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Infant sleep position: Nurses' awareness and practice of the Canadian Joint Statement recommendation.

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INFANT SLEEP POSITION: NURSES' AWARENESS AND PRACTICE OF THE CANADIAN JOINT STATEMENT RECOMMENDATION

by

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Abstract

This replication study examined maternal-child health care nurses' awareness and practice of the Canadian Joint Statement (CJS) recommendation for infant sleep position; i.e., that normal, healthy infants be placed solely on their back for sleep (Canadian Joint Statement, 1999). A descriptive survey of 65 nurses in seven health care organizations in both the hospital and community setting was conducted. Findings revealed that the majority of nurses (87.7%) were aware of the CJS recommendation; however, only one-third of the nurses actually integrated it into their practice. Less than 50% of nurses strongly agreed with the CJS recommendation and cited reasons such as potential for adverse consequences, previous experience/training in nursing and experience with infants as reasons for their lack of strong agreement. Community nurses tended to provide more education to parents about infant sleeping position than did hospital nurses. Findings revealed several possible reasons for nurses' failure to routinely integrate the CJS recommendation into their practice including inappropriate communication of the CJS to nurses, lack of specific implementation guidelines for applying the CJS to nurses' practice and lack of organizational support for the integration of the CJS. This study suggests that the role of policy in shaping nursing practice must be examined further and that nurses must increase their use of evidence-based practice in nursing. Nurses' utilization of research may be enhanced by organizational supports including structures which allow nurses to be involved in the development of evidence-based practice policy, designated and protected time for nursing research and education in the form of practice development groups, education in research utilization workshops and ward based research utilization workshops.

DEDICATION

This thesis is dedicated to Linda Edwards for inspiring me to this work, to Claire McAllister for her commitment to educating parents about safe and healthy infant care practices, to my loving husband Norm for his never ending support, to my darling children Vanessa and Leo for their encouragement and to my parents Roma and Vittorio for teaching me the value of education.

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Infant Sleep Position: Nurses' awareness and practice of the Canadian Joint Statement Recommendation

Introduction

Statement of the Problem

Each week, three Canadian babies (0.5 per 1,000 live births) die of Sudden Infant Death Syndrome (SIDS) (Statistics Canada, 1996).[1] The rate of SIDS in the United States and the United Kingdom is slightly higher at 0.8 per 1,000 live births (Fitzgerald, 2000). In New Zealand, post-neonatal SIDS mortality is almost two times greater at 1.5 per 1,000 live births (Fitzgerald, 2000). The alarming rate at which infants from 1 to 12 months of age are dying of SIDS is a serious public health issue that has been addressed by many countries through "Back to Sleep" programmes which encourage parents to use supine sleep positioning for their infants. The responsibility for the education of infant caregivers regarding infant sleep position falls with primary care practitioners and nurses.

Nurses establish therapeutic relationships with parents in the prenatal care setting, in the early postpartum days and in the first weeks of life at home. The information that nurses give parents is important because it helps the family to establish positive health practices in many areas, particularly infant sleep position, that infants become accustomed to early in life (Lerner, 1993). Nursing behaviours serve as models for parents and caregivers in clinical settings such as post partum units. The manner in which nurses position infants for sleep is observed and noted by parents. Brenner et al.

[1]The Canadian SIDS rate of 0.5 deaths per 1,000 live births in 1996 is the most current rate reported by Statistics Canada (2002).

(1998), found 93% of the mothers they studied, who observed prone sleeping of their infants in the hospital, placed their infants prone to sleep at home. Despite the influence that nurses may have in educating parents on infant sleep position, only one published research study to date examines nurses' understanding, acceptance and practice of sleep position (Peeke, Hershberger, Kuehn and Levett, 1999). If nurses are being relied upon to provide "Back to Sleep" education in order to reduce the incidence of SIDS, then research that examines nurses' awareness and professional application of the Canadian Joint Statement recommendation for infant sleep position is clearly needed.

Purpose of the Study

The purpose of this research study is to examine the extent to which maternal-child health care nurses are aware of and accept the Canadian Joint Statement (CJS) recommendation for infant sleep position; i.e., that normal, healthy infants be placed solely on their back for sleep (Canadian Joint Statement, 1999). The research questions include: What are the awareness and perceptions of nurses practicing in maternal-child settings of the CJS? What are nurses' perceptions of best practice for placing infants to sleep? What information are maternal-child nurses providing to parents and caregivers about infant sleep positioning? In addition, the effect of practice setting (hospital vs. community) will be examined in relation to each of these research questions.

Literature Review

Relevance of SIDS Prevention for Nursing Practice

Sudden infant death syndrome is the leading cause of death for Canadian infants between 28 days and one year of age (Statistics Canada, 1996). SIDS refers to "the sudden unexpected death of an apparently healthy infant under one year of age which remains unexplained after all known and possible causes have been ruled out through autopsy, death scene investigation and review of the medical history" (Injury Prevention Committee, Canadian Paediatric Society, 1996).

In 1996, there were 2,051 reported infant deaths in Canada. Of these deaths, 168 (8.2%) were attributed to SIDS. Since 1980, the overall rate of SIDS deaths in Canada has been steadily declining from 1.2 per 1,000 live births in 1980 to 0.5 per 1,000 live births in 1996 (Statistics Canada, 1996). In 1996, SIDS remained the leading cause of post-neonatal mortality (post-neonatal period extends from day 28 through day 364) in Canada, accounting for 26% of all post-neonatal deaths. Post-neonatal mortality rates attributed to SIDS have remained steady since 1980 (Statistics Canada, 1996).

In comparison to other developed countries, the 1996 Canadian SIDS rate of 0.5 per 1,000 live births is lower than the rate in Australia (1.00 per 1,000 live births), USA, Germany, Czechoslovakia and England/Wales (0.7 to 0.8 per 1,000 live births) and New Zealand (1.5 per 1,000 live births). However, the Canadian SIDS rate remains higher than rates reported in Japan, Hong Kong, Denmark, Finland, Hungary, Israel and the Netherlands (0.1 to 0.3 per 1,000 live births) (Fitzgerald, 2000). International comparisons should be interpreted with caution, since some variation may be due to between-country differences in the diagnosis of SIDS. However, it remains important to

consider the relevance of SIDS to nurses' clinical practice in order to ensure prevention of such a devastating event for families.

Best Practices for SIDS Prevention

A number of studies that have been conducted in the United Kingdom, Europe and North America identifies a link between sleeping position and the risk of SIDS. Three methodological approaches have been used. Over 20 retrospective case-control studies have been published since the 1960's, which consistently described a link between the use of prone infant sleeping position and the increased incidence of SIDS (Carpenter and Shaddock, 1965, Davies, 1985, Beal 1986, DeJonge, Engleberts, Koonen-Liefting and Kostense, 1989). All of these studies have been criticized for recall bias. Where attempts were made to validate the information on sleeping position given by parents, there was no evidence of recall bias. A single prospective study by Dwyer, Ponsonby, Newman and Gibbons (1991) found that there was an increased risk of SIDS for infants who were sleeping on their stomach. Data on sleeping position collected prior to death showed that the prone sleeping position was associated with a risk of SIDS, which was four times that for other positions when corrected for the effects of other confounding variables. Post-intervention studies conducted by Beal (1988) and Engleberts and DeJonge (1990) revealed a fall in SIDS death rates following public awareness campaigns aimed at encouraging parents not to use the prone position when settling their infant to sleep. Surveys conducted by the Department of Health in Great Britain (1993, p.102) identified an increased level of awareness and understanding of the message of "Back to Sleep" one year after the campaign was implemented. A similar survey conducted in the United States revealed that the prevalence of prone positioning declined from 58% in 1993 to

24% in 1996 after the initiation of the "Back to Sleep" campaign (Malloy, 1998). Empirically, supine position for young infants is associated with lower incidence of SIDS. SIDS public education campaigns have been directed specifically at parents and caregivers to educate them about the use of supine sleep positioning for their infants. Although nurses may have acquired information about supine sleep positioning for infants as a result of these public campaigns, specific education for nursing practice did not occur simultaneously.

Infants from 1 to 12 months of age are vulnerable to SIDS. It is generally accepted that SIDS does not have a single cause, but is one consequence of the interplay between infants' physiological makeup and the external risk factors to which they are exposed (Engleberts, DeJonge and Kostense, 1991). The three major external risk factors for SIDS, which have been the subject of a number of studies, are prone sleeping position, maternal smoking and lack of breastfeeding. Mitchell, Becroft and Barry (1991) identified these risk factors as potentially amenable to modification and found that in total these three risk factors may account for 79% of deaths from SIDS. Moreover, the study revealed that these three risk factors are independent of each other in their association with SIDS, which suggests that changing any one of these risk factors may decrease the risk of SIDS. However, results of Taylor's (1991) study revealed that maternal smoking patterns decreased only 4% following a risk reduction intervention as compared to use of the prone sleeping position which decreased approximately 40% following a risk reduction intervention. This suggests that smoking may be less responsive to an intervention than a change in sleep positioning may be. Unless a significant decrease in maternal smoking occurs it is unlikely to have any great effect on

SIDS mortality. Breastfeeding has been identified in some studies as being protective against SIDS (Watson, Gardner and Carpenter, 1981; Grice and McGlasham, 1981). However, other studies have shown that breastfeeding is not a protective factor when the influence of socio-economic status is controlled for (Frederick, 1974; Blaring-Srenson, Jrogensen and Hilden, 1978). Mitchell et al. (1991) concluded from their study that, "further efforts to improve breastfeeding are unlikely to have a major impact on the high SIDS rate in this country" (p. 78). These findings suggest that of the risk factors identified, sleeping position may be the most amenable to change and thus the most likely to produce a significant decrease in the incidence of SIDS. These studies provide empirical support for evidence-based nursing practice. However, what remains unclear is nurses' knowledge and use of sleep position interventions to promote health in young infants.

As a result of the evidence presented, The American Academy of Pediatrics (1992), the Department of Health in the United Kingdom (1993) and the Canadian Foundation for the Study of Infant Deaths, Canadian Institute of Child Health, Canadian Paediatric Society and Health Canada (1993) issued policy statements recommending that healthy infants be placed on their back or side for sleep. More recently, policy statements in these countries have been amended to reflect recent research, which suggests that only the back sleeping position provides the lowest risk of SIDS (Canadian Joint Statement, 1999). Further to this, various "Back to Sleep" interventions to address this population health issue have been devised and implemented across Canada and abroad. However, there have been no empirical studies of the degree to which these interventions have been

adopted by practitioners or of the effectiveness of these programs on infant sleep position.

Brenner et al. (1998) described the infant sleep position in a cohort of infants born to low-income, inner-city mothers and identified predictors of the prone sleep position in this population. The researchers found that at 3 to 7 months of age, 40% of the infants were placed in the prone position for sleep. Independent predictors of prone sleep position included poverty, presence of infant's grandmother in the home, and intent, as measured shortly after the delivery to place the infant in the prone position. Of particular importance is the intent of 40 out of 43 mothers to place their infants in the prone position at home as a result of observing their infants being placed in the prone position while in the hospital. This may suggest that mothers who intend to place their infant in the prone sleeping position at home receive reinforcement of this practice from nurses who place infants to sleep in the prone position while in hospital. Nurses' practice of positioning infants to sleep may have a significant impact on parent's choice of sleeping position.

