

PREVENTING AND MANAGING ILLNESS  
IN CHILD CARE SETTINGS:  
A PROGRAM EVALUATION

CENTRE FOR NEWFOUNDLAND STUDIES

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**PREVENTING AND MANAGING ILLNESS  
IN CHILD CARE SETTINGS:  
A PROGRAM EVALUATION**

by

**Ann Manning**

A thesis submitted to the  
School of Graduate Studies  
in partial fulfilment of the  
requirements for the degree of  
Master of Nursing

School of Nursing  
Memorial University of Newfoundland

October 1995

**St. John's**

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## ABSTRACT

The purpose of this study was to examine a strategy designed to improve the health related knowledge, attitudes and behaviours of child care providers and early childhood educators using the PRECEDE model and guided by concepts from Epp's Health Promotion Framework. A one and one half day health workshop and written resource manual, Health Issues in Child Care Settings, were designed and tested to determine the effect on the knowledge, attitudes and behaviours of early childhood educators and child care providers. In particular, the study was concerned with how this strategy may improve the child care providers' and early childhood educators' knowledge about protecting the child's health and managing illness in child care centres. Additionally, the researcher was interested in a possible change of individual attitudes and behaviours in centres toward illness prevention and management.

This quasi experimental evaluation study involved collection of data through a pre and posttest questionnaire administered to an experimental and a control group of randomly selected early childhood educators and child care providers. The questionnaire was completed by both groups two weeks prior to the workshop, which only the experimental group participated in, and again one month following this intervention.



The 'Health in Child Care Settings Questionnaire' was developed as no existing instrument for this purpose was found. A secondary purpose of the research was to assess the psychometric properties of the questionnaire.

The posttest knowledge and reported centre behaviours improved significantly in the experimental group. Within this group posttest attitude scores also improved, although not significantly. There were no significant differences in the pre and posttest scores for the control group.

The findings of this study indicate that information about protecting children against illness and management of illness provided in a workshop and resource manual are effective in increasing child health knowledge and improving health behaviours of early childhood staff. The intervention was not effective in significantly improving the child health attitudes of participants.

These findings support the hypothesis that health education aimed at improving the health knowledge and behaviours of those working in early childhood settings is an effective strategy. It appears that this strategy is less effective at positively influencing the child health attitudes of those working in early childhood settings. Further research is required to determine the effects of such interventions on attitudes and the degree to which attitude ultimately affects behaviour.

## ACKNOWLEDGEMENTS

The completion of this thesis would not have been possible without the support of a number of individuals. Special thanks to my thesis committee, Shirley Solberg, chairperson, for her accessibility, her tireless attention to my questions and her continued guidance throughout the process. To Chris Way who has taught me that part of the art of nursing is the art of questioning and discovery and that to be effective discovery must take place within the rigors of good research. Thank you to Lynn Vivian Book whose commitment to children and their families and community health are unparalleled and under whose mentorship I was able to complete the Health Issues in Child Care Settings manual.

Thanks to Jennifer Bates, Research Assistant with Memorial University of Newfoundland, School of Nursing, for assistance with the SPSSX program.

I would like to acknowledge the support of the Community Health - St. John's Region for this project and in particular the efforts of Anne Gillis, Public Health Nurse, and Linda Carter, Health Educator, who assisted as facilitators for the workshops.

A special thank you to the participants in the study for their willingness to learn and their eagerness to share their experiences.

I am grateful for the support of the individuals from the

Family and Rehabilitative Services Division of the Department of Social Services, the Association of Early Childhood Educators - Newfoundland and Labrador and the Provincial Association of Childcare Administrators.

Thank you to the staff of Daybreak Parent Child Centre for participating in the pilot. In particular, I would like to thank Daybreak's Program Director, Melba Rabinowitz, whose vision of healthy children and families and commitment and advocacy to child health is an inspiration.

There are no words with which I can adequately thank my family for their unfailing support and encouragement. I am particularly thankful to my parents. To my father who has instilled in me the value and enjoyment of books and learning. To my mother, who is the greatest early childhood educator and the most loving teacher of all things good. You have, by your example, taught me to appreciate, to consider, to care, to develop, to believe, to dream and to love.

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## CHAPTER 1

The number of children attending child care centres increases each year in Canada. Child care spaces in this country have increased almost fifteen fold over the last twenty years, from 17,391 in 1971 to 253,111 in 1990 (Hanvey, Avard, Graham, Underwood, Campbell, & Kelly, 1994; Health and Welfare Canada, 1988). There are a number of demographic and social changes contributing to this growth. The increase in single parent families, the increase in families in which both parents work outside the home and changes in extended family patterns have resulted in parents seeking organized child care alternatives (Bassoff & Willis, 1991; Nelson & Hendricks, 1988; Hanvey et al., 1994; O'Mara & Chambers, 1992; Peterson-Sweeney & Stevens, 1992).

Children who are cared for outside their own homes are faced with unique challenges and increasing attention is being focused on creating high calibre environments for early childhood development. While early childhood education is the primary focus in early childhood settings, another key component of quality child care is the preservation of the health and safety of children. The move towards quality out-of-home child care along with the hazards and opportunities associated with child care create urgent public health issues (O'Mara & Chambers, 1992; Stroup & Thacker, 1995). Now, more than ever, community health professionals are challenged to

improve child daycare by putting in place programs which focus on health promotion and illness prevention. It is also imperative to establish and utilize strong evaluation methods designed to examine these programs and identify areas for improvement.

Epp's (1986) Framework for Health Promotion provides conceptual support for a health promotion initiative designed to improve the child health knowledge, attitudes and behaviours of early childhood educators and child care providers. Epp's goal of achieving health for all is mirrored in this type of intervention. Through health promotion targeted towards early childhood educators and child care providers, health professionals have the potential to influence positive health factors in the target group and, through them, to children in their care and their families.

#### Problem Statement

One of the public health issues created by the increased number of children attending child care centres is the protection of the child's health against common communicable diseases. Infants and toddlers have the highest age specific rates for respiratory and enteric infections (Gilliss, Holaday, Lewis, & Pantell, 1989; Klien, 1986). The main barriers in dealing with the health protection of young children attending child care centres are the inadequate preparation and limited child health knowledge among early

childhood educators and child care providers, specifically in preventing and managing common childhood illnesses (Bassoff & Willis, 1991; Gaines, Rice, & Carmon, 1993; O'Mara & Chambers, 1992; Peterson-Sweeney & Stevens, 1992). Common health problems are now dealt with on a case by case approach or from a crisis management perspective. However, a more proactive approach may help to decrease the overall incidence of disease and lead to an emphasis on health promotion.

In order to engage in protective health measures or to manage common illnesses of children, child care workers must have the necessary knowledge related to health, possess positive attitudes predisposing them to respond appropriately and exhibit the repertoire of necessary behaviours known to be effective in promoting and maintaining health. Since the primary mandate of child care staff is early childhood education some assistance may be required to strengthen the health related knowledge, attitudes and behaviours. It is not clear which strategies would be most effective. Specific initiatives require further examination, since much of the research is based on opinion or theory rather than demonstration of the effectiveness of specific programs. Training in a workshop format supplemented with written resources designed as a post workshop reference might improve the health knowledge, beliefs and practices of early childhood educators and child care providers and ultimately improve the

health of children in their care.

#### Purpose and Research Questions

The purpose of this study is to evaluate the effectiveness of a strategy designed to improve the health related knowledge, attitudes and behaviours of child care providers and early childhood educators. A one and one half day health workshop and written resource manual, Health Issues in Child Care Settings, was designed and tested to determine the effect on the knowledge, attitudes and behaviours of early childhood educators and child care providers. Although the workshop and manual contained information on a wide variety of health related topics the research reported here will be restricted to the research questions which focus on preventing and managing illness in early childhood settings. In particular, the study is concerned with how this education strategy may improve the child care providers' and early childhood educators' knowledge of protecting the child's health and managing illness in child care centres. Additionally, the researcher is interested in modifying attitudes and behaviours toward illness prevention and management.

The specific research questions are:

1. What effect does an education strategy designed to teach about protecting children against illness and managing of illness have upon selected knowledge, attitudes and behaviours

of early childhood educators and child care providers?

2. What effect do key demographic variables such as age, education, work experience and role have on selected health knowledge, attitudes and behaviours of early childhood educators and child care providers?

3. What effect does an educational strategy have on the challenges and learning needs identified by early childhood educators and child care providers?

Although the primary purpose of this research was to evaluate the aforementioned education strategy, the researcher was cognizant of the need to use a valid and reliable instrument for this endeavour. There were no previously used instruments found which measured the health related knowledge, attitudes and behaviours of early childhood educators and child care providers. Therefore, a questionnaire, 'Health in Child Care Settings' was developed. A secondary purpose of this study was to assess the reliability and validity of this questionnaire.

#### Rationale

While the number of children attending licensed child care centres increases each year in Canada, little research has been done to assess health knowledge, attitudes and behaviours of early childhood educators and child care providers. Research has focused primarily on the epidemiology of illness in child care settings, including examination of factors related to the transmission of disease.



Osterholm (1994) cautions against generalizing about the risk of transmission of infectious disease in child care settings. Factors such as the variety of child care settings, the size of the centre and the health practices carried out in the centre may influence the incidence of disease. One should be aware of local dynamics when developing programs to improve knowledge, attitudes and behaviours of child care staff.

The remainder of the research in this area is generally descriptive in nature and has focused on the value of health education for early childhood staff or upon identification of learning needs, development of programs to meet those needs and barriers to health promotion for staff in child care centres (Al-Qutob, Na'was, & Mawajdeh, 1991; Bassoff & Willis, 1991; Gaines, Rice, & Carmon, 1993; O'Mara & Chambers, 1992; Pauley & Gaines, 1993; Peterson-Sweeney & Stevens, 1992). A major gap in the literature is evidence of research which examines the optimal methods to meet the health related learning needs of early childhood educators and child care providers.

Since most child care centres are community based, community health professionals such as public health nurses and inspectors are the most likely health providers in contact with these agencies. The most frequent contact is usually the public health nurse and it is important to examine his/her existing and potential roles. Sheps (1987) suggests that community health departments evaluate and assess programs

offered to preschool programs. A major role component in public health nursing is the provision of programs which respond to health problems or risk factors. In Newfoundland and Labrador public health professionals strive to promote the health of preschool children (Community Health, Government of Newfoundland and Labrador, 1992). Bassoff and Willis (1991) suggest that while departments of education and social services often have the mandate for licensing and continuing education for child care centres, they lack the necessary expertise to deliver preventive child health training. They suggest that public health agencies may best meet this need.

It has been suggested that nurses have the potential to influence health promotion and illness and injury prevention in child care settings (Gaines, Rice, & Carmon, 1993; Peterson-Sweeney & Stevens, 1992). Gaines et al. (1993) caution that the traditional role of nurses in this setting has been one of crisis intervention, i.e., responding to disease outbreaks. This role must become more proactive to ensure the physical, social and emotional well-being of children. Pauley and Gaines (1993) state that nurses, who often have direct contact with child care centres, can provide on site intervention as required, can assist parents and caregivers in making health decisions for children in their care and have an important advocacy role in shaping daycare policy. Kendrick (1994) suggests that health professionals must become partners with child care staff in training efforts

and learn from the skills and resources available in the child care field.

There is a need for effective population health programs which focus on community oriented health promotion; the child daycare environment provides public health nurses with this opportunity (Deal, 1994). A program designed to promote healthy behaviours and provide education in daycare centres using the collaboration, networking, coordination, health education and anticipatory guidance skills of public health nurses resulted in the delivery of more comprehensive, coordinated services (Schmelzer, Reeves, & Zahner, 1986). A similar program in which public health nurses provided consultation services to family daycare homes involved provision of health information and education and was positively received among child care staff (Lie, 1992). Limited evaluation of these types of programs has been carried out and must be a priority for public health nurses working in this area.

#### Conceptual Framework

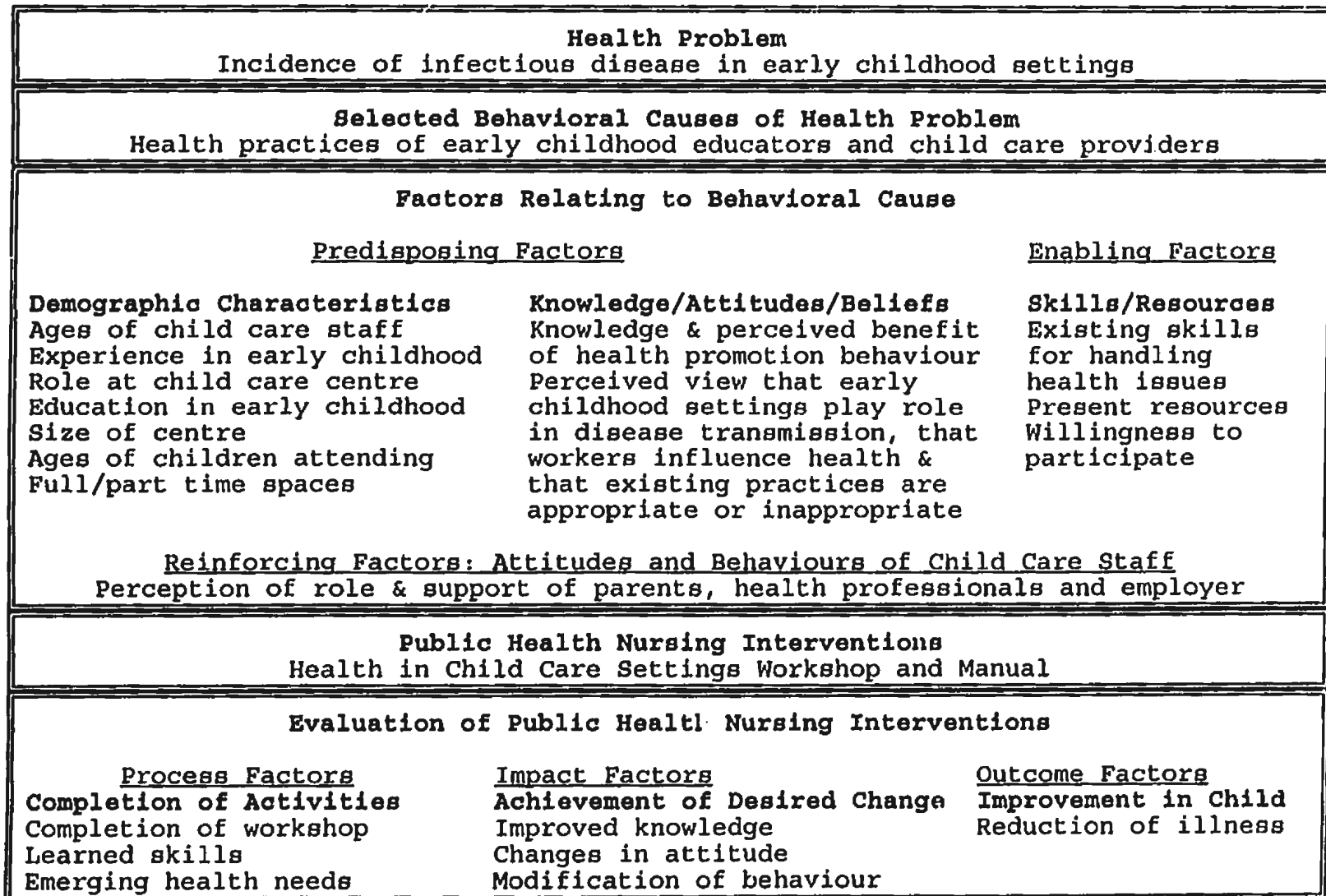
While Epp's (1986) health promotion framework provides the conceptual framework necessary to support the evaluation of child health related knowledge, attitudes and behaviours of child care providers and early childhood educators, it is also necessary to utilize a detailed evaluation framework in order to operationalize the effects of specific health promotion strategies.

The PRECEDE (predisposing, reinforcing and enabling causes in educational diagnosis and evaluation) health education program planning model provided a framework to guide the development of the evaluation tool for this study. The model focuses on diagnostic issues in health education and affords researchers the structure and organizational framework necessary for program planning and evaluation. The PRECEDE model begins with problem identification; moves to determination of contributing causes, especially those amenable to change; and then focuses on identification of predisposing, enabling and reinforcing factors which influence the causes. Interventions are then generated to address the causative factors and then evaluated according to process, impact and outcome (Green, Kreuter, Deeds, & Partridge, 1980).

As shown in Figure 1, Selby, Riportella-Muller, Sorenson and Walters (1989) build on the PRECEDE model, incorporating concepts from the Health Belief Model (Becker et al., 1977) and Pender's (1987) model for health promotion and disease prevention. Selby et al. (1989) further refined their model with principles of learning (Rogers, 1969), human behaviour during crisis (Morley et al., 1967) and program evaluation (Flay, 1986).

Within the context of PRECEDE model, the health concern in question for this research is the incidence of infectious disease in early childhood settings. Among the selected behavioral causes are the apparent inconsistencies in the

**FIGURE 1** Adapted PRECEDE Model for Health in Early Childhood Settings



health practices of early childhood educators and child care providers which can help control or prevent the spread of illness in these settings. The predisposing factors related to the behavioral cause include demographic characteristics such as the age, experience and role of the child care provider; the educational preparation of the early childhood educator, including continuing education; the size of the centre and ages of children who attend; and whether most children attend on a full or part time basis. While most of these demographic characteristics are not readily amenable to change, emerging trends may provide the basis for recommendations around the health education preparation necessary for early childhood staff.

Other predisposing factors of knowledge, attitudes and beliefs are more easily influenced than demographics and can provide direction for influencing positive behaviour changes. Knowledge of appropriate health promotion and illness prevention behaviours, perceived benefits from carrying out these behaviours, perceived belief in the role that child care settings play in the transmission of illness; perceived view that early childhood educators and child care providers can influence the spread of illness in child care centres; as well as the perception that existing practices are appropriate or inappropriate are important predisposing factors.

Enabling factors include the existing skills for handling specific health related issues in a child care setting, the



resources identified by early childhood staff and the identification of the greatest health concerns noted by the respondents. One major enabling factor is the participant's willingness to participate in continuing health education. The eagerness of respondents to receive health education was well demonstrated in the needs assessment.

Reinforcing factors include examination of the child care staff's perceptions about the role of parents and health professionals in early childhood settings and the perceived amount of support from these individuals. Another reinforcing factor would be the amount of support for health from the employer. Support was apparent from the needs assessment and from the willingness of the vast majority of centre operators approached about the study.

The predisposing, enabling and reinforcing factors then provided the foundation for developing the community health nursing intervention aimed at improving the health knowledge, attitudes and behaviours of early childhood educators and child care providers. These nursing interventions can then be evaluated according to process, impact and outcome. As suggested by Selby et al. (1989) the intervention was designed to recognize positive attributes of the participants and to build on them. Examples of process evaluation include the ease with which participants learn selected health behaviours such as correct handwashing techniques or the use of the resource manual to identify appropriate action when a child

has been diagnosed with pertussis and how widespread these behaviours are observed in the workplace. Another process factor would be the emerging health issues identified by participants as they make progress in mastering skills. One example would be identification of the most appropriate soap to use once handwashing has been mastered.

This study focuses primarily on impact factors. The posttest questionnaire provides a basis for discovery of the impact of the intervention on the knowledge and attitudes of participants and behaviours observed by participants in their centres when compared to the pretest responses.

Outcome evaluation factors such as an overall reduction in the incidence of illness in early childhood settings is beyond the scope of this study but has been documented in the literature (Bartlett et al., 1985; Black et al., 1981; Kotch et al., 1994). However, improved child health related knowledge, attitudes and behaviours of those working in early childhood settings should ultimately lead to an improvement in the health of children who attend.

Jenny (1993) recognizes the time and resources required for health education and the vulnerability of such programs given the existing economic pressures. Given the challenge of evaluation of health education strategies and the current climate of health care reform it is necessary to operationalize the effects of health promotion strategies.

### Operational Definitions

Early childhood educators - are, for the purposes of this study, defined as individuals who work in child daycare settings and have completed some formal academic preparation in the field of early childhood education. This preparation may range from a one year certificate to a graduate degree in early childhood education.

Child care providers - are, for the purposes of this study, defined as individuals who work in child daycare settings and have not completed any formal academic preparation in the field of early childhood education.

Knowledge - is, for the purposes of this study, defined as the understanding of the prevention and management of illness in child care settings. Measurements of knowledge are operationalized by responses to questions 1 through 17 of Subsection B, Part 1 of the Questionnaire.

Attitudes - are, for the purposes of this study, defined as the feelings, opinions, beliefs or ways of thinking about prevention and management of illness in child care settings. Measurements of attitude are operationalized by responses to questions 1 through 12 of Subsection B, Part 11 of the Questionnaire.

Behaviours - are, for the purposes of this study, defined as the actions, mannerisms or way of behaving related to preventing and managing illness in child care settings. Since one expectation of the workshop is that participants will go back and share their experiences with other staff at their centres, measurements of behaviour are not confined solely to those of early childhood educators and child providers who participated in the study. The behaviour of all child care staff at the centre is also measured indirectly as perceived by the study participants and is operationalized by responses to questions 1 through 10 of Subsection B, Part III of the Questionnaire.

## CHAPTER 2

### Literature Review

The purpose of the literature review is to examine and analyze studies relating to the issue of preventing and managing illness in early childhood settings. Since there is a considerable body of research dealing with the epidemiology of illness in child daycare, this review will focus primarily on work published within the last ten years. In particular it provides a summary of the variety and severity of illness found in this setting and sets the context for the reason that health issues must be addressed in this area. Next, attention will be given to the research on the behavioral and environmental factors which affect health in early childhood settings. Finally, the status of health programming in early childhood settings will be explored in an effort to identify successful initiatives and continuing gaps.

The literature supports the assertion that public health professionals must address the health needs of preschoolers in child care centres (Bassoff & Willis, 1991; Berkelman, Guinan, & Thacker, 1989; Gaines, Rice, & Carmon, 1993; Jarman & Kohlenberg, 1991; Nelson & Hendricks, 1988; O'Mara & Chambers, 1992; Peterson-Sweeney & Stevens, 1992). The epidemiology of childhood illness and injury and the environment in child care settings contribute to increased health risks in children attending child care.

The issue of health in early childhood settings is longstanding. In 1984 a symposium, held in Minnesota, focused

entirely on prevention and management of infectious diseases in child day care (Osterholm, Klien, Aronson, & Pickering, 1986). More recently, the Proceedings of the International Conference on Child Day Care Health were published in a supplement to Pediatrics (Goodman, Churchill, Addiss, Sacks, & Osterholm, 1994). Review of the literature reveals a strong focus on the epidemiology of childhood illness in early childhood settings, some exploration into the associated environmental factors and a beginning analysis of programs designed to improve specific health knowledge and behaviours of early childhood staff in an effort to reduce morbidity.

#### Epidemiology

Preschoolers are at high risk for morbidity and mortality associated with injuries and infections. The leading cause of hospitalization for Canadian preschoolers is respiratory illness which accounts for 46% of all admissions (Avard & Hanvey, et al., 1994). O'Mara and Chambers (1992) report that infectious disease was identified as the major health problem in a survey of Ontario child care centres.

The leading cause of mortality in preschool children in Canada is injury. Injuries account for approximately 19% of all hospitalizations and 40% of deaths of preschoolers (Hanvey, et al., 1994).

Infectious disease can be considered in terms of those which affect children, child care staff and their respective families (respiratory tract infections, otitis media,

diarrhoeal disease); those affecting primarily children and less frequently child care staff or families (meningococcal disease, HIV infection); asymptomatic disease in children which may affect adult family members and child care staff (hepatitis); and infections which may not be evident among both children and adults, but may have serious consequences for child bearing women (cytomegalovirus) (Goodman, Osterholm, Granoff, & Pickering, 1984; Jarman & Kohlenberg, 1991; Osterholm, 1994).

More frequently infectious disease is defined according to route of transmission such as person to person spread or droplet or aerosol transmission (Thacker, Addiss, Goodman, Holloway, & Spencer, 1992). Considering the characteristics of children and child care staff it is not surprising that diseases which require faecal-oral transmission, close contact with excretions, body fluids and skin or spread by droplets in the air find a friendly environment in early childhood settings.

Giebink (1993) notes that during their first year in care, children have significantly more infectious disease than when cared for at home. It is purported that children who attend daycare are significantly more likely to develop febrile disease, respiratory illness, gastrointestinal complaints and/or otitis media than those who stay at home (Alexander, Zinzeleta, Mackenzie, Vernon, & Markowitz, 1990; Dahl, Grufman, Hellberg, & Krabbe, 1991; Ferson, 1993;

Giebink, 1993; Giebink, Chang, Koch, Murray, & Gonzalez, 1994; Hardy & Fowler, 1993; Jarman & Kohlenberg, 1991; Wald, Dashefsky, Byers, Guerra, & Taylor 1988; Wald, Guerra, & Byers, 1991). Dahl et al. (1991) further note that children in daycare centres are two to three times more likely to require antibiotic treatment than other preschoolers.

Of all illnesses reported, respiratory infections account for the majority of acute illness in preschoolers (Denny, Collier, & Henderson, 1986; Jarman & Kohlenberg, 1991; Schwartz, Giebink, Henderson, Reichler, Jereb, & Collet, 1994). Anderson, Parker, Strikas, Farrar, Gangarosa, Keyserling and Sikes (1988) reported that children under two years of age and hospitalized for respiratory tract infection were more likely to have attended daycare than were controls.

Several researchers have noted an increased risk for otitis media in children attending child care (Henderson & Giebink, 1986; Thacker, Addiss, Goodman, Holloway, & Spencer, 1992). It has been demonstrated that group size and type of child care arrangement are related to increased risk. Children cared for in groups of seven or more or in daycare centres as compared with family daycare or home care arrangements were more at risk (Hardy & Fowler, 1993). While the majority of respiratory illness is self limiting and easy to manage recurrent episodes of otitis media can lead to hearing loss (Hardy & Fowler, 1993). This is particularly important given the development of language during the



preschool period.

Reves, Morrow, Bartlett, Caruso, Plumb, Lu and Pickering (1993), in a case control study of risk factors associated with diarrhoeal disease in children under three years of age, found little difference in the rates of this disease for children cared for in a daycare centre versus a family daycare home and that the risk in both settings was highest in the first month of care. Some researchers have suggested that as much as half of all diarrhoeal disease in children under three years is attributable to attendance at daycare centres (Alexander et al., 1990; Matson, 1994; Morrow, Townsend, & Pickering, 1991).

It has been suggested that contaminated hands and objects are a potential source for transmitting gastrointestinal disease in child care centres. It has been demonstrated that hands can be the primary route of transmission of gastrointestinal disease and to a lesser extent moist contaminated surfaces such as sinks and faucets, tables and kitchen counters (Cody, Sottnek, & O'Leary, 1994; Laborde, Weigle, Weber, & Kotch, 1993; Laborde, Weigle, Weber, Sobsey, & Kotch, 1994). Holaday, Pantell, Lewis and Gilliss (1990) reported a high recovery rate of faecal coliforms from kitchen areas and hands of staff.

Children in child care centres are more likely to develop haemophilus influenza type b infections than children cared for outside these settings (Daum, Granoff, Gilsdorf, Murphy,

& Osterholm, 1986; Fleming, Cochi, Hull, Helgerson, Cundiff, & Broome, 1986; Osterholm, Reves, Murph, & Pickering, 1992; Osterholm, 1994). It is estimated that attendance at daycare increases a child's risk for this disease fivefold (Ferson, 1993). Arnold, Makintube and Istre (1993) found, in a case control study in Oklahoma, that the greater the time spent in daycare and the greater number of children cared for in one room increased the risk of transmission of Hib meningitis. Researchers agree that the increased risk for Hib disease in child care centres warrants the employment of effective immunization programs (Arnold, Makintube, & Istre, 1993; Broome, C.V., 1986; Daum et al., 1986; Fleming et al., 1986). More recently, Schulte, Birkhead, Kondracki and Morse (1994) have noted an earlier decrease in the rate of Hib invasive disease in children in New York state who attend daycare, than in children from the same state who do not attend child care. One contributing factor is the role day care plays in health promotion, especially immunization requirements for day care attendees (Schulte et al., 1994).

As many as half of all children who attend group child care have had cytomegalovirus identified in their saliva and urine (Dobbins, Adler, Pass, Bale, Grillner, & Stewart, 1994; Osterholm et al., 1992; Pass & Hutto, 1986). While there are no obvious health effects in children, as high as 30-50% of child care workers and 30% of mothers of daycare attendees are likely to develop the virus, a major cause of birth defects

(Dobbins et al., 1994; Pass & Hutto, 1986; Soto, Delage, Vincelette, & Belanger, 1994). Environmental transmission is also a factor, since the virus has been isolated on plastic surfaces for two hours, in a wet diaper for up to two days and on toys and the hands of children and staff (Schupfer, Murph, & Bale, 1986; Hutto, Little, Ricks, Lee, & Pass, 1986). Daycare workers have been demonstrated to have a high rate of seroconversion likely related to working with children under two years of age and in centres where the rates in children are high (Adler, 1989; Murphy, Baron, Brown, Ebelhack, & Bale, 1991; Pass, Hutto, Lyon, & Cloud, 1990).

Intervention efforts aimed at reducing transmission between children and their child care staff and mothers has potential and should include careful handwashing after diaper changing and avoidance of behaviours that increase the risk of transmission from saliva, such as, kissing children who are teething or drooling on the lips and placing saliva exposed items in the mouth (Dobbins et al., 1994; Soto et al., 1994). While the aforementioned measures are recommended, the high incidence of asymptomatic child carriers of cytomegalovirus (CMV) does not support exclusion of children identified as infected with CMV (Dobbins et al., 1994; Pass & Hutto, 1986). Close attention to personal hygiene, in particular proper handwashing, disposal of tissues and diapers, cleaning toys and contaminated surfaces are recommended practices to control transmission (Osterholm et al., 1992).

The risk of transmission of hepatitis B is considered low in daycare settings (Ferson, 1993; Foy, Swenson, Freitag-Koontz, Boase, Tianji-Yu, & Alexander, 1994; Hadler & McFarland, 1986; Hurwitz, Deseda, Shapiro, Nalin, Freitag-Koontz, & Hayashi, 1994). The problem with transmission of hepatitis A in child care centres is more significant, as daycare attendees, their caregivers and families are at significantly greater risk for transmission (Hadler & McFarland, 1986; Hurwitz, Deseda, Shapiro, Nalin, Freitag-Koontz, & Hayashi, 1994). When immunoglobulin was administered in a single daycare case there was a 75% decline reported in total cases in the community (Hadler, Erben, Matthews, Starko, Francis, & Maynard, 1983).

While to date there has not been a reported case of transmission of HIV/AIDS in a child care centre, anxiety persists among child care providers and early childhood educators about this disease (Goodman, Sacks, Aronson, Addiss, Kendrick, & Osterholm, 1994). While earlier recommendations included exclusion of HIV infected children from daycare if they exhibited biting or mouthing behaviours (MacDonald, Danila, & Osterholm, 1986), more recent reports acknowledge that the risk of transmission of HIV through saliva or tears in early childhood settings is minimal (Urbano & Windeguth, 1992).

Given the propensity of illness which affects the preschool population, child care staff and health

professionals have expressed concern about caring for ill children at a child care centre. Parents' decisions to send an ill child to the centre are influenced by a variety of factors including the certainty and severity of the illness, the advantages and disadvantages of other care options for the child, job flexibility and accessibility of paid leave (Thompson, 1993). Landis and Chang (1991) recommend that suitable arrangements for ill children should include the presence of a competent caregiver who understands the nature and appropriate care for the illness, the ability to provide a quiet place with appropriate activity, proper hygiene procedures and emergency preparation and knowledge about when to consult a health professional. While many centres view a sick room as ideal because it allows for less disruption by avoiding exclusion of the ill child but also separates the ill child from those who are well, most centres are not equipped to provide this type of space or service (Giebink, 1993). Further, there is a need for regulation and flexibility to find the balance between acceptable care and illness prevention and management (Giebink et al., 1994). Child care providers and early childhood educators must be involved in initiatives to assist them in making decisions about whether to exclude ill children or care for them at the centre.

#### Environment and Behaviour

Behavioral and environmental factors are significant indicators of chronic and communicable disease and injury

morbidity and mortality in infants and young children (Nelson & Hendricks, 1988). Factors related to the growth and development of preschoolers contribute to the spread of infectious disease. These children are immunologically more vulnerable, have poorly developed personal hygiene practices and exhibit frequent mouthing and exploratory behaviours (Ferson, 1993; Jarman & Kohlberg, 1991; Klien, 1986; Laborde et al., 1993; Osterholm, 1994; Thacker et al., 1992; Thompson, 1994). In addition, preschoolers in child day care are at greatest risk for infection because of extremely close contact with large numbers of other children, exposure to a more mobile population and a high degree of physical contact with each other and their child care providers and early childhood educators. While exclusion practices, such as requiring ill children to stay at home, are a major concern for child care staff and parents, there is little evidence that they decrease the incidence of infectious disease (Aronson & Osterholm, 1986; Ferson, 1993; Klien, 1986; Laborde et al., 1993; Thacker et al., 1992; Thompson, 1994). Other factors such as the attendance of non toilet trained children, same staff attending to diaper changing and food preparation and poor hygiene and child handling practices also contribute to increased risk of disease in child care centres (Thacker et al., 1992; Osterholm, 1994; Thompson, 1994).

In terms of environment, the size and structure of the child care setting have been related to transmission and

development of infectious disease. Osterholm (1994) notes that the likelihood that a child will come in contact with an infectious agent increases with the number of people to whom (s)he is exposed. Bell et al. (1989) suggest that the major risk factor for infection in a child care setting is the number of children cared for in the same room.

Additionally, when children of varying ages are cared for together the risk of transmission increases for all children. There is increased risk of enteric disease transmission, for example, when toilet trained and non toilet trained children are mixed. Similarly, the risk of respiratory infections in infants increases when they are mixed with toddlers and preschoolers (Osterholm, 1994). A study investigating the association between the type of daycare setting and the risk of repeated infections found that children in small child care centres were two to three times more likely to develop repeated urinary tract infections, otitis media, laryngitis and conjunctivitis than their counterparts in family daycare settings (Collet, Burtin, Kramer, Floret, Bossard, & Ducruet, 1994).

#### Health Programming in Early Childhood Settings

It has been well documented that the education and experience of those providing child care varies (Gaines, Rice, & Carmon, 1993; Nelson & Hendricks, 1988; O'Mara & Chambers, 1992; Osterholm, 1994; Peterson-Sweeney & Stevens, 1992). In this province approximately 59% of those working in early

childhood settings have some formal early childhood education (Department of Social Services, Newfoundland and Labrador, 1994). Educational preparation ranges from a one year program, to a two year community college program, to completion of a degree program at a university at either the undergraduate or graduate level. Formal education programs vary with regards to the health components in the curriculum.

Few daycare centres have on site health professionals, therefore, staff must be able to recognize, manage and prevent health problems (Gaines, Rice, & Carmon, 1993). Increasing awareness of the potential health risks in child care settings have raised concerns for health monitoring in this setting and place greater emphasis on the need for staff development in health related topics (Bassoff & Willis, 1991).

The rapidity, frequency and efficiency of communication between child care staff, parents and health professionals is an important factor in the control and prevention of illness in child care settings (Davis, MacKenzie, & Addiss, 1994). Communication must be thorough, accurate, simple and based upon common sense. Skills aimed at recognizing and reacting appropriately to illness and communicating effectively with all of those who need to know is essential. Stroup and Thacker (1995) suggest that child care providers and early childhood educators may not be familiar with surveillance practices, may question the usefulness of these practices, may



question reporting procedures and have concerns about confidentiality.

Communicable disease in child care centres is often monitored haphazardly. Davis and Pfeiffer (1986) note that limited reporting has been carried out and child care staff are often not educated about how to recognize and handle communicable disease. Information about disease prevention and management needs to be widely disseminated to child care staff and parents. Hinman (1986) contends that child care providers and early childhood educators must understand the need to recognize and isolate ill children and must be knowledgeable about how and when to report communicable disease. Aronson and Osterholm (1986) note that staff training combined with effective monitoring assist in maintaining the health of children in child care settings.

Since many children now enter child care when they are very young, they may not have completed their immunizations before being placed in a setting where exposure to vaccine preventable disease is increased (Hinman, 1986). Early childhood educators and child care providers must be familiar with local requirements for immunization, know how to keep accurate records of immunization for all those attending the centre and ensure that all children and adults at the centre have their immunizations updated as required. Child care staff can encourage parents to update child immunization by informing them about the benefits of vaccines and the

recommended schedule (Cochi, Atkinson, Adams, Dini, & Gershon, 1994). O'Mara and Issacs (1993) report that monitoring immunization records in child care centres improves the completeness of records and updates those children previously missed.

It has been demonstrated that proper handwashing techniques could result in a marked reduction in enteric and respiratory infections (Canadian Paediatric Society, 1992; Klien, 1986; Pickering, Bartlett, & Woodward, 1986; Soto, Guy, & Belanger, 1994). Holaday et al. (1990) discovered that centres with organized handwashing practices had lower faecal coliform recovery than centres which did not have such practices in place. These findings concur with those of Black, Dykes and Anderson (1981) who found that implementing and monitoring a handwashing program contributed to a 50% decrease in the rate of diarrhoeal disease in two child care centres. A three year longitudinal study of diarrhoea among children attending daycare evaluated the effects of staff training in hygiene without monitoring (Bartlett, Jarvis, Ross, Katz, Dalia, Englender, & Anderson, 1988). Staff compliance with hygiene procedures taught in training was not monitored; instead staff were asked to complete a written examination one week after training and again eight months later. The vast majority of staff passed the early exam and none the second. Demonstrated skills such as handwashing and diapering were correctly completed by a little more than one

third of the staff. Study centres with surveillance of diarrhoeal disease had lower rates of infant-toddler diarrhoea. It appears then that the health risks associated with enteric disease can possibly be reduced through surveillance, training and monitoring hygiene practices in child care staff. These and other infection control practices can be modeled and made the focus of health promotion efforts.

Other researchers addressed issues related to confounding variables affecting hygienic intervention in child care centres (Kotch, Weigle, Weber, Clifford, Harms, Loda, Gallagher, Edwards, LaBorde, McMurray, Rolandelli, & Faircloth, 1994). Kotch et al. (1994) developed a multicomponent hygienic intervention and controlled for identified sources of bias. They found that in study centres access to sinks was less than optimal and staff usually both diapered children and prepared food. Their results indicated that although intervention centres demonstrated improved handwashing behaviours, particularly after diapering or contact with other secretions, the rates of most illness did not decrease. The authors postulated that issues such as access to sinks may have been limiting factors.

Studies to determine the learning needs of child care providers and early childhood educators indicate a lack of knowledge about routine childhood immunizations, infectious diseases, exclusion guidelines, care of a child with seizures, administration of medications, nutrition, vision, hearing,

speech and language problems, injuries, child abuse, behaviour problems and care of children with special needs or chronic conditions (Bassoff & Willis, 1991; Chambers & O'Mara, 1992; Chang, Hill-Scott, & Kassim-Lakka, 1889; Gilliss, Holaday, Lewis, & Pantell, 1989; Nelson & Hendricks, 1988; O'Mara & Chambers, 1992).

Child care providers and early childhood educators have expressed a desire for, and commitment to, professional development related to health (Crowley, 1990a, Nelson & Hendricks, 1988; O'Mara & Chambers, 1992). Crowley (1990b), in a descriptive study exploring the information needs of child care centre staff, identified infectious disease recognition, management of illness, exclusion of ill children and care of the ill child at the centre as priority areas. Several methods for sharing health information were explored by O'Mara and Chambers (1992). The authors note that 85% of day care operators sought written information, 49% wanted supplemental seminars by public health staff and telephone contact with public health staff was desired by 33% of operators (O'Mara & Chambers, 1992). The duties of child care staff in the O'Mara and Chambers (1992) study included teaching and/or supervising children, food preparation and delivery, diapering and toileting children and cleaning and sanitizing the centre. All of these tasks have health implications.

An assortment of factors affect child care centres

capability to provide health education. Time, resource and financial limitations, as well as other priorities are the most frequently cited barriers to health instruction in child care centres (Nelson & Hendricks, 1988). Child care providers and early childhood educators lack of access to affordable training based on identified needs has also been cited as an obstacle to training (Kendrick, 1994). Despite these limitations many child care centres appear committed to the value of health education. There is evidence that training works as evidenced in the literature about handwashing. Aronson (1990) reported on a training program which prepared child care staff as advocates for health and resulted in improved knowledge of child care providers and early childhood educators. To date there has been no study which assessed the knowledge, attitudes and behaviours of early childhood educators and child care providers both before and after an intervention designed to effect a positive change in these areas.

## CHAPTER 3

### Methodology

A quasi-experimental design was used to evaluate a program established to assist early childhood educators and child care providers learn about prevention and management of illness in child care settings. This chapter contains an overview of the study design, population and sampling, description of the intervention, ethical considerations, description of the questionnaire and its administration and data analysis.

#### Design

This quasi-experimental study involved the evaluation of a workshop and manual designed to effect change in health knowledge and modify health attitudes of early childhood educators and child care providers and to influence observed health behaviours in their centres. Collection of data was accomplished using a questionnaire - 'Health in Child Care Settings' (see Appendix A). The pre and post test design involved both an experimental and a control group of child care providers and early childhood educators in the Community Health - St. John's region.

#### Population

The target group for this program included approximately 280 child care providers and early childhood educators in licensed child care centres in the St. John's region. Forty nine percent of the child care centres in Newfoundland and Labrador are located in the St. John's region. They

provide 50% or 1904 of the provinces child care spaces and employ 56% of the early childhood education workforce (Community Health - St. John's Region, 1994).

#### Sampling

The questionnaire was administered to a sample of early childhood educators and child care providers in the Community Health St. John's region. A list of all 79 licensed child care centres within the St. John's region was obtained from the Family and Rehabilitative Services Division, Department of Social Services. Several centres were eliminated prior to random assignment because they either catered exclusively to after school programs (12 centres), were found outside the Community Health - St. John's region (10 centres) or had been involved in the pilot workshop (1 centre). The remaining 56 centres on the list were numbered, odd numbered centres were randomly assigned to the experimental group and even numbered centres assigned to the control group.

Centre operators from the experimental group were contacted and all interested staff from those centres were invited to participate in the study. Staff and centres who chose not to participate in the study were offered an opportunity to participate in the workshop at a later date. The control group was selected by contacting centre operators in centres previously identified as controls. Again, all interested staff from those centres were invited to participate in the study and provided with the first

opportunity to participate in the workshop and receive the Health in Child Care Settings manual once data collection was complete. This process continued until 40 participants had been assigned to both the experimental and the control groups. The maximum number of participants for each workshop was ideally thirty six, in keeping with recommendations for small group size (three coordinators facilitated each session). Four extra participants were registered for each workshop in order to compensate for any that might drop out of the study. This was valuable as five participants who had agreed to attend did not continue due to unanticipated commitments. The original sample size included 40 experimental and 40 control subjects. Six subjects did not participate in the workshop and were therefore eliminated from the study. A total sample size of 74 was used, with 34 subjects from 9 centres in the experimental group and 40 subjects from 13 centres in the control group.

### Method

#### Development of the Intervention

Although a variety of guidelines have been developed which outline health and safety recommendations in child care settings, needs assessment must help in clarifying the nature and extent of services in specific settings (Chambers & O'Mara, 1992). In 1987 a needs assessment to determine child health related learning needs of child care providers and early childhood educators was carried out under the direction



of the Parent and Child Health Division of the provincial Department of Health (Manning, 1987). The needs assessment targeted key informants and staff from licensed child care centres.

Key informants provided details about the health information and resources presently available to early childhood educators and child care providers, the health related issues they would like addressed, the health related questions they received from child care staff, the extent of health education within existing programs and the appropriate method for delivery of health information to child care centres. Reported needs included information about the identification and treatment of communicable diseases, guidelines for exclusion of sick children, guidelines for administration of medication and information about cleaning and sanitizing (Manning, 1987).

Staff from a sample of licensed child care centres completed a questionnaire to determine their health related learning needs. Information about communicable disease, care of the ill child and guidelines for medication were identified. Additionally, a need for improved communication and role clarification, written resources and professional development and increased consultation and management by public health staff were identified (Manning, 1987). The needs assessment from both key informants and child care staff resulted in the development of a health manual for child care

centres. This manual was updated in 1993/1994 and was ready for distribution early in 1995.

In 1994, surveys of key informants and focus group meetings were carried out once again in order to prioritize the health information needs of those working in early childhood settings and provide focus for the workshop. Formal and informal leaders in the area of early childhood education were surveyed by telephone interviews. Handwashing, recognizing and reacting to disease, nutrition and screening were given the highest ratings. The need for information related to health records, active living, caring for mildly ill children, normal sexuality, medication and safety were also noted. Informants suggested that a written resource with an introductory training component would be the best method for improving the health knowledge of those working in early childhood setting and recommended an adult learning approach.

Focus groups were held with community health personnel and representatives from early childhood education. Community health professionals noted that their primary roles in child care settings involve monitoring the immunization status of children who attend and responding to requests for information or screening for communicable disease, i.e., pediculosis. They noted that child care centre staff often do not understand the importance of completed immunization and that they often over react to isolated occurrences of communicable disease. Early childhood staff identified information about

the control and management of infectious disease and information about children with special needs and chronic conditions as the areas of greatest learning need. Other topics identified included handwashing, administration of medication, nutrition, child abuse and normal sexuality. One of the greatest concerns was related to confidentiality and the issue of sharing information between public health and child care centres (Manning, 1994).

Based on the needs assessment, a workshop was developed with the overall goal of improving the health knowledge of early childhood educators and child care providers. Specific educational goals for child care providers and early childhood educators during the workshop include provision of opportunity for them to explore the major health issues affecting children in child care settings, learn about available health care resources including the health in child care manual and public health staff and develop skills to enhance their health care practices in early childhood settings, i.e., handwashing, interpretation of immunization status and utilization of the resource manual.

#### Implementation of the Intervention

The intervention consisted of providing early childhood educators and child care providers with the manual Health Issues in Child Care Settings (Manning & Vivian-Book, 1994) in conjunction with a one and one half day workshop designed to support the main points within the manual. The outline of the

manual is found in Appendix B. Approximately five and one half hours of the workshop focused on prevention and management of illness in early childhood settings. Specifically participants received information about morbidity and mortality in preschoolers and the health problems and benefits associated with attending child daycare; examined their attitudes related to illness in early childhood settings; identified and explored strategies which could be used to prevent or control illness in early childhood settings; discussed issues related to inclusion or exclusion of ill children; practiced handwashing; and used a case study approach to develop skills for recognizing and reacting to illness in child care settings. Other topics highlighted in the workshop included active living, safety, medication, healthy eating and health promotion. These areas are not addressed in this study (see Appendix C).

In order to be effective trainers must make the training realistic for the participants and must avoid jargon (Kendrick, 1994). Each of the trainers for this workshop had experience in community health nursing, in adult learner centred educational approaches and had worked with daycare staff previously. Thus trainers understood the particular dilemmas facing child care staff in the pursuit of health in their work settings. In addition the principal investigator acted as lead facilitator and drew on the richness of experiences she discovered through observation and feedback

during the needs assessment process. Kendrick (1994) proposes audience assessment and the trainers need for familiarity with the realities of early childhood settings are the first steps required for successful training.

Kendrick (1994) suggests that convenience, professionalism and overplanning are also essential components of effective training. The workshops were offered, at no financial cost to those who attended, over a Friday evening and all day Saturday in order to accommodate participants' schedules. Careful attention was given to recognizing the strengths of early childhood educators and child care providers and their commitment to improve the health status of children in their care. Training built on already existing knowledge and participants were provided frequent opportunities to learn from each others' experiences. In terms of overplanning, the major communicable disease section of the workshop had been piloted with one centre prior to the study and refinements made. This centre was then excluded from the study. In addition, at least two different strategies were discussed for many of the sessions in case problems arose with the planned activities. Finally, ongoing needs assessment led to the discovery of emerging issues, such as, how to help parents recognize when children should stay at home, and these were accommodated with impromptu group discussions facilitated by the trainers.

A variety of interactive and experiential activities

assist participants to appreciate and learn effectively (Kendrick, 1994). Participant's input was encouraged and their life experiences drawn upon through the use of small group work, case study scenarios, demonstration and repeat demonstration, practice and skills checks, games, small group discussions focused on interactive and experiential learning (see Appendix C). As Kendrick recommends participants were able to generalize principles to the real world as attention was given to making information realistic, practical and concrete.

Kendrick (1994) recommends the use of incentives as motivators for participants. A certificate is presently being developed for those who attended the workshop.

Finally, both frontline staff and supervisors attended the workshop together. This created an opportunity for change and increases the likelihood that changes continue and are supported after the training has been completed (Kendrick, 1994). Changes in behaviour in child care centres, one of the desired outcomes of the intervention, are enhanced when the content of training is based on need, where there are resources for later reference, where administrative support is apparent and when a variety of techniques are used.

### Questionnaire

A search of the literature failed to identify a reliable and valid questionnaire which would specifically evaluate the knowledge, attitudes and behaviours of early childhood

educators and child care providers related to health in early childhood settings. A questionnaire, 'Health in Child Care Settings' was developed by the investigator based upon personal observations in community health practice in early childhood settings, knowledge obtained from the literature review, consultation with experts in both the child health and early childhood education fields, needs assessment and focus group meetings and upon content development for the workshop. It was designed to evaluate the components of the workshop on prevention and management of illness in child care settings.

The questionnaire consists of three distinct subsections (see Appendix A). The first subsection is a descriptive profile which includes the code number of worker, name of the centre, part time or full time employment, level of education, previous health education and numbers of years experience in child care settings. The second subsection consists of questions designed to measure the knowledge, attitudes and behaviour of respondents. Part I is comprised of seventeen knowledge statements which are rated either true, false or not sure. Part II is a Likert type scale which operationalizes attitudes related to health and illness in child care settings. Respondents are asked to indicate the extent to which they agree or disagree with each statement. Part III of this segment of the questionnaire incorporates another Likert scale designed to determine the extent to which respondents observe specific health related behaviours among staff at

their centres. Reported behaviours are a difficult area to assess using a questionnaire. Respondents are more likely to report desirable behaviours rather than their actual behaviours. While social desirability might also be a factor in responding to attitudinal questions, it might be a stronger influence in reporting actual behaviour. Therefore, questions were asked in relation to behaviours of all staff at their centre. Because changes in reported behaviour at their centre could be considered a proxy for the respondents actual behaviour, each respondent was given a score for the behavioral subsection. The third subsection is comprised of three open ended questions relating to perceived health concerns, knowledge of health resources and learning needs related to health in child care centres. The open ended questions were designed to explore desired learning opportunities.

Scoring was established for Section B of the questionnaire. Knowledge items were scored as either correct or incorrect; items rated not sure were also scored as incorrect. The lowest possible knowledge score was 0 (no items correct) and highest possible score was 17 (all items correct). Attitude and behaviour scale items were scored individually from one to five with a score of one assigned to the least appropriate response and a score of five assigned to the most appropriate response. Reverse scoring was used in the attitude scales. For attitude items 1, 3, 4, 6, 7 and 12



strongly agree was the most appropriate response; while strongly disagree was the most appropriate response for attitude items 2, 5, 8, 9, 10 and 11. Attitude scores were then summed with the best possible score of five for all twelve items resulting in a score of sixty. The highest score was given to behaviour items rated always and the lowest to those rated never. The ten behaviour items were then summed for a total possible score of fifty.

Time to complete the questionnaire was approximately 30-45 minutes. Content validity of the instrument was established by having a panel of experts in health and child care review the questionnaire. The questionnaire was sent to health instructors in the certificate and diploma programs in early childhood education, to provincial consultants in the early childhood education field, to a daycare operator with strong connections and commitment to health and to two nurses with expertise in consultation and administration of staff involved in child care settings. Among these individuals were three who also had experience in the daycare licensing process. Comments and suggestions for revision were obtained from all experts and the questionnaire was modified based upon feedback.

#### Procedure

A pre and post test design was employed to measure the changes in knowledge and attitudes and in the behaviours in centres in both groups. The questionnaire was administered to

the experimental group two weeks prior to the workshop and introduction of the manual and one month following the intervention. The control group received the questionnaire at the same times as the experimental group.

Following approval by the Department of Social Services, the principal investigator obtained the assistance of the daycare operators to act as intermediaries. Intermediaries' responsibilities included providing each potential participant with a written explanation of the study and asking if s/he would be willing to participate. The intermediary then provided further explanation of the purpose and implications of the study and obtained written consent. Participants who agreed to provide written consent were advised that they would receive the consent form and pretest questionnaire within the next two weeks.

Consent forms and pretest questionnaires were hand delivered to each centre by the investigator two weeks prior to the first workshop. At that time the scripted explanation was reviewed with the intermediary at each centre. Contact numbers were left for participants to contact the investigator if they had any questions or required clarification. The questionnaires were picked up one week later. The response rate for completion of questionnaires was 100%.

Data collection began with simultaneous administration of the questionnaire to the experimental and control groups. Data collection took place over a six week period with

questionnaires delivered and retrieved by the investigator. The workshop for the experimental group was held March 24-25, 1995. The control group's workshop was held April 28-29, 1995.

#### Ethical Issues

It is essential to include every precaution to protect the rights of study participants. It is important to safeguard the identity of subjects and to anticipate and minimize any potential negative effects which may be experienced by participants as a result of the research method.

#### Permission/support

Support for the project was obtained from the Provincial Association of Childcare Administrators Ltd., the Association of Early Childhood Educators Newfoundland-Labrador and the Family and Rehabilitative Services Division, Department of Social Services. Ethical approval to conduct the study was obtained from the Human Investigation Committee, Memorial University of Newfoundland and from the Community Health - St. John's Region Board of Directors prior to commencement of data collection (see Appendix D).

#### Informed consent

All potential participants were provided with a written and verbal explanation of the study through an intermediary. Intermediaries, generally the operators or supervisors at the centre, were provided with scripted description of the study

for use in recruiting subjects (see Appendix E). Respondents were provided with the opportunity to ask questions through telephone contact with the investigator and were given the choice to participate or refuse to participate without any compromise to their future ability to attend the workshop.

Subjects were informed that participation in the study was voluntary. They were advised that they could refuse to answer any of the questions and had the right to withdraw from the study at any time without prejudice. Subjects who agreed to participate were asked to sign a written informed consent (see Appendix F).

#### Confidentiality

Confidentiality was assured to all subjects. Subjects were assigned an individual number code and a corresponding centre code. Only the primary investigator had access to the coding sheet.

#### Risks and benefits

There were no obvious risks to participants because of involvement in this study. While there may have been no immediate benefits to participants involved in this study, subjects were informed that knowledge obtained from this study may improve approaches to health education for early childhood educators and child care providers and ultimately improve the health of children in child care settings.

#### Data Analysis

Data were organized in coded categories and analyzed

using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics were used to summarize the demographic data. Frequency distributions and measures of central tendency were used to describe demographic data, as well as, reports of knowledge, attitudes and behaviour. Psychometric properties of the questionnaire were analyzed through factor analysis and reliability testing.

Parametric measures were employed in the interpretation of the scores for knowledge and the scales for attitudes and behaviours. T-tests for independent samples are recommended to test for significant measures for independent groups (Burns & Grove, 1993) and were used to examine the differences between pretest and posttest scores for each group. The paired t-test, or t-test for related samples, is recommended when scores are used in the same analysis from the same subjects, as in a pretest and posttest design (Burns & Grove, 1993). This test was used to determine the differences within the groups from pre to posttest.

Content analysis of open ended questions was employed in order to identify recurrent themes related to the specific challenges and learning needs expressed by participants in their efforts to meet the health needs of children at their centre. While specific coding was not developed, responses of participants were listed and grouped into categories of communicable disease, health promotion, AIDS, inclusion and exclusion practices and other (not related to the research).

## CHAPTER 4

### Findings

Demographic findings related to respondents are organized in terms of personal characteristics, work experience and responsibilities, educational preparation and basic and continuing health education. This is followed by a brief description of centre characteristics. The results of knowledge, attitude and behaviour items are then examined. A description of the challenges and learning needs expressed by respondents is included. Finally, the psychometric properties of the questionnaire are presented.

Findings of this research study are described using both descriptive and inferential statistics. Descriptive data provides a description of a particular target group and is a means of describing and categorizing information about the group (Burns & Grove, 1993). Questionnaires have been described as one method to illicit such information (Burns & Grove, 1993; Polit & Hungler, 1987).

#### Descriptive Profile

Data collected in Part 1 of the questionnaire provided an opportunity to compare the experimental and control groups on key personal characteristics (age, parental status and number of children). Comparisons were also made regarding the duration and nature of work experience and full time or part time status. The educational qualifications of subjects were also examined with respect to the highest level of education attained, specific training in early childhood education and

the type of early childhood program attended, including the extent to which health was part of the curriculum. Centres were also examined in terms of size, the ages of the children attending and the number of full time and/or part time spaces.

#### Personal characteristics

Subjects in the experimental group were generally older than their counterparts in the control group (see Table 1). The mean age of participants from the experimental group was 32.9 years with a range from 20 to 57 years. The age range for those in the control group was from 20 to 60 years with a mean age of 30.1 years. Approximately 53% of the experimental group were parents, while only 35% of the control group had children. Of those, 27% of the experimental group but only 7% of control group had three or more children. Differences on personal characteristics were explored in relation to knowledge, attitudes and behaviours using ANOVA. No significant statistical differences were found.

#### Work characteristics

Experience in early childhood settings also varied with group membership (Table 2). Experimental group subjects worked fewer hours a week than their control group counterparts. Only 15% of controls work less than 40 hours per week, while 27% of the experimental group work these hours.

Approximately half of participants from each group were responsible for frontline child care only. Approximately 18%

Table 1

Personal Characteristics of Participants by Group

	Group			
	Experimental n = 34		Control n = 40	
Personal characteristics	n	%	n	%
age				
20-29 yrs	18	(53%)	27	(68%)
30-39 yrs	7	(21%)	7	(18%)
> 40 yrs	9	(27%)	6	(15%)
parental status	18	(53%)	14	(35%)

of the experimental group and 15% of the control group were involved exclusively in supervision or administration of the centres. Participants in the control group were more likely to have a dual role as a frontline worker and administrator (38%) as compared to 30% of the experimental group. Other duties cited by respondents included cook, volunteer, and one-on-one child care worker.

Considerable differences were evident upon examination of



Table 2

Work Characteristics of Participants by Group

	Group			
	Experimental		Control	
	n = 34		n = 40	
	n	%	n	%
<b>Work experience</b>				
< 60 mos	16	(47%)	21	(53%)
60-119 mos	12	(35%)	14	(35%)
> 119 mos	6	(18%)	5	(13%)
<b>Hours work/week</b>				
1 - 24 hrs	3	(9%)	4	(10%)
25 - 39 hrs	6	(18%)	2	(5%)
40 - 50 hrs	25	(74%)	34	(85%)
<b>Role at the centre</b>				
frontline worker	17	(52%)	19	(48%)
supervisor/admin.	6	(18%)	6	(15%)
both	10	(30%)	15	(38%)
<b>Diaper/food preparation</b>				
diaper/toilet	2	(6%)	6	(5%)
food prep.	5	(15%)	4	(10%)
both	23	(68%)	29	(73%)

the diapering/toileting and food preparation responsibilities of respondents and changes were noted from pretest to posttest. At the time of the pretest, approximately 12% of the experimental group did not have these responsibilities compared to 3% of the control group. In the pretest approximately 68% of experimental subjects and 73% of controls stated that they were responsible for both diapering/toileting and food preparation as part of their routine assignment. The percentage of respondents who reported carrying out both practices in the posttest decreased to 68% in the control group and 53% in the experimental group.

#### Educational preparation

Respondents were also asked about their educational preparation and content on health related issues (see Table 3). The majority from each group had a postsecondary diploma, (>70%), and specific preparation in early childhood education (82% of experimental and 85% of control subjects). Nearly equal percentages of the experimental and control groups attended an 11-12 month certificate program. About 28% of controls reported having completed a two year diploma program while only 15% of the experimental group had achieved this level of education. However, 21% of those with early childhood education in the experimental group reported having a certificate and presently working on courses towards a diploma, as compared to less than 13% of controls. Approximately 20% of subjects in both groups had university

Table 3

Educational Preparation of Participants by Group

	Group			
	Experimental n = 34		Control n = 40	
Education	n	%	n	%
Highest level achieved				
< high school	4	(12%)	3	(8%)
postsec. diploma	25	(71%)	29	(74%)
university degree	5	(15%)	7	(18%)
ECE program	29	(82%)	34	(85%)
Type ECE program				
certificate	9	(27%)	10	(25%)
certif & courses	7	(21%)	5	(13%)
diploma	6	(15%)	11	(28%)
university degree	7	(21%)	8	(20%)
Health in curriculum	26	(93%)	30	(91%)

education in early childhood or a related field, e.g., primary education.

Over ninety percent of both groups prepared in early childhood education reported health as part of the curriculum. Differences emerged when asked to quantify the extent of health education. Nearly 25% of both groups reported that they did not know or could not remember the number of health hours in the curriculum. Of those that did remember, wide variations existed, even among those who attended the same program.

#### Continuing health education

With regards to<sup>3</sup> previous health workshops 41% of the experimental group and 16% of the control group reported having attended such a session. Topics included nutrition, safety, communicable disease, child abuse and sexuality. Respondents were asked to describe the methods for continuing education related to health. The majority of respondents from both groups reported using written resources as a source of continuing education (63% for experimental versus 88% for controls). Nearly 50% of the control group reported using the public health nurse for continuing education, while this was true for only 16% of those in the experimental group. Additional sources of continuing education included other health professionals, such as family physicians, hospital, health organizations or parents who were health professionals; the media and field trips. Approximately 9% of the

experimental group and 16% of the controls relied on other early childhood staff for continuing health education.

#### Centre characteristics

Centres from each of the groups were compared with respect to size, full or part time status and the ages of the children who attend (see Table 4). There were no centres in the experimental group with fewer than 21 children, however 18% of the control centres fell into this category. Differences were noted in the number of mid sized centres (41% in the experimental group versus 58% in the controls). Of particular note is the proportion of large centres. The control group had only 25% of its centres caring for more than 40 children, while 50% of experimental group centres were of this size.

Roughly 88% of experimental centres and 90% of controls catered to both full and part time children. Controls had a smaller proportion of exclusively part time spaces (5%) than the experimental group (12%).

Centres were also fairly evenly matched with respect to the ages of children. Both groups cared for children from age two to twelve years.

#### Knowledge, Attitudes and Behaviour

T-tests were used to assess subject comparability on pretest and posttest knowledge, attitude and behaviour scores. ANOVAS were used to test the effects of key demographic variables on knowledge, attitudes and behaviours.

Table 4

Child Care Centre Characteristics by Group

	Group			
	Experimental		Control	
	n = 34*		n = 40	
<b>Centre Characteristics</b>				
	n	%	n	%
<b>Number of spaces</b>				
1 - 20	---		7	(18%)
21 - 30	12	(35%)	7	(18%)
31 - 40	2	(6%)	16	(40%)
> 40	17	(50%)	10	(25%)
<b>Ages of children</b>				
2 - 5 years	12	(35%)	15	(38%)
2 - 8 years	11	(32%)	14	(35%)
2 - 12 years	10	(29%)	11	(28%)

\* missing observations = 3

Knowledge

In the experimental group, only 32% of respondents answered greater than 80% of knowledge items correctly on the pretest, while 74% had more than 80% of the knowledge items correct on the posttest. Thirty five percent of control group

respondents answered more than 80% of items correctly on both the pre and posttest knowledge questions (see Table 5).

The lowest pretest knowledge scores on individual items for both the experimental and control groups were related to food preparation and diapering or toileting, the requirements for children's immunization and exclusion of ill children. These items continued to demonstrate the lowest scores in the posttest for the control group. In the experimental group items related to exclusion continued to rank among the lowest, but those related to immunization and food preparation and diapering or toileting improved.

Table 5

Pre and Posttest Knowledge Scores by Group

	Experimental				Control			
	n = 34				n = 40			
	Pre		Post		Pre		Post	
	n	%	n	%	n	%	n	%
% Correct								
< 60%	5	(15%)	1	(3%)	--		3	(8%)
60 - 80%	18	(53%)	8	(24%)	26	(65%)	23	(58%)
> 80%	11	(32%)	25	(74%)	14	(35%)	14	(35%)

For both groups items related to handwashing, cleaning toys and universal precautions ranked among the highest in the pretest. These questions continued to receive high scores in the posttest for both groups. In addition, the experimental group had perfect mean scores on items related to the effects of large numbers of children and adults in one place and of mouthing behaviours in children on the incidence of disease.

#### Comparison of pre and posttest scores

Mean knowledge scores were obtained by calculating the number of correct responses for each subject and then testing for group differences. The results are summarized in Table 6. The mean knowledge scores on the pretest were not significantly different for the control and the experimental groups using the t-test for independent samples ( $p = .155$ ).

Pretest mean knowledge scores for the control group were actually higher than the posttest mean, although this was not significant ( $p = .292$ ). Knowledge scores analyzed with paired t-tests showed significantly better posttest mean scores (14.06) than pretest mean scores (12.38) in the experimental group ( $p = .000$ ). The mean posttest scores for the experimental group (14.06) were significantly higher than the mean posttest scores for the control group (12.73) ( $p = .000$ ).

#### Demographic Effects

One-way ANOVA was performed to test the effects of demographic variables on knowledge, attitudes and behaviours.



Table 6

Comparison of Mean Knowledge Scores by Test and Group

	n	x	t-value	p
Independent t-tests				
Pretest				
Exper.	34	12.38		
			-1.44	.155
Control	40	12.98		
Posttest				
Exper.	34	14.06		
			3.72	.000
Control	40	12.73		
Paired t-tests				
Experimental				
Pretest	34	12.38		
			-4.69	.000
Posttest	34	14.06		
Control				
Pretest	40	12.98		
			1.07	.292
Posttest	40	12.73		

There were no significant differences in knowledge based upon age ( $p = 0.68$  pretest and  $0.82$  posttest), experience ( $p = 0.24$  pretest and  $0.27$  posttest), role ( $p = 0.66$  pretest and  $0.98$  posttest), early childhood preparation ( $p = 0.19$  pretest and  $0.71$  posttest) or type of program ( $p = 0.53$  pretest and  $0.34$  posttest). However, higher mean scores were noted for child care providers and early childhood educators who were older, had more experience and were university educated.

### Attitude

Improvements were noted in the mean attitude scores of all but three items for the experimental group, while the mean scores decreased in all but four items in the control group. On individual attitude items the lowest scored questions for both groups related to the need to know the HIV status of children attending the centre, the ability to keep toys clean, confidence in parents abilities to know when an ill child should stay home and the inevitability and lack of control of colds and flu. These items continued to rank lowest for both groups in the posttest.

Among the best responses in the pretest for both groups were items related to child care provider's ability to influence the health practices of children in their care, the importance of recognizing disease and the belief that they had adequate time for handwashing. These items continued to rank highest in the control group's posttest responses. In the experimental group the importance of recognizing disease and

ability to influence children's health practices remained among the highest, however, the item related to the belief that child care staff have adequate time for handwashing saw a decrease in mean score and ranked only sixth of twelve items.

#### Comparison of pre and posttest means

Mean attitude scores were calculated and compared using t-tests for independent samples in order to make pretest comparisons (see Table 7). Scores did not differ significantly between the control and experimental groups ( $p = .373$ ). The difference in posttest attitude scores between groups was also not significant ( $p = .141$ ).

There was no significant change in attitude scores noted when comparing pre and posttest scores within groups using t-tests for paired samples. Although statistical significance was not achieved, there was a change in the right direction for the experimental group. T-tests performed on factors identified through factor analysis revealed no significant increases in posttest attitude scores clustered around any particular factor.

#### Demographic Effects

There were no significant differences in attitude based upon age ( $p = 0.21$  pretest and  $0.99$  posttest), experience ( $p = 0.12$  pretest and  $0.50$  posttest), role ( $p = 0.16$  pretest and  $0.80$  posttest), early childhood preparation ( $p = 0.54$  pretest and  $0.83$  posttest) or type of program ( $p = 0.12$

Table 7

Comparison of Mean Attitude Scores by Test and Group

	n	x	t-value	p
Independent t-tests				
Pretest				
Exper.	33	46.89		
			0.91	.373
Control	40	46.03		
Posttest				
Exper.	32	47.31		
			1.51	.141
Control	39	45.87		
Paired t-tests				
Experimental				
Pretest	32	46.71		
			0.77	.446
Posttest	32	47.31		
Control Group				
Pretest	39	46.10		
			-0.42	.680
Posttest	39	45.87		

pretest and 0.75 posttest). Mean attitude scores were generally higher in those with moderate experience, 60 to 119 months, and those whose primary role was supervision.

### Behaviour

Using the behavioral subsection as a proxy for individual behaviour, behaviour scores on individual items were lowest for items related to separating ill children from those who were well, washing hands before administering medication and using gloves when cleaning up a nosebleed. These items continued to rank lowest on the posttest responses for the control group. Only the item related to the use of gloves and nosebleeds continued to rank among the lowest for the experimental group, although the mean score for this item did improve.

The highest pretest behaviour scores for individual items in both groups were for questions dealing with reporting pertussis, checking immunization status, communicating health policies to parents and teaching children about personal hygiene. These items continued to rank highest for both groups in the posttest.

When asked to report the frequency with which particular behaviours were carried out, some respondents would report that staff at their centre always carried out a particular behaviour while other respondents from the same centre reported that this behaviour was never carried out. This finding was evidenced in both the control and experimental

groups.

The posttest behaviour scores for the experimental group improved in all but two items. There were improvements in the posttest scores on all but one behaviour item in the control group.

#### Comparison of pre and posttest means

There were also no significant differences noted upon comparison of the pretest ( $p = .262$ ) and posttest ( $p = .565$ ) mean behaviour scores between the experimental and control groups using t-tests for independent samples (see Table 8).

Analysis with t-tests for paired samples revealed improvements in posttest scores over pretest scores for both groups, however, this was only significant for the experimental group ( $p = .001$ ).

#### Demographic Effects

There were no significant differences in behaviour based upon age ( $p = 0.35$  pretest and  $0.42$  posttest), experience ( $p = 0.54$  pretest and  $0.63$  posttest), role ( $p = 0.80$  pretest and  $0.80$  posttest) or early childhood preparation ( $p = 0.73$  pretest and  $0.31$  posttest). Type of program did demonstrate a significant difference only in the mean pretest behaviour scores ( $p = 0.04$  pretest and  $0.69$  posttest). The highest mean scores for behaviour were noted in those with university preparation in early childhood or related fields while the lowest mean scores were noted in those with a diploma in early childhood.

Table 8

Comparison of Mean Behaviour Scores by Test and Group

	n	x	t-value	p
<b>Independent t-tests</b>				
<b>Pretest</b>				
Exper.	28	42.00		
			-1.13	.262
Control	32	43.47		
<b>Posttest</b>				
Exper.	31	45.55		
			0.58	.565
Control	29	45.00		
<b>Paired t-tests</b>				
<b>Experimental</b>				
Pretest	26	42.12		
			3.57	.001
Posttest	26	45.54		
<b>Control Group</b>				
Pretest	28	43.82		
			1.82	.080
Posttest	28	44.96		

### Challenges and Learning Needs

In Section C of the questionnaire respondents were asked to comment about the challenges they face and the learning needs they have which affect how they meet the health needs of children in their care.

#### Health concerns

Content analysis of the health concerns yielded five distinct categories. These were communicable disease, health promotion, AIDS, inclusion and exclusion practices and other content unrelated to the research. Both groups most frequently described communicable disease (experimental, 72%; controls, 85%) and issues related to health promotion, such as, handwashing, diapering and toileting, handling food or immunization (experimental, 50%; controls, 56%) as their greatest health concerns in the pretest (see Table 9). Roughly 34% of the experimental group cited AIDS as a health concern and 28% communicated concern about inclusion and exclusion of ill children and communication with parents. Similarly 33% of the control group expressed concern about parents and inclusion/exclusion of ill children. Other health concerns identified by both groups included chronic illness, medication and safety.

In the posttest the experimental group identified less frequently health concerns about communicable disease (52%) and inclusion and exclusion/discussion with parents (16%). However, the percentage reporting concerns about AIDS (58%)



Table 9

Greatest Health Concerns By Group and Time

	Experimental		Control	
	Pretest	Posttest	Pretest	Posttest
Communicable disease	72%	52%	85%	89%
Health promotion	50%	65%	56%	54%
AIDS	34%	58%	23%	37%
Inclusion/exclusion	28%	16%	33%	40%

and health promotion (65%) increased. The posttest results in the control group were relatively stable for health concerns related to communicable disease (89%) and health promotion (54%), but increased for AIDS (37%) and for inclusion and exclusion (40%).

Health resources

When asked what health resources they were aware of which

could assist in dealing with child health issues at their centre both groups most commonly identified the public health nurse, although this was more frequently reported among the control group (97%) than in the experimental group (85%) (see Table 10). The next most frequently cited resource for each group was written material. Approximately seventy five percent of the experimental group and 82% of the control group used reading material to expand their health related knowledge. These resources continued to be the most frequently identified by both groups in the posttest. In addition, 77% of the experimental group identified the new Health in Child Care Settings manual as a resource in the posttest. This was not applicable for the control group, as they had not yet received the manual. Other less frequently identified resources by each group in both the pre and posttest results included the local children's hospital and other health professionals, including parents who work in health related fields.

#### Continued learning needs

In this section of the questionnaire respondents were asked to list the health related topics about which they would like further information. For the experimental group trends from pre and posttest answers closely resembled the question about health concerns (see Table 11). Issues about communicable disease, while highest in the pretest (64%), decreased in the posttest (44%). Similarly issues related to

Table 10

Health Resources by Group and Time

	Experimental		Control	
	Pretest	Posttest	Pretest	Posttest
PHN	85%	77%	97%	95%
written	76%	73%	82%	89%
pediatric hospital	49%	23%	31%	22%
other health professionals	30%	30%	44%	43%
research	--	--	9%	--
manual*	N/A	77%	N/A	N/A
other	18%	20%	21%	35%

Note. \* Health in Child Care Settings manual

inclusion and exclusion of ill children decreased from 15% in the pretest to not being cited at all in the posttest. Unlike the responses in the health concern question learning needs related to health promotion were identified less often in the posttest (22%) than in the pretest (36%). The trend related to concern about AIDS did not change with an increase from pre to posttest from 46% to 67%.

Table 11

Continued Learning Needs by Group and Time

	Experimental		Controls	
	Pretest	Posttest	Pretest	Posttest
Communicable disease	64%	44%	74%	89%
AIDS	46%	67%	29%	51%
Health promotion	36%	22%	50%	40%
Inclusion exclusion	15%	--	15%	11%

In the control group the percentage of respondents with AIDS related learning needs increased from 29% to 51% from the pretest to the posttest. Similarly learning needs related to communicable disease also increased from 74% in the pretest to 89% in the posttest. In contrast learning needs decreased for inclusion and exclusion from 15% to 11% and health promotion from 50% to 40%.

Again, safety, and chronic illness emerged as other learning needs.

Psychometric Properties

Reliability focuses on how consistently the instrument measures the concept at issue and is considered an appraisal

of the degree of random error in the measurement tool (Burns & Grove, 1993; Polit & Hungler, 1987). The correlational coefficient, the expression of reliability, is considered acceptable at about .70 for a new instrument (Burns & Grove, 1993).

### Reliability

In this study statistical analysis of reliability testing is limited to testing the questionnaire for internal consistency. Scores were for the most part normally distributed, satisfying one criteria for reliability testing. Most items comprising the attitude and behaviour scales did not correlate with the total score between .30 and .70 as required for acceptable reliability (see Table 12). Most scores in the correlational matrix were generally quite low. The reliability results for the attitude and behaviour components revealed alpha coefficients of .43 and .66 respectively. While this falls short of the requirement for new instruments, the moderate standardized item alpha values suggest that the questionnaire subscales are fairly reliable. The alpha coefficient calculated on factor one was extremely high (0.70) and when the attitude question was eliminated from factor 4 the value of alpha rose from 0.17 to 0.75. Nevertheless, further work is necessary in order to improve the reliability of the questionnaire to ideal values.

### Validity

The validity of an instrument is an estimation of the

Table 12

Comparison of Attitude and Behaviour Reliability Results  
Internal Consistency

	Attitude Scale n = 73	Behaviour Scale n = 60
# items	12.0	10.0
scale x	46.41	42.78
inter-item corr x	0.07	0.17
alpha	0.43	0.66
standardized item alpha	0.47	0.68

degree to which the instrument reflects the theoretical concept under review (Burns & Grove, 1993; Polit & Hungler, 1987).

Construct validity is used to assess the extent to which the instrument measures the major components of the issue being measured. The development of the questionnaire was based upon concepts identified in the literature and upon extensive needs assessment of the target population. Additionally, a team of content experts reviewed the questionnaire and changes were made based on their recommendations.

Construct validity of the questionnaire was established

statistically using factor analysis. Factor analysis was completed on the twelve attitude and ten behaviour variables comprising the questionnaire. Factor extraction grouped the variables under eight factors or categories which accounted for 65% of the total variance. Approximately 14% of the variance occurred at Factor 1.

Using the Varimax rotation the variables were organized according to those which had large scores (over .35) for the same factor (Table 13). Factor loadings varied from 0.37 to 0.78, with items found on more than one factor assigned to the factor showing the highest correlation. Items aligned with specific factors made sense in terms of the conceptual model. The health promotion activities identified in Factor 1, as well as the isolation and surveillance practices of Factors 7 and 8 respectively, provided evidence of items which might be considered as selected behavioral causes of the health problem. Responsibility and influence, Factor 2; attitudes towards prevention, Factor 5; and health status awareness, Factor 6, offer evidence of predisposing attitudes and beliefs. Reinforcing factors such as the perceived support of parents and employer are recognizable in Factor 4, communication and collaboration and Factor 5 related to adequate time to complete health related tasks. The attitude and behaviour items from the questionnaire subjected to factor analysis have good construct validity.

T-tests for paired samples performed on factors

Table 13

Factor Clustering for Attitude and Behaviour Questions

	F1	F2	F3	F4	F5	F6	F7	F8
Personal hygiene (B2)	.74							
Report disease (B4)	.61							
Universal precautions (B8)	.58							
Recognize disease (B3)	.55							
Handwashing for meds. (B5)	.49							
Responsible for immun. (A6)		.60						
Influence health (A12)		.52						
Imp. adult immun. (A7)		.48						
Involving parents (A4)		.37						
Exclusion (A11)			.61					
Ability prevent disease (A2)			.60					
Benefit hlth practices (A10)			.47					
Need to recog. disease (A3)			.45					
Update immun. (B7)			.42					
Teach children (B10)				.65				
Communicate with parents (B9)				.57				
Staff efforts (A8)				.51				
Time (A5)					.47			
Status pink eye (A1)						.78		
AIDS status (A9)						.52		
Isolation practices (B1)							.62	
Surveillance (B6)								.46

Note: Factor 1 = Health Promotion Activities; Factor 2 = Responsibility and Influence; Factor 3 = Attitudes Towards Prevention; Factor 4 = Communication and Collaboration; Factor 5 = Time; Factor 6 = Health Status Awareness; Factor 7 = Isolation Practices; Factor 8 = Surveillance



identified through factor analysis revealed significant change only in the pre and posttest scores for Factor 1 - Health promotion activities and Factor 5 - Time. Behaviour questions 2, 3, 4, 5 and 8 cluster around Factor 1.

To further define the extent of the effect of key variables, one way ANOVAS were calculated for specific factors. The effect of age, early childhood preparation and experience were not significant. However, the type of program was statistically significant in factor 1, health promotion activities ( $p = .03$ ), and factor 4, communication and collaboration ( $p = .05$ ), in that participants who completed the diploma program demonstrated lower mean scores. Behaviour questions 2,3,4,5,8,9 and 10 cluster around these factors.

## CHAPTER 5

### Discussion

The discussion contains an examination of study findings with respect to the research questions, the literature review and the conceptual model. A summary of the limitations of the study is also presented with specific attention given to discussion of reliability and validity of the questionnaire.

Research questions were designed to determine the extent to which information and discussion about protecting children against illness and management of illness provided in a workshop and resource manual are effective in changing the health knowledge, attitudes and behaviours of early childhood educators and child care providers. Further, these questions assisted in determining the effects of predisposing factors (demographic variables, knowledge and attitudes), and the effects of the educational strategy on enabling factors (skills, challenges and resources) and reinforcing factors (beliefs about parents and health professionals).

The findings from this study indicate that information and discussion about protecting children against illness and management of illness provided in a workshop and resource manual are effective in increasing the child health knowledge and possibly improving the health behaviours of early childhood educators and child care providers. These findings are consistent with the literature related to specific efforts to improve knowledge and behaviour (Bartlett, Jarvis, Ross, Katz, Dalia, Englender, & Anderson, 1988; Black, Dykes, &

Anderson, 1981; Kotch, Weigle, Weber, Clifford, Harms, Loda, Gallagher, Edwards, LaBorde, McMurray, Rolandelli, & Faircloth, 1994; Schmelzer, Reeves, & Zahner, 1986).

While the intervention is clinically effective in modifying the child health attitudes of participants this change is not statistically significant. It is possible that long term and significant changes in attitudes may begin with this type of intervention, but must be supplemented with further initiatives. Additionally, it may be that participants who understand the importance of particular health practices (knowledge) and put that knowledge into practice (behaviours) will be more accepting of the value of these practices and change their beliefs accordingly. It makes sense then that greater time is required to modify attitudes. As far as can be determined no similar studies have been done to allow for comparison.

Study findings support the hypothesis that health education aimed at improving the health knowledge and behaviours of those working in early childhood settings is an effective strategy for disseminating information. This is consistent with much of the literature to date. It appears that this strategy is less effective at positively influencing child health attitudes of those working in early childhood settings. Further research is required to determine the effects of such interventions on attitude and the degree to which attitude ultimately affects behaviours. This would be

particularly important when looking at long term change.

It is important to recognize inconsistencies in certain areas of knowledge, attitude and behaviours. The attitude question about child care staff's responsibility for assessing immunization scored lower in the experimental posttest, as did the behaviour question about how frequently staff at the centre carry out this task. This may relate to confusion over whether this is the role of the public health nurse or the staff. The ideal occurs when this is a shared responsibility and this requires further clarification by the public health nurse at individual centres.

Respondents in the experimental group demonstrated lower posttest scores on knowledge items related to reporting cases of head lice or diarrhoea to parents, testing for disease and excluding children with fever. Participant's low scores on the attitude question concerning parents' ability to know when to keep a sick child home and the impatience they expressed about this issue at the workshop is interesting in light of the fact that their knowledge about exclusion and behaviour related to isolation of a sick child continued to be low in the posttest. While these items are covered in the health manual and were reinforced in the workshop confusion still exists.

Although attitudes related to adequate time for handwashing were generally high, lower scores were obtained in the posttest for the experimental group. This may be due in

part to the newly acquired knowledge about how frequently these tasks must be performed and the realities of multiple child needs and demands in busy early childhood settings. More than one participant at the workshop noted the challenge posed by these expectations. While knowledge about the importance of handwashing was high the reported behaviour of handwashing did not always reflect this understanding, e.g., handwashing prior to administration of medication.

Similarly, while knowledge about the importance of universal precautions and the need to clean toys was high the reported use of gloves for handling nosebleeds and attitude about their ability to keep toys clean was low.

While it continued to rank among the highest items, there was a decrease in the attitude score in the posttest regarding early childhood educator's and child care provider's ability to influence the health practices of children in their care. In the same way that many of the discussions about inclusion and exclusion focused on challenges of dealing with parents, similar concerns were expressed about health promotion in children. Participants in the workshop expressed frustration at 'preaching' and promoting health in the centre while at home some children do not see parents wash their own hands, handle food properly or use tissues appropriately. The opportunities for discussion of these issues may have increased awareness of the role that parents play and the need for partnership with parents in order to effectively improve

health behaviours in their children.

Several other findings lend support to previous research. The most frequently cited learning needs identified in this study included information about communicable disease, handwashing, diapering and toileting, food handling, immunization, AIDS, inclusion and exclusion of ill children and dealing with parents. This is consistent with the literature pertaining to needs assessment of child care staff learning needs (Bassoff & Willis, 1991; Chambers & O'Mara, 1992; Gilliss, Holaday, Lewis, & Pantell, 1989; Nelson & Hendricks, 1988; O'Mara & Chambers, 1992).

As posttest scores for knowledge and behaviour improved in the experimental group, their expressed health concern or need for further information about specific topics decreased. Requests for information about communicable disease and about dealing with parents around issues of inclusion or exclusion were cited less frequently in the posttest for this group, indicating perceived improvement in their knowledge in this area.

The 15% decrease, from pretest to posttest, in the number of experimental group subjects involved in both diapering/toileting and food preparation was evidence of improved knowledge about the associated risks and subsequent translation into practice. While this change is not as good as desired, it does indicate that some participants internalized the health risks of combining these two

activities. Considerable attention in this area is still required, however, as 53% of the experimental group continue to carry out both food preparation and diapering and toileting even after the intervention.

Consistent with the literature to date (Goodman, Sacks, Aronson, Addiss, Kendrick, & Osterholm, 1994), child care workers in this study demonstrated disproportionate concern about AIDS. Learning needs and identification of this topic as a health concern increased in the posttest, even within the experimental group. This was true in spite of efforts aimed at clarifying values and improving knowledge and behaviours during the intervention and suggests the need for further information aimed at calming fears and reducing anxiety about this issue.

Experimental group participants also expressed increased learning needs and health concerns about health promotion in posttest responses. While this may be due to perceived lack of information or confusion related to such topics as handwashing, diapering/toileting, food handling and immunization, it could also be due to an increased awareness of the value and importance of these health promotion strategies and increased interest in incorporating these strategies into the everyday routines of the centres. Workshop participants were provided with many opportunities to build these skills and improve their knowledge during the intervention. Irrespective of the reason for the continued

identification of this need there is a need for continued support for early childhood educators and child care providers in efforts of health promotion. This intervention was designed to be the first step in improving health practices in child care centres and would be supplemented through the continuous involvement of public health nurses at the centre level. In the current economic climate, efforts to promote health in early childhood settings have potential far reaching effects, especially the potential for positively influencing the health of children and parents.

It has been previously demonstrated that while interventions aimed at improving health promotion behaviours are effective, continuous monitoring is necessary to supplement and reinforce these efforts (Bartlett, Jarvis, Ross, Katz, Dalia, Englender, & Anderson, 1988; Black, Dykes, & Anderson, 1981). It becomes essential to implement an organized program for monitoring purposes in all centres.

It has been previously noted that public health nurses have the potential to influence health in early childhood settings (Gaines, Rice, & Carmon, 1993; Peterson-Sweeney & Stevens, 1992) and are seen as a valuable resource by early childhood staff (O'Mara & Chambers, 1992). Of particular interest to community health staff is the extent to which participants identified the public health nurse as their primary resource for health information and consultation. This is particularly important given the value placed on the



information received from public health and, therefore, the ability of the public health nurse to play a key role in facilitating change.

#### Discussion of the Model

While Epp's (1986) Framework for Health Promotion was found to be beneficial as a rationale for the direction taken in this investigation, one difficulty with this model is the lack of any clear framework for evaluation. The PRECEDE model offered this component.

The model assisted in focusing on identification of the problem and its contributing causes. Predisposing factors such as age, education, experience and role at the centre were determined in the study and differences emerged between groups. Analysis of how these factors influenced responses demonstrated no significant influence upon results.

The model allowed for easy identification of enabling factors such as the existing skills of respondents and allowed for assessments of any improvements. Respondents clearly identified public health nurses as a primary resource and continued to express a willingness to participate in further training.

Reinforcing factors are a key component of the PRECEDE model and were a major issue identified by participants. While, as stated previously, early childhood workers view health professionals as partners and value their role, they are less confident about parents' abilities to recognize the

need to keep an ill child at home or to reinforce positive health practices at home.

Through the use of the PRECEDE model process, impact and outcome evaluation can be accomplished. Participants evaluated the workshop positively and were appreciative of the process of adult learning that was utilized. Impact is evidenced by the significant improvement in overall knowledge and behaviour scores. Outcome evaluation is beyond the scope of this study but can be measured by evidence of longterm behaviour change and decrease of illness rates within participating centres. The components of the PRECEDE model were uncomplicated, clearly defined and useful in interpretation of findings.

#### Limitations

Several significant limitations are evident in this study. Several differences emerged between groups. The control group was better educated, had more extensive early childhood education and were less likely to be married and have children. While these differences did not demonstrate statistical significance, they are considered significant according to the PRECEDE model in that factors such as experience, role and education are seen as predisposing and potentially influencing factors. Further studies are required to determine whether or not these factors are significant in terms of longterm outcomes.

Another limitation is the reliability of the instrument.

While the attitude and behaviour scales demonstrated moderate to high alpha coefficients they were less than the .70 required for new instruments. Individual items require further refining in order to improve instrument reliability prior to further use.

Another limitation related to the behaviour subscale is the participants' reporting of health practices of staff at the centre. It was more likely that bias was reduced by asking about the practices of all staff rather than only concentrating on individual respondent practices. Since an expectation following the training was that participants would share what they had learned with staff at their centres who had not attended the workshop, it is reasonable to expect that the behaviours of all staff could be affected. Participants in the control group may have experienced the Hawthorne effect with posttest answers affected by learning that occurred through completion of the pretest. It may be more advisable to test behaviour through observation at centres instead of by self reported questionnaire.

The sample size of 74 may also be considered a limitation and further testing with a much larger sample is also required.

Finally, the time between questionnaire administration was relatively short (6 weeks) and does not permit examination in the changes of knowledge, attitudes and behaviour over a long period of time.

## CHAPTER 6

### Recommendations, Implications and Conclusions

The final chapter focuses on the recommendations which emerge from the findings and upon the implications for nursing practice, administration, education and research.

#### Recommendations

Several recommendations emerge from this research:

1. There is value in offering a program to improve the child health knowledge, attitudes and behaviours of early childhood educators and child care providers. This program should continue to be offered to other child care staff within the Community Health - St. John's Region and expanded to other areas of the province.
2. There is a need to place increased emphasis on examining and clarifying attitudes related to health in child care settings, and providing opportunities for early childhood educators and child care providers to examine the impact that their values have on exhibited behaviours.
3. There is a need for follow-up with centres to clarify outstanding issues and provide ongoing support. Public health nurses should, as part of routine visits to centres, provide staff with opportunities to identify centre specific health issues and work with them to create opportunities for learning.
4. There is a need for ongoing monitoring and surveillance of disease in child care centres. Public health nurses should incorporate periodic checks of diapering and toileting and

food preparation practices, as well as assessment of handwashing skills into their routine centre visits. Community health staff should develop an updated checklist of reportable communicable diseases for use by child care staff.

5. The expanded role of the public health nurse in child care settings in moving beyond crisis intervention, may initially require more time for consultation, education and support of child care staff and additional attention to monitoring health practices. These efforts, to be successful, must be supported by community health and early childhood administrators.

6. There is a need for further research in the area in order to define the continuing and emerging learning needs; to justify the value and importance of monitoring and surveillance; and to determine whether changes in knowledge and behaviour persist over time.

7. There is a need to provide standardized health training in all early childhood education programs in the province. This training should be done by early childhood education instructors who have been trained to deliver the program. A train-the-trainer process may not only be cost effective, but also may increase the sense of ownership that people have over the program.

8. Child care providers who do not have early childhood preparation should be required to participate in a health workshop as a condition of employment.

9. Health promotion programs should be expanded to include

children and parents in order to make the circle of learning complete. Targeting health promotion at parents and children strengthens the teaching offered to child care providers and early childhood educators and improves the likelihood that positive health behaviours will be modeled at home as well as at the centre. This is particularly true since the majority of health promoting behaviours are learned through the family.

10. There is a need for further development of the 'Health in Child Care Settings Questionnaire' prior to future use.

#### Implications

These recommendations have significant implications for nursing education, practice and research.

#### Nursing Administration

Health care administrators must support community based health promotion initiatives, such as education of child care providers and early childhood educators. These initiatives should not be overshadowed by the growing demand to shift other traditionally institutional based clinical services to the community. Administrators must also support these health promotion initiatives through funding for needs assessment and evaluation. There is a need to look beyond the traditional quantitative approaches and to support qualitative outcome based research projects. For example, if a researcher wishes to examine more fully the behavioral practices of child care staff, a participant observation study may help determine what actually happens in the natural setting. With frequent day-

to-day observations the researcher may better understand some of the structural and human constraints child care workers deal with and have an expanded appreciation of the context of their work.

### Nursing Education

Basic nursing education must continue to address health promotion across the lifespan and pay particular attention to the identification of community aggregates. Child care centres should be included as part of any rotation through community health nursing practice and nursing students should be provided the opportunity to assess needs and promote health with children, their parents and their early childhood educators.

Nursing students must be taught the importance of basic health promotion strategies, such as handwashing, and provided opportunities to develop creative ideas to address these through adult learning. In addition, care should be taken to provide students with the opportunity to identify barriers to learning or behaviour change.

Nursing schools must enhance skills for developing client partnerships and interdisciplinary practice. Initiatives which encourage interdisciplinary health promotion, such as projects in early childhood settings, should be modeled as examples of effective strategies during times of fiscal restraint. Through working with one group of individuals it is possible to reach many others and the process of community

mobilization for health continues.

### Nursing Practice

Public health nurses must not underestimate the influence they have with community aggregates. The vast majority of respondents from both the experimental and control groups cited the public health nurse as their primary resource. Public health nurses can assist centres in developing policies which support health; in making recommendations for adjustments to the physical environment in the centre to facilitate health behaviours; act as role models for health through exhibited health practices; and provide monitoring and surveillance of health promotion practices and disease outbreaks.

Public health nurses can serve as the catalyst for change in child care centres. By identifying existing or potential problems and acting as a resource to the centre, they will increase their visibility and ultimately their capacity to positively affect the health of children and families. Public health nurses must learn to be more proactive in their approach to child care centres. Interventions must become more centre focused and less nurse focused. The nurse who teaches the centre how and when to react to communicable disease and how to promote health in the centre will be more effective than the one who continues to respond to crises.

While this study focused primarily on the control and prevention of disease in child care settings, other identified



learning needs emerged. Strategies must be developed to address these. Nurses must recognize the diversity of learning needs and be receptive to meeting the here and now needs, as well as those on their own agenda. Nurses must also begin to use more non traditional methods of promoting health. The use of adult learning or human learning principles should be a basic premise upon which all health promotion is based. The lecture does not work! Non traditional methods, such as, employing the use of lending libraries, videos and peer counsellors should be tested. The transferability of this education process may also hold value in other types of preschool settings, such as, parent resource centres, recreational programs and family daycare homes.

Finally, public health nurses must use the child care environment as an avenue for community mobilization towards health. When child care providers and early childhood educators embrace the concepts of health promotion, they will create opportunities for health promotion for children and their parents. The power of word of mouth "passing it on" should never be underestimated. The parent who learns a positive health behaviour through the centre takes it home and to the workplace. The effects of health promotion have the potential to be far reaching.

#### Nursing Research

We have only begun to work in the area of nursing research related to health in early childhood settings. Much

is known about the epidemiology of childhood disease in these settings. Work has also been carried out to determine the learning needs of child care staff, however, needs assessment must be ongoing and specific to the group in question. Knowledge about the epidemiology of illness in these settings must be examined in combination with identified learning needs to provide a foundation for continuing health promotion efforts in the area.

There is a need for further study to determine the different learning needs of family home child care providers. Since licensed child care is not available in this province for children under two, many infants and younger children are cared for in this setting. There is also a need to determine whether the epidemiology of childhood disease is different in this setting than in licensed centres.

It is essential that further research be carried out to determine, not only the effects of monitoring and surveillance, but who is best suited for this role. To date this has been carried out largely by community health professionals. Should part of this role be carried out by early childhood educators and child care providers in order to increase awareness and share ownership of the problem?

Other educational strategies must also be explored to determine which are most effective in improving knowledge and modifying attitudes and behaviours of those working in early childhood settings.

There is still a demand for investigation into the effect of training of child care providers and early childhood educators on attitudes and the longterm effects upon knowledge and behaviour change.

Finally, there is a need to develop appropriate standards for cost benefit analysis of public health nursing interventions. Partnerships must be forged between nursing practice, administration and education in order to identify and collaborate in this and other opportunities for expanding process and outcome based initiatives.

#### Conclusion

The health challenges which Epp recognizes are the need to reduce inequities, to increase prevention efforts and enhance coping. The gaps in knowledge and existing attitudes were among the inequities identified in the target group. The need for increased prevention efforts was identified through the needs assessment and the literature review, and was evidenced in participant responses in both the pre and posttests. Participants identