Caring that Counts: Evidence base for the Effectiveness of Nursing and Midwifery Interventions

A Paper Commissioned by the Commonwealth Steering Committee for Nursing and Midwifery

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Table of Contents

Commonly Used Acronyms

ANA	American Nurses Association
APN	Advanced Practice Nurse
CHF	Congestive Heart Failure
CMS	US Center for Medicare and Medicaid Services
CNM	Certified Nurse Midwife
CNO	Chief Nursing Officer
CV	Cardiovascular
EIP	Early Intervention Program
EOC	Essential Obstetric Care
FHT	Family Health Trust
GI	Gastrointestinal
GP	General Practitioner
HBC	Home Based Care
HBI	Home Based Intervention
HHN	Home Health Nurse
IADL	Instrumental Activities of Daily Living
ICN	International Council of Nurses
ICU	Intensive Care Unit
LPN	Licensed Practical Nurse
LTC	Long-Term Care
NHS	National Health Service
NICU	Neonatal Intensive Care Unit
NP	Nurse Practitioner
NSO	Nurse Sensitive Outcome
PHN	Public Health Nurse
PLHA	People Living with HIV/AIDS
RCT	Randomized Controlled Trial
RT	Randomized Trial
RN	Registered Nurse
SES	Socioeconomic Status
TBA	Traditional Birth Attendant
UK	United Kingdom
US	United States
UTI	Urinary Tract Infection
WHA	World Health Assembly
WHO	World Health Organization

Chapter 1

Executive summary

Introduction

Governments the world over are concerned about the health and well-being of their citizens. Without a healthy population, the economic prosperity of a country can be seriously impaired. The 8 Millennium Development Goals introduced by the United Nations in 2000 all impact either directly or indirectly on the health of the world's population. Although only three of the goals speak directly to health or disease, it is well known that hunger, poverty and environmental factors have the most devastating impact on the health of populations. Nurses and midwives play a central role in the provision of preventive and curative healthcare services that improve health for the populations they serve. The roles of nursing and midwifery are especially important in resource constrained countries where these health professionals represent a large portion of the health care workforce. In 2001 the World Health Assembly passed WHA resolution 54.12 on strengthening nursing and midwifery. The document recommends that member states enhance the development of nursing and midwifery services that reduce risk factors and respond to health needs, on the basis of sound scientific and clinical evidence.

Based on both published and unpublished sources, this paper provides a review of 117 recent outcome studies and other literature in public health, home health, HIV-AIDS care; midwifery, primary care, acute care and tertiary care settings that support nursing and midwifery's contribution to improve access to cost effective, quality healthcare. In writing this manuscript, the authors view both nursing and midwifery as equally important professions within the health care system. Research is reported on each specialty area as it was found in that literature. It is not the intent of this paper to judge the scientific merit of each study but to provide the evidence presented in the outcome literature on both nurses and midwives as each profession contributes to the well-being of the populations they serve.

Public Health

Historically, Public Health Nurses have served vulnerable populations. Due to the many variables that impact people's lives, outcome studies in the

community setting are both complex and challenging. The cost effective preventive measures taken by nurses, such as immunizations, education in oral rehydration, and promotion of breast feeding help to prevent disease and death in many countries. For example, 100 percent of Hungarian children are immunized (Anderson & Hussey, 2001). Hungarian district health visitors (maternal child health nurses) are responsible for regular prenatal visits, well baby checks, and ensuring that the children get immunizations (McQuide, 1995). Nurses make regularly scheduled home visits during pregnancy and after delivery until the start of primary school; then the school health visitors continue to follow the children from primary school until they are eighteen years old. Although one cannot prove that continuity of care with nurse home visits are the reason for the high immunization rate, it most likely has a strong positive influence on immunization coverage, especially among those most at risk. Home visiting allows the nurse or midwife to experience the "client's world" and thus conduct better assessments to plan for client needs. Both cost effectiveness and positive health outcomes for home visiting have been found in randomized control trials for pre and post-natal visits with high-risk women and for the frail elderly (Hall et al., 1992; Kitzman et al., 1997; Kitzman et al., 2000; Koniak-Griffin et al., 2000, 2002; Olds et al., 1997; Olds et al., 1998).

HIV-AIDS

By the end of 2001, an estimated 40 million people were infected with HIV, with 18.5 million being women (UNICEF, 2002). HIV/AIDS is now the leading cause of death in developing countries (WHO/UNAIDS, 2000). Nurses and midwives themselves are among the victims of this disease in some high prevalence areas. Nstubu, Walley, Mataka and Simon (2001) document the urgent need for sustainable home based care (HBC) programs in Africa and report on two successful, primarily nurse run, HBC programs in Zambia, the Lusaka Family Health Trust (FHT) HBC Project and the Ndola Catholic Diocese HBC (Ndola HBC) Program. These HBC models provide an excellent resource for establishing such a nurse-run system and adjusting services based on available funding.

Safe Motherhood

Midwives, like nurses, increase access to quality, cost-effective maternity care services regardless of the country and location for providing maternity services. Regarding the Safe Motherhood Initiative, but equally true for industrialized countries, AbouZahr (1998) states "the key link in the chain…in reducing maternal mortality is the person with midwifery skills who can handle normal deliveries, recognize complications, and either manage them or refer them to the higher level of care. This person should be professionally trained,

properly supervised, and provided with adequate equipment and supplies (p. 255).

The Safe Motherhood Initiative grappled with improving maternal morbidity and mortality outcomes with the systems and resources available to them. Annually 585,000 women die from maternal causes (WHO, 1996) and over 60 percent of these deaths occur within the first 24 to 48 hours after delivery when women are least likely to receive care (Safe Motherhood Initiative, 2000). Over the past ten years the Safe Motherhood Program focused on initiatives for high risk pregnant women and on training of traditional birth attendants. They found that it was not possible to predict which women were at risk for an adverse pregnancy outcome and training traditional birth attendants did not lower the maternal mortality rate. Although these initiatives did not produce their intended outcome, the Safe Motherhood Initiative has identified key lessons learned to prevent maternal death and morbidity from obstetric complications (Starrs, A., 1997). Regardless of whether the care is provided in the home or in a tertiary care facility, these recommendations need to be incorporated into maternity care. Key lessons learned include: recognizing that every pregnancy faces risks; providing a post-partum visit; (Safe Motherhood Initiative, 2000) and; ensuring access to a continuum of care with effective referral links including emergency obstetric care, supported by adequate supplies, equipment, drugs and transportation (Starrs, A, 1997; Reproductive Health Outlook, 2003). Findings from Malaysia, Indonesia, Gambia, Sri Lanka and Ghana demonstrate the success of implementing these recommendations.

Midwifery in Industrialized countries

These same lessons learned are equally important in industrialized countries where access to midwifery services varies considerably from country to country and within countries across different cultural and socio-economic groups. Midwives tend to provide access to public sector clients that have more social risk factors than the average pregnant women (Derclercq, Williams, Koontz, Paine, Steit, & McCloskey, 2001; Blondel, 1998).

Numerous outcome studies across multiple industrialized countries indicate that the quality of midwifery care has many advantages over that of physicians.
Studies conducted at several large tertiary hospitals found that the type of provider predicts the rate of episiotomies, with midwives performing approximately half the episiotomies of private physicians and with a 74 percent decreased risk of major perineal damage (Robinson, Norwitz, Cohen & Lieberman (1996); Low, 2000). Fewer episiotomies and less perineal tearing is not only a quality of care indicator, but it also significantly reduces the length of stay and cost of maternity care (Hueston, 1996).

Midwives also perform fewer forceps deliveries and amniotomies; use less analgesia, anesthesia, and fetal monitoring; more clients have spontaneous vaginal deliveries with similar apgar scores and fetal outcomes comparable to those of physicians (Browns and Grimes, 1995; Harvey, Jarrell, Brant, Stainton, & Rach, 1996; Oakley; 1996). Harvey et al (1996) found that midwives had a shorter length of stay and fewer admissions of infants to a neonatal intensive care unit; and Oakley (1996) showed that more infants in the nurse-midwife group were breast-fed immediately after delivery and remained with the mother throughout the hospitalization. These findings were true with low risk pregnant women who delivered in a hospital, at home, as well as with high risk women as long as there was a well integrated referral system for unexpected complications (Davidson, 2002; Nixon, Avery, Savik, 1998).

Continuity of care models implemented by midwives who follow women from prenatal care through post-natal care offer additional quality of care outcomes in addition to those previously described. Several large studies found that low risk women who had continuity of care were less likely to be admitted to the hospital antenatally, more likely to attend antenatal education programs, and were more satisfied with care compared to usual care. Satisfaction was associated with appreciation for psychosocial aspects of care that empowered the women to feel more in control of decision making (Hodnett, 2000; Waldenstrom and Turnbull, 1998; Waldenstrom, McLachlan, Forster, Brennecke, & Brown, 1998; Rowley, Hensley, Brinsmead, & Wlodarczyk, 19995; Biro, Waldenstrom, and Pennifex, 2000). These approaches changed the outcomes in a large UK tertiary care facility serving low income, high risk women that previously had a high rate of interventions (Page, McCourt, Beake, Vail & Hewison, 1999). Other community based midwifery interventions have further improved the quality of care for maternity clients and their babies (Harrison, Kushner, Benzies, Kimak, Jacobs, & Mitchell, 2001; (MacArthur et al, 2000).).

Primary Health Care

In primary health care, interventions by advanced practice nurses (APN) have resulted in reduced health care costs, and improved health outcomes for clients. Randomized control trials investigating comparable care, patient satisfaction, cost effectiveness and prevention of re-hospitalization have all exhibited the positive aspects of using APNs (Brooten et al., 2001; Campbell et al., 1998; Kinnersley et al., 2000; Mundinger et al., 2000; Venning, Durie, Roland, Roberts, & Leese, 2000). In health care systems that may experience long waits for appointments, APNs can offer comparable service while reducing wait times for clients with minor illnesses (Shum et al., 2000). Additionally, general practice nurse run clinics were found to be practical to implement, and were effective in preventing future CV mortality and reduced diabetic complications among patients living in the community (Campbell et al., 1998; Vrijhoek, Diederiks, Spreenuwenberg and Wolfenbuttel, 2001). Of course, the amount of cost savings

from APN care depends to a great extent of the context of the healthcare delivery system (Buchan, Ball & O'May, 2001).

Secondary and Tertiary Care

In today's health care arena, both cost effectiveness and patient outcomes take center stage. Adverse patient outcomes are costly not only in monetary terms to the hospitals involved but to the patients and their families as well (Aiken, Clarke, & Sloane, 2000; Aiken, Clarke, Sloan, Sochalski, & Silber, 2002; Buerhaus & Needleman, 2000). There is much evidence to suggest that professional nurse staffing in hospitals makes a difference in patient outcomes. Studies conducted on nurse staffing levels in health care facilities comprise the largest body of information available on adverse patient effects related to low professional nurse staffing (Aiken et al., 2000; Aiken et al., 2002; Flood & Diers, 1998; Kovner & Gergen, 1998; Kovner, 2001; Kovner, Jones, Zhan, Gergen & Basu, 2002; Pronovost et al., 2001). Findings from hospital based studies indicate that when nursing hours are increased there is greater patient satisfaction, better pain management and lower rates of morbidity from falls, and urinary tract infections (UTI) (Sovie, 2001). Aiken (2002) found that lower nurse to patient ratios resulted in a 7% increase in the likelihood of dying within 30 days of admission for each additional patient per nurse and a 7% increase in odds of failure to rescue. In terms of risk management, the cost effectiveness of having higher nurse to patient ratios is evident.

