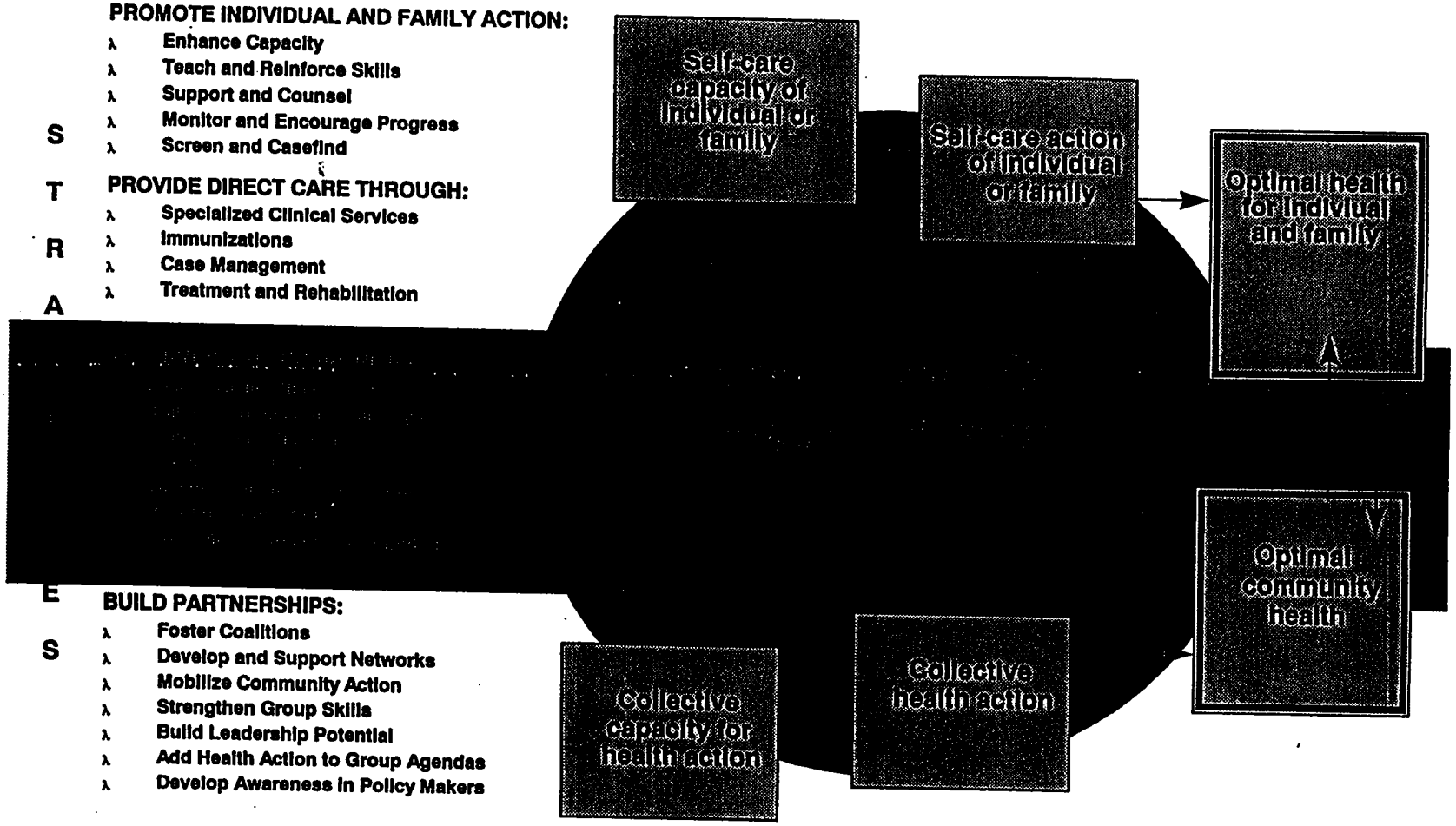
PHN Skills

Individual/Family assessment, screening and diagnosis	Adaptation of techniques & approaches to setting
Technical procedures: immunizations, vaccines	Decision-making using nursing process and ethics
Research analysis and conduct	Adaptation of programs to meet cultural needs/alternative lifestyles
Advising & Teaching	Joint decision-making with clients and community
Counseling; supportive/crisis	Management, administration
Consultation	Program: planning, development, implementation, and evaluation
Team Building: peers, multidisciplinary, community partners	Resource allocation
Group Facilitation: process and leadership	Advocacy for clients: individuals, families and communities
Communication: oral and written	Community development
Active listening, information provision and retrieval	Policy development
Priority Setting in response to needs	Negotiation/compromise

APPENDIX B

Framework for Public Health Programs

A Collaborative Approach



City of Ottawa- Public health and Long Term Care Branch (2001)

APPENDIX C

Summary of Research Utilization Literature

Contribution to the RU Literature	Researchers
Elements (Nursing)	(Brunton et al., 1997; Closs & Cheater, 1994; Cullum, 1999; Cullum, DiCenso, & Ciliska, 1998; Dobbins et al., 1998; 1999a; Estabrooks, 1998; Kitson et al., 1996; Logan et al., 1998; Luckenbill Brett, 1989; Luker et al., 1992; Royle & Blythe, 1998; Varcoe et al., 1995)
Elements (CH/PHN)	(Stolk, 1995)
Models and Frameworks (Nursing)	(Dobbins et al., 1998; Dufault et al., 1995; Estabrooks, 1999c; Goode et al., 1987; Horsley, Crane, Crabtree, & Wood, 1983; Kitson et al., 1996; Kitson et al., 1998; Logan et al., 1998; Logan, Harrison, Graham, Dunn, & Bissonnette, 1999; McGuire et al., 1994; Rogers, 1997; Stetler, 1985; Stetler, Bautista, Vernale-Hannon, & Foster, 1995; Titler et al., 1994; Tranmer et al., 1995)
Models (CH/PHN)	Camiletti, 1998
Barriers and Facilitators (Nursing)	(Bostrom & Suter, 1993; Brett, 1987; Butcher, 1995; Champion, 1986; Champion et al., 1989; Closs et al., 1994; Coyle & Sokop, 1990; Dunn et al., 1998; Edwards-Beckett, 1990; Estabrooks, 1997; Funk et al., 1991; Funk et al., 1995; Hunt, 1996; Kajermo, Nordstrom, Krusebrant, & Bjorvell, 1998; Kajermo, Nordstrom, Krusebrant, & Bjorvell, 2000; Kim & Kim, 1996; Lacey, 1994; Larsen & Thurston, 1997; Logan et al., 1999; Luckenbill Brett, 1989; McSherry, 1997; Mead, 2000; Mulhall & Le May, 1999; Parahoo, 2000; Pearcey, 1995; Pettengill et al., 1994; Rizzuto et al., 1994; Rodgers, 1994; Royle et al., 2000a; Royle et al., 1997; Shively et al., 1997; Simpson, 1996; Stetler, 1985; Stetler, 1989; Tenove, 1999; Varcoe et al., 1995)
Barriers and Facilitators (CH/PHN)	(Camiletti et al., 1998; Ciliska et al., 1999b; Clarke, 2000; Hayward et al., 1993; Lia-Hoagberg et al., 1999; Mitchell et al., 1995; Stolk et al., 1995; Strohschein et al., 1999)

APPENDIX D

Summary of Decision-making Literature

Contribution to the DM Literature	Researchers
Elements (Nursing)	(Baumann & Deber, 1987; Baumann et al., 1982; Benner, 1984; Benner, 1987; Boychuk Duchscher, 1999; Brett, 1987; Corcoran, 1986; Coyle et al., 1990; de la Cruz, 1994; Dobbins et al., 1998; Dwyer et al., 1992; Florio, 1993; Goode et al., 1999; Harbison, 1991; Henry, LeBreck, & Holzemer, 1989; Henry, 1991; Hughes et al., 1990; Jenkins, 1985; Jenks, 1993; Kerrigan, 1991; Lewis, 1997; Lomas, 1993; McArthur & Dickinson, 1999; Miers, 1990; Orme et al., 1993; Pardue, 1987; Rew, 1988; Rhodes, 1985; Tanner et al., 1987; Thiele et al., 1991; Thompson, 1999; Thompson et al., 1985; Tranmer et al., 1998; Varcoe et al., 1995; Watson, 1994)
Elements (CH/PHN)	(Boblin-Cummings et al., 1999; Bramadat, Chalmers, & Andrusyszn, 1996; Brownson et al., 1999; Bryans et al., 1996; Hansen et al., 1968; Lauri et al., 1997; Lauri et al., 1995; Lemmer, 1998; Lemmer et al., 1998; Luker et al., 1992)
Models & Frameworks (Nursing)	(Benner, 1984; Benner et al., 1996; Butcher, 1997; Garre, 1992; Goode et al., 1999; Harbison, 1991; Henry, 1991; Huberman, 1987; Kerrigan, 1991; Lauri et al., 1995; Lewis, 1997; Pesut, Herman, & Fowler, 1997; Phillips & Rempusheski, 1985; Thiele, Baldwin, Hyde, Sloan, & Strandquist, 1986; Tranmer et al., 1998; White et al., 1992)
Models & Frameworks (CH/PHN)	(Brownson et al., 1999; Bryans et al., 1996; Hansen et al., 1968; Lauri, 1992; Lauri et al., 1997; Lauri et al., 1995)
Barriers & Facilitators (Nursing)	(Haynes, 1999; Ingram, 1996; Kerrigan, 1991; Lewis, 1997; Miers, 1990; Newman et al., 1998; Pardue, 1987; Reid, 1999; Royle et al., 2000a; Royle et al., 1997; Tanner et al., 1987; Taylor-Piliae, 1998; Watson, 1994)
Barriers & Facilitators (CH/PHN)	(Harden, Peersman, Oliver, & Oakley, 1999; Hayward et al., 1996; Lemmer et al., 1999; Luker et al., 1992)

APPENDIX E

Barriers to EBP and EBDM

Individual Variables Lack of time (to access, gather, critique/ analyze, or use information/evidence)	(Brownson et al., 1999; Ciliska, DiCenso, & Cullum, 1999a; Cullum, 1999; DiCenso et al., 1998; Simpson, 1996)
Lack of skills in finding, appraising and/or utilizing evidence for EBDM	(Brownson et al., 1999; Ciliska et al., 1999a; DiCenso et al., 1998; Glasziou et al., 1999; Harden et al., 1999; Royle et al., 2000b; Simpson, 1996)
Motivation Negative attitudes/beliefs about EBP	(Newman et al., 1998; Simpson, 1996; Tranmer et al., 1997)
Organizational Variables Low management priority for EBP Lack of administrative support	(Newman et al., 1998; Royle et al., 1998; Royle et al., 2000b; Simpson, 1996)
Difficulties in management of innovations and change	(Newman et al., 1998; Simpson, 1996)
Short term views	(Brownson et al., 1999)
Lack of leadership regarding EBPH	(Brownson et al., 1999)
Environmental Variables Lack of collaboration within and among agencies	(Royle et al., 2000b)
Information seeking not encouraged	(DiCenso et al., 1998)
Inadequate training and/or professional development opportunities	(Brownson et al., 1999; Newman et al., 1998; Simpson, 1996)
Lack of access to consultants & change agents	(Simpson, 1996)
Resource/financial constraints Political interests	(Clarke, 2000; Newman et al., 1998; Simpson, 1996)
External pressures that drive process away from evidence-based approach	(Brownson et al., 1999)
Information Based Variables Lack of or limited access to information or evidence Lack of access to journals	(Ciliska et al., 1999a; Cullum, 1999; DiCenso et al., 1998; Newman et al., 1998; Reid, 1999; Rolfe, 1999; Simpson, 1996)
Lack of evidence or lack of consensus regarding evidence	(Harden et al., 1999; National Forum on Health, 1997; Reid, 1999; Rolfe, 1999; Royle et al., 2000b)
Lack of up to date information on effectiveness of public health programs, policies and interventions	(Brownson et al., 1999; Clarke, 2000; Harden et al., 1999; Hayward et al., 1996)
Overwhelming amounts of information due to information technology	(National Forum on Health, 1997; Royle et al., 1998)
Evidence that is not appropriate, relevant, useful, user friendly and/or is of poor quality	(National Forum on Health, 1997; Simpson, 1996)
Scientific journals language not understandable	(Estabrooks, 1998; National Forum on Health, 1997)
Complex guideline structure	(Lia-Hoagberg et al., 1999)
Extensive processing required before utilization of evidence	(Haynes, Hayward, & Lomas, 1995)
Problems with dissemination	(Newman et al., 1998; Tranmer et al., 1997)
Extensive processing required before utilization of evidence	(Haynes et al., 1995)

APPENDIX F

Facilitators to EBP and EBDM

Making EBP an integral part of organizational policy at all levels and increasing nurse awareness of EBP	(Royle et al., 2000a)
Training and support for EBP	(Bloomfield, Didsbury, Sharpe, & Jackson, 1999)
Positive attitude towards research	(Closs et al., 1994; Tranmer et al., 1997)
Training in information management Use of distance technologies for dissemination of training programs	(Brownson et al., 1999; Royle et al., 1997)
Skill development in accessing, assessing and utilizing evidence in practice	(Bloomfield et al., 1999; Brownson et al., 1999; Reid, 1999)
Use of multiple dissemination strategies: use of websites, newsletters, journals, presentations	(Brownson et al., 1999; Harden et al., 1999)
Systematic dissemination and communication strategies	(Brownson et al., 1999; Tranmer et al., 1997)
Development of a health information system to provide CHNs with data to support EBDM	(Clarke, 2000)
Specialized registers for health promotion studies	(Harden et al., 1999)
Relevant and user friendly information systems	(Royle et al., 2000b)
Systematic reviews	(Ciliska et al., 1999a)
Increased development and dissemination of clinical guidelines Use of a simplified format and mentorship	(Bloomfield et al., 1999; Brownson et al., 1999; Lia-Hoagberg et al., 1999; Tranmer et al., 1997)
Synthesized research by researchers independent from management and government influences	(Brunton et al., 1997)
Developing a 'bridging agency'	(Butcher, 1997)
Provision of appropriate information resources	(Royle et al., 1997)
Outcomes focused program planning Formative evaluation and monitoring of outcomes	(Brownson et al., 1999; Harden et al., 1999; Nutbeam, 1996; Tranmer et al., 1997)
Organizational support	(Royle et al., 1998; Royle et al., 2000b; Tranmer et al., 1997)
Public health leadership commitment to increase the use of effective interventions	(Brownson et al., 1999)
Nursing research committees that emphasis use of research as the optimal evidence	(Clarke, 2000; Royle et al., 2000a)
Workshops, training programs	(Ciliska et al., 1999a; Nutbeam, 1996; Royle et al., 2000b)
Evidence-based nursing centres	(Ciliska et al., 1999a)
Increased funding for applied public health research	(Brownson et al., 1999)
Peer mentorship and access to experts	(Royle et al., 2000b)

APPENDIX G

University of Ottawa Ethical Approval

Université d'Ottawa · University of Ottawa

Cabinet du vice-recteur à la recherche — Office of the Vice-Rector, Research

HEALTH SCIENCES AND SCIENCE RESEARCH ETHICS BOARD

CERTIFICATION OF ETHICAL APPROVAL

This is to certify that the University of Ottawa Health Sciences and Science Research Ethics Board has examined the Application for Ethical Approval for the research project *Evidence-Based Decision-Making and Public Health Nurses (File H11-00-14)* submitted by Cindy Versteeg. The REB found that this project meets appropriate ethical standards as outlined in the Tri-Council Policy Statement and in the Procedures of the University of Ottawa Research Ethics Boards and accordingly gave it a Category Ia (Approval). This certification is valid for one year from the date indicated below.

Lise Frigault
Protocol officer for ethics in research,
for the Chair of the Health Sciences and Science REB
Julian Roberts

December 20, 2000
Date

FILE NUMBER: H11-00-14

550, rue Cumberland C.P. 450, Succ. A
Ottawa (Ontario) K1N 6N5 Canada

550 Cumberland St., P.O. Box 450, Stn. A
Ottawa, Ontario K1N 6N5 Canada

(613) 562-5270 • Téléc./Fax (613) 562-5271

APPENDIX H

City of Ottawa Ethical Approval

File Number 050021

February 8, 2001

Cindy Versteeg, RN MScN (cand.)
Graduate Student, University of Ottawa

Dear Cindy

Re: Research Study: Evidence-based Decison-making & Public Health Nurses

I am pleased to inform you that your proposal has been reviewed and accepted by the Research Ethics Board at the Public Health Branch, City of Ottawa. You may begin data collection as per the schedule you have established with the members of the Chronic Disease and Illness Prevention Program.

You are reminded to inform the Board if you have any major changes in your proposal. At the end of your study, you are to submit an end of project report.

On behalf of the Board, we wish you well in your endeavours. Please do not hesitate to contact Jane Simpson, Administrative Support to the Research Ethics Board at 724-4122, ext. 23643 if you require further information.

Sincerely,

Dr. Elizabeth Diem
Chair, Research Ethics Board
Public Health
City of Ottawa

j/s

cc: Dr. G. Dunkley, Associate Medical Officer of Health

APPENDIX I

Letter of Introduction to Program Manager

January 8, 2001

Miss Maureen Murphy,
Director, Adult Health Division.

Dear Miss Murphy,

I am a graduate student in nursing at the University of Ottawa. My clinical background is in public health nursing. As a requirement for my masters in nursing, I am interested in conducting a qualitative research study on evidence-based decision-making by public health nurses. Dr. Nancy Edwards, Associate Professor of Nursing, University of Ottawa and Director, Community Health Research Unit will supervise my study.

I am requesting permission to attend team and committee meetings to observe and take field notes for the months of January, February and March 2000. I am interested in working with one or more of the following teams in the Adult Health Division: the Tobacco Use and Cancer Prevention Team, Injury Prevention Team, Heart Health and Urban/ Rural Services Team and Nutrition/Workplace Health/Risk Reduction Team. I am also seeking permission for further study with public health nurses. I would like to complete 6-10 individual interviews with interested public health nurses. The nurses will be individually approached via a phone call and invited to participate on a voluntary basis, at a time and location convenient to them. If possible, I would like to conduct these interviews during the public health nurse's regular working hours. Interviews will be for 30 – 60 minutes in duration and an optional second interview may be requested for clarification and expansion of their ideas. The interviews will be conducted over the three months of January through to March, 2001. In April, a group presentation of the findings will be offered to interested teams. This will also provide an opportunity for me to verify my findings of the study. I have enclosed a table that outlines the requested public health nursing time and involvement.

Confidentiality of all participants (teams and individuals) will be protected and this study has been approved by the University of Ottawa Ethics Committee. No names or identifying information will appear on the transcripts or any other document that is produced based on this study. For further information see attached consent form.

Thank you for your assistance with this study. It is my hope that the information acquired in this study will be useful to practising public health nurses, nursing managers and educators.

Sincerely,

Cindy Versteeg, BA, BScN, MScN (cand.)

For further information contact:

Cindy Versteeg RN, BScN, MScN(cand.) E-mail: cindy@brudenellsoftware.com 274-7359

Thesis Supervisor:

Dr Nancy Edwards, RN, PHD, Associate professor, School of Nursing, Director, Community Health Research Unit, University of Ottawa E-mail: nedwards@zeus.med.uottawa.ca 562-5800 ext. 8395

APPENDIX J

Requested Public Health Nursing Time

Methods	Staff Involvement	Duration	Time Frame
A. Identification of key informants ♦ Observations at Team and Committee Meetings (with health department staff and with community partners)	♦ Researcher to be invited to attend and observe at team and committee meetings occurring during data collection stage ♦ Researcher to explain very briefly here presence and the study purpose ♦ Researcher will leave the meeting if requested by staff ♦ Researcher will invite participation in study as needed		February, March and April, 2000
B. Data Collection ♦ Interviews ♦ Demographic Questionnaire	♦ Maximum of 10 PHN's from Adult Health Division ▪ Tobacco Use and Cancer Prevention Team ▪ Injury Prevention Team ▪ Heart Health and Urban/ Rural Services Team ▪ Nutrition/Workplace Health/Risk Reduction ♦ Interview participants will be requested to fill out a demographic questionnaire and sign a consent form	♦ Maximum of 60 min. per PHN ♦ Optional second interview maximum of 60 min.	February, March and April, 2000
C. Data Confirmation ♦ Reviewing (validating) transcript ♦ Presentation of findings	♦ Participants will be invited to review the transcript of their interview for validation ♦ Presentations will be offered at end of data collection period to all participants including members of the teams that were observed	♦ 30 minutes	April

APPENDIX K

Example of Letter of Introduction to Team

Letter of Introduction

I am a graduate student in nursing at the University of Ottawa. As a requirement for my masters in nursing, I am interested in conducting a research study on evidence-based decision-making by public health nurses. Dr. Nancy Edwards, Associate Professor of Nursing, University of Ottawa and Director, Community Health Research Unit will supervise my study.

I am working with public health nurses in the Adult Health Division of the Ottawa Carleton Health Department. I have obtained approval from the health department to conduct this study. I am requesting permission from each of you to attend this meeting today to observe the role of the public health nurse. My objectives for observing at this meeting include:
to gain insight into the setting and context of the study
to identify potential decision-making situations to discuss with individual public health nurses
to identify key informants (public health nurses) for individual interviews that will occur later
to gain insight into what questions and probes could be used to get in-depth responses from public health nurses that volunteer to be interviewed later.

I will be taking field notes for my use only but I agree not to quote or rephrase anything said by anyone at this meeting. Confidentiality of all participants attending this meeting will be guaranteed and no names or identifying information will appear on any other document that is produced based on this study. If you have any concerns or wish me to leave at any time during the meeting, let me know and I will comply by leaving.

All team members of the Adult Health Division of the Ottawa Carleton Health Department will be invited to a presentation of the study's findings. No individual or team will be identified in name but in describing the study context, the identity of a team as a division of the Adult Health Division of the Ottawa Carleton Health Department may be revealed.

Please feel free to ask me any questions you may have. Thank you for your assistance. It is my hope that the information acquired in this study will be useful to practising public health nurses, nursing managers and educators.

Sincerely,

Cindy Versteeg, BA, BScN, MScN (cand.)

For further information contact:
Cindy Versteeg RN, BScN, MScN(cand.) E-mail: cindy@brudenellsoftware.com 274-7359
Thesis Supervisor:
Dr Nancy Edwards, RN, PHD, Associate professor, School of Nursing, Director , Community Health Research Unit, University of Ottawa Email: nedwards@zeus.med.uottawa.ca 562-5800 ext. 8395

APPENDIX L-1

Consent Form

Evidence-Based Decision-making and Public Health Nurses Study
Informed Consent for Interview Code # _____

In signing this document, I am giving my consent to be interviewed by the researcher in this study. I understand that I will be part of a research study that will focus on the decision-making experiences of public health nurses. The researcher will be exploring public health nurses' perceptions about evidence-based decision-making. The researcher will also explore public health nurses' experiences with the decision-making process shared with community members in planning for health promotion initiatives. This study is being conducted by Cindy Versteeg for completion of her thesis for the Master of Science in Nursing Program at the University of Ottawa.

I understand that I will be interviewed for approximately 30-60 minutes, at a location and time of my choice. I understand that the researcher may request a second follow-up interview to clarify or further explore my ideas. I understand that managers of the Ottawa Carleton Health Department have agreed that these interviews may occur during regularly scheduled hours of employment. I understand that my participation will be completely voluntary and I may withdraw from this study at any time. I may also refuse to answer any questions I do not wish to answer.

I agree to have my interview audio-taped. I can request that all or part of the tape be erased during the interview. I understand that all information will be kept confidential. No one other than the transcriber, the researcher and her thesis committee members, who are all members of the faculty at the University of Ottawa, will hear the tapes. I understand that my name will not be attached to the tape or the transcript. The tapes will be erased after the researcher defends her thesis and submits it to the department of Graduate Studies. The transcripts will be stored in a secure location for a period of five years after completion of the study and then destroyed at that time.

I understand that I will be asked to fill out a one page demographic questionnaire that will contain no personal identifying information on it. I will have the opportunity to review all transcripts made from my participation and I will have the right to remove any quotes I do not wish to be used in this study or that identify me. In describing the context of the study, it is likely that the team with which I am affiliated may be identified. I will receive no payment for my participation. A brief summary of the findings of this study will be given to me at the end of the study. If I wish to receive a copy of any published article that is based on the findings from this study, I will indicate this by filling in the attached request.

I understand that there is no risk to me and that my participation will have no impact on my current position at the Health Department. This study will offer me the opportunity to reflect and discuss my skills and practice in terms of the decisions I make and the evidence I use to make decisions. I understand that this study will contribute to the body of knowledge about evidence-based decision-making as described by public health nurses.

APPENDIX L-2

There are two copies of this consent form, one of which I may keep. I acknowledge receipt of this consent form.

Date: _____

_____
Participant's Signature

_____
Interviewer's Signature

For further information or any questions or concerns contact:
Researcher: Cindy Versteeg 274-7359 or e-mail: Cindy@brudenellsoftware.com
Supervisor: Dr Nancy Edwards 562-5800 ext. 8395 or e-m ail: nedwards@zeus.med.uottawa.ca

For questions or concerns about Ethics contact:
Lise Frigault, Protocal Officer for Ethics in Research, University of Ottawa
(613) 562-5800 ext. 1787 or e-mail: lfrigaul@uottawa.ca

APPENDIX M

Demographic Questionnaire

Code # _____

1. How long have you been practising as a nurse? _____years _____months

2. How long have you been practising as a public health nurse? _____years _____months

3. How long have you been practising in this agency? _____years _____months

4. Are you a _____ male or _____female

5. Please indicate your age:
   _____ under 35 years
   _____ 35-49 years
   _____ 50 plus years

6. What is the highest level of education you have obtained?
   _____Diploma of public health nursing (DPHN)
   _____Bachelor of Science in Nursing (BScN)
   _____Masters of Science in Nursing (MScN)
   other: please specify_____

7. Do you work full-time or part-time? (circle your choice) full-time part-time

8. What is your primary area of practice?_____

9. How long has it been since you completed a course in research methods? (circle your choice)
   less than 1 year 1-5 years 6-10 years more than ten years

10. Overall, how would you rate your critical appraisal skills, skills to appraise evidence for use in your practice as a public health nurse?

1	2	3	4	5	6	7	8	9	10
poor									excellent

11. Do you feel you have the tools and technology to use evidence for decision-making? Please circle your answer and provide an explanation of your answer below or on the back of this page.

YES NO

Explanation:

_____

_____

_____

_____

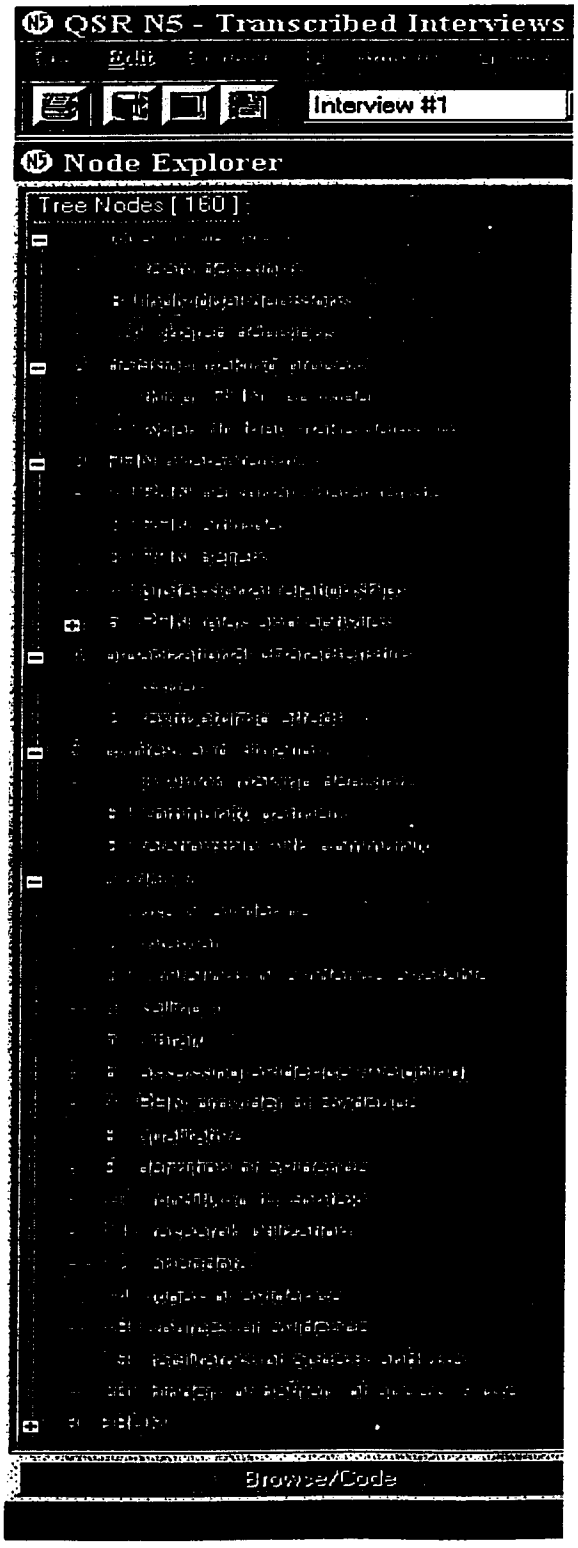
APPENDIX N

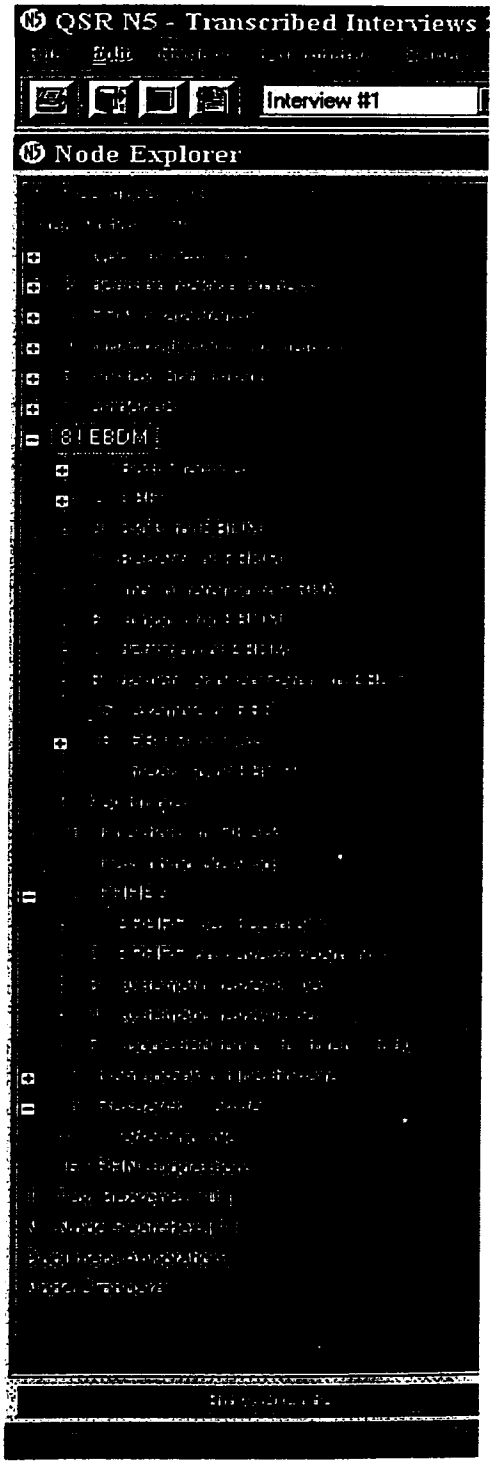
Data Collection Forms

Form	Purpose
Guide for Field Observations	To present a list of things to observe, ask, describe and note during each period of time spent in the field. The form is flexible and may be modified as needed to guide or remind the researcher to consider the listed things each time she is in the field.
Recording Tool for Field Notes Form A	To use a standardized form for recording field notes. It will also aid in the tracking and storage of all field notes.
Meeting Summary Form B	To provide a standardized one-page summary of all committee or team meetings observed. Collating the field notes and reflections for each activity will aid in the synthesis of the material as well as the retrieval of important material for documentation of the project. The summary form also aids in the sharing of information gathered and insights noted with other committee members.
Document Summary Form C	To provide a standardized one page summary report on each piece of documentation (meeting agendas, minutes, objectives of teams, etc) gathered in the field. Insights, ideas and possible uses of the document can be noted on this summary form.
Interview Reflection Form D	To be completed immediately after the interview. To include comments on the major themes or issues addressed, any first thoughts on potential codes for the various research questions posed in this study. Any ideas about what other questions to ask or things to observe at the next interview should be noted.
Interview Summary Form E	To provide a standardized one-page summary of each interview completed for this project. This summary is to be completed and attached to all field notes and forms and transcript for each interview.
Demographic Questionnaire	To collect basic demographic information such as educational level, years experience as a PHN, program currently working in and skills.

APPENDIX O

Sample N5 Tree Nodes





APPENDIX P

Interview Text and Questions

Good morning/afternoon. My name is Cindy Versteeg and I am a public health nurse and a graduate student with the University of Ottawa. As you know I am conducting a study with public health nurses to learn more about the evidence-based decision-making process. Thank you for agreeing to participate in this study. Before we get started I will ask you to read and sign this consent form. (Discuss and have participant read and sign consent)

As stated in the consent form, I will be taping this interview. The tape can be turned off at any time if you wish and you are free to not answer any question I ask. All the information collected today will be kept confidential. You will have the opportunity to review the transcripts made from this interview and you may request that I remove any statements you are uncomfortable with or do not wish to have quoted. The tapes will be erased at the end of this study. Your individual name will not be used in connection with any of the comments from today's conversation. Everything you do say will be kept in strict confidence.

The information I collect today will contribute to a better understanding of the evidence-based decision-making and public health nursing. This interview will not last longer than one hour.

Preliminary draft of questions and probes

☐ **CONSENT TO TAPE INTERVIEW** ☐ **DEMOGRAPHIC SHEET COMPLETED AFTER**

- Can you begin by telling me a little bit about your self and your current position here at the health department?

- Can you give me an example of a recent health promotion initiative or intervention that you have been involved with?
  - Thinking about that example, can you tell me about the decisions that you made or participated in related to that initiative?
  - Was it a good or bad decision?
  - Did you make it on your own or with partners?
  - How easy was it?
  - What did you base your decision on?
  - Do you feel that decision was evidence-based?

- What does evidence-based decision-making mean to you?
  - What do you consider as evidence?
  - Where do you get evidence to use in you clinical decision-making?
  - Is it easy or hard for you to get evidence for decision-making?
  - What helps you get evidence to use in your clinical decision-making?
  - What hinders you from getting evidence to use in your clinical decision-making?

- Can you tell me about a decision that you made with community partners?
  - Who was involved?
  - How were they involved?
  - What things make it easier to use evidence when sharing decision-making with community partners?
  - What things prevent you from using evidence when sharing decision-making with community partners?
  - Can you describe what that process was like for you?

- If I give you a paper and pencil and 5 minutes, would you draw what you feel the EBDM process looks like?
  - Can you explain your drawing to me?

- Think about all that we have talked about today. Is there anything else that you wish to share about EBDM in your practice or about the process of bringing evidence to the decisions you share with community partners?

APPENDIX Q

Recording Tool for Field Notes Form A **Code:**

Date: _____ Time: _____ Page #: _____

Situation:_____Informants Present:_____

Field Observations	Reflexive Notes

APPENDIX R

Interview Reflection Form D

Code: _____

Date of Interview:_____
Setting:_____

1. What were the main issues that were discussed?

2. What potential themes could be extrapolated to explain the research question:
   - what does evidence-based decision-making mean?

   - What are the factors (variables) that effect the EBDM process?

   - what are the perceived facilitators and barriers of using evidence for decision-making in public health nursing?

   - how do PHNs bring evidence to the decision-making process when working in partnership with community members?

3. What new/remaining/next target questions do I need to ask at the next interview?

APPENDIX S-1
Handout to PHNs for Validation of Findings

Evidence-based Decision-making and Public Health Nurses

Cindy Versteeg RN BA BScN MScN (cand.)

November 5, 2001

1

Study Rationale

- Demand for evidence-based decision-making
- Shift to primary health care with a population health approach & increased community participation
- Need to bring evidence to collaborative or joint decision-making processes
- Limited knowledge base related to EBDM and PHN

2

APPENDIX S-2
Handout to PHNs for Validation of Findings

Research Questions

From the perspective of the PHN:

1. What does evidence-based decision-making (EBDM) mean?
2. What are the perceived barriers and facilitators of using evidence for decision-making in PHN practice?
3. How do PHNs bring evidence to the decision-making process when working in partnership with community members?

3

Methodology

- Ethnographic approach
- Participant observations and interviews
- Seeking the 'emic' insider view

4

APPENDIX S-3
Handout to PHNs for Validation of Findings

Interviews n = 9

- Confidential and consent given
- Semi-structured interview format
- One hour in duration + 30 min follow up
- Taped
- Included opportunity to draw
- Completed a demographic questionnaire

5

Evidence-based Decision-making

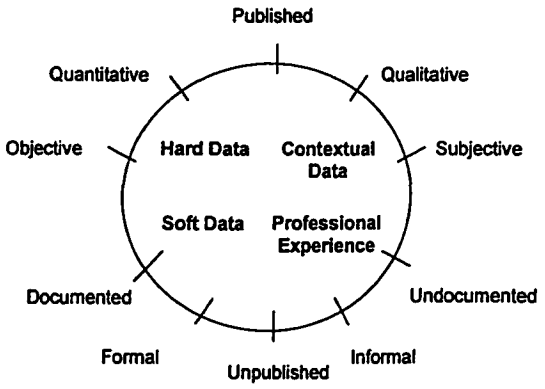
- Informed decision-making
- Adequate consideration and thought
- Based on the best available information
- Active multi step process

"Evidence-based decision-making means making informed decisions based on a body of information that is judged to be sound or solid, relevant and timely to the specific setting, and having the highest chance of achieving the best outcomes."

6

APPENDIX S-4
Handout to PHNs for Validation of Findings

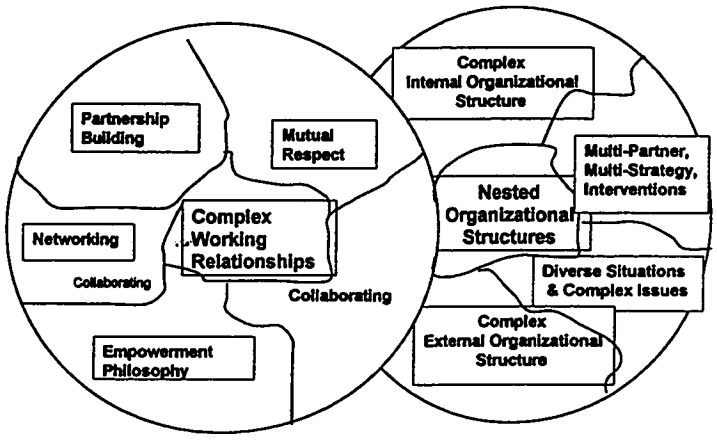
Participants' Holistic View of Evidence



"We have always been known to have a more holistic approach to our client care and so I think it [referring to the definition of evidence] needs to reflect that."

7

Context



"In my practice decision-making happens at a group level. You hardly ever really make a singular decision in public health."

8

APPENDIX S-5
Handout to PHNs for Validation of Findings

Central Theme and Sub Themes

9

Sub Theme : Actively Managing Information

Accessing Data or Information
Searching Seeking Finding Getting Obtaining
Gathering Collecting Keeping up to date.

Assessing Data or Information
Compiling Analyzing Critiquing Validating
Looking at the pros and cons Synthesizing

Tailor and Transfer Evidence
Adapting Framing Translating Presenting
Bringing to the table Passing along Using

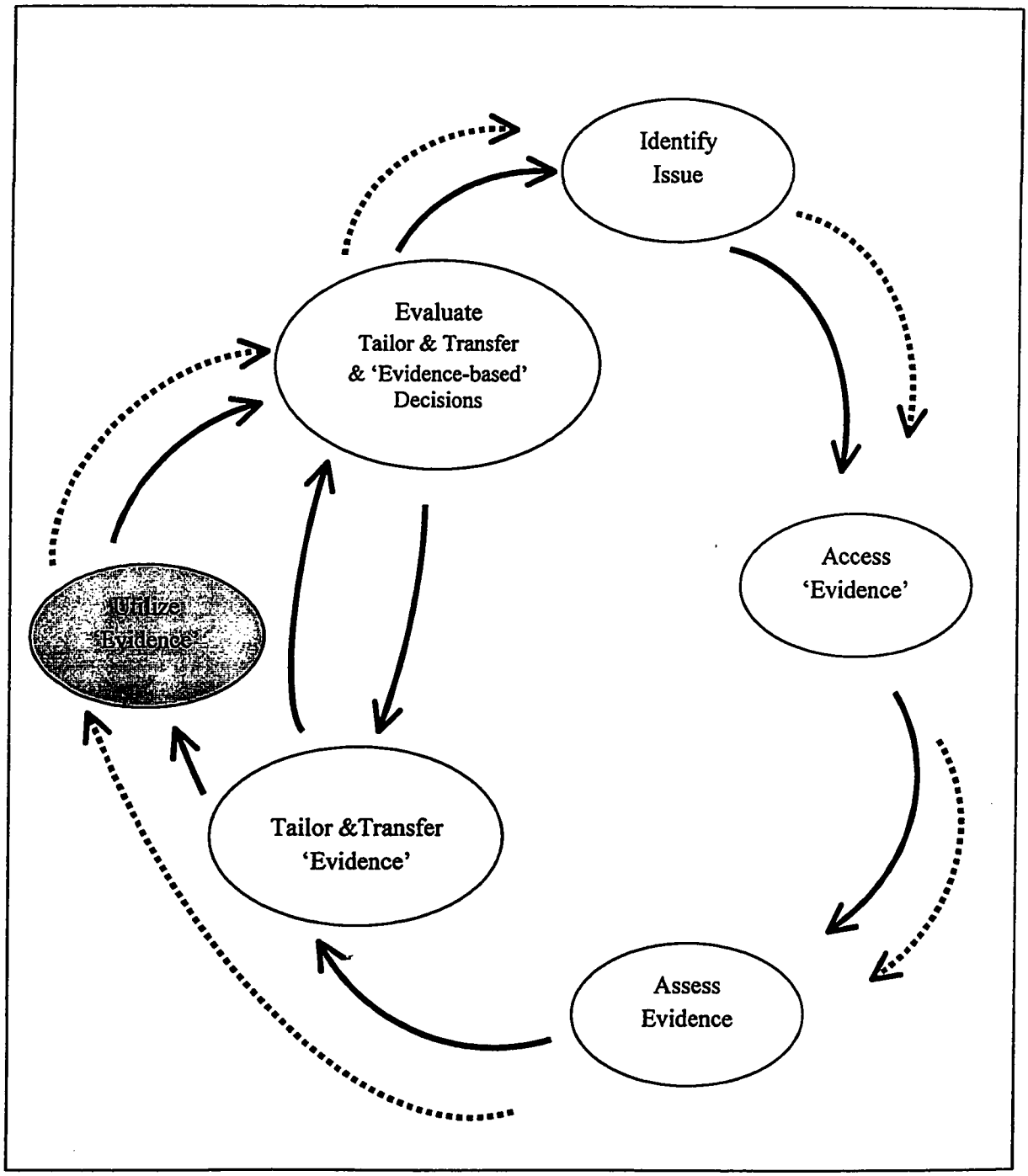
Utilizing Evidence
Ultimately deciding

Evaluating the Results
Evaluating Analyzing

10

APPENDIX S-6
Handout to PHNs for Validation of Findings

Role of the PHN in the
Shared, 'Evidence-based' Decision-Making Process

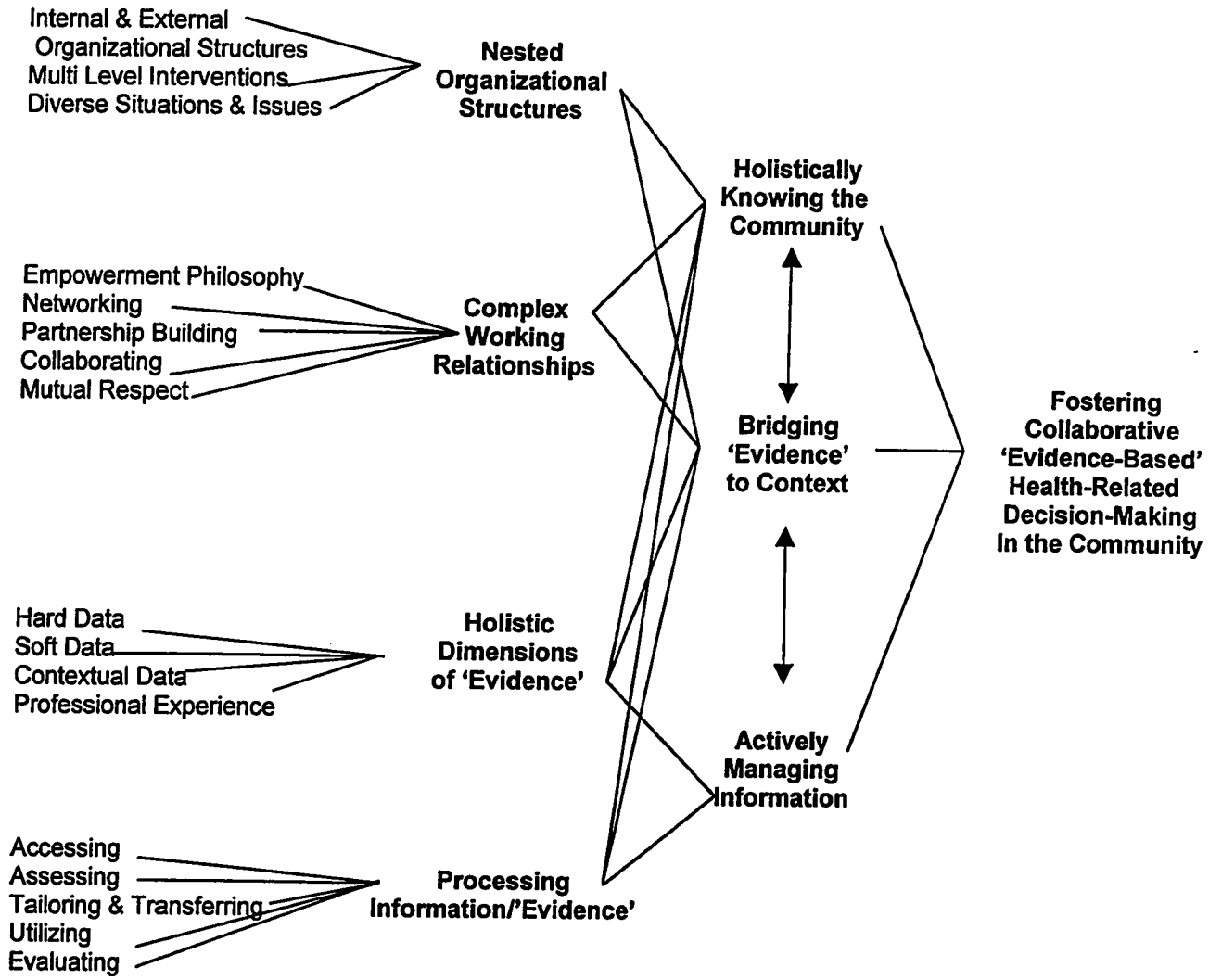


Represents PHN Role
Represents Role that Partners Are Encouraged to Participate In
PHN May or May Not Be Present For Ultimate Decision-making

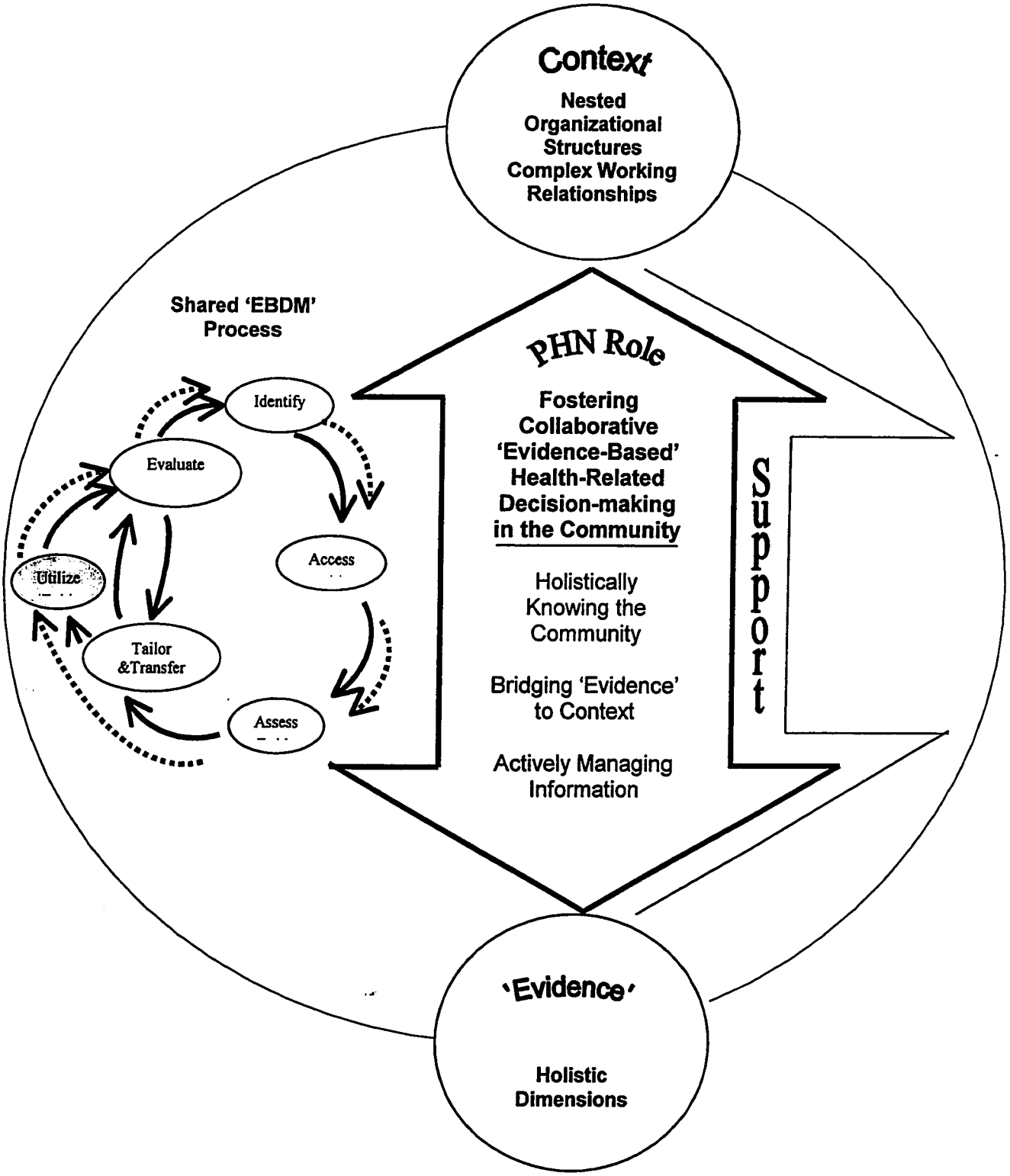
APPENDIX S-7

Handout to PHNs for Validation of Findings

Conceptual Map of Categories, Clusters, Sub-themes and Main Theme: Fostering Collaborative 'Evidence-Based' Health-Related Decision-Making in the Community



APPENDIX S-5
Handout to PHNs for Validation of Findings



Revised Conceptual Framework for Collaborative 'EBDM'
In Public Health Nursing Practice

Chronic Disease and Injury Prevention Division