Culture may play an important role in parenting practices of infant sleep position. Gibson et al. (2000) studied 410 parental reports of infant sleep position practices in Philadelphia during 1996 and 1997. Sleep position practices and other SIDS risk factors were measured among demographic groups (61% African Americans) and compared with reported rates in a similar population from 1993 and 1994. Findings revealed that 72% of all infants surveyed slept non-prone compared to 31.8% in 1993 and 59.1% in 1994. Gibson et al. (2000) found a greater percentage of African Americans position their infants prone. Most parents (56 %), who place infants on their back, reported that a

medical professional had made the recommendation to them. The majority of those placing infants prone did so because their infant was more comfortable or slept better (65%) although 73% said their physician or nurse had discussed sleep position with them. Findings suggest that non-prone sleeping continues to increase since the initiation of the "Back to Sleep" campaign. However, disparity between demographic groups exists. This may suggest that educational methods to deliver the message of supine sleep positioning need to be examined closely by nurses for cultural relevance and appropriateness.

National health promotion campaigns have been launched widely in countries such as New Zealand. Yet, the effectiveness of these campaigns is less clear. In 1991 the first nationally executed SIDS prevention campaigns were launched in New Zealand. The campaigns were designed to educate parents and caregivers about reducing the risk of SIDS by encouraging breastfeeding, eliminating smoke in the environment and by emphasizing that babies need to be placed on their back or side for sleep. National strategies specific to infant sleeping practices included a mass media campaign using television and print media and the development and distribution of written material (pamphlets and posters) that physicians and nurses could distribute to their clients. Adoption of local policies regarding infant sleep position and communication of those policies to maternity and infant care services were undertaken. Nurses (home visiting nurses, post-natal nurses in the hospital setting and midwives who deliver babies at home) were expected to make information about back and side laying for babies a priority issue in their health education efforts. However, there has been no empirical

examination of nurses' roles in implementation of the New Zealand national campaign nor nurses' views of the importance of this "Back to Sleep" recommendation.

On the heels of New Zealand, England, Wales, Scotland and Northern Ireland Health Departments initiated a national, professional and public education programme. The "Back to Sleep" initiative was constructed in a similar fashion to that of New Zealand. A few modifications were made to reflect the differing needs of the population but the program remained essentially the same. Again, maternal-child nurses and midwives in both institutional and community settings implemented the programme by providing health education related to SIDS. Two booklets routinely distributed by nurses to every first time mother were revised to include the new advice on the sleeping position of infants. A "Back to Sleep" campaign leaflet was made available to the general public as well as those with specific interests in the topic area such as daycare and family learning centres. The limitation of these campaigns is the sole reliance on informational booklets as the primary intervention. In addition, it is not clear whether nurses implemented additional strategies to support the informational booklets to prevent SIDS. Moreover, the degree to which nurses actually followed and implemented the "Back to Sleep" guidelines has not been examined empirically.

In late 1993, the United States initiated a national "Back to Sleep" public education campaign. A variety of educational material, brochures and posters for parents and professionals were developed and distributed free of charge to any health care agency that might be directly or indirectly touched by the issue. Public service announcements, press conferences and interviews with public health officials provided access to "Back to Sleep" educational information. At the same time, Health Canada, The Foundation for

the Study of Infant Deaths, Canadian Institute of Child Health and Canadian Paediatric Society produced a "Joint Statement" (CJS) of recommendations for reducing the risk of SIDS in Canada (Canadian Joint Statement, 1993, revised 1999). The recommendations in the original version (1993) are as follows: that normal, healthy infants be placed on their side or back for sleep, that exposure of infants to second-hand smoke be avoided, that overheating infants be avoided and that women be encouraged to breastfeed their infants. These recommendations formed the basis for the "Back to Sleep" campaign, which was launched in Canada in late 1993. In 1999, after further examination of the research conducted on infant sleep position and its relationship to SIDS, the CJS was revised to recommend that normal, healthy infants be placed solely on their back for sleep. The CJS recommendations of 1993 and later the revised recommendations of 1999 were distributed to private practices (i.e. family physician's and paediatrician's offices) and publicly funded health care organizations (i.e. health units, community health centres and hospitals) for dissemination to primary care providers and nurses within their agency. Typically, nurses practicing in the area of maternal-child health care received the CJS recommendations. In both the community and hospital setting, the manner in which nurses received the information varied from internal postings to being verbally informed at nursing staff meetings by nursing administrators. In general, nurses did not individually receive a copy of the CJS but a copy was made available at a central location. In-service education about the CJS recommendations was not routinely conducted with the nurses in either the community or hospital setting in most Canadian centres. It is also unclear whether nurses who received the CJS recommendations of 1993 also received the revised recommendations of 1999. Thus, it is not at all clear

whether nurses were informed well enough about the current CJS recommendations to integrate this information into their practice and to educate their clients as intended by Health Canada. Moreover, there has been no examination of nurses' attitudes and beliefs towards the CJS that may influence the degree to which they implement its recommendations.

Family physicians and paediatricians were made aware of the CJS guidelines for infant sleep position by Health Canada through direct mail out. The medical association in each province was also informed of the CJS recommendations and was encouraged to support these recommendations in their respective provinces by addressing the issue at their meetings and by providing physicians with information about where to obtain literature and educational material such as brochures and posters for clients. It is unknown whether the actions suggested by Health Canada to inform family physicians and paediatricians of the CJS recommendations through the medical associations were actually implemented by physicians and if so, to what degree. Public service announcements on television and radio, press conferences and interviews with public health officials provided access to "Back to Sleep" educational information for the general public. However, the effectiveness of this educational campaign for health professionals has not been empirically measured.

Although no specific implementation guidelines were developed by Health Canada, "Back to Sleep" education became the responsibility of primary care providers and nurses based largely in community health care settings. Currently, "Back to Sleep" information in Windsor-Essex County, is provided to parents and caregivers through direct client contact, i.e., one to one primary health care visits with physicians, paediatricians, nurse

practitioners and maternal-child care nurses practicing in private physician's offices or in the community, i.e., public health agency, community health centre, home visiting agency or hospital. The frequency with which primary care providers and nurses provide "Back to Sleep" information for their individual clients is unclear. Maternal-child care nurses provide "Back to Sleep" information to groups of parents and caregivers through prenatal classes which are offered in a variety of community health care settings i.e. public health unit, community health centre, visiting nurse agency. In these settings, prenatal class content has been amended to include information about infant sleep position that reflects the CJS of 1999. However, nurses vary in their provision of "Back to Sleep" information in these settings. Some nurses provide a one time (5 minute) information session and distribute the "Back to Sleep" pamphlet while other nurses provide a series of information and discussion sessions about supine sleep position (variable lengths of time) and distribute the "Back to Sleep" pamphlet. The manner in which maternal-child care nurses in the community interpret the CJS and the degree of intensity with which the information is communicated to their clients in the community has not been the focus of empirical investigations.

Maternal-child care nurses in the hospital setting, provide "Back to Sleep" information to new mothers on an individual basis during their postpartum stay in the hospital. New mothers may also choose to attend the Maternal Newborn Clinic for up to six weeks following the birth of their infant. Maternal-child care nurses who practice in this hospital-based programme provide a variety of information regarding infant care practices, including infant sleep position. The manner in which maternal-child nurses in the hospital setting interpret the CJS and how the information is communicated to their

clients has not been described, nor has nurses' use of supine positioning in nursery settings been examined. Current hospital policy does not specifically recommend that nurses place infants in the supine position based on the 1999 CJS. The hospital settings in this community no longer have nursery facilities aside from the neonatal intensive care nursery and the special care nursery. It is unclear whether nurses in the hospital are either encouraging or demonstrating to new mothers how to place their infants in the supine position during the postnatal combined care period. There are a few prenatal classes offered by lay people in the community but it is unknown whether or not information about the CJS recommendations for infant sleep position is included in health teaching materials or if this information is directly addressed with clients.

In Windsor-Essex County, it appears that nurses have ample opportunity to provide parents with information about infant sleep positioning in both the hospital and community setting during the prenatal and postnatal period. Nurses also have the opportunity to model the use of the appropriate sleeping position for infants while providing assistance to new mothers with infant care tasks during the postnatal rooming-in period. It is unclear whether or not nurses are taking advantage of this opportunity to demonstrate and model the use of the supine sleeping position for infants. A number of other issues remain unclear. For example, do nurses understand and thereby ascribe to the principles of the CJS? Do nurses use the CJS as a basis for educational programmes provided to parents? Finally, to what degree do nurses intervene with parents relative to supine positioning (i.e.: multi dose, single dose, written, verbal, group, individual)? In order to properly evaluate the "Back to Sleep" programme, the role of the nurse's implementation of this health promotion strategy must be carefully examined. It is

unclear whether nurses understand, accept and encourage parents to abide by the CJS recommendations on infant sleep position.

Evaluation of "Back to Sleep" and Provider Influence on Parental Behaviours

In Great Britain, The Department of Health (1993) commissioned research to determine public awareness and understanding of the message of the "Back to Sleep" campaign following its implementation. Each month, interviews were conducted with approximately 2,000 individuals over the age of 16. A summary of responses obtained from a sample of 1365 individuals in March 1992 found that among women ages 16-44 years approximately, 84% were aware of the advice to put a baby to sleep on its back or side. Approximately 83% of this group had heard or seen this message from television, 40% from a newspaper or magazine, 9% from health professionals, 16% from Department of Health leaflet and 5% privately. In November 1992 the survey revealed that women of this same age category responded to being aware of the back or side lying position for infants at a rate of approximately 68%. Approximately 85% had heard or seen the message from television, 51% from the newspaper or magazine, 23% from health professionals, 20% from Department of Health leaflet and 16% privately. The authors suggest that the new advice on reducing the risk of SIDS is becoming an accepted part of health professional practice and public culture since these percentages increased during the period March to November 1992. It is not known what percentage of individuals who completed the survey heard the "Back to Sleep" message from a nurse who is, traditionally, in a key position to provide parents with this type of health education. Nor is it clear how the information was being delivered.

Willinger et al. (1998) conducted the National Infant Sleep position study and reported that the prevalence of prone sleeping position declined by 66% between 1992 and 1996 following the "Back to Sleep" campaign in the United States. Willinger et al. (1998) examined socio-demographic characteristics; motivation and message exposure to ascertain which factors influenced caregiver's choice of infant sleep position after the implementation of the campaign. Their findings indicate that physician recommendation of "supine not prone" had the strongest single influence on parents' choice of infant sleeping position and was associated with decreased prone placement and increased supine placement. However, recommendations given to parents to place infants to sleep in the supine position from all four sources (the physician, neonatal nurse, reading materials and radio/television) further increased the probability of supine placement. Willinger et al. (1998) conclude that multiple interventions, i.e., recommendations of supine infant sleep positioning by physicians at well-baby checks and by neonatal nursery staff and print and broadcast media, have increased the proportion of infants placed supine. This suggests that nurses have an important role to play in reinforcing the "Back to Sleep" intervention in a variety of settings, which may influence parents' decision to use the supine infant sleep position.

Attitudes and Beliefs about "Back to Sleep" Recommendations

Very few studies have examined the attitude of health professionals regarding the "Back to Sleep" recommendation or health care providers' practice. In a study of physicians, Hudak et al. (1995) surveyed 121 physicians to determine the effect of the American Academy of Pediatrics (AAP) recommendations for infant sleep position on physician attitude toward infant sleep position and advice to parents. Their results

showed that 98% of physicians were aware of the recommendations but only 24.4% strongly agreed with them. The study also revealed that the AAP recommendations for sleep position had a marked effect on the frequency with which paediatricians routinely discussed sleep position. Only 41 physicians indicated that they routinely discussed sleep position before 1992. However, by 1993, 70% of physicians indicated that they usually or always discussed sleep position with parents. Further to this, the study finds that while the frequency with which physicians discussed sleep position is independent of their attitude toward the AAP recommendations, their attitude influenced the position they recommended to parents. Those who disagreed were less likely to recommend the supine sleep position than were those who agreed with the recommendations. The most common reason given by physicians who did not strongly agree with the AAP recommendations was lack of data to support the recommendations. These findings provide insights into the influence of attitudes and beliefs of primary care providers on clinical practice. It also suggests that nurses may be providing advice to parents about infant sleep position that may be based upon their personal opinion (i.e. the manner in which they positioned their own infants) and traditional practices (i.e. previous culturally and socially accepted infant sleep position practices), rather than current, objective research findings. It remains unclear whether these findings are relevant in other countries such as Canada.

Only one study has asked similar questions of nurses as asked of physicians in Hudak's study. Peeke et al. (1999) conducted a survey using 103 maternal-child care nurses in two different hospitals and found that 97% of the nurses were aware of the AAP recommendation on sleep position. However, 32% stated that they disagreed with the

recommendation and cited "experience" and the "potential adverse consequences of the supine position" as their reasons. Nurses were asked about their discussion with parents about sleep position before and after the 1992 recommendations. Nurses stated they primarily recommended the prone and side-lying position before 1992 and both the supine and side position, with the highest percentage recommending the side position, after 1992. Peeke et al. (1999) also performed a two-week observational assessment on the maternity and paediatrics wards of the two hospitals where the nurses had been surveyed. Infant sleep position and type of bedding were observed. A total of 206 infants were observed. The majority of the infants were in the side-lying position (114), 60 were in the supine position and 32 were in the prone position. 123 of the infants were observed to be placed in the sleep position by a member of the nursing staff and 17 were observed to be placed in the sleep position by one of their parents. The study revealed that while a majority of the nurses agreed with the AAP recommendations, nurses were still placing infants in the less than optimal side sleeping position. This suggests that while nurses may clearly understand the reasons for not placing infants in the prone position for sleep, they may not understand the reasons for sole use of the supine sleeping position. Alternatively, attitudes towards evidence-based practice, like the "Back to Sleep" prevention strategy for SIDS, may play a role in how such strategies are implemented in clinical practice. Once again, there are few if any studies, which have identified nurses' attitudes, beliefs or knowledge of CJS.

A number of "Back to Sleep" intervention programs have advocated the use of supine positioning for infants in Canada, the United States, New Zealand and the United Kingdom. Research has demonstrated that there has been a significant reduction in SIDS

mortality rates following the "Back to Sleep" campaigns and recommendations. It is evident that nurses play a prominent role in disseminating "Back to Sleep" information to parents and caregivers. However, it is unclear whether the guidance and education offered by nurses to parents is consistent with the recommendation for infant sleep positioning. Studies that clearly document whether nurses have integrated knowledge regarding infant sleep position research into their nursing practice need to be conducted in order to determine whether further effort to educate nurses about SIDS prevention is necessary. Teaching parents to reduce the risk of SIDS by placing infants in the supine position for sleep is a relatively simple nursing task, but one that has major impact on the lives of families. Nurses have a responsibility to base their practice on objective research findings regarding infant sleep positioning so that a further reduction in the incidence of SIDS may be realized. The research questions are: What is the awareness and perceptions of nurses practicing in maternal-child settings of the CJS? What are nurses' perceptions of best practice for placing infants to sleep? What information are maternal-child nurses providing to parents and caregivers about infant sleep positioning?

Methods

Research Design

The researcher replicated a descriptive survey design used by Peeke et al. (1999) to address the research questions. Peeke et al. (1999) conducted their study with nurses in the USA and no similar parallel study had been conducted with nurses in Canada. A survey design allowed the researcher to examine nurses' knowledge and awareness of the CJS recommendation for infant sleep positioning, nurses' attitudes toward the CJS and nurses' perception of how they had integrated it into their clinical practice. The advantages of the survey design included its flexibility and broadness of scope. It had the advantage of rapid turn around in data collection and the ability to identify the characteristics of a population from a small group of individuals (Polit and Hungler, 1995). The survey design was better suited to extensive rather than intensive data analysis (Polit and Hungler, 1995).

Setting

This study involved maternal-child nurses from four hospitals and three community health organizations in Windsor-Essex County. The seven organizations included: 1. Windsor Regional Hospital-Metropolitan Campus 2. Hotel Dieu Grace Hospital-Grace Site 3. Leamington District Memorial Hospital 4. Hotel Dieu Grace Hospital-Hotel Dieu Site 5. Windsor-Essex County Health Unit 6. Sandwich Community Health Centre 7. Victorian Order of Nurses Canada. Windsor Regional Hospital-Metropolitan Campus, Hotel Dieu Grace Hospital-Grace Site and Leamington District Memorial Hospital were the only three hospital settings in Windsor-Essex County that had maternity wards. There were approximately 215 maternal/child nurses that worked in these settings. Three

of the hospitals (i.e. Hotel Dieu Grace Hospital-Grace Site, Windsor Regional Hospital-Metropolitan Campus and Leamington District Memorial Hospital) had a labor and delivery unit, a prenatal unit and a postnatal unit. One of the hospitals had a special care nursery and the other had a neonatal intensive care unit (NICU), where high-risk newborns were admitted. Healthy newborn infants stayed with their mothers (combined care) since none of the hospitals had a standard nursery unit. Maternal-child nurses in the hospital setting were responsible for providing direct care, which included family focused health education. Infant care practices were taught and demonstrated by maternal-child nurses directly to new mothers and their families during their hospital stay. The average length of hospitalization following a healthy vaginal delivery was 24 to 48 hours and a cesarean section delivery was 60 to 90 hours. New mothers were encouraged to participate in the Maternal Newborn Clinic, which was held at two of the hospitals (i.e. Hotel Dieu Grace Hospital-Grace Site and Windsor Regional Hospital-Metropolitan Campus). Maternal-child care nurses from these two hospitals offered new mothers and their infant's individualized care and health information about postnatal recovery and infant care practices for up to six weeks following their discharge from hospital. Few births in Windsor-Essex County take place outside of these three hospital settings and for some new parents it may be their first introduction to information about appropriate infant care practices.

Provincial Standards of Nursing Practice and the policies of the hospital guided the practices of maternal-child nurses in this setting (College of Nurses of Ontario, 1998). There was no hospital based policy in place that specified the type of information that maternal-child nurses needed to provide to parents about infant sleeping position

although it was expected by Health Canada that they would make recommendations based upon the CJS (Abraham, D., Maternal-child Coordinator, Hotel Dieu Grace Hospital-Grace Site, personal communication, March 26, 2001). The intent of the survey was to capture the attitudes and knowledge of maternal-child care nurses in these three hospitals given the important role that they assumed in providing early maternal-child care and education to clients who may not have received information about infant supine sleep positioning from any other source. Given there was no hospital policy, the survey would provide documentation of what was being provided to parents about supine sleep positioning for infants. This may provide insight into whether or not nurses in these clinical settings had integrated clinical research findings into their practice.

Hotel Dieu Grace Hospital-Hotel Dieu Site was the only hospital in Windsor-Essex County that had a paediatric unit. There were approximately 45 maternal-child nurses that worked in this setting. A growing number of infants were being re-admitted to hospital following an early discharge from maternity wards (Chamberlain, J., Nursing Director, Paediatrics, Hotel Dieu Grace Hospital-Hotel Dieu Site, personal communication, 2001). Maternal-child nurses in this setting were responsible for providing direct care for infants less than one year of age, which included family focused health education. Provincial Standards of Nursing Practice and the policies of the hospital guided the practices of maternal-child nurses in this setting (College of Nurses of Ontario, 1998). There was no hospital based policy in place that specified the type of information that maternal-child nurses needed to provide to parents about infant sleeping position although it was expected by Health Canada that they would make recommendations based upon the CJS (Chamberlain, J., Nursing Director, Pediatrics,

Hotel Dieu Grace Hospital-Hotel Dieu Site, personal communication, 2001). A survey of nurses practicing in this setting would provide insight into whether or not nurses in this clinical setting, where historically few infants under one year of age were cared for, had integrated clinical research findings into their practice.

The Windsor-Essex County Health Unit provided primary prevention and health promotion programmes and services that were mandated by the Ministry of Health to ensure the public health and safety of its residents. A specific group of community health nurses (approximately 20) were responsible for providing maternal-child care and education through a programme entitled "Healthy Babies, Healthy Children". Community health nurses who provided postnatal and newborn health assessments and education in the family home received referrals from all three of the hospital maternity wards. Community health nurses in this agency also provided prenatal classes to groups of expectant parents. Typically, the programmes and services that were offered at the Windsor-Essex County Health Unit were developed with very specific content guidelines. Community health nurses were expected to comply with the content guidelines that had been developed for "Healthy Babies, Healthy Children" and prenatal class programmes, which included information about use of the supine sleeping position for infants (Kinnard-Iler, B., Manager, Maternal-child Health Programme, Windsor-Essex County Health Unit, personal communication, 2000). A survey of nurses practicing in this setting would provide an initial investigation into the degree to which nurses complied with the current CJS recommendations.

Sandwich Community Health Centre was funded by the Ministry of Health to provide primary care and health promotion services to a designated population of approximately

20,000 people living in the Western part of the city. There were 5 nurses that provided prenatal, postnatal and newborn health care and education through a high risk prenatal programme entitled "Healthy Mothers, Healthy Babies". Prenatal clients who participated in this programme received individualized physical assessments by maternal-child nurses on a bi-monthly basis. Nurses spent a considerable amount of time providing individualized prenatal health education (which includes information about supine sleep positioning) to clients and a typical prenatal visit usually lasted 1 hour. Group sessions to provide prenatal education were conducted on a weekly basis. "Nurturing Newborns" was an infant care programme that was facilitated by maternal-child nurses at the Sandwich Community Health Centre. Nurses provided new mothers with information about meeting the physical, developmental and psychological needs of their young infant, which included information and discussion about use of the supine, sleep position (McAllister, C., Community Health Nurse, Sandwich Community Health Centre, personal communication, 2000). It was appropriate to survey maternal-child nurses from the Sandwich Community Health Centre given that their primary role was to provide prenatal and postnatal education with an emphasis on appropriate infant sleep positioning.

The Victorian Order of Nurses was a non-profit health care organization that provided prenatal class instruction to clients in Windsor-Essex County. This was the only organization included in the study that charged a fee for its service. Maternal-child nurses (approximately 10) conducted a structured series of prenatal classes that included information about appropriate sleep positioning for infants (Roberts, J., Prenatal Educator, Victorian Order of Nurses, personal communication, 2000). This group of

nurses were included in the study to provide as representative a group of study participants as possible, all of whom provided direct instructions about infant sleep position to families in the city being studied.

Population and Sample

The study population consisted of nurses who provided maternal-child health care in both the community and hospital settings in Windsor-Essex County. There were approximately 300 nurses in this population. The sampling design for this population was single staged. The sample was obtained by convenience at four hospital settings and three community settings. Only Registered Nurses who met the following criteria were approached to participate in the study: ability to read, write and speak English, a minimum of one year of practice in nursing, currently practicing in maternal-child health care nursing on the maternity ward (i.e.: postnatal unit) of three selected hospital settings (i.e.: Metropolitan Campus, Grace Site or Learnington Hospital), currently practicing in paediatrics in one selected hospital setting (i.e. Hotel Dieu Site), currently practicing in maternal-child care nursing in the community setting of three selected health care organizations (i.e.: Windsor-Essex County Health Unit, Sandwich Community Health Centre, Victorian Order of Nurses). In both the hospital and community settings maternal-child care nurses may have provided direct client care to infants and/or mothers and/or act as maternal-child health educators. Nurses in both settings who were providing either type of maternal-child care were included in the sample. A sample size of 50 was required.

Questionnaires were distributed by internal mailbox to a convenience sample of 296 nurses from 3 selected hospitals (i.e. Windsor Regional Hospital-Metropolitan Campus,

Hotel Dieu Grace Hospital-Grace Site and Leamington District Memorial Hospital) and 3 selected community health organizations (i.e. Windsor-Essex County Health Unit, Sandwich Community Health Centre and Victorian Order of Nurses) over a period of 3 days. Reminder notices were mailed to each of the selected organizations two weeks after the initial distribution of the questionnaires. An estimated 88% of the completed questionnaires were returned within two weeks of the original distribution. Questionnaires were returned from 65 nurses. An overall response rate of 22% was achieved. Of the 38 questionnaires distributed to nurses practicing in the community, 22 were returned, a 58% response rate. Of the 260 questionnaires distributed to nurses practicing in the hospital, 43 were returned, a 17% response rate.[2] Table 1 presents the demographic information for all participants in the study. There was a significant difference in the number of years that hospital and community nurses had been practicing in the area of maternal-child nursing, $t\,(63) = 2.33$, $p < .05$. Hospital nurses ($M = 12.79$, $SD = 10.32$) had been practicing in maternal-child nursing for a longer period of time than community nurses ($M = 7.13$, $SD = 6.57$). No other significant differences in demographics were noted between hospital and community nurses.

[2]Although it is not possible to determine the rationale for hospital nurses' limited participation in the study, some speculation may be drawn. Hospital nurses' may not have viewed a study that examines primary prevention and health promotion strategies as a priority in their clinical practice setting and thus chose not to complete the questionnaire.

Table 1

Demographic Information ($N = 65$)

	Hospital Nurses (n)	%	Community Nurses (n)	%	Total Sample (N)	%
Level of nursing education						
RN	(33)	76.7%	(3)	13.6%	(36)	55.4%
RN, BScN	(10)	23.3%	(17)	77.3%	(27)	41.5%
RN (EC)	(0)	0.0%	(2)	9.1%	(2)	3.1%
Other	(0)	0.0%	(0)	0.0%	(0)	0.0%
	(43)	100.0%	(22)	100.0%	(65)	100.0%
Years since graduation						
M	18.7		19.9		19.1	
Mdn	19.0		18.5		19.0	
SD	10.7		11.3		10.8	
	($n = 43$)		($n = 22$)		($N = 65$)	

Table 1 (con't)

Demographic Information ($N = 65$)

	Hospital Nurses (n)	%	Community Nurses (n)	%	Total Sample (N)	%
Setting						
Pediatrics	(5)	11.6%			(5)	7.7%
Labor and Delivery	(10)	23.3%			(10)	15.4%
Post partum	(15)	34.8%			(15)	23.0%
Special Care/NICU	(10)	23.3%			(10)	15.4%
	(43)	100.0%				
Health Unit			(15)	68.2%	(15)	15.1%
Health Centre			(5)	22.7%	(5)	7.7%
Nursing Agency			(2)	9.1%	(2)	3.1%
Other			(0)	0.0%	(0)	0.0%
			(22)	100.0%	(65)	100.0%

Table 1 (con't)

Demographic Information ($N = 65$)

	Hospital Nurses (n) %	Community Nurses (n) %	Total Sample (N) %
Years worked in maternal/child nursing			
M	12.8	7.1	10.9
Mdn	12.0	5.0	7.0
SD	10.3	6.6	9.6
	$n = 43$	$n = 22$	$N = 65$
Gender			
M	(0) 0.0%	(0) 0.0%	(0) 0.0%
F	(43) 100.0%	(22) 100.0%	(65) 100.0%
	(43) 100.0%	(22) 100.0%	(65) 100.0%
Primary role at work			
Direct care	(37) 86.0%	(3) 13.6%	(40) 61.5%
Health Educator	(2) 4.7%	(17) 77.3%	(19) 29.2%
Other	(4) 9.3%	(2) 9.1%	(6) 9.2%
	(43) 100.0%	(22) 100.0%	(65)100.0%

Table 1 (con't)

Demographic Information ($N = 65$)

	Hospital Nurses (n) %	Community Nurses (n) %	Total Sample (N) %
Involved in SIDS death			
Yes	(6) 14.0%	(4) 18.2%	(10) 15.4%
No	(37) 86.0%	(18) 81.8%	(55) 84.6%
	(43) 100.0%	(22) 100.0%	(65) 100.0%
Own Children			
Yes	(39) 90.7%	(18) 81.8%	(57) 87.7%
No	(4) 9.3%	(4) 18.2%	(8) 12.3%
	(43) 100.0%	(22) 100.0%	(65) 100.0%

Table 1 (con't)

Demographic Information ($N = 65$)

	Hospital Nurses (n)	%	Community Nurses (n)	%	Total Sample (N)	%
Cultural Background						
Anglo	(33)	76.7%	(16)	72.7%	(49)	75.4%
African	(1)	2.3%	(1)	4.5%	(2)	3.1%
North-Am. Indian	(0)	0.0%	(0)	0.0%	(0)	0.0%
Chinese	(0)	0.0%	(0)	0.0%	(0)	0.0%
Arab	(0)	0.0%	(0)	0.0%	(0)	0.0%
French	(7)	16.3%	(3)	13.6%	(10)	15.4%
Italian	(1)	2.3%	(1)	4.5%	(2)	3.1%
Other	(1)	2.3%	(1)	4.5%	(2)	3.1%
	(43)	100.0%	(22)	100.0%	(65)	100.0%

Instrumentation

Hudak et al. (1995) originally developed a questionnaire that was used to examine physicians' attitudes toward the American Academy of Paediatrics' (AAP) recommendation for sleep position in healthy infants. The survey instrument contained 23 questions; 20 multiple choice or fill-in-the-blank and three open-ended. Selected paediatric faculty members at the Children's Hospital of Buffalo reviewed the questionnaire for content validity.

Peeke et al. (1995) altered the Hudak et al. (1995) questionnaire so that it could be used to examine nurses' knowledge and practice of the AAP recommendations for infant sleep position. The revised questionnaire included two questions regarding infant bedding and positioning of infants with gastroesophageal reflux, six closed-ended demographic information items and 14 questions assessing infant sleep position, knowledge and acceptance of AAP recommendations; two open-ended, and 12 multiple choice items. Peeke et al. (1995) used a categorical scale to obtain responses to questions related to knowledge of AAP recommendations (i.e.: strongly agree, somewhat agree, somewhat disagree, strongly disagree, unaware of recommendation). A Likert scale was also used to obtain responses to questions related to reasons for non-acceptance of AAP recommendations (i.e.: previous training, experience, lack of data, lack of knowledge of data, potential adverse consequences of supine position, parental resistance, other) and questions regarding the education of parents about sleep position (i.e.: never, rarely, sometimes, usually, always). Three Advanced Practice Nurses specializing in the area of infant apnea reviewed the modified questionnaire by Peeke et al. (1995) for content validity. No other psychometric measures were available.

Permission was obtained from Kathleen Peeke to further modify the questionnaire for the purposes of this study so that it might reflect the Canadian health care system (personal communication, June 22, 2000). The survey instrument for this study, entitled "Best Infant Care Practices Questionnaire" (Appendix A) consisted of 18 questions assessing infant sleep position knowledge, awareness and practice, six open-ended and 12 multiple-choice items. Four open-ended questions assessing knowledge of CJS recommendation were added to the survey instrument (i.e. What does it (CJS) recommend?). What sleeping position is considered the most safe for infants? What factors place infants at risk of SIDS? What are your views of placing infants on their back to sleep?). A Likert scale (never=1, rarely=2, sometimes=3, usually=4, always=5) was added to the survey instrument and was used to obtain responses to questions related to practice (i.e.: education of parents about sleep position). Internal consistency checks were conducted to assess reliability. Questions that referred to the American Academy of Paediatrics (AAP) recommendations for sleep position were changed to the Canadian Joint Statement (CJS) recommendations for sleep position, although the specific recommendations were the same. The researcher did not conduct an observational assessment and thus the observational recording tool was not used for this study. Content validity of the survey was supported by Peeke et al. (1999) but was further validated using a small pilot study with 5 experts in the field of maternal-child nursing.

In adapting the Peeke et al. (1999) questionnaire for this study, the demographics questions were removed and a specific Demographics questionnaire (Appendix B) was developed, that contained 9 close-ended questions. The Demographics questionnaire was modified to reflect the differences that exist in the Canadian versus the United States

health care systems. Registered Nurse Practitioner [RN (EC)] is a nursing title that is unique to the Canadian system and the Canadian system does not have an LPN (Licensed Practical Nurse) title designation. Maternal-child nursing roles in Canada and the United States are different in that Registered Nurses in Canada are primarily responsible for health promotion and primary prevention initiatives and Registered Practical Nurses (RPN) in Canada have limited responsibility in this area. This study did not include RPNs' (designated as nurses aides/tech in the United States) due to their limited role in providing maternal-child education to parents. The settings in which Canadian maternal-child nurses' practice are different than those in the United States. Maternal-child nurses in Canada practice primarily in four settings: 1. Hospital 2. Public Health Unit 3. Community Health Centre 4. Community Nursing Agency. Nurses' roles and responsibilities in providing maternal-child health care essentially depend upon the setting in which they practice. In Canada, maternal-child nurses assume one of the following primary roles: 1. Direct Care Provider (i.e. bedside nursing) or 2. Health educator (i.e. pre/postnatal education).

Procedure

Cross-sectional data were collected (at one point in time) using a self-administered questionnaire. To begin, the researcher discussed the purpose of the study (to gain a better understanding of nurses' knowledge and awareness of best infant care practices) and the specifics of the study population and sample with the maternal-child nursing supervisor/manager of the seven organizations selected: 1. Windsor Regional Hospital-Metropolitan Campus 2. Hotel Dieu Grace Hospital-Grace Site 3. Leamington District Memorial Hospital 4. Hotel Dieu Grace Hospital-Hotel Dieu Site 5. Windsor-Essex

County Health Unit 6. Sandwich Community Health Centre 7. Victorian Order of Nurses Canada. The researcher attended staff meetings to provide verbal information about the purpose of the study and invite nurses to participate in the study.

A package containing information about the purpose of the study along with a voluntary consent form (Appendix C), Demographics questionnaire, Best Infant Care Practices Questionnaire and contact number of the researcher was developed. Questionnaires were distributed by internal mailbox to a convenience sample of 296 nurses from seven selected health care organizations (i.e. 200 questionnaires to Metropolitan Campus and Grace Site, 15 questionnaires to Leamington Hospital, 45 questionnaires to Hotel Dieu Site, 25 questionnaires to Windsor-Essex County Health Unit, 8 questionnaires Victorian Order of Nurses and 5 questionnaires to Sandwich Community Health Centre). Nurses willing to participate in the study were instructed to complete and return the voluntary consent form, demographics sheet and questionnaire within two weeks. Self-addressed and stamped envelopes were provided. Additional questionnaires were left with supervisors/managers of maternal-child nurses at the seven organizations for distribution to nurses who may be interested in the study. Reminder notices requesting that questionnaires be completed were distributed to nurses (placed in staff mail boxes) at all seven organizations two weeks after the original distribution of the questionnaire. This data collection procedure maximized the researcher's access to subjects and provided a convenient method for subjects to complete and return the survey.

Data Analysis

Data were analyzed using the SPSS for Windows statistical program. No returned questionnaires were incomplete so all data were entered. Information was reported about the number of returns and non-returns of the survey. The response bias was determined by wave analysis. Responses to questionnaire items 2 and 4 in section A (What does the CJS (1999) recommend? What factors place infants at risk of SIDS?) were examined on week 2 and 3 to determine whether the responses changed substantially during this time period. This procedure assumed that those who return surveys in the final weeks of the response period were almost non-respondents. If their responses were not different from those of other weeks, a strong case for absence of response bias can be established (Creswell, 1994. p.123-4).

The researcher examined the following variables: maternal-child nurses' awareness of the CJS (1999) recommendations on infant sleep position and nurses' primary sources of information i.e.: mass media, professional literature etc.; maternal-child nurses' agreement or disagreement with the CJS (1999); maternal-child nurses' agreement with the CJS (1999); maternal-child nurses, who despite awareness of the CJS (1999), are in disagreement with it and their reasons; maternal-child nurses' practices (i.e.: education provided to parents about infant sleep position) before the CJS (1999) recommendation and after the CJS recommendation and what type of recommendation nurses made i.e.: supine, prone etc.; maternal-child nurses' practice of providing literature to parents regarding infant sleep position before the CJS (1999) recommendation and after the CJS recommendation. A descriptive analysis of all variables was conducted i.e. means, standard deviations and range of scores. Comparisons were made among groups

according to nurses' practice setting. The chi-square test was used to test group differences. In all cases, $p < .05$ was considered significant. Interval data were examined by one way ANOVA to determine group differences in strength of agreement. Correlations of demographic items with survey items (Best Infant Care Practices Questionnaire) were conducted.

Ethical Considerations

Ethical clearance to conduct the study was received from seven selected health care organizations and from the University of Windsor. The researcher recruited participants on a voluntary basis and informed nurses both verbally and in writing of the nature of the research being conducted. Written consent was obtained from all participants. The signed consent forms were kept in a locked drawer at all times, accessible only by the researcher. Confidentiality of the study participants was strictly maintained at all times. At no time were the identities of the study participants revealed to the administration of the participating organizations or to the other staff that the participants work with. All study data were immediately encoded with subject numbers to prevent individual results from being identified. Since there was no need to maintain a record of participant's identities, a master list of subject numbers and participant identity was not recorded. Only group results of the study will be discussed in future presentations, individual results will not be made available at any time. Participants were informed that they do not have to answer any question that they choose not to and that they can withdraw from the study at any time.

Results

Awareness and Perceptions of the CJS

The first research question focused on nurses' awareness and perceptions of the CJS recommendation for infant sleeping position. The majority of nurses (87.7%) in both the hospital or community setting were aware of the CJS recommendation for infant sleep position; only 12.3% of nurses were unaware of the CJS recommendation for infant sleep position. Most nurses (73.8%) had an accurate perception of the CJS recommendation for infant sleeping position and perceived that the sole use of the back sleeping position was recommended. Few nurses (6.2%) held the inaccurate perception that the CJS recommended both the side and back sleeping position for infants. Fewer nurses (4.6%) were aware of the CJS recommendation for back sleeping position for infants as well as other CJS recommendations such as smoke free environment, avoidance of overheating and encouragement of breastfeeding and 1.5% of nurses inaccurately perceived the CJS to recommend both the side and back sleeping position for infants but had an accurate perception of other CJS recommendations (i.e. smoke free environment and use of appropriate bedding).

The majority of nurses (92.3%) perceived that positioning infants on their back to sleep conferred the lowest risk of SIDS. A small percentage of nurses (4.6%) perceived that back and side sleeping was the safest infant sleeping position to reduce the risk of SIDS, (1.5%) of nurses perceived that stomach sleeping was the safest infant sleeping position to reduce the risk of SIDS, and 1.5% of nurses perceived that side sleeping was the safest infant sleeping position to reduce the risk of SIDS. Nurses were asked to

respond to an open-ended question regarding their perception of risk factors for SIDS. Nurses' responses are presented in Table 2.

Nurses responded to a closed-ended question, which revealed that they sought information about infant sleep positioning from a variety of sources. Hospital nurses (84.4%) and community nurses (100%) relied upon professional literature, X^2 (1, N = 65) = 2.77, *ns*, as their main source of information about infant sleep positioning. Nurses in the hospital (67.4%) and community (63.6%) also relied mainly upon colleagues, X^2 (1, N = 65) = .09, *ns*, to provide them with information about infant sleep positioning. Finally, meetings/speakers, X^2 (1, N = 65) = 1.01, *ns*, were hospital nurses' (34.9%) and community nurses' (22.7%) main sources of information about infant sleep position.

Nurses (47.7%) also sought information about infant sleep positioning from the mass media and parents of patients (18.5%). Nurses who practiced in the hospital settings (62.8%) relied more heavily on mass media, X^2 (1, N = 65) = 11.60, $p < .05$, to provide them with information about infant sleep positioning than nurses in the community settings (18.2%). Hospital nurses (25.6%) also relied more heavily on parents of patients X^2 (1, N = 65) = 4.27, $p < .05$, to provide them with information about infant sleep positioning than nurses who practiced in the community settings (4.5%).

Practice setting (i. e. hospital or community) was not significantly related to nurses' awareness of the CJS recommendation for infant sleep positioning, X^2 (1, N = 65) = 1.85, *ns*. However, nurses practicing in the hospital settings tended to have less awareness of the risk factors for SIDS. Nurses practicing in the hospital (60.5%) were less aware of the exposure to smoke risk factor for SIDS, X^2 (1, N = 65) = 8.89, $p < .05$, than nurses in the

Table 2

Perception of Risk Factors Related to SIDS Indicated by the Sample of Nurses ($N = 65$)

Risk Factor	%
Exposure to Smoke	72.3%
Overheating	47.7%
Inappropriate Bedding	21.5%
Prone Sleeping Position	13.8%
Bottle Feeding	13.8%

community setting (92.5%). Hospital nurses (34.9%) were also less aware of the overheating risk factor for SIDS, $X^2(1, N = 65) = 8.35, p < .05$, than nurses in the community setting (72.7%). Finally, nurses in the hospital setting (4.7%) were less aware of the breastfeeding risk factor for SIDS, $X^2(1, N = 65) = 9.00, p < .05$, than nurses in the community setting (31.8%). Nurses in the hospital settings (88.4%) and nurses in the community settings (100%) were aware of the safest sleeping position for infants, $X^2(3, N = 65) = 2.77$, *ns.*

Best Practice

The second research question addressed in this study was, "What are nurses' perceptions of best practice for placing infants to sleep?" Nurses were asked to identify their level of agreement with the CJS recommendation regarding healthy full term infants and healthy pre-term infants using a five point Likert scale. Responses revealed that one nurse (1.5%) was unaware of the CJS recommendation for placing infants to sleep. Of the remaining responses from nurses, 28 (43.1%) strongly agreed, 25 (38.5%) somewhat agreed, 8 (12.3%) somewhat disagreed and 3 (4.6%) strongly disagreed with the CJS recommendation.

In order to examine the rationale for nurses' minimal endorsement of the CJS recommendation for infant sleep position, nurses' who did not strongly agree with the CJS were asked to respond to closed-ended questions regarding their primary reason and "all other reasons" for their reservations. Nurses' responses are presented in Table 3.

The type of practice setting had a significant effect on nurses' rationale for their minimal support of the CJS recommendation, $t(61) = -3.77, p < .05$. Community nurses had significantly higher agreement with the CJS ($M = 3.72$, $SD = .45$) than hospital

Table 3

Reasons for Nurses' Lack of Strong Agreement with the CJS Recommendation Indicated by the Sample (n = 25)

	Hospital Nurses (n) %	Community Nurses (n) %	Total Sample (n) %
Primary reasons			
Previous training	(2) 10.0%	(0) 0.0%	(2) 8.0%
Experience with infants	(5) 25.0%	(1) 20.0%	(6) 24.0%
Lack of Data	(0) 0.0%	(1) 20.0%	(1) 4.0%
Aspiration	(12) 60.0%	(3) 60.0%	(15) 60.0%
Other	(1) 5.0 %	(0) 0.0%	(1) 4.0%
	(20) 100.0%	(5) 100.0%	(25) 100.0%
All other reasons			
Previous training	(14) 32.6%	(1) 4.5%	(15) 23.1%
Experience with infants	(18) 41.9%	(1) 4.5%	(19) 29.2%
Lack of data	(2) 4.7%	(3) 13.6%	(5) 7.7%
Lack of knowledge of data	(5) 11.6%	(0) 0.0%	(5) 7.7%
Aspiration	(12) 27.9%	(1) 4.5%	(13) 20.0%
Parental resistance	(8) 18.6%	(1) 4.5%	(9) 13.8%
Other	(2) 4.7%	(2) 9.1%	(4) 6.2%

nurses ($M = 3.00$, $SD = .83$). Nurses practicing in the hospital settings (36.6%) had stronger beliefs that "other reasons" such as previous training/education in nursing, $X^2(1, N = 65) = 6.43$, $p < .05$, accounted for their perceptions of the importance of the CJS than nurses in the community settings (4.5%). Hospital nurses (41.9%) also had stronger beliefs that experience with infants, $X^2(1, N = 65) = 9.97$, $p < .05$, accounted for their perceptions of the importance of the CJS than community nurses (4.5%). Finally, nurses practicing in the hospital setting (27.9%) had stronger beliefs that potential for adverse consequences (i. e. aspiration), $X^2(1, N = 65) = 4.94$, $p < .05$, accounted for their perceptions of the importance of the CJS than their colleagues practicing in the community settings (4.5%).

Nurses in the hospital settings ($M = 3.38$, $SD = .73$) and the community settings ($M = 3.35$, $SD = .84$) tended to agree with the CJS recommendation that infants with gastroesophageal reflux be placed in a prone position to sleep, $t(46) = .10$, *ns*. As well, nurses in both the hospital and community settings made similar recommendations regarding the sleeping position for siblings of infants who have died of SIDS, $X^2(1, N = 65) = .40$, *ns*.

Nurses in the community settings (59.1%) felt more comfortable recommending the back sleeping position, $X^2(1, N = 65) = 4.21$, $p < .05$, than nurses did in the hospital settings (32.6%). Also, nurses practicing in the community (40.9%) had a stronger belief that solid facts/information were available to support back sleeping for infants, $X^2(1, N = 65) = 9.08$, $p < .05$, than nurses practicing in the hospital (9.3%). Nurses in the hospital settings (34.9%) were more concerned about the possibility of aspiration if infants were placed on their back to sleep, $X^2(1, N = 65) = 9.97$, $p < .05$, than were nurses in the

community settings (0.0%). Nurses practicing in the hospital (16.3%) also felt more uncomfortable recommending the back sleeping position, $X^2(1, N = 65) = 4.01, p < .05$, than nurses practicing in the community settings (0%).

Study findings revealed a negative correlation, $r(65) = -.33, p < .01$, between nurses' agreement with the CJS and the number of years nurses had been practicing in maternal/child care, suggesting that it was the less experienced nurse who strongly agreed with the CJS recommendation. The majority of nurses (68.5%) who participated in this study had been practicing in maternal/child care nursing for over 6 years which was a fair length of time for nurses to formulate opinions about infant sleep position based on their past experience, previous training and education.

Fewer nurses agreed with the CJS recommendation for infants with gastroesophageal reflux (i.e. to be placed prone to sleep). Only 38.5% of nurses strongly agreed with the CJS recommendation for infants with gastroesophageal reflux, 26.2% of nurses somewhat agreed, 7.7% of nurses somewhat disagreed, 1.5% of nurses strongly disagreed and 26.2% of nurses were unaware of recommendation. Nurses' agreement with the CJS recommendation regarding infants with gastroesophageal reflux to be placed prone to sleep and nurses' education of parents about infant sleep position were not significantly related to each other, $r(65) = .08$, *ns*.

Nurses' were asked to indicate whether or not they recommended the same sleep position for siblings of infants who have died of SIDS, as they do for healthy full term and pre-term infants. The majority of nurses' (81.5%) recommended the same sleep position and 18.5% recommended a different sleep position, suggesting that a history of familial SIDS had little influence on nurses' perceptions.

Nurses were asked an open-ended question, ("What are your views of placing infants on their back to sleep?") in order to identify their perception of the back sleeping position for infants. Less than one-half of the nurses (41.5%) felt comfortable recommending the back sleeping position; 20% of nurses believed solid facts/information was available to support back sleeping position for infants; 23.1% of nurses were concerned about the possibility of aspiration if infants were placed on their back to sleep; 10.8% of nurses felt uncomfortable recommending the back sleeping position and 1.5% of nurses believed parents needed to be advised that any position was safe if infants were awake.

Health Education

Responses were examined to answer the third research question, "What information are maternal/child nurses providing to parents and caregivers about infant sleep positioning?" The majority of nurses in this study (72%) recommended the sole use of the back sleeping position to parents following the CJS recommendation. However, 23% of nurses continued to recommended to parents that they position their infants to sleep on their side, or back and side, following the CJS recommendation. The frequency of responses regarding nurses' recommendation to parents about infant sleep position prior to and following the CJS recommendation is displayed in Table 4. Practice setting had a significant effect on the type of sleep position nurses' recommended to parents following the CJS recommendation. Nurses practicing in the community settings (100%) were more likely to recommend to parents that they position their infant to sleep on their back, X^2 (4, N = 65) = 12.73, $p < .05$, than nurses' practicing in the hospital setting (58.1%).

Respondents were asked to rate their use of discussion and literature to educate parents about infant sleep position prior to and following the CJS (1999)

recommendation. Reliability of this subscale was adequate (alpha = .62). Many nurses failed to always discuss and provide literature to parents about the CJS recommendation. Following the recommendation, only 43 (66.2%) of the nurses reported that they always discussed infant sleep positioning with parents ($M = 4.29$, $Mdn = 5.00$, $SD = 1.18$) and only 31 (47.7%) of nurses reported that they always provided parents with literature about infant sleep positioning ($M = 3.82$, $Mdn = 4.00$, $SD = 1.39$).

The study revealed positive correlations between nurses' education of parents about infant sleep positioning, and the implementation of the CJS recommendation. Following the CJS recommendation in 1999, only one-third of nurses actually changed their practice relative to parent education about infant sleep position, while one-third of nurses remained unchanged (were already complying with the CJS recommendation) and one-third of nurses chose not to integrate the CJS recommendation into their practice, $r(65) = .59$, $p < .01$. Further, the study revealed that nurses who agreed with the CJS recommendation for infant sleep positioning were more likely to provide education to parents about infant sleep position, $r(65) = .30$, $p < .05$.

The practice setting had a significant effect on nurses' overall education of parents' scores (i.e. sum of 4 items on scale), $t(63) = -2.74$, $p < .05$. The results revealed that hospital nurses ($M = 13.23$, $SD = 4.32$) educated parents less often than community nurses ($M = 15.95$, $SD = 2.35$). Hospital nurses ($M = 3.95$, $SD = 1.33$) also discussed sleep position less frequently, $t(63) = -3.50$, $p < .05$, than did nurses in the community ($M = 4.95$, $SD = .21$). Hospital nurses ($M = 3.40$, $SD = 1.47$) also provided the CJS recommendation literature to parents less frequently, $t(63) = -3.73$, $p < .05$, than nurses in the community ($M = 4.64$, $SD = .73$). Clinical practice setting had no significant effect

Table 4

Frequency of Responses regarding Nurses' Recommendation to Parents about Infant Sleep Position ($N = 65$)

Type of sleep position recommended	Frequency of nurses' recommended sleep position: Prior to CJS recommendation (N) %	Following CJS recommendation (N) %
Supine	(4) 6.2%	(47) 72.3%
Prone	(2) 3.1%	(1) 1.5%
Side	(35) 53.8%	(3) 4.6%
None	(8) 12.3%	(2) 3.1%
Supine and Side	(11) 16.9%	(12) 18.5%
Prone and Side	(4) 6.2%	(0) 0.0%
Supine and Prone	(1) 1.5%	(0) 0.0%
Total	(65) 100.0%	(65) 100.0%
	($M = 3.57$, $SD = 1.31$)	($M = 1.94$, $SD = 1.61$)

on how hospital nurses ($M = 3.51$, $SD = 1.32$) and community nurses ($M = 3.82$, $SD = 1.26$) discussed infant sleep positioning with parents prior to the CJS recommendation, t (63) = -.90, *ns*. As well, clinical practice setting had no significant effect on how hospital nurses ($M = 2.37$, $SD = 1.31$) and community nurses ($M = 2.55$, $SD = 1.37$) provided literature, t (63) = -.49, *ns*, to parents about infant sleep positioning prior to the CJS recommendation.

In order to examine nurses' practice of providing information to parents about infant sleep position in situations where nurses do not initiate a discussion with parents, nurses were asked what advice they give about sleep position if parents initiate a discussion with them using an open-ended question. The majority of nurses (81.5%) responded that they would refer parents to the "SIDS-Reduce the Risk" pamphlet, 13.8% responded that they would recommend to parents that they place their infant on their side to sleep. Fewer than 2% responded that they would refer parents to the pamphlet, reassure parents that back sleeping does not increase the risk of aspiration, and/or review burping technique with parents.

Summary of Findings

Results from this study revealed that nurses in both the hospital and community setting were very aware of the CJS recommendation for infant sleep positioning. Nurses in both settings had an accurate perception of the CJS recommendation i. e. that healthy infants be placed solely on their back to sleep. Hospital and community nurses perceived the safest sleeping position for infants was on their back. However, hospital nurses were less aware of the risk factors for SIDS including exposure to smoke, overheating and lack of breastfeeding than community nurses. Nurses in both settings

relied heavily on professional literature and colleagues for information about the CJS recommendation. Hospital nurses relied more heavily on the mass media and parents of patients to provide them with information about the CJS recommendation than nurses in the community setting.

Fewer than half of nurses in this study strongly agreed with the CJS recommendation for healthy infants to be placed solely on their back for sleep. The less experienced nurses expressed stronger support for the recommendation than their more experienced colleagues. Community nurses more strongly agreed with the CJS than hospital nurses. Nurses' primary reasons for the lack of strong agreement with the CJS included the potential for adverse consequences such as aspiration, and previous experience with infants. Hospital nurses had stronger beliefs that secondary reasons such as previous training and education, experience with infants and potential for adverse consequences (i.e., aspiration) accounted for their very limited endorsement of the CJS. Community nurses felt more comfortable supporting the back sleeping position for infants than hospital nurses. Both hospital and community nurses had similar agreement about the CJS recommendation regarding infants with gastroesophageal reflux. Nurses in both the hospital and community setting had similar beliefs about recommending the same sleeping positioning for siblings of infants' who have died of SIDS.

Nurses who agreed with the CJS recommendation were more likely to provide parents with education about infant sleep positioning. Prior to the CJS recommendation, nurses in both the hospital and community setting educated parents about infant sleep position in a similar fashion. Following the CJS recommendation, almost one-quarter of nurses continued to recommend to parents that their infant be placed on their side or side and

back to sleep. Only one-third of nurses actually changed their practice relative to parent education about infant sleep position following the publication of the CJS recommendation. Community nurses were more likely to recommend to parents that their infant be placed solely on their back to sleep. Hospital nurses educated parents less often about infant sleeping position than community nurses.

Discussion

Overview

The first research question asked what was the awareness and perceptions of the CJS recommendations of nurses practicing in maternal-child settings. Findings from this study revealed that nurses in both the hospital and community setting developed a strong awareness of the CJS recommendation for infant sleeping position following the implementation of the "Back to Sleep" initiative in Canada. Hospital nurses were less aware of the risk factors for SIDS than community nurses, suggesting that there was a difference in the type of information and/or the manner in which information about the CJS recommendation was disseminated to nurses in the hospital setting. Further to this, hospital nurses relied more heavily on meetings/speakers and parents of patients to provide them with information about the CJS, suggesting that the CJS implementation process may have been more effective for nurses in the community setting than in the hospital setting.

The second research question, "What are nurses' perceptions of best practice for placing infants to sleep?" provided insights into the degree to which nurses have integrated CJS recommendations into their perceptions of best practice. In this study, nurses' perceptions of best practice for placing infants to sleep were minimally supportive of the CJS recommendation. Less than one-half of nurses strongly agreed with the CJS recommendation for infant sleep position and cited potential for adverse consequences and experience with infants as their primary reasons for lack of strong agreement. Nurses continued to have inaccurate perceptions of the CJS, suggesting that dissemination of information does not necessarily lead to the integration of

recommendations into clinical practice. Community nurses had stronger agreement for the CJS than hospital nurses however, nurses in both settings perceived some degree of discomfort in recommending the sole use of the back sleeping position to parents of newborns. The less experienced nurse expressed a stronger sense of support for the CJS recommendation, suggesting that the depth of clinical experience of the nurse may play a critical role in the degree to which nurses integrate evidence-based practice policy into their professional practice.

The final research question examined what information maternal-child nurses provide to parents and caregivers about infant sleep positioning. Almost one-quarter of the nurses in this study continued to recommend to parents that their infant be placed to sleep in a position other than supine following the "Back to Sleep" campaign, suggesting that many nurses had not implemented the CJS recommendation in their professional practice. Community nurses, guided by organizational policy which specified that parents be educated about infant sleeping position, were more likely to recommend to parents that their infant be placed solely on their back to sleep than hospital nurses. Nurses in the hospital setting, who don't often have organizational policy on sleep position recommendations, tended to educate parents about infant sleeping position less often than community nurses. This suggests that policy may play a very important role in integrating evidence-based practice into nursing practice. It also suggests that differences in the type of organizational support that nurses received in their practice environment may have had an impact on the degree to which nurses changed their practice patterns following publication of the CJS recommendation.

CJS Implementation Process

The first question generated by findings of this study is why did nurses fail to integrate the CJS recommendation into their practice despite their awareness of the recommendation? Similar to other studies (Peeke et al., 1999), this study conducted with a sample of Canadian nurses found that 87.7% of nurses were aware of the CJS recommendation, yet, 25% of nurses were recommending to parents that they position their infants on their side or a combination of their back and side to sleep. This study clearly supports the work of others (Peeke et al., 1999, Hudak et al., 1995) who found that although physicians and nurses were aware of the recommendation for infant sleep positioning, many failed to apply the recommendation to their practice of educating parents about infant sleep positioning.

One explanation for nurses' failure to routinely integrate the CJS recommendation into their practice may be that nurses were never part of the implementation process when Health Canada initiated the "Back to Sleep" campaign. Two important issues arose from the manner in which the CJS recommendation was communicated to nurses, which may have contributed to nurses' failure to integrate the CJS into their practice. First, no provisions for ensuring that nurses were directly informed about the CJS in a timely fashion were in place. Health Canada assumed that by informing health care organizations about the CJS recommendation, nurses would naturally become aware of the CJS and integrate the recommendation into their practice. Second, no implementation or best practice guidelines were developed by Health Canada to assist health care organizations and nurses with integrating the recommendation into their practice setting. The outcome expected as a result of issuing the CJS recommendation

i.e. nurses awareness and integration of the CJS recommendation into their practice might not occur if the manner in which the implementation was carried out was not consistent with what was intended. Failure to develop and evaluate a clear plan for implementation of the CJS may provide one explanation for the outcome of this study i. e. despite nurses' awareness of the CJS they failed to routinely integrate the recommendation into their practice. As well, failure to evaluate the implementation plan in order to identify barriers that may inhibit nurses' integration of the CJS may account for the study results.

The process used to disseminate information about the CJS recommendation to health care organizations and nurses may have impeded nurses' integration of the recommendation into their practice. A report written by Doucette (2001), for the College of Nurses of Ontario (CNO) Practice Setting Consultation Program, suggests that the timely way in which an organization responds to changes in health care trends that affect patient care has an impact on nurses' ability to provide care. Health care organizations receive a tremendous amount of mail that is sorted and distributed by various internal systems. Mail that is clearly addressed to a specific individual or department supervisor is more likely to reach the intended recipient in a timely fashion. It is unclear to whom or to which department the information package about the CJS recommendation was directed. No feedback mechanism to confirm that health care organizations received or informed nurses about the CJS was established, so it is unclear whether nurses ever obtained information about the CJS through the health care organization in which they practiced. Further to this, it is unclear whether nurses' who were informed about the CJS through their practice setting received the information in a timely fashion. If nurses were being relied upon to integrate important primary prevention and health promotion initiatives

such as the "Back to Sleep" campaign, into their practice, then a communication method that was direct and timely and a feedback mechanism confirming that nurses' received the information needed to be established. Directly informing nurses about the CJS recommendation through a bulletin issued by Health Canada or the College of Nurses of Ontario may have better prepared nurses for the integration of this important recommendation into their clinical practice. Rogers (1983) developed a model of how innovations i. e. totally new practices are adopted by individuals. According to Rogers (1983) there are five time ordered stages that an individual may pass through when new practices are presented to them. The knowledge stage represents a time when individuals are exposed to a new practice and gains some understanding of how it functions and identifies some possible opportunity for its use. The persuasion stage is a period during which attitudes are formed about the new practice through the acquisition of information. In the decision stage, information concerning the new practice is evaluated, accepted or rejected. This is also a time when the organization may be restructured to accommodate the new practice. During the final stage, confirmation, individuals seek reinforcement of the new practice decision. The outcome of this study i. e. nurses failure to routinely integrate the CJS into their practice suggests that there were barriers, which may have inhibited nurses' ability to adopt the recommendation into their practice. One such barrier appears to be the inconsistent manner in which nurses received the information about the CJS. Had nurses gained information about the CJS directly through a common source it may have improved their attitude toward the recommendation and provided them with a greater opportunity to evaluate how they could utilize the recommendation in

their practice. Future research, which examines the process by which public health policy is communicated, taught and transformed into nursing practice, would be beneficial.

Role of Policy in Nursing

The second issue that arises from this study is the role of policy in shaping nursing practice. No specific implementation or best practice guideline for applying the CJS to nurses' practice was developed by Health Canada. However, in the community setting, each of the health care organizations that participated in the study instituted a practice policy, which specified that nurses were to educate parents about the CJS recommendation for infant sleep positioning. In the hospital settings, there was no practice policy instituted, which specified that nurses were to educate parents about the CJS recommendation for infant sleep positioning. Findings from this study revealed that nurses practicing in the community settings, where policy guided their practice of providing parents with information about the CJS recommendation, educated parents about infant sleep positioning more often than nurses practicing in the hospital settings. It appeared that nurses who were guided by practice policy had integrated the CJS recommendation into their practice to a greater extent than nurses who were not guided by practice policy. This raises several questions: Do hospital settings have a role in supporting nurses' practice of family centered care focusing on primary prevention and health promotion? Is nursing policy driven? Should nursing be policy driven? Do hospital settings support evidence-based practice in nursing?

Doucette (2001) identifies seven key quality attributes of practice settings that support nurses' ability to deliver quality care. Doucette (2001) suggests that organizations support the delivery of client care, services and programs through their policies,

procedures, norms and values. Organizational supports include the philosophy of the organization as well as, policies and procedures. Other care delivery processes, which support the delivery of nursing care/services include, the care/program delivery model, staffing ratios and staffing mix, standards of care, accountability and continuous quality improvement measures (Doucette, 2001). The highest quality practice settings have care delivery processes that enable nurses to incorporate client teaching as an integral part of their role (Doucette, 2001).

If nurses are being relied upon to deliver important public health messages, such as "Back to Sleep", then hospitals need to adhere to a philosophy of care, which supports nurses' integration of evidence-based health promotion and primary prevention initiatives into their practice. Traditionally, the primary prevention and health promotion model of care is based in the community setting and the medical model of care is based in the hospital setting. Philosophical differences in approaches to providing care may have had an impact on hospital nurses' perception toward implementing the CJS recommendation in an organization that does not view health promotion and primary prevention as their primary responsibility in providing care. Lack of evidence-based practice policy or best practice guidelines for nurses about infant sleep positioning within the hospital settings may suggest a lack of awareness or commitment to the provision of comprehensive health care which includes primary prevention and health promotion strategies, such as health education. Fiscal restraint and a lack of organizational structure to support primary prevention and health promotion initiatives may also be a factor which impedes the ability of hospital settings to provide more holistic care. Hospitals should assess the degree of importance that is being placed on including primary prevention and health

promotion initiatives in their philosophy of care and follow through on the stated importance of these strategies by developing a care delivery model that is supportive of holistic evidence-based nursing practice.

Nurses should be accountable for providing nursing care that is holistic and current in spite of whether practice policy exists within their clinical settings. It appeared in this study that evidence-based practice in nursing, such as the integration of the CJS recommendation, would more effectively be increased through a particular policy. However, this type of rule governed care delivery model may be contributing to nurses' disregard for evidenced-based practice. Patricia Benner (1984) describes the manner in which novice nurses follow rules to guide their performance and suggests that following rules "legislates against successful performance because the rules cannot tell them [nurses] the most relevant tasks to perform in the actual situation" (p. 21). Further to this, Benner (1984) believes that if expert nurses are made to attend to formal rules, their performance actually deteriorates. All hospital settings in the study, aside from one, were affected by a recent merger whereby nursing practice policies were dismantled and few or no polices were re-developed. Policies and procedures, which standardize nursing practice, may be a factor that contributed to nurses' failure to integrate current research about back sleeping for infants into their practice. Hospital nurses may have absolved themselves of their professional responsibility to ensure that their practice was evidence-based because there was no policy or procedure in place, which held them responsible for integrating the CJS recommendation into their practice. Some nurses may have felt that they did not have the authority to change patient care procedures by incorporating education about back sleeping for infants to reduce the risk of SIDS into their practice.

Nurses may have feared that they would experience repercussions for integrating the CJS recommendation for infant sleep positioning into their practice in the absence of hospital policy or procedure.

Nurses in the hospital settings may be faced with two conflicting mandates: 1. to apply current research to practice 2. to comply with hospital policy. Thus, the policies and guidelines geared to achieve an acceptable standard of care may at the same time be discouraging nurses from applying research to their practice or building innovation into their practice. Hospital settings need to establish a care delivery model that supports evidence-based practice by establishing specific structures, which allow nurses to be involved in the development of evidence-based practice policy for their clinical settings. Designated and protected time for nursing research and education in the form of practice development groups, education in research utilization workshops and ward based research utilization workshops may serve to reduce nurses' sole reliance on practice policy and enhance nurse's application of research to practice. Future research on the relationship between nurses' perception of policy and integration of evidence base practice is needed.

Practice Environment

Staff ratios (1 nurse: 3 mother-baby couplets) within the hospital settings in this study did not appear to produce constraints on the amount of time nurses had to deliver health education. Hospital nurses' failure to integrate the CJS recommendation into their practice in the absence of time constraints suggests that they may not have viewed themselves as being responsible for providing health education. Maternal-child nurses in this study practiced in a variety of units within the hospital setting i.e. pediatrics, labor

and delivery, post partum and special care/NICU. Nurses may not have viewed health education as a priority in their setting and may have perceived the integration of the CJS recommendation as a more appropriate practice in another unit. Nurses must accept their role and responsibility in providing health education as an integral part of the nursing care that they provide in any maternal-child unit.

A staffing mix in the hospital settings, which included more BScN prepared nurses and RN (EC)'s may have facilitated nurses' integration of the CJS recommendation for infant sleep positioning into their practice. The majority of nurses practicing in the hospital setting in this study were diploma prepared nurses (46.2%) and only 15.4% of nurses in the hospital setting were baccalaureate prepared. Nursing education at the baccalaureate level includes theoretical as well as practical application of primary prevention and health promotion strategies. It also prepares nurses to provide health education using various teaching and learning principles. Diploma programs in nursing have not traditionally focused on primary prevention, health promotion and health education strategies as part of their curriculum. Nurses in the hospital setting may not have had the background education necessary to implement primary prevention and health promotion initiatives or to conduct effective health teaching. The impact of the baccalaureate degree as entry practice in nursing may have a positive effect on nurses' ability to provide health care that includes primary prevention and health promotion strategies. None of the Registered Nurses in the Extended Class (RN (EC)'s) who participated in the study practiced in the hospital settings. Hospitals need innovative clinical leadership to encourage and empower nurses to implement evidence-based practices. RN (EC)'s receive special training and education in the delivery of health

promotion and primary prevention strategies. Furthermore, RN (EC)'s are capable of critically evaluating research and applying it to practice. Hospital settings where RN (EC)'s were excluded from their staffing mix may be lacking the clinical nursing leadership that is necessary in order to promote professional practice in the area of health promotion, primary prevention and research utilization. Future research that examines the barriers and supports to research utilization by nurses practicing in the hospital setting is necessary. Education that focuses on implementation of research rather than undertaking research should be incorporated into all basic nursing programs.

While this study did not specifically ask why nurses did not implement the CJS recommendation, it did ask nurses their reasons for not strongly agreeing with the recommendation. Findings from this study revealed that there was a significant relationship between nurses' agreement with the CJS recommendation for infant sleep positioning and nurses' education of parents about infant sleep position. Failure of nurses to always provide discussion and literature about infant sleep positioning to parents reflected nurses' lack of strong agreement with the recommendation. The majority of nurses in this study responded that potential for adverse consequences i. e. aspiration and previous experience in nursing were major reasons for their lack of strong agreement with the CJS recommendation. Peeke et al. (1999) had similar findings in their study conducted with nurses in the United States. Research by Engleberts et al. (1991) reported no increase in infant death from aspiration, when the prone position was avoided. Clearly, nurses were not basing their practice decisions on current objective research findings. This raises the question of why nurses based their practice of educating parents about

infant sleep positioning on previous experience in nursing rather than empirical evidence?

Patricia Benner (1984) suggests, "Experience does not refer to the mere passage of time or longevity. Rather, it is the refinement of preconceived notions and theory through encounters with many actual practical situations that add nuances or shades of differences to theory" (p. 36). Study findings suggested that nurses who had been practicing in maternal-child care for longer lengths of time had stronger disagreement with the CJS recommendation for infant sleep positioning. The majority of nurses (68.5%) who participated in this study had over 6 years of clinical experience in maternal-child care however, only 15.4% of nurses reported having any experience dealing with a SIDS death. Hospital nurses in this study may not have had the clinical experience necessary to transform theoretical knowledge about the CJS recommendation to practical application in the clinical setting. Benner (1984) describes novice nurses as having no experience of the situation in which they are expected to perform. Since novices have no experience of the situation they face, they must be given rules to guide their performance. Nurses practicing in the hospital setting in this study may be considered novices in need of policy to guide their practice given that very few of them have ever had the experience of dealing with SIDS. In this study, however, hospital nurses were expected to perform as experts with a background of experience and intuition in the area of SIDS and without the need for practice policy. Although hospital policy about infant sleep positioning may have provided a general assurance of safe and current nursing practice in the hospital setting, it is no guarantee of quality care and it is no substitute for nursing judgment. Hospital settings need to promote and provide

opportunities for clinically focused professional development that nurses' perceive as important to their practice area. In doing so, nurses may develop the experience, confidence and commitment that is necessary for evidence-based practice changes to be understood and implemented.

Many nurses in this study (66%) relied on their colleagues to provide them with information about infant sleeping position. This raises the question of why nurses relied on their colleagues rather than research journals to provide them with information about the CJS recommendation for infant sleeping position? Nurses may not have relied so heavily on each other for information about the CJS recommendation if they had received information and empirical evidence to support the recommendation directly. It appeared that nurses were expected to abide by a recommendation without the benefit of supporting research or in-service education. Nurses' reliance on their colleagues for information about the CJS recommendation may have been a convenient method for them to critique the CJS recommendation without having to expend time locating the empirical evidence to support the recommendation. If nurses were to integrate the CJS into their practice they needed to be presented with the opportunity to critically review literature that diminished their reasons for not strongly agreeing with the CJS recommendation and supported the changes in nursing practice that were necessary in order to abide by the recommendation. Accessible research, which supported the CJS recommendation, clarified the instability of the side sleeping position for infants and reaffirmed the evidence suggesting that back sleep positioning posed no greater risk of aspiration than any other sleeping position needed to be available to nurses.

All of the nurses in this study practiced in a group setting, which may have affected the manner in which clinical practice decisions about infant sleeping position were made. Nurses may have decided by group consensus rather than independent, evidence-based judgment either to adjust their practice to reflect the current research or to maintain their past practice. If nurses had been provided with guidelines for implementation of the CJS then they may have been more confident about independently integrating the CJS recommendation into their practice. However, it remains difficult for nurses, particularly those practicing in the hospital settings, to independently introduce new practice patterns in the absence of administrative support. Nurses who were accustomed to "following orders" may be reluctant to change their practice pattern unless they received approval from their administration and colleagues. Unless there was a system in place within the hospital setting to address evidence-based practice issues, nurses may have been unable to obtain the necessary support to implement the CJS recommendation.

Nurses in Ontario are responsible for "Reflective Practice" in which nurses self report about their participation in professional development initiatives. Monitoring and evaluating nurses' participation in professional development may enhance nurses' responsibility and accountability for maintaining a current practice. A more effective system of ensuring that nurses remain current and competent to practice may be needed. Perhaps a system modeled after the one in the United States where nurses must accumulate a minimum number of credits through their participation in professional development initiatives that relate to their area of clinical practice would be beneficial. Practice settings should support educational opportunities for nurses by allowing time and funding for professional development to be incorporated into nurses employment

contract. In-service education that is convenient and research material that is easily accessible should be made available.

Limitations

This study was not without limitations. This investigation of nurses' awareness was limited to one geographical area in Ontario and thus, could not be generalized to a larger Canadian context. Thus, the findings are very preliminary and do not describe the awareness and practice of a representative sample of nurses Canada-wide. It does, however, provide important insights into some Canadian nurses' awareness and practice of the CJS recommendation.

The second limitation of the study was the relatively small sample size that was further sub-divided into two smaller more comparative samples of nurses according to the clinical facility they worked in. One of the major strengths of this study was the focus on maternal-child nurses in both the hospital setting and the community setting. However, due to the small sample sizes of the two groups of nurses, only preliminary findings can be reported with limited generalizability, particularly relative to the hospital group.

One final limitation of the study was the clinical environments of the hospital settings. The research took place in June 2001, at which time, two hospital settings, which formerly provided comprehensive programs in maternal-child nursing had partially completed transferring the maternal-child program to the one designated hospital for women's' health. At the time of this study, nurses provided maternal-child care on two geographic sites only partially completing the process of amalgamating their maternal-child units. It is not known how this organizational restructuring impacted on nurses' awareness and practice of the CJS. However, the merger of policy and procedures had

not been completed at the time of the study. None of the hospital settings that were examined in this study contained a newborn nursery; one setting had a Neonatal intensive care unit. It is not known how the absence of a newborn nursery in the hospital settings influenced nurses' awareness and practice of the CJS.

Conclusion and Future Research Considerations

This study has been an important contribution to nursing in a number of ways. First, it has replicated earlier research conducted in the United States that suggests health professionals may not integrate policy recommendations into their practice. This Canadian based study contributes further insights into the issue with respect to the influence of the clinical setting in shaping nurses' knowledge, perceptions and beliefs towards health promotion recommendations such as the Canadian Joint Statement on infant sleep position. Research that further clarifies the organizational supports and barriers that facilitate or impede nurses' implementation of evidence-based practice in both the hospital and community setting needs to be addressed. The integration of policy, theory and research into clinical practice is fundamental to the advancement of nursing science. Future research needs to address strategies that facilitate this very important process in order to strengthen nursing practice and enhance the health of Canadians.

Appendix A

Best Infant Care Practices Questionnaire
(Adapted with permission from Peek et al., 1999)

A. Please answer the following questions regarding the Canadian Joint Statement (CJS), 1999 recommendation for sleep position and your attitude toward it.

1. Are you aware of the Canadian Joint Statement (1999) recommendation for infant sleep position?

   _____ Yes
   _____ No

2. What does the Canadian Joint Statement (1999) recommend?

   _____
   _____
   _____

3. What sleeping position is considered the safest for infants?

   _____
   _____

4. What factors place infants at risk of Sudden Infant Death Syndrome?

   _____
   _____
   _____

5. What are the sources of your information about infant sleep positioning? (Please check all that apply.)

   _____ None
   _____ Mass media
   _____ Professional literature
   _____ Meetings/speakers
   _____ Colleagues
   _____ Parents of patients
   _____ Other (specify) _____

6. **Do you agree with the Canadian Joint Statement recommendation regarding healthy full term infants and healthy pre-term infants, ready for discharge home, to be placed to sleep on their back?**

_____ **Strongly agree**
_____ **Somewhat agree**
_____ **Somewhat disagree**
_____ **Strongly disagree**
_____ **Unaware of recommendation**

If your answer to Question 6 is anything other than "strongly agree" please answer the next two questions.

7. If you **do not strongly agree** with the Canadian Joint Statement recommendation, please indicate the **primary reason** why.

_____ Previous training/education in nursing
_____ Experience with infants
_____ Lack of data (i.e. research in this area)
_____ Lack of knowledge of data (i.e. research in this area)
_____ Potential adverse consequences of supine position (eg. aspiration)
_____ Parental resistance (i.e. parent don't like back sleeping position for their infants)
_____ Other (specify)

8. If you **do not strongly agree** with the Canadian Joint Statement recommendation, indicate **all other reasons** for your reservations.

_____ Previous training/education in nursing
_____ Experience with infants
_____ Lack of data (i.e. research in this area)
_____ Lack of knowledge of data (i.e. research in this area)
_____ Potential adverse consequences of supine position (i.e. aspiration)
_____ Parental resistance (i.e. parents don't like back sleeping position for their infants)
_____ Other (specify) _____

9. Do you agree with the Canadian Joint Statement recommendation regarding infants with gastroesophageal reflux to be placed prone to sleep?

_____ Strongly agree
_____ Somewhat agree
_____ Somewhat disagree
_____ Strongly disagree
_____ Unaware of recommendation

B. Please answer the following questions regarding the education of parents about sleep position for healthy newborn infants and pre-term infants ready for discharge. Note that we are addressing healthy infants since the Canadian Joint Statement has different recommendations for other infants.

	NEVER	RARELY	SOMETIMES	USUALLY	ALWAYS
1. Prior to these recommendations did you discuss sleep position with parents?	1	2	3	4	5
2. Do you now discuss sleep position with parents?	1	2	3	4	5
3. Prior to these recommendations did you provide literature regarding sleep position to the parents?	1	2	3	4	5
4. Do you now provide literature regarding sleep position to the parents?	1	2	3	4	5

5. If you discussed sleep position with parents **prior to** the 1999, Canadian Joint Statement recommendation, what position(s) did you recommend?

_____ Supine
_____ Prone
_____ Side
_____ None

6. If you **now** discuss sleep position with parents, what position(s) do you recommend?

_____ Supine
_____ Prone
_____ Side
_____ None

7. If parents initiate a discussion with you about sleep position, what advice do you give?

_____
_____
_____

8. Do you recommend the same sleep position for **siblings** of infants who have died of Sudden Infant Death Syndrome, as you do for normal healthy full term and pre-term infants, ready for discharge home?

_____ Yes
_____ No
Explain_____
_____

9. What are your views of placing infants on their back to sleep?

_____
_____
_____
_____

Appendix B
Demographics Questionnaire

Please answer the following questions with regard to your occupation.

1. What is your level of nursing education?
   _____ RN
   _____ RN, BScN
   _____ RN(EC)
   _____ Other (specify) _____

2. How many years has it been since you graduated from your basic nursing program?

   _____ Years

3. In which setting do you work?

   _____ Hospital (please specify area)
   a) Pediatrics
   b) Labor and Delivery
   c) Post Partum
   d) Special Care Nursery/NICU
   e) Other (specify) _____

4. How many years have you worked in the area of maternal child care nursing?
   _____ Years

5. What is your gender?
   _____ Male
   _____ Female

6. What is your primary role at work?
   _____ Direct care provider (i.e. bedside nursing)
   _____ Health educator (i.e. pre/postnatal education)
   _____ Other (specify) _____

7. Have you ever been involved in a SIDS (Sudden Infant Death Syndrome) death?
   _____ Yes
   _____ No

8. Do you have any children of your own?
   _____ Yes
   _____ No

9. What is your cultural background?
   _____ Anglo-Canadian
   _____ African-Canadian
   _____ North American Indian
   _____ Chinese-Canadian
   _____ Arab-Canadian
   _____ French-Canadian
   _____ Italian-Canadian
   _____ Other (specify) _____

Appendix C
Consent to Participate in Research

Infant Sleep Position: Nurses' awareness and practice of the Canadian Joint Statement Recommendation

You are asked to participate in a research study conducted by Vanessa Burkoski, from the School of Nursing at the University of Windsor. The results of the study will be contributed to a thesis (Master of Science Degree).

If you have any questions or concerns about the research, please fell free to contact Dr. Anne Snowdon, Primary Advisor at 253-3000 Ext# 2275.

Purpose of the Study
To gain more knowledge about best infant care practices used by registered nurses.

Procedure
If you volunteer to participate in this study, you will be asked to complete a self-administered questionnaire and to **return it to the investigator by mail with 3 weeks** (self-addressed and stamped envelope enclosed).

Potential Risks and Discomforts
There are no foreseeable risks or discomforts that will result from participating in this study.

Potential Benefits to Subjects and/or Society
Subjects will benefit from the research by having the opportunity to reflect upon their awareness and implementation of best infant care practices.

The potential benefit to society from this research is a greater awareness and implementation of best infant care practices, which may result in the reduction of infant deaths.

Payment for Participation
Subjects will not receive payment for their participation in the study.

Confidentiality
Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. The signed consent forms and demographic forms will be kept in a locked drawer at all times, accessible only by the researcher. Confidentiality of the study participants will be strictly maintained at all times. At no time will the identities of the study participants be revealed to the administration of the participating organizations or to the other staff that the participants work with. All study data will be immediately encoded with subject numbers to prevent individual results from being identified. Study data will be maintained for up to 1 year following the completion of the study in order to provide an

opportunity for secondary analyses and potential instrument development. No record of participant's identities will be kept. Only group results of the study will be discussed in future presentations, individual results will not be made available at any time.

Participation and Withdrawal

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may exercise the option of removing your data from the study. You may refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

Rights of Research Subjects

You may withdraw your consent at any time and discontinue participation without penalty. This study has been reviewed and received ethics clearance through the University of Windsor Research Ethics Board. If you have questions regarding your rights as a research subject, contact:

Research Ethics Coordinator
University of Windsor
Windsor, Ontario
N9B 3P4

Telephone: 519-253-3000, #3916

Signature of Research Subject

I understand the information provided for the study "Infant Sleep Position: Nurses' awareness and practice of the Canadian Joint Statement Recommendation" as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

Name of Subject	Signature of Subject	Date

Signature of Investigator

In my judgment, the subject is voluntarily and knowingly giving informed consent.

Signature of Investigator	Date

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VITA AUCTORIS

Vanessa Burkoski was born in 1961 in Windsor, Ontario. She graduated from Centennial High School in 1979. From there she went on to the University of Windsor where she obtained a BSc. in Nursing in 1984 and a Primary Care Nurse Practitioner Certificate in 1997. She is currently a candidate for the Master's degree in Science at the University of Windsor and will graduate in 2002.