Keeping chronically ill patients stable and out of the hospital are important to both cost and quality of life. In addition to the APN studies mentioned above, other home-based RTs have been conducted that show nursing interventions reduce re-hospitalization in patients experiencing congestive heart failure and other types of chronic illness (Jaarsma et al., 2000; Riegel, Carlson, Kopp, LePetri, & Unger, 2002; S. Stewart & J. Horowitz, 2002a; S. Stewart & J. D. Horowitz, 2002b). Further, findings regarding the relationship between nurse staffing levels and the quality of nursing home care show clear associations between nurse staffing levels and quality measures for both short and long stay facilities (Harrington, Kovner, Mezey, & Kayser-Jones, 2000; Kovner & Harrington, 2002). Harrington et al. (2000) suggest that through adequate staffing, money could be saved on unnecessary hospitalizations, reduced on the job injuries for staff, lower personnel turnover resulting in reduced hiring and training costs, and overall better patient outcomes resulting in reduced facilities cost, and indirectly costs to insurance companies and patients.

Conclusion

It is clear from the number of significant studies on nursing and midwifery outcomes presented in this paper, that these health care professionals make a

difference in people's lives no matter where they are on the age or health continuum. From the great diversity in the literature reviewed the researchers at Emory came to the conclusion that it was important that there should be international agreement on nurse sensitive and other health outcome indicators, so that data from health care systems can be compared. By establishing such a data set, best practices in health care systems can be evaluated and used to inform policy and programming. In making decisions regarding scarce health care resources, governments need to know how the billions of dollars spent every year on health care translate into better health for populations served (Anderson & Hussey, 2001).

The literature indicates that patients are satisfied with the care they receive from nurses and midwives and that APNs and midwives deliver care that is comparable in quality to that of physicians. Depending on the context of the care system, they do so at a cost savings. Further, home based care provided by nurses and midwives is important not only in terms of better patient outcomes, but in the access it provides to patients who might otherwise not receive care. Home based care is especially essential to vulnerable and underserved populations and has been shown to provide significant improvements for patients in pre and post natal adverse outcomes, for PLHA in receiving specialized attention, in avoiding re-hospitalizations in chronic illness, and in keeping frail elderly in their homes and out of LTC facilities. Additionally, provision of adequate numbers of nurses and midwives in hospital settings will strengthen patient care delivery systems.

Governments need to assure that their citizens have access to affordable, quality health care services. Quality health care costs money, and not attending to quality costs more both in terms of money and human suffering (Baumann et al, 2001; IOM, 2001; Kohn, Corrigan & Donaldson, 2000; National Health Service, 2000; WHO, 2001, 2002b). In terms of quality, reviewed studies from all specialty areas reveal the importance of the nursing and midwifery workforce in decreasing morbidity and mortality. Quality care produces better patient outcomes and thus improves the quality of life. As was agreed in adopting resolution WHA 54.12, we believe that all nations should act to strengthen nursing and midwifery services. As we acknowledge our interdependence on this planet, all partners must work together in their stewardship role to improve the health of populations globally.

Chapter 2

Introduction

2.1 Governments the world over are concerned about the health and well-being of their citizens. In addition to welfare considerations, without a healthy population, the economic prosperity of a country can be seriously impaired. Nurses and midwives play a central role in the provision of healthcare services, both preventive and curative, that improve health for the populations they serve. In many countries, those nurses and midwives make up a large proportion of the total healthcare workforce. In some countries, particularly developing countries there may in fact be few doctors or other health professionals available.

2.2 Services provided by nurses and midwives are a subsystem of health services provided by an array of personnel. Attributes shared by these services include the care and support of clients; continuous assessment and monitoring of health needs and clients' response to interventions; education of and advocacy for clients and communities; identification of care gaps and the development of responses to those gaps and the delivery and; coordination of health services across the care spectrum (World Health Organization, 2002b, p.2). Empirical evidence is increasing which shows that positive patient outcomes diminish without the care that nurses and midwives supply. In 2001, delegates to the World Health Assembly concluded that "Failure to strengthen nursing and midwifery could seriously impair the quality of health care, access to services, the well-being of practitioners and the achievements of national and global goals" (World Health Organization, 2002b, p.2). Daily we see the consequences of not attending to strengthening these professions in both developed and developing nations.

2.3 The 8 Millennium Development Goals introduced by the United Nations in 2000 all impact on the health of the world's population. Although only three of the goals speak directly to health or disease, it is well known that hunger, poverty and environmental factors have the most devastating impact on the health of populations. Reducing the numbers of people living with these vulnerabilities will improve the health prospects for millions. In many developing countries, health care may be perceived as a luxury and nurses and midwives may be the only health care providers or patient advocate available. Data from WHO (1996) indicate that nurses comprise more than 80% of the total health personnel workforce in sub-Saharan countries. Nurses and midwives make a positive and cost-effective difference in the health and well being of people on a global level (World Health Organization, 2001). Together, nurses and midwives are the largest group of health workers and are at the forefront of health services delivery to vulnerable and underserved populations. The global shortage of nurses and midwives has brought attention to these professions. A reduced number of nurses and midwives, fueled by aging of the workforce, decreased entry into schools of nursing and midwifery, limited professional autonomy and chance for advancement, poor work environment and migration, among others, have come together to create a crisis for health systems (Baumann, et al, 2001a; 2001b; Buchan & Edwards, 2000; O'Brien-Pallas & Baumann, 2000). From the aging of populations to bio-terrorism, the growing threats to health that are facing the world

only increases the need for well-trained, competent health care workers in sufficient numbers to provide needed care.

2.4 According to ICN (2001), “nurses are a pivotal part of the health care team. They understand the interaction of patients/clients, and their families with the range of other providers involved in their care. Nurses work constantly with the cost quality constraints of health service delivery. They are in an excellent position to advise on the impact of policies aimed at cost effectiveness in health care” (p. 5). The American Nurses Association (1996) has identified a beginning set of patient outcomes that are considered to be nurse sensitive outcomes (NSO). Some of the NSO’s identified for acute care settings include the mix of RNs, LPNs, and unlicensed staff caring for patients in acute care settings, total nursing care hours provided per patient day, nurse staff satisfaction, nosocomial infection, pressure ulcer, fall, medication error, patient satisfaction with pain management, educational information, nursing care, and overall care**.** Ten areas for data collection in community based, non-acute care settings include pain management, consistency of communication, staff mix, client satisfaction, prevention of tobacco use, cardiovascular disease prevention, care giver activity, identification of primary care giver, activities of daily living and psychosocial interactions (Rowell, 2001). Using consistent outcome indicators internationally will provide further evidence of how nurses contribute to quality, cost effective health care (Anderson & Hussey, 2001).

2.5 In 2001 the World Health Assembly passed WHA resolution 54.12 on strengthening nursing and midwifery. The document recommends that member states enhance the development of nursing and midwifery services that reduce risk factors and respond to health needs, on the basis of sound scientific and clinical evidence. Additionally the strategic directions for nursing and midwifery for 2002-2008, set forth by the World Health Organization (2002b), outline five key result areas. One of the five areas speaks to improving access to quality nursing and midwifery care as an integral part of health services particularly aimed at vulnerable populations. Both access and quality are of primary importance to health care providers and the publics they serve. Of equal importance to those funding care, in the face of scarce resources, is the cost of quality and access (Richardson, 1999). Governments must attend to current issues in nursing and midwifery because they fall firmly within the realm of the public interest. Delivering services, creating resources, financing and stewardship are all key functions of government (Musgrove, Creese, Preker, Baeza, Anell, Prentice, 2000).

2.6 Several recent reviews of nursing outcome literature reveal the need to conduct additional outcome studies using methodologies that can and will be replicated. Doran, Almost, and Sharpe (2003) analyzed the literature on nurse sensitive patient outcomes in an attempt to provide a foundation for a clinical database that would document quality and effectiveness of nursing care. Areas reviewed were functional status, self-care, symptom management, patient satisfaction and nurse satisfaction. Both theoretical and empirical references were reviewed in this extensive study. The document is useful for nursing in that it provides a wealth of information on instrumentation for studies reviewed, assessment of congruence of the instrument with each outcome concept and the degree to which each outcome demonstrated sensitivity to nursing care. One firm conclusion from this review, supported by meta-analysis of methodologically sound studies indicated that educational/psycho-educational nursing interventions are effective in improving or

increasing the ability of patients to engage in self-care activities. Educational nursing interventions enhance the ability of individuals, groups and communities to take action for their own health.

2.7 A second review of the literature by Gaston and Fedoruk (2002) focusing on strengthening nursing and midwifery capacities to evaluate their contributions to health system performance concluded that while the literature revealed that nurses and midwives made significant contributions to health system performance there was a dearth of evidence-based articles from which to draw research support. A third useful reference produced by WHO (2002a), available on the WHO website, is an extensive review that provides abstracts of nursing and midwifery outcome studies from approximately the last 25 years, including meta-analyses and randomized controlled trials (RCT).

2.8 This paper will present outcome studies in public health, home health, HIV-AIDS care; midwifery, primary care, acute care and tertiary care settings that support Nursing and Midwifery's contribution to the healthcare workforce. Specific attention will be paid to those studies which demonstrate that nurses and midwives provide safe, cost effective care and increase access to health care for many people who might otherwise have no care. From keeping people healthy through health promotion and disease prevention, to end of life and hospice care, nurses and midwives make a positive difference in the lives of people the world over.

2.9 As explained in the next chapter, this research covers both the nursing and midwifery professions, and one chapter deals specifically with midwifery. However readers will wish to bear in mind that in some cases the terms "nurse" or "nursing" and "midwife" or "midwifery" may be used in ways which are equally applicable to members of the other profession also.

Chapter 3
Methodology for Literature Review

3.1 It was decided to draw on both published and unpublished sources for evidence of nursing and midwifery outcomes. Of particular interest were those outcome studies that displayed the value and cost-effectiveness of each profession. The review was conducted through a series of steps that included contacting of Government Chief Nursing Officers (CNOs), database searches, and the compilation of relevant literature.

3.2 The first step of the literature review consisted of compiling relevant and related articles, books, conference proceedings, and other documents, which had been recommended for the paper or were familiar to the research team members. A computerized literature search from the years 1996 to the present was conducted using CINAHL, EMBASE, Sociological Abstracts and MEDLINE. The key words used to search for research articles included: nursing, midwifery, patient outcomes, access, cost-effectiveness, nursing sensitive patient outcomes, nursing interventions, nursing care, quality of nursing care, home visitors, nurse visitors, health visitors, prenatal visits, immunizations, vaccinations, public health nurses, agentes de saude, rural health care nurses, and HIV/AIDS. Other data sources searched include: the Virginia Henderson Library (Sigma Theta Tau International), the Cochrane Database of Systematic Reviews, and Dissertation Abstracts International.

3.3 References reported within the retrieved articles led to additional sources for investigation. In addition, a list of seventy authors with experience or research regarding outcome measures and care delivery systems was compiled. A CINAHL search was conducted to search for these authors' research, which were related to nursing and midwifery outcomes.

3.4 The second step to the literature review was contacting 102 CNOs through personally addressed email messages as well as posted letters. Published research as well as other unpublished research, conference proceedings or reports (grey literature) that spoke to nursing outcomes was solicited from each CNO contacted. Documents were received from Canada and the United Kingdom.

3.5 It is not the intent of this paper to judge the scientific merit of each study but to provide evidence of the outcome literature on both nurses and midwifery, as each profession contributes to the well-being of the populations they serve.

Chapter 4

Public Health and Home Health

4.1 For developing countries nurses and midwives provide much of the health care that is delivered (WHO, 2002b). Because developing countries frequently do not have resources to conduct research on the outcomes or cost effectiveness of Public Health (PHN) or Home Health Nursing (HHN), one must look at studies executed elsewhere and attempt to replicate cost effective, quality programs where appropriate. Historically, PHN's have served vulnerable populations. Due to the many variables that impact people's lives, outcome studies in community are both complex and challenging.

4.2 Jayasekara (2001) reports that the Ministry of Health in Sri Lanka has recognized that it needs to reinstate Public Health Nurses in their Primary Health Care Teams that deliver services in the community. Despite the amount of money spent on health care in Sri Lanka, the overall health status of low income populations is decreasing and expenditures growing. Recently the Presidential Task Force for the development of a national health policy has recommended that "Community Nurses" be instituted to assess and help solve community health problems among other things.

4.3 Globally, 10 million children under 5 die each year, most from respiratory tract infections, diarrhea, malaria, measles and infections contracted at birth (Dabis et al., 2002). Implementation of programs such as oral re-hydration for the management of diarrhea, promotion of breastfeeding to bolster immune systems, decreased exposure of infants to contaminated water supplies, and preventing mother to child transmission of HIV frequently come under the supervision of nurses and/or midwives, especially in developing countries.

4.4 Immunization falls within the public health context and nurses are the most likely health care personnel to deliver vaccines to populations at risk. As a prevention measure, immunization is one of the safest and most cost effective of the public health interventions. According to UNICEF (2003) estimates, each year immunization saves the lives of 2 million children and averts premature death for one million adults. The WHO estimates that approximately 2.4 billion immunizations are given each year worldwide (ICN, 2001). Many of the devastating diseases of childhood have been radically reduced through effective immunization campaigns. Although short of the 90% goal set by the World Summit for Children, 1999, the global immunization coverage for DPT 3 had risen from 38% in 1980 to 73% by 1990 and remained at approximately that rate through that decade. Although improvements are generally positive, immunization rates in Sub-Saharan Africa were only about 46% (UNICEF, 2003). In developing countries where nurses may be the primary health care personnel, immunization is particularly important for prevention considering resource constraints. When nurses are well trained in ensuring immunization safety, adverse effects following immunization can be lowered and immunization rates may rise (Robinson, Burkhalter, Rasmussen, & Sugiono, 2001). The WHO reported immunization

levels in these developing countries suggest one measure of the effectiveness of nursing intervention. WHO-UNICEF 2001 official country estimates for DPT3 vaccine shows 25 of the Commonwealth countries to be 90% or above in their coverage of the target population for that vaccine (UNICEF, 2003). In Hungary, the district health visitors (maternal child health nurses) make regularly scheduled home visits during pregnancy and after delivery until the start of primary school. The school health visitors then continue to follow the children from primary school until they are eighteen years old. These nurse health visitors are responsible for regular prenatal visits, well baby checks, and ensuring that the children get immunizations (McQuide, 1995). Although one cannot prove that continuity of care with nurse home visits are the reason that 100 percent of the Hungarian children are immunized (Anderson & Hussey, 2001), it most likely has a strong positive influence on immunization coverage, especially among those most at risk.

4.5 Home visiting has been the province of Public Health Nursing since nursing became recognized as a profession. Home visiting allows the nurse or midwife to experience the "client's world" and thus conduct better assessments to plan for client needs. Ciliska et al. (1996) conducted a systematic overview of the literature from 1979 to 1993 to assess the effectiveness of home visiting as a public health nursing intervention using the Canadian scope of nursing practice as one of the criteria. Although approximately 6000 articles were selected for possible retrieval, only 108 were chosen. The authors point to the real difficulties, both physically and ethically, of doing research in the community including achieving adequate sample sizes, conducting RCTs, finding reliable and valid outcome measurement tools and controlling for contamination. Of the final 77 studies reviewed, 46.6% were conducted in the US, 24.7% in the United Kingdom (UK) and 19.2% in Canada. Authors found no negative effects of home visiting. Among the positive findings were positive effects on physical, mental and social health, positive changes in health habits, knowledge and service utilizations. Higher intensity services usually resulted in better outcomes. Both cost effectiveness and positive health outcomes for home visiting have been found with pre and post-natal visits with high-risk women and for the frail elderly (Hall et al., 1992; Kitzman et al., 1997; Kitzman et al., 2000; Olds et al., 1997; Olds et al., 1998). Ciliska et al. (1996) conclude that the existing evidence supports that home visiting by nurses can help to mitigate otherwise "intransigent health problems" (p. 197).

4.6 The OMAHA System has been used broadly in community health to measure outcomes of health visiting practice. Clark et al (2001) report on the use of this system in south Wales to record their contacts with families with new babies and other groups. Preliminary results of this study show that health visitors thought the OMAHA System was far better for identifying and measuring clinical outcomes than were their traditional record keeping methods. Using the OMAHA system for measuring nurse sensitive outcomes in the community, O'Brien-Pallas et al. (2002) investigated how clinical, provider, organizational and environmental factors influence client outcomes in community home nursing. Client medical diagnosis, nursing diagnosis, and nurse educational levels were among the multiple variables analyzed. Findings support greatly improved patient outcomes in both knowledge gain scores and improved behavior scores in relation to health condition at discharge for every unit increase in assignment of a baccalaureate prepared nurse. The authors of this research stated that baccalaureate prepared nurses were, because of their education, much more likely to be able to critically think

through the less structured home settings in which they were giving care and to make better decisions in planning client interventions.

4.7 Some of the most rigorous work on the value of nurse home visitation has been conducted by The National Center for Children, Families and Communities in Denver, Colorado. RCTs in three US cities tested the hypothesis that nurse home visitation to economically disadvantaged women during and two years after their first pregnancy would have a positive impact on maternal and child outcomes (Kitzman et al., 1997; Olds et al., 1997; Olds et al., 1998). Long term follow up studies on the initial research done by this team has shown a lasting impact made by this program (Eckenrode et al., 2000; Kitzman et al., 2000). Findings from initial studies show consistent benefits for low-income mothers and their children though age four in the areas of women's prenatal health, childhood injuries, rates of subsequent pregnancy and use of welfare. The fifteen year follow up from the original study of low-income unmarried women and their children in the treatment group revealed, among other effects, a 79% reduction in child abuse and neglect, 69% fewer arrests among mothers, 54% fewer arrests and 69% fewer convictions among the 15 year old adolescents, 58% fewer sexual partners among the 15 year old adolescents and four dollars saved for every dollar invested in this program. At present this model is used in 291 counties in 22 states in the US.

4.8 Koniak- Griffin et al. (2000, 2002) describe outcomes of a PHN early intervention program (EIP) for adolescent mothers. Adolescents were assigned either to an experimental EIP consisting of preparation for motherhood classes and intense home visitation or a control group of traditional public health nursing visitation. The 102 EIP participants were predominantly Latina (64%) and African American (11%) from disadvantaged backgrounds. Infant health outcomes were based on medical record review. At 6 weeks post partum, clients in the EIP program revealed less school dropout for the mothers and less morbidity for infants (Koniak-Griffin, Anderson, Verzemnieks, & Brecht, 2000). At one-year post partum, researchers found significantly less total days and actual episodes of hospitalization for infants with EIP mothers and positive effects for immunization rates. Unlike the Olds and Kitzman studies, no differences were found for repeat pregnancies.

4.9 Outcomes of a study of PHN prenatal care conducted with three cohorts of clients by Baldwin and Chen (1996) showed that earlier contact with a PHN was significantly correlated with more adequate prenatal MD care and infant gestational age. Clients who had first trimester initial contact with the PHN were 2.4 times more likely to have adequate care than clients having first contact in the second trimester.

4.10 Gonzalez-Calvo, Jackson, Hansford, Woodman and Remington (1997) report on data collected during 5 years of PHN case management and its role in perinatal risk reduction to support a model for African American women. The researchers evaluated the effectiveness of case management in the Black Infant Health project on the major predictors of poor perinatal and infant outcomes on 9 indicators. Through a three-phase process of bonding, working and changing, data from a population of 210 low-income poverty level women were analyzed. Findings revealed the importance of the PHN intervening to help alleviate barriers to prenatal care, financial crises, depression and grief and substance abuse.

4.11 Long, McCarney, Smyth, Magorrian and Dillon (2001) researched the effectiveness of parenting programs facilitated by health visitors in Northern Ireland. Seventy-eight (78) parents attended a “Positive Parenting Program” for eight weeks. Results of the pre/post test analysis revealed statistically significant reduced levels of clinical anxiety/depression, and an increase in more positive ratings of personality states. Although coping styles were somewhat better, poor coping strategies were still used and there was no positive change in participants’ experience of being a parent. Findings indicate that health visitors have the skills to help prevent inadequate parenting.

4.12 Keeping the frail elderly healthy in their homes and out of the hospital or institutional long-term care (LTC) results in cost savings to governments and families. Hall et al. (1992) conducted a prospective randomized trial (RT) of a health promotion program for frail elders in British Columbia. Three groups were followed concurrently for three years. A treatment group of 81 elders received standard LTC plus nurse visits. At the initial visit, nurses helped each elder devise a personal health care plan. Home visits were conducted as necessary for the three-year period after the initial visit. A control group in the same town and another in an adjoining town, both on standard LTC, were also followed. Success was defined as alive and still assessed for care at home. After three years the treatment group success rate was significantly (>.05) better than either control group.

4.13 In a RT conducted in Canada, Mayo et al. (2000) evaluated the difference between a special 4 week home program implemented by nurses for patients (treatment group n = 58) requiring post stroke rehabilitation services and usual treatment which consisted of varied services for post stroke patients (control group n = 56). The treatment group received a 4-week, tailor made, home rehabilitation program and nursing services. Findings indicated that one month after the home intervention there was a significant difference between groups with respect to instrumental activities of daily living (IADL) and reintegration into the community. At three months post discharge, there was a significantly higher score on the physical health component for the home group and the number of services rendered by the home group nurses was lower that the usual care group. Quality of life and health were enhanced significantly for patients in the specialized home care milieu.

4.14 Because Public Health Nurses frequently interact with their communities and are familiar with community needs, available programs, resources and health policy issues, it is reasonable that they can act as change agents and have a profound effect on changing public policy. A Wisconsin quasi-experimental study based on the Reinkmeyer (1970) change theory and using DeGregorio’s (1984) theory of political influence looked at increasing the knowledge base of community leaders regarding the effectiveness of prenatal care for low-income women (Kozlowski & Zotti, 1994). The researchers postulated that an educational intervention by community nurses would increase motivation and decrease resistance among community leaders. The intervention significantly increased not only the leaders’ general knowledge, but also positive beliefs toward promotion of prenatal care and intent to promote prenatal care for low-income women.

Chapter 5

HIV-AIDS

5.1 By the end of 2001, an estimated 40 million people were infected with HIV, with 18.5 million being women (UNICEF, 2002). HIV/AIDS is now the leading cause of death in developing countries (WHO/UNAIDS, 2000). Because of the magnitude of the HIV/AIDS epidemic and its devastating effects, especially in developing countries, nurses are necessarily playing a tremendous role in the care of people living with HIV/AIDS (PLHA). Nurses and midwives themselves are among the victims of this disease in some high prevalence areas. Countries that can least afford to lose health care workers are currently contending with this problem. If not coping personally with HIV/AIDS, nurses may be overworked, caring for ill family or friends or afraid of occupational transmission (WHO/UNAIDS, 2000). Along with HIV/AIDS, there are the opportunistic infections, such as TB, that also challenge the health care system. Care/service coordination, education, treatment and palliative care measures are among the roles nurses play in the fight against HIV/AIDS (Montoya, Carlson, Richard, & Goodpastor, 1997; White, 2002; WHO/UNAIDS, 2000). Finding ways to care for PLHA outside of the hospital is generally less expensive and home care is beneficial to both the family and the patient. Nurses play a role in educating families about caring for their family member with this disease.

5.2 Nstubu, Walley, Mataka and Simon (2001) document the urgent need for sustainable home based care (HBC) programs in Africa to attend the needs of HIV/AIDS patients for whom hospital care is either inaccessible or unaffordable. Authors report on two successful, primarily nurse run, HBC programs in Zambia, the Lusaka Family Health Trust (FHT) HBC Project and the Ndola Catholic Diocese HBC (Ndola HBC) Program. Both projects have been in existence for over 10 years and provide a range of services through various cooperative efforts with the community and others. Although governments may not have funding to exactly replicate these HBC models, they provide an excellent resource for establishing such a nurse-run system and adjusting services based on funding available. Authors discuss the importance of the role of nurses in HBC and in working with communities and their leaders in establishing successful HBC projects (Nstubu et al., 2001). WHO (1996) estimates that nurses make up 95% of the health care workforce in Zambia. Additionally, Twinn (2001) describes a community-based intervention for PLHA by nurses in Hong Kong. Two approaches were used to help in managing symptoms; cognitive behavior therapy and peer support in nurse-led groups. Evaluations of focus groups held post intervention were positive with patients valuing the non-judgmental support they received from nurses.

5.3 Another example of a community based, nurse managed program is documented by Andersen, Smereck, Hockman, Ross, & Ground, (1999). Eighty-one multiple diagnosed HIV positive women participated in a nurse managed program based on the LIGHT model intended to reduce barriers in gaining access to health care. Components of this program included accessing health care appointment and other resources, a day treatment program, transportation to the program and health related appointments, providing childcare during these

programs/appointments and accompanying women to appointments. The combined strategies were successful in helping these women to access needed health care. Although compliance with medical advice did not improve, statistically significant findings occurred in women's ability to follow through on referrals, to deal with barriers to access, improved sense of well-being and psychological status.

Chapter 6
Midwifery Studies

6.1 The following section reviews the literature about the outcomes of several Safe Motherhood Initiatives in resource constrained countries and midwifery care in the industrialized countries and in terms of the quality of care, cost of care and access to maternity care. Interestingly many of the issues and findings are similar regardless of the country and location for providing maternity services. As AbouZahr (1998) so aptly states about the Safe Motherhood program, but is equally true about maternity care in industrialized countries, "the key link in the chain … in reducing maternal mortality is the person with midwifery skills who can handle normal deliveries, recognize complications, and either manage them or refer them to the higher level of care. This person should be professionally trained, properly supervised, and provided with adequate equipment and supplies. This chain of care has to be created by the health sector with the collaboration of other sectors and the involvement of women and families" (p. 255). Midwives frequently provide care in public or non-governmental health facilities to pregnant women that are poorer, more frequently adolescents, more single women, and non-white than the average health care provider offering maternity services.

Safe Motherhood

6.2 The Safe Motherhood initiatives in various resource-constrained countries have grappled with how to improve maternal morbidity and mortality outcomes with systems and resources available to them. Annually 585,000 women die from maternal causes with 65 percent of those deaths reported from twelve countries (WHO, 1996). Over the past ten years the Safe Motherhood Program focused on initiatives for recognizing high risk pregnant women and on training of traditional birth attendants. Analysis of these initiatives showed that you could not predict which women were at risk for an adverse pregnancy outcome and that training traditional birth attendants did not lower the maternal mortality rate. They also realized that over 60 percent of maternal deaths occur within the first 24 to 48 hours after delivery when women are least likely to receive any care from a health professional. Although these initiatives did not produce their intended outcome, the Safe Motherhood Program did identify key lessons that can influence these adverse outcomes (Starrs, A. 1997; Safe Motherhood Initiative, 2000).

6.3 Key lessons learned from these first ten years of Safe Motherhood showed that maternal death and morbidity from obstetric complications can be prevented by: recognizing that every pregnancy faces risks (not only women with high risk conditions); increasing access to family planning services so that pregnancies can be planned and spaced; improving the quality of antenatal and postpartum care including a post-partum visit within 6 to 24 hours after delivery as part of normal delivery care and if there was not a skilled birth attendant present at delivery there should be a post-partum visit within one to three days post-partum by a community health worker (Safe Motherhood Initiative, 2000); ensuring access to essential

obstetric care including emergency obstetric care; expanding midwifery care to the community; training and deploying appropriately skilled health personnel such as midwives; ensuring a continuum of care connected by effective referral links, supported by adequate supplies, equipment, drugs and transportation; and reforming laws to expand women's access to health care services (Reproductive Health Outlook, 2003).

6.4 As previously stated, these recommendations do not suggest that there is one right way to provide maternity care in resource-constrained countries. Instead, each country should look at the best way to incorporate these suggestions within their health system with the types of providers that they have available. The following are four different models that incorporate the previous lessons learned (Safe Motherhood Initiative, 2000).

- Model 1: Home delivery by lay worker. In this model the community providers are selected and trusted by the community. The referral providers are sensitive to the culture and traditions in the community and they welcome the community providers to their facility. These lay workers are trained to recognize and refer complicated deliveries, they are supported by the health system and there are referral systems in place to transport women when needed to a health facility.

- Model 2: Home delivery by midwives and doctors. In this model the birth attendant is trained to recognize complications, conduct normal deliveries, stabilize a woman with complications, and organize a referral to a health facility. Key factors for the success of this model include the adequate deployment of midwives and community nurses, free health services, strong referral system and respect for customs and traditions.

- Model 3: Delivery by professional attendants in a basic essential obstetric care (EOC) facility. These facilities include health centers with beds, private or public maternity homes or local hospitals that offer can around the clock. Key factors for the success of this model include a transportation system for all people that is free or affordable, making the community aware of the services, and ensuring high quality services are available.

- Model 4: Delivery by professionals in a comprehensive care facility. In this model the attendant may be a midwife, doctor or obstetrician. By definition a specialist is available as well as supplies and equipment necessary for comprehensive EOC. For this model to be successful there must be a fully trained staff of professionals, and quality assurance methods to ensure that personnel have the necessary skills, functioning equipment and available supplies. One caveat of this model is overmedicalization leading to excessive interventions such as episiotomies and cesarean sections and iatrogenic infections. These excessive interventions have cost implications.

6.5 The following examples demonstrate that maternal outcomes can improve by incorporating the lessons learned and models previously described. All these examples from resource-constrained countries demonstrate the important role that midwives play to improve maternity outcomes within various health systems.

While not necessarily adhering to one model, they include important life saving measures for mothers and infants.

6.6 In Malaysia, the majority of rural women with high-risk pregnancies delivered at home instead of in the hospital. Some reasons for delivering at home included distance to the hospital, unfamiliarity with staff, families could not be present, male staff examining the women, and cost. To address these issues, low risk birth centers were established that were attached to existing health clinics. Findings revealed that low risk birth center distances were shorter, birth center providers knew the women, midwives monitored the labor and delivery, and female nurses and midwives performed the physical examinations. Spouses and traditional birth attendants supported the women through-out labor and delivery and the mothers felt safe because they could be transferred to the hospital in case of emergency (Reproductive Health Outlook, 2003).

6.7 Between 1990 and 1998 Indonesia trained an additional 50,000 nurse midwives. These midwives were placed in relatively poor regions where there tended not to be a nearby health center. Their role was to promote community participation in health, to provide health and family planning services, to work with the traditional birth attendants (TBA) and to refer complicated obstetric cases to health centers and hospitals. Additionally, the midwife was to serve as a health resource in the community, actively seeking out clients and providing home visits. The midwife had many opportunities to advise clients on nutrition, food preparation, sanitation, and other health promoting behaviors. Findings indicated that access to a village midwife increased the body mass index and birthweight of babies which improved health outcomes (Frankenberg et al. 2001). Further, in Gambia a team effort between midwives and TBAs has reduced the maternal mortality rate from 700 to130/100,000 live births. The TBAs received training for birth preparedness and complication readiness, understood the culture and were respected by the local women. The TBA and midwife collaborated in ways most appropriate for each situation (Foord, 2002).

6.8 In Sri Lanka, there has been a dramatic improvement in maternal mortality rates (from 520/100,000 to 66/100,000). Maternal and child health services are now integrated into reproductive health services, including a well-executed family planning program. Community midwives provide antenatal care for about 75% of pregnant women throughout their pregnancies. Over 90% of deliveries now occur within a facility having a skilled birth attendant and, in case of complications, there are 45 referral hospitals with specialist obstetricians. A long tradition of free health services enables 93% of pregnant women to have access to basic health care and few have to travel more than 1.4 km to a health center. However since they have been successful in reducing their maternal mortality rate, the international donor community has reduced its support to Sri Lanka making the sustainability of these changes challenging. (Senanayake, 1998; Reproductive Health Outlook, 2003).

6.9 The Prevention of Maternal Mortality team in Kumasi, Ghana developed a project to reduce maternal mortality related to hemorrhage, the major cause of maternal mortality in the region. The intervention included training midwives in life-savings skills and skills to improve provider-client interactions; posting and training a physician in management of obstetric complications; establishing a fund for

purchasing drugs; and establishing a surgical theatre, blood bank, and running water supply. Findings indicated that women who received care at the health center increased and fewer needed to be referred to the tertiary center. The number of emergency obstetric procedures performed increased, as intended, and midwives played a key role in providing emergency obstetric care to women with complications (Reproductive Health Outlook, 2003). Similarly, in Sierre Leone**,** approximately one out of 7 women dies as a result of pregnancy complications. The Makeni District government hospital improved the quality of obstetric care by hiring a general physician with obstetric skills; training nurses and midwives in life-saving skills; upgrading the surgical ward and offering round the clock coverage for maternity services; insuring the availability of drugs and supplies; and offering financial incentives to selected hospital staff. These interventions increased the number of maternity complications that were effectively dealt with including decreasing the maternal mortality rate at that district hospital. The availability of a physician trained to manage obstetric complications supported by skilled midwives is essential to the provision of emergency obstetric services (Reproductive Health Outlook, 2003).

Midwifery in Industrialized Countries

6.10 Access to midwifery services is not consistent across industrialized countries. Across Europe the maternity care provider varies by country. In Finland and Sweden the midwife is the main care provider for low-risk pregnant woman; in Denmark, the United Kingdom (UK), Ireland (Hemminki, E. & Blondel, B 2001) and the Netherlands (European Commission, 1997; Wiegers, 1998) the midwife is part of a shared care team of providers made up of midwives, general practitioners and obstetricians. In Hungary, UK, Sweden, Finland, and Ireland midwives or public health nurses make regular home visits during the postnatal period ((European Commission, 1997).

6.11 In the US, access to midwifery services has increased. Between 1989 and 1999 the number of nurse midwifery assisted vaginal births doubled between 1989 and 1999 to 9%. There is considerable variation in access to nurse midwives across the fifty states with the state of New Mexico reporting the highest number of vaginal births assisted by midwives at 26% (Ventura, Martin, Curtin, & Matthews, 2000).

6.12 Although nurse midwives are not the main maternity care provider in the US, a study conducted by Declercq, Williams, Koontz, Paine, Streit, & McCloskey, (2001) showed that nurse midwives serve a population with more social risk factors than the average U.S. birth mother. A total of 2,405 midwives responded to a questionnaire by the American College of Nurse Midwives. The findings indicated that certified nurse midwives (CNM) reported serving clients that were more likely to be immigrants (27% versus 19% nationally), adolescents (29% versus 13%), and non-white or Hispanic (50% versus 21%). Additionally, CNM were paid primarily by a nonprofit, Medicaid, public provider, or hospital and 16 percent of their clients were uninsured. In general this study confirms that US CNM provide access to women who have high social risk indicators. Similarly, Blondel (1998) found that in France midwives often have greater responsibilities in public sector facilities than in private ones. Midwives provide a critical link to care in maternity services in many industrialized countries.

6.13 Midwives not only improve access to maternity services for marginalized populations in industrialized countries, but also provide quality care to low risk pregnant women of any socio-economic level. The studies reviewed below compare the quality of care outcomes of midwives and physicians across several industrialized countries.

6.14 Brown and Grimes (1995) conducted a meta-analysis to compare interventions provided by nurse midwives and physicians for low-risk pregnant women in the US and Canada. A total of 15 (out of 68) nurse midwifery studies met the criteria. This meta-analysis showed statistically significant findings ($p < .05$) for maternity clients cared for by nurse midwives compared to physicians in the following areas: less analgesic, anesthesia, fetal monitoring, and intravenous fluids; fewer episiotomies, forceps deliveries, amniotomies, and low birth weight babies; and more spontaneous vaginal deliveries, and perineal lacerations (usually first degree). Rates of cesarean sections, fetal distress and 1-minute apgar scores were equivalent for nurse midwives and physicians. This study shows that the quality of nurse midwifery care was equivalent to, and sometimes better than, physician care for low risk pregnant women.

6.15 The following randomized controlled trial (RCT) reports similar findings to those described in the previous meta-analysis. Harvey, Jarrell, Brant, Stainton, & Rach, (1996) studied the effectiveness of midwives and compared them to traditional care in a pilot study for low risk pregnant women in Alberta, Canada. The findings showed that the midwifery group had lower rates compared to physicians for cesarean section (4% vs. 15%), episiotomies (16% vs. 33%), epidural anesthesia for pain relief (13% vs. 24%). Similar statistically significant differences were also found for ultrasound examinations, amniotomy, intravenous drug administration, dietary supplements, length of stay, and admission of infants to neonatal intensive care unit.

6.16 Oakley et al. (1996) found similar mother and infant outcomes to the above RCT when comparing 1464 low risk pregnant women cared for by either a certified nurse midwife or an obstetrician. The clients selected their provider although all study participants were low risk and eligible to be care for by a nurse midwife. Several findings not previously discussed show that significantly more infants in the nurse-midwife group were breast-fed immediately after delivery and remained with the mother throughout the hospitalization compared to the physician group. Although both groups were satisfied, women reported being more satisfied with care in the nurse-midwife group. Additionally, hospital charges were 21 percent lower in the nurse-midwifery group due to maternal preferences and the fact that the physician group performed more medical procedures.

6.17 Law and Lam (1999) conducted a large randomized controlled trial which found that midwives and physicians in Hong Kong had similar outcomes on normal delivery, operative vaginal delivery, cesarean section rates and complications. This study recruited 1050 low risk women admitted to the labor ward at Prince of Wales Hospital in Hong Kong. Similar to other studies 27 percent of those assigned to the midwifery group were transferred to the physician group for epidural analgesia, or because of complications in labor or fetal distress. The findings suggest that midwives have similar outcomes to those of obstetricians for

low risk pregnancies and midwives are able to assess which women need to be referred to an obstetrician because of complications in labor.

6.18 Similar outcomes were found by Davidson (2002) who compared all women who delivered in the US in 1994 to a group of high risk pregnant women cared for by certified nurse-midwives (CNM) in a Mid-Atlanta, inner-city, nonprofit hospital based clinic between 1989-1998. The women that made up the high risk sample were 98% African American, 98% single, and 72% of them received Medicaid. The findings show that even these high risk women had better outcomes in terms of more vaginal deliveries, fewer instruments used at delivery, and generally better five-minute Apgar scores than the average US delivery in 1994. There was a slightly higher incidence of maternal fever and meconium staining in the high risk midwifery group. This analysis shows that CNMs can assist high risk women during labor and delivery provided that there is back-up of referral physicians when unexpected complications arise.

6.19 In most of the studies previously described, approximately 16-30% of midwifery patients are transferred to a physician before delivery usually because of unexpected complications or the desire for epidural analgesia. The midwife needs to be integrated into the health system with a referral system in place should a complication occur. The concept of having midwifery incorporated into the health system is reinforced in a pilot project conducted by Fraser, Hatem-Asmar, Krauss, Maillard, Breart, & Blais, (2000) comparing midwifery services at a birthing center in Quebec with medical care at a hospital. Similar to other studies there was a lower rate of cesarean sections and use of technology at the birthing center. However, there was an increased requirement for assisted ventilation and the stillbirth rate, although not statistically significant, was higher among the midwifery care group. Investigators found that there was a need to have a better integrated referral system.

6.20 The previous studies compare the differences in maternity outcomes between women cared for by midwives and those cared for by physicians. This following study looked at outcomes of a joint practice of midwives and family physicians in a rural hospital. Hueston and Rudy (1993) used a retrospective chart audit to examine midwifery and family practice outcomes and found that the management of labor and delivery was very similar between these two types of providers. Yet, family physicians were still more likely than midwives to perform more episiotomies and cesarean sections.

6.21 Similarly, Turnbull et al (1996**)** compared nurse midwifery care to shared care at the Glasgow Royal Maternity Hospital, UK. With shared care, there is a team of midwives, hospital doctors and general practitioners who offer maternity care. A total of 1299 low risk pregnant women were randomly assigned to either the midwife or the shared care practice group. The findings indicate that women in the midwife group were less likely to have induction of labor and more likely to have an intact perineum with no significant difference in perineal tears. The midwife managed group was significantly more satisfied with their antenatal, intrapartum, hospital based and home-based postnatal care.

6.22 Home births, although common in several industrialized countries, need to incorporate midwifery care into the existing health system and have a readily

accessible referral system should a complication arise. Several of the studies compare the outcomes of home births with those that occur in hospitals to demonstrate that it is possible to have similarly safe birth outcomes at home as those previously described in this paper and establish a functioning referral system for home deliveries. Wiegers (1999) looked at whether there was a difference in obstetric outcomes in the Netherlands between low risk pregnant women delivering at home and in the hospital. The study found that for women with low risk pregnancies, the outcomes of planned home births are at least as good as planned hospital births for first time pregnant women, while outcomes of planned home births are significantly better for women with more than one previous pregnancy. Midwives and occasionally general practitioners provide maternity care for normal pregnancies and refer clients to an obstetrician in case of a complication. The investigator suggests that in order to maintain confidence in home births, only low risk pregnant women should be given the opportunity to deliver at home and home births require access to specialist care for unexpected complications. Cooperation between midwives and obstetricians is essential to ensure that women receive the care they need.

6.23 Further, Janssen et al (2002) also compares the safety of planned home births with licensed midwives to planned hospital births attended by licensed midwives or physicians. The outcomes were similar to those previously described although there were fewer intrapartum interventions for the home birth group. The rate of transfer from the home to the hospital was similar to midwifery transfers previously described (16 %) However, the consequences of some of the expected complications such as thick meconium fluid and hemorrhage may be more serious for women and their babies when they deliver at home.

6.24 There are several communities within the US that prefer to have home births such as the Amish and Mennonite communities. Murphy and Fullerton (1998) conducted a prospective study of intended home-births among 29 US nurse-midwifery practices where 32 percent of the 1404 enrolled women were members of Amish or Mennonite communities. A total of 1221 women remained eligible at the time of labor and 1119 of them gave birth at home. There were a total of five perinatal deaths occurring in pregnancies of at least 42 weeks gestation or there was reported meconium staining. These studies on home births with midwives demonstrate that home births can be safe and have similar outcomes as those in hospitals. However, there were several caveats described to ensure that midwifery assisted home births are safe. In particular, midwives need to be part of an established health system with a referral system in case complications occur.

6.25 The previous studies from several industrialized countries all demonstrate that midwives generally perform less episiotomies with less 3rd and 4th degree tearing than physicians. Not only is this a desired outcome of the women delivering babies, but several studies indicate that episiotomy use is associated with perineal lacerations and an increased length of stay, thereby increasing the cost of maternity care (Hueston, 1996).

6.26 In a large study at the Brigham and Women's Hospital in Boston, Massachusetts, Robinson, Norwitz, Cohen, & Lieberman (1996) studied 1576 consecutive term, singleton, spontaneous vaginal deliveries in nulliparas. The findings indicated that the type of provider predicts the rate of episiotomies performed. Midwives

performed episiotomies at a lower rate (21%) than faculty (33%) and private providers (56%) (p=.001). Low (2000) found similar results comparing episiotomy rates of staff nurse-midwives to faculty obstetricians at a university based tertiary care hospital. Additionally, CNM had significantly less major perineal damage compared to the faculty physicians showing that there was a 74 percent decreased risk of major perineal damage for women with a CNM as a clinician. Interestingly, this study also shows that independent of professional group, clinicians who are most used to performing episiotomies tend to have poorer perineal outcomes (Low, 2000)

6.27 The previous studies reveal that midwives perform less episiotomies and generally have more intact perineums and Low (2000) suggests that regardless of the provider type, outcomes depend upon whether providers are used to performing episiotomies. This may indicate that they are less used to other procedures that would avoid an episiotomy and perineal tearing. The following study shows some of the predictors for an intact perineum in both nulliparas and multiparas. Murphy and Feinland (1998) conducted a prospective study of 1404 intended home births in 28 midwifery practices. Logistic regression analysis showed that in multiparas women, low socio-economic status (SES) and higher parity were associated with intact perineum, whereas older age (>=40), previous episiotomy, weight gain over 40 pounds, prolonged second stage, and the use of oils or lubricants were associated with perineal trauma. Among nulliparas women, low SES, kneeling or hand and knees position at delivery and manual support of the perineum at delivery are associated with intact perineum whereas perineal massage during delivery was associated with perineal trauma. These findings suggest that practitioners may be able to improve perineal outcomes, particularly in nulliparas women. Outcomes such as this may not only result in lower costs due to decreased trauma, but higher quality of care for pregnant women who use midwifery services.

6.28 Another factor that appears to positively influence quality maternity care outcomes, women's satisfaction with care and cost of maternity care is a continuity of care model. Continuity of care is generally provided by a team of midwives who follow a woman from prenatal, intrapartum, and post-natal care services. In addition to the midwifery findings described above such as lower rate of episiotomies and less technology, several large studies which spanned five industrialized countries found that low risk women who had continuity of care from a team of midwives compared to usual care were less likely to be admitted to a hospital antenatally, were more likely to attend antenatal education programs (Hodnett, 2000), and clients were more satisfied with their antenatal, intrapartum and postnatal care than the usual care group (Hodnett, 2000; Waldenstrom and Turnbull, 1998). In identifying the aspects of care that led to this increased satisfaction, women identified that they especially appreciated psychological aspects such as information-giving and communication with the caregivers. They were more involved in decision making and felt more in control. Similar to several previously described studies, among the continuity of care groups there was a difference in perinatal mortality bordering on statistical significance that needs further investigation. The study also seems to suggest that the continuity of care approach costs less than the usual care but more work is needed in this area (Waldenstrom, McLachlan, Forster, Brennecke,& Brown, 1998).

6.29 A little different variation on continuity of midwifery care in the UK is called “One-to-One”. With “One-to-One” a specific midwife follows a woman through the entire episode of maternity care, plans and provides most of the midwifery care and is the lead clinician where appropriate. Page, McCourt, Beake, Vail, & Hewison, (1999) conducted a prospective study of pregnant women receiving “One-to-One” care to assess continuity of care and clinical outcomes compared to standard care in the UK. The findings indicate that the rates of continuity of care achieved exceeded the expected targets.

6.30 Like the other continuity of care studies, “One-to-One” care resulted in fewer interventions such as epidural anesthesia, episiotomies and fewer perineal tears. This was surprising in this facility where the women were generally less affluent and traditionally this teaching hospital experienced a high rate of interventions.

6.31 The continuity of care approach also had similar findings for low and high risk groups at a tertiary referral hospital in two large studies in New South Wales (Rowley, Hensley, Brinsmead, & Wlodarczyk 1995) and in Melbourne, Australia (Biro, Waldenstrom, and Pennifex, 2000). Both studies showed that the continuity of care model had improved maternity outcomes using less technology and fewer procedures. In particular, in the team group there were fewer neonatal intensive care admissions and more babies were breastfed, but there were more small babies, particularly in the high risk categories. Again the women who received team care were more satisfied with their experience and had higher scores for three elements of satisfaction: information-giving, participation in decision making, and relationship with caregivers. The costs for team care were less for the team group than for the regular care. Interestingly, sick leave among team midwives was almost half that taken by routine care midwives (Rowley et al, 1995). These studies also demonstrate that continuity of midwifery care is achievable in a tertiary obstetric referral hospital.

6.32 Another maternity care issue addressed is whether midwives are appropriate providers for large infants weighing more than 4,000 grams. Nixon, Avery, and Savik, (1998) used a retrospective design to compare outcomes of term infants of average weight with outcomes of large infants in a nurse-midwifery service at Hennepin County Medical Center in Minnesota where 83% of clients were receiving medical assistance. There were a total of 2,228 infants with 322 of the infants weighing 4,000 grams or more. The major difference in outcomes between the infants weighing at least 4,000 and those that weighed less than that was a higher rate of shoulder dystocia in large infants and apgar scores were significantly lower at 1 and 5 minutes for infants weighing at least 4,500 grams. According to the literature these outcomes were comparable for large babies managed by nurses midwives and those managed by physicians.

6.33 Several other maternity interventions were studied to determine if nurses and midwives could improve maternal and child outcomes. In the first study, Hodnett, et al. (2002) evaluated the effectiveness of nurses as providers of labor support in North American hospitals. In this randomized control trial 6915 women who were at least 34 weeks gestation at the onset of labor were randomly assigned to receive usual care or continuous labor support by a specially trained nurse. The results indicated that there were no improvements in maternal or neonatal

outcomes from the continuous labor support, including the women's perceived control during labor, although the women indicated they liked the support.

6.34 Another issue that was studied is whether community based postpartum care could improve postpartum depression and psychological morbidity. Midwifery practices from the West Midlands, UK health region were randomly assigned to an intervention or control group. The intervention group implemented a model of community based postnatal care that extended for three months. Findings indicate that the redesigned community postnatal care was associated with positive psychological health outcomes in women at 4 months postpartum, although physical health did not vary significantly (MacArthur et al, 2002).

6.35 Another intervention evaluated in Alberta, Canada by Harrison Kushner, Benzies, Kimak, Jacobs & Mitchell, (2001) was whether in-home care by experienced antenatal nurses and homemaker services for pregnant women with preterm labor, preterm premature rupture of membranes, multiple gestation and pregnancy related hypertension would improve maternity and neonatal outcomes. The results of the in-home program were compared to a cohort of women who received in-hospital care before the home care program began. The results indicate that women who were at risk of preterm delivery and received in-home care were half as likely to have their infants in the NICU more than 48 hours, on average their infants weighed more, and the infants were two weeks older at birth. There were no differences in outcomes for pregnant women with pregnancy related hypertension.

Chapter 7

Primary Health Care

7.1 Across groups, advanced practice nurse (APN) intervention has resulted in reduced health care costs, and improved health outcomes for clients. Additionally, nurse practitioners allow health services to be more responsive to the needs of their public, thus increasing access to care. Cost savings of APN care depends to a great extent of the context of the healthcare delivery system (Buchan, Ball & O'May, 2001). Several studies presented below reinforce the case for the APN in primary care.

7.2 Mundinger et al. (2000) conducted a RT of primary care delivery to compare outcomes of 1316 patients treated by either nurse practitioners or physicians who had the same authority, responsibility, productivity, administrative requirements and patient population. When compared by provider type on patient satisfaction, 6-month post visit health status, satisfaction, physiologic tests, and service utilization 1 year after initial appointment, outcome measures were found to be comparable. Findings included that the nurse practitioner model would provide the most cost effective means of care delivery. Similarly, positive results were found in a RCT comparing cost effectiveness of general practitioners and nurse practitioners in primary care in 20 practice settings in England and Wales (Venning, Durie, Roland, Roberts, & Leese, 2000).

7.3 Data were collected on 1303 clinic patients who wanted same-day appointments. Outcome measures included length of consultation, examinations, prescriptions, referrals, patient satisfaction, health status, return clinic visits over two weeks and costs. Findings indicated that there were no significant differences in patterns of prescribing or health outcomes, but patients were more satisfied with nurse practitioners. Although there was no difference in costs, researchers suggested that if NPs were to reduce their consultation time or return consultation rate, they could be more cost effective. In the same vein, Austin, Willock, Ferguson and Smith (1997) evaluated nurse prescribing practices in the UK. In eight sites, nurses had taken a nurse prescriber's course and followed departmental guidelines. According to the researchers, findings showed that nurses were more effective decision makers regarding prescriptions because of their clinical expertise than were General Practitioners.

7.4 A RCT by Kinnersley et al. (2000) looked at differences in patient satisfaction in south Wales and southwest England between general practitioners and nurse practitioners for patients requesting same day consultation in primary care. The study looked at patient satisfaction, resolution of symptoms and concerns, care provided, information to patients and patient intentions for seeking care in the future. Results showed that in general, patients who saw nurse practitioners were significantly more satisfied with their care and received significantly more information about their illnesses. Resolution of symptoms and care provided did not differ, however, consultations with nurse practitioners were longer than those with general practitioners. Shum et al. (2000) had similar findings from their RCT with 1815 patients seeking same day appointments from 5 practices in London and

Kent. General satisfaction with NPs was greater than GPs, there was no significant difference in care, and 73% of patients were seen without any input from doctors. Researchers concluded that nurses offer an effective service for patients with minor illness.

7.5 Brooten et al. (2001) conducted a randomized clinical trial to investigate the outcomes and cost savings of in-home prenatal care for high risk pregnancies delivered by advanced practice nurses. Women with high risk pregnancies were assigned to two groups. The intervention group had half of their usual clinic care provided in their homes by APNs. Subjects saw their physicians at other visits. Control subjects followed the usual in-clinic schedule for high risk pregnancies. Prenatal, maternal and infant outcomes were measured. Findings indicated that the intervention group had lower fetal mortality (2 vs. 9), 11 fewer pre-term infants, more twin pregnancies carried to term (77.7% vs. 33.3%), fewer prenatal hospitalizations (41 vs. 49), fewer infant re-hospitalizations (18 vs. 24) and a savings of more than 750 hospital days and $2,880,000.

7.6 In Scotland, Campbell et al. (1998) report on a RT of nurse-led clinics in primary care general practices. The study was conducted to determine if nurse run clinics could improve secondary prevention in patients with coronary heart disease. Researchers looked at secondary prevention measures including aspirin management, blood pressure management, lipid management, physical activity, dietary fat and smoking management in 1173 patients in 19 general practices. Improvements were found in every area except smoking cessation. Results determined that nurse run clinics were practical to implement in general practice, were effective in secondary prevention efforts and that future CV mortality among these patients could be reduced by one third through prevention efforts.

7.7 Vrijhoek, Diederiks, Spreenuwenberg and Wolfenbuttel (2001) assessed the effects on quality of care for stable type 2 diabetic patients. Patient outcomes were measured between a group of patients referred to either a physician or a nurse specialist. The general practitioner made the decision as to where their patient was referred. Results of the study showed equal patient outcomes but that glycemic control of patients was significantly ($p<.0001$) worse in the physician cohort.

Chapter 8

Secondary and Tertiary Care

8.1 In today's health care arena, both cost effectiveness and patient outcomes take center stage. Adverse patient outcomes are costly not only in monetary terms to the hospitals involved but to the patients and their families as well (Aiken, Clarke, & Sloane, 2000; Aiken, Clarke, Sloan, Sochalski, & Silber, 2002; Buerhaus & Needleman, 2000). There is much evidence to suggest that professional nurse staffing in hospitals makes a difference in patient outcomes. Studies conducted on nurse staffing levels in health care facilities are the largest body of information available on patient adverse effects related to low professional nurse staffing (Aiken et al., 2000; Aiken et al., 2002; Flood & Diers, 1998; Kovner & Gergen, 1998; Kovner, 2001; Kovner, Jones, Zhan, Gergen & Basu, 2002; Pronovost et al., 2001).

8.2 Twenty-nine university teaching hospitals with more than 300 acute operating beds in each facility participated in a study that looked at organizational restructuring and delivery of patient care. Hospitals were located in 8 of 9 US Census Regions. Outcome data were collected from medical surgical units on fall rate, nosocomial pressure ulcer, urinary tract infection (UTI) rates and patient satisfaction scores. Lower fall rates and increased patient satisfaction with pain management were associated with increased registered nurse hours worked per patient per day. Lower UTI rates were found when staff hours increased per patient per day (Sovie, 2001).

8.3 Aiken et al. (2002) concluded that in hospitals with high patient-to-nurse ratios, surgical patients experience higher risk-adjusted 30-day mortality and failure-to-rescue rates, and nurses are more likely to experience burnout and job dissatisfaction. The study found that there was a 7% increase in the likelihood of dying within 30 days of admission for each additional patient per nurse and a 7% increase in odds of failure to rescue. After adjusting for nurse and hospital characteristics, each additional patient per nurse was associated with a 23% increased rate of burnout and a 15% rate of increase in job dissatisfaction. Depending on contextual factors of the health system, legal liability for a hospital with adverse patient consequences due to poor RN staffing could be costly.

8.4 Needleman et al's. (2002) retrospective study of discharge data from 799 hospitals in 11 US states covering 5,075,969 discharges of medical patients and 1,104,659 surgical patients examined the relationship between amount of care provided by hospital nurses and patient outcomes on a number of variables. Among the variables found to be significant were shorter lengths of stay, lower rates of urinary tract infection and upper GI bleeding, lower rates of pneumonia, shock or cardiac arrest and failure to rescue. Findings showed that a higher proportion of hours of care provided by registered nurses resulted in better care for hospitalized patients. Studies by Blegan, Goode and Reed (1998), Blegan and Vaughn (1998) and Lichtig, Knauf and Milholland (1999) in varying hospital settings produced similar findings.

8.5 Hospital units that provide specialized care are proving to affect the quality of patient experience and outcome. A collaborative systematic review of in-patient RCTs from multiple countries on post stroke care was conducted to determine the value of a specialized stroke unit over other types of units for post stroke victims. Distinctive features of the specialized in-hospital stroke units consisted of coordinated multidisciplinary team care, nursing integration with multidisciplinary care and involvement of carers in the rehabilitation process, expertise of the doctors and nurses in the area of stroke and education for the patient, staff and carers. Outcomes revealed that organized care on the stroke unit reduced the odds of death after stroke, reduced the need for long-term institutional care due to fewer patients becoming dependent and showed no systematic increase in length of stay. Though not totally attributable to nursing care, nurses are the around the clock care-givers in hospitals and nurses with expertise in stroke management contributed to the care (Stroke Units Trialists Collaboration, 1997).

8.6 Aiken et al. 1999 investigated differences in 1205 AIDS patients' 30 day mortality and satisfaction with care. Hospitals with dedicated AIDS units, scattered bed units with and without dedicated AIDS units, and magnet hospitals were compared. Findings indicated that dedicated AIDS units and magnet hospitals (known to provide good nursing care) lower risk for AIDS patients of dying within 30 days of admission. Other benefits included higher patient satisfaction and better care. Outcomes were improved by better nurse staffing and nurse organizational control and the presence of AIDS physician specialty.

8.7 Unit level determinations of staffing measures that affect quality patient outcomes are just appearing in the literature. Whitman, Kim, Davidson, Wolf and Wang (2002) investigated the impact of staffing on patient outcomes in 95 specialty units across 10 acute care rural, community and tertiary hospitals using a secondary data analysis technique. Special units included 43 medical surgical units, 15 cardiac intensive care units (ICU), 7 non-cardiac intensive care units, 18 cardiac intermediate care units, and 12 non-cardiac intermediate care units. Results showed no significant relationships between staffing and central line infections or pressure ulcers across specialty units. Significant inverse relationships existed between staffing and falls in cardiac ICU, medication errors in cardiac and non-cardiac ICU and restraint rates in the medical-surgical units. Although the study found that the impact of staffing on outcomes varied from unit to unit, lower RN staffing resulted in higher rates of all adverse outcomes.

8.8 Kinley et al. (2002) conducted a controlled randomized study at four National Health Service (NHS) hospitals to determine whether preoperative assessment carried out by appropriately trained nurses were of the same quality as those done by pre-registration house officers. Main outcome measures were history taken, physical examination and investigations ordered. The measures were evaluated and placed into four categories: Correct, overassessment, underassessment not affecting management and underassessment possibly affecting management. Of the 1874 persons completing the study, 926 were assessed by house officers and 948 by nurses. Findings of this study showed that although house officers ordered more unnecessary test than nurses, appropriately trained nurses performed no worse that the pre-registration officers and that variations in performance were similar.

8.9 Keeping chronically ill patients stable and out of the hospital is important to both cost and quality of life. Kasper et al. (2002) report on a RT for multidisciplinary care for high risk heart failure patients in jeopardy of hospital readmission. The team consisted of a cardiologist, Congestive Heart Failure (CHF) nurse, a telephone nurse coordinator, and the patient's primary care physician. The telephone nurse made calls to patients at regularly scheduled intervals that were more frequent post hospitalization but at least once per month for six months. CHF nurses followed 102 patients on a monthly basis either at a CHF clinic or on a home visit. CHF nurses adjusted medication according to algorithm. A patient care meeting was held weekly. Results of this trial at six months showed fewer re-hospitalizations and fewer deaths for the intervention group vs. the usual care group. Additionally quality of life scores and diet compliance were significantly better in this group. A RT of a similar education and support intervention of a multidisciplinary team for CHF patients with 44 intervention patients showed a significantly lower hospital readmission rate and reduced cost per patient (Krunholz et al., 2002). Other home based intervention (HBI) programs for CHF patients showed similar positive results (Jaarsma et al., 2000; Riegel, Carlson, Kopp, LePetri, & Unger, 2002; S. Stewart & J. Horowitz, 2002a; S. Stewart & J. D. Horowitz, 2002b).

8.10 There have been many studies that show RN and total nurse staffing levels are important in assuring high quality care in nursing homes (Harrington, Kovner, Mezey, & Kayser-Jones, 2000). Findings regarding the relationship between nurse staffing levels and the quality of nursing home care are presented in a report of the Phase II analysis of a US congressionally mandated study of nurse staffing in nursing homes (Kramer & Fish, 2001). The US Center for Medicare and Medicaid Service's (CMS) study chose nurse sensitive indicators to look at nurse staffing in relation to quality in 3,632 facilities from the short stay facility sample and 5,294 facilities from the long stay facility sample in 10 states and were classified as low, medium or high workload according to the level of resident need for direct-care nursing staff members. Quality measures for RN's for short stay were electrolyte imbalance, sepsis, and urinary tract infection and for long stay were functional improvement, pressure ulcer incidence, and resisting care improvement. The RN was responsible for the overall performance of the nursing staff. Results demonstrate clear associations between nurse staffing levels and quality measures for both short and long stay facilities. Findings showed that increased staffing levels reduced quality problems until staff threshold levels were met and there were no added benefits for additional staffing. Further, the study showed minimum staff requirements to reduce hospital transfers in short stay facilities to be 2.4 hours per resident day for nursing assistants, 1.14 hrs per resident day for licensed staff and .55 hrs per resident day for RNs. For long stay facilities, 2.78 hours per resident day for nursing assistants, 1.3 hrs per resident day for licensed staff and .75 hrs per resident day for RNs. The Phase II study also showed that RN's employed in nursing homes (only 6.9% of all employed US RN's) have the lowest level of job satisfaction, making turnover in these facilities a real problem. Findings included information that the cost of moving facilities towards the quality standard threshold could be as high as 7.6 billion dollars in 2001 dollars (Kovner & Harrington, 2002). Harrington et al. (2000) suggest that through adequate staffing, money could be saved on unnecessary hospitalizations, reduced on the job injuries for staff, lower personnel turnover resulting in reduced hiring and training costs, and overall better patient outcomes resulting in reduced facilities cost.

Chapter 9
Conclusions

9.1 This paper has presented outcome studies in public health, home health, midwifery, primary care, HIV-AIDS care, acute care and tertiary care settings which support both nursing and midwifery's contribution to the global healthcare workforce, particularly focused on quality, access to care and cost. A growing number of significant studies on nursing and midwifery outcomes presented in this paper reveal that these health care professionals make a difference in people's lives no matter where they are on the age or health continuum. From the great diversity in the literature reviewed the researchers at Emory came to the conclusion that there should be international agreement on nurse sensitive and other health outcome indicators, so that data from health care systems can be compared. By establishing such a data set, best practices in health care systems can be duplicated. In making decisions regarding scarce health care resources, governments need to know how the billions of dollars spent every year on health care translate into better health for populations served (Anderson & Hussey, 2001).

9.2 The triad of governmental concerns, quality, access to care and cost, are intertwined in many of the studies reviewed. Quality health care costs money, and not attending to quality costs more both in terms of dollars and human suffering (Baumann et al, 2001; IOM, 2001; Kohn, Corrigan & Donaldson, 2000; National Health Service, 2000; WHO, 2001, 2002b). In terms of quality, studies from all areas reviewed reveal the importance of the nursing and midwifery workforce in decreasing morbidity and mortality. Regarding nursing in particular, it is clear that a lhigher nurse to patient ratio produces better health outcomes. APNs and midwives deliver care that is comparable in quality to that of physicians and, depending on the context of the care system, do so at a cost savings. Additionally, as a necessary component of quality care, nurses and midwives provide education to patients that can improve choices people make about their health and the health and well-being of their families. Quality care produces better patient outcomes and thus increases the quality of life. Further, the literature shows that patients are very satisfied with the care they receive from nurses and midwives.

9.3 Home based care provided by nurses and midwives is important not only in terms of better patient outcomes, but in the access it provides to patients who might otherwise not receive care. Home based care is especially essential to vulnerable and underserved populations and has been shown to provide significant improvements for patients in pre and post natal adverse outcomes, for PLHA in receiving specialized attention, in avoiding re-hospitalizations in chronic illness, and in keeping frail elderly in their homes and out of LTC facilities. Home based care offers the advantage of providing the health professional an objective view of the client's living conditions and allows for better assessment of care needed.

9.4 The studies reviewed show that midwives provide quality care to women during the prenatal, intrapartum and postnatal period. In general, when midwifery care for low risk women was compared to care delivered by physicians or even shared care

teams in Europe, midwives perform fewer episiotomies, use less anesthesia and analgesia during labor and delivery, mothers have fewer cesarean sections and more spontaneous vaginal deliveries, and use less technology such as fetal monitoring with at least similar birth outcomes. Although an exact cost-saving figure cannot be attributed to midwifery care, several studies indicate that hospital stays of women cared for by midwives cost less than those of physician providers; studies also show that women who do not have episiotomies have a shorter length of stay and reduced cost of care.

9.5 Although midwives improve access to quality care in a cost-effective way, the studies reviewed also suggest that midwives must be part of a wider health system. It matters little if the midwife is delivering a baby at home in the Netherlands, at a hospital in the U.S. or is supervising care by a traditional birth attendant in Malaysia, there needs to be also a referral system for unexpected complications. The ability to assess when to refer their clients to physicians when complications occur needs to be one of the midwife's skills.

9.6 Gauging costs associated with nursing and midwifery are more complicated than showing increased quality and access to care. This is due to the interrelatedness of the function and roles of these professionals with the rest of the health care system and the concomitant difficulty of placing a monetary value on what each profession contributes. In particular, the savings in health care expenditures from the health promotion and disease prevention contributions of both professions do not readily lend themselves to cost savings analysis. Several studies either alluded to or revealed measures of cost savings including Brooten et al's (2001) randomized clinical trial which revealed the cost savings of in-home prenatal care for that study to be a decrease of more than 750 hospital days and $2,880,000. Long term follow up on studies conducted by the National Center for Families, Children and Communities showed a four dollar savings for every dollar invested in the home visiting program. Although not specified in many studies, it seems reasonable to conclude that decreased morbidity and mortality related to infections and safety issues in hospitals and nursing homes, will save money. Further, decreased complications and/or re-hospitalization rates, increased quality of life resulting from home visitation programs and the economic values of substituting well trained nurses and midwives for medical doctors, will all result in cost savings to the health care system.

9.7 The shortage of nurses and midwives, which has been addressed peripherally in this paper, is a global concern and there are many articles available that make recommendations for improving this problem. However, it was the purpose of this review to show, through the current literature, that nurses and midwives make a difference in every aspect of health care. As was agreed in adopting resolution WHA 54.12, we believe that all nations should act to strengthen nursing and midwifery services. As we acknowledge our interdependence on this planet, all partners must work together in their stewardship role to improve the health of populations globally.

Annex A

Commonwealth Steering Committee for Nursing and Midwifery

1. A Steering Committee for Nursing and Midwifery was set up, and a Commonwealth Action Plan for Nursing and Midwifery developed, in response to a request from the 9th Commonwealth Health Ministers Meeting (CHMM) in 1989.

2. The remit of the Steering Committee has been renewed by subsequent CHMMs. Most recently, at the 13th CHMM in November 2001, Ministers adopted recommendations for action to further develop nursing and midwifery in Commonwealth countries. The agreed recommendations included continuation of the work of the Commonwealth Steering Committee for Nursing and Midwifery and the development of further programmes in pursuance of the aims of Commonwealth Health Ministers.

3. The Commonwealth Secretariat constitutes membership of the Steering Committee. In addition to the Chair (currently Prof Anna Maslin, International Officer for Nursing and Midwifery, Department of Health, England) membership includes :

   - the board members of the Commonwealth Nurses Federation
   - a number of invited national chief nurses or other senior national nurse or midwife leaders
   - representatives of the Commonwealth Secretariat, the Royal College of Nursing(UK), the International Council of Nurses and the International Confederation of Midwives.

4. Three of the main elements of the Steering Committee's ongoing work programme have been :

   - regular workshops for nurses and midwives from different regions of the Commonwealth, dealing with issue relevant to Health Ministers priorities and of concern to nurses and midwives (eg HIV/AIDS, human resources issues)
   - the production of resource materials for Commonwealth countries on key issues affecting nursing and midwifery - such as the present publication
   - regular surveys of nursing and midwifery in all Commonwealth countries.

5. The Steering Committee provides regular written reports of its work to Commonwealth Health Ministers Meetings

Annex B

About the Authors

Judith Wold is currently a visiting scholar at the Nell Hodgson Woodruff School of Nursing assigned to the Office of the Dean and the Lillian Carter Center for International Nursing. She has been Interim Director of the International Health MSN/MPH Program and the Office of Service Learning during her two years at Emory. Dr. Wold was formerly the Director of the School of Nursing at Georgia State University in Atlanta and is presently a tenured Associate Professor of Nursing at that institution. She holds a BS and PhD from Georgia State University and a Masters of Nursing in Family and Community Health from Emory University in Atlanta, Georgia.

Dr. Wold's primary research focus is in the area of Health Promotion and Disease Prevention of Cardiovascular Disease in Rural Occupational sites. She has used her research as a teaching/learning experience for both graduate and undergraduate student nurses. Findings have been published and presented at national and international conferences. Dr. Wold has worked extensively with the American International Health Alliance since 1993 to promote the profession of nursing in the Republic of Georgia. Presently she is negotiating the first University based School of Nursing in Tbilisi, the capital of Georgia. She has led two trips for Emory graduate and undergraduate nursing students to Cuba with MEDICC to study Cuba's primary health care system. In her work with service learning, Dr. Wold has been instrumental in the successful implementation of the Farm Worker Family Health Program held each summer to deliver health care to migrant farm workers in South Georgia and in developing inner city community partnerships to promote the health and well-being of Atlanta's children. Additionally, Dr. Wold's interest in and experience with the nursing shortage nationally and internationally comes from both an educator's and a public health perspective.

Pamela McQuide is an Assistant Professor and Post Doctoral Fellow at the Nell Hodgson Woodruff School of Nursing. She has a PhD in Social and Health Policy from the Florence Heller School of Social Welfare at Brandeis University and wrote her dissertation on pre-natal care systems in Europe. She joined LCCIN in the summer of 2002 and has since been involved in several projects aimed to advance nursing care worldwide. She is principal investigator for the Kenya Nursing Workforce and Training Analysis Project. As principal investigator, her goal is to provide the Nursing Council of Kenya and Ministry of Health with the resources and technical assistance needed for them to create sustainable computerized systems to report on key nursing workforce issues. Prior to coming to Emory University, Dr. McQuide directed the statewide Intensive Home Visiting Cooperative housed at the University of North Carolina Chapel Hill. The program provides first-time pregnant women and later their newborns, who are at risk for adverse health and social outcomes, home visits by nurses and social workers. Her responsibilities included ensuring home visiting agencies (usually public health agencies) receive the essential technical assistance for training, quality improvement, evaluation, and ongoing site development and support.

Dr. McQuide gained expertise in evaluating sustainability and effectiveness of reproductive health programs while working at Family Health International (FHI). In

Haiti, she managed a project to assess provider knowledge of family planning and evaluated the quality of mobile unit services that provide long term methods of contraception in the country's rural areas. She also worked with the Ministry of Health in Kenya to develop prices for family planning services. Prior to joining FHI, she was a research fellow at Massachusetts General Hospital and Harvard Medical School. Fluent in French, Dr. McQuide has been a consultant for several international and domestic studies on health, including projects involving service delivery, health care access, and health financing. She has extensive experience in health policy on a state, national and international level. She has previously practiced nursing and nursing administration.

Chassea Ann Golden is a graduate student in the International Health Master of Science in Nursing/Master of Public Health dual degree program in the Nell Hodgson Woodruff School of Nursing and the Rollins School of Public Health at Emory University. Ms. Golden received her Bachelor of Science in Nursing degree from the University of New Hampshire with honors in May of 2001 and is a member of Sigma Theta Tau International Honor Society of Nursing. Additionally, Ms. Golden holds a Bachelor of Arts with a major in Political Science with honors and a minor in Sociology from Bucknell University. Prior to enrolling in the International Health graduate program, Ms. Golden received her licensure as a registered nurse and had worked with international health programs in Belize.

Anna Maslin is Chair of the Commonwealth Health Ministers Steering Committee for Nursing and Midwifery, which commissioned this paper. She works as the International Officer for Nursing and Midwifery at the Department of Health in London, England. Her role there includes representing the United Kingdom at international meetings, including WHO and Commonwealth Health Ministers meetings. She also assists in co-operation with countries wishing to develop their nursing and midwifery services. She served on the planning committee, and as speaker, for the first Global Conference for National Chief Nursing Officers held in Atlanta in 2001 by the Lillian Carter Center for International Nursing.

As Chair of the Commonwealth Health Ministers Steering Committee for Nursing and Midwifery, Professor Maslin works with an international committee on key health issues where nurses and midwives have a significant contribution to make to health outcomes and care. She regularly organizes and chairs workshops for nurses and midwives from different regions of the Commonwealth. She also produces and edits resource material on topics of particular concern to nurses and midwives from across the Commonwealth, such as workforce issues and the psychosocial aspects of working with HIV/AIDS.

Prior to taking up her post at the Department of Health, Professor Maslin specialized in oncology, working with patients with breast cancer. Her research interests are wide and include international health policy, workforce issues, psychosocial care, ethics and oncology. She has published widely and has written a number of books, as well as articles, for the national and international press. Her books include "Breast Cancer, Sharing the Decision", "Nursing the World", and most recently, "Tips for Women at Work".

Marla Salmon is Dean and Professor, and Director of the Lillian Carter Center for International Nursing of the Nell Hodgson Woodruff School of Nursing at Emory

University, Atlanta, Georgia. She formerly served as Director of the Division of Nursing for the U.S. Department of Health and Human Services and as Chair of the Global Advisory Group on Nursing and Midwifery for the World Health Organization.

Throughout her career, Dr. Salmon's research interests have included health policy, administration and national and international health workforce development with particular emphasis on the importance of nursing and public health. She has received numerous awards including the Presidential Meritorious Executive Award and the U.S. Public Health Special Service Award. Dr. Salmon is a member of the Board of Trustees of the Robert Wood Johnson Foundation, member of the Board of Directors of the National Center for Healthcare Leadership and is both nationally and internationally recognized for her contributions to health policies influencing health care delivery systems.

Annex C

The Lillian Carter Center for International Nursing
Nell Hodgson Woodruff School of Nursing, Emory University, Atlanta, Georgia, USA

Mission

1. The Lillian Carter Center for International Nursing (LCCIN), named after President Carter's mother, and dedicated by President Carter in October 2001, is located in the Nell Hodgson Woodruff School of Nursing at Emory University in Atlanta, Georgia, USA. The LCCIN is an integral part of the School and reflects its strong commitment to global health improvement. The LCCIN is the School's focal point for enhancing the global capacity of nurses to improve the health of vulnerable people worldwide through nursing policy, practice, research, and education. The overall philosophy reflects an understanding of the multiple factors that determine health and the need for a strong nursing, public health, and interdisciplinary orientation in all of its work.

Key Functions

2. The LCCIN strives to serve as a neutral forum, convening point and host for key global nursing leadership groups. Leadership and skill development for nurses in governmental and non-governmental organizations is a priority. The LCCIN hosts international forums designed to increase awareness, knowledge, and commitment to the improvement of global health. The LCCIN's inaugural international forum was a conference entitled "Global Nursing Partnerships: Strategies for a Sustainable Nursing Workforce," held October 15-19, 2001, at the Carter Presidential Center in Atlanta. This conference was designed specifically for government Chief Nursing Officers (CNOs) and leaders of National Nurses Associations (NNAs). Together with national health care planners, the CNOs and NNAs examined research results related to international nursing workforce issues, developed action plans toward policy strategies, and outlined future research goals and methodological issues. The event was hosted by the LCCIN, in sponsorship with the World Health Organization (WHO), the International Council of Nurses (ICN), and representatives of Departments of Health in the United Kingdom, Canada, and the United States. The CNOs requested the LCCIN become the secretariat for the group and help it establish communication and interaction.

3. Another function of the LCCIN is to provide consultation and technical assistance. Through linkages with the Pan American Health Organization and the Caribbean Community Secretariat (CARICOM) Regional Nursing Body, the LCCIN has undertaken a number of creative initiatives to work with them in their efforts to address the shortage of nurses in that region. One project partners the LCCIN with Johnson & Johnson in their international nursing campaign in the Caribbean. Additionally, in collaboration with the Centers for Disease Control

and Prevention, the Carter Center, and the Association of Schools of Public Health, the LCCIN is providing HIV/AIDS training; consultation; and technical assistance on workforce issues in Africa.

4. The LCCIN is committed to scholarly exchanges for faculty and international educational student exchanges for undergraduate and graduate students with experience in or commitment to global health and international nursing. Currently, exchanges are occurring with Canada, the Caribbean, Cuba, Ethiopia, Germany, India, Kenya, Korea, and the J&J Kings Fund, among others. Another educational opportunity is the LCCIN's International Health Master of Science in Nursing and Master of Public Health (MSN-MPH) dual degree program that will prepare nurses for leadership positions in the international health arena. Moreover, the LCCIN offers opportunities for continuing education for nurses with global health interests and commitments; partnership development; and service learning involving faculty, students, visiting colleagues, and scholars.

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Annex D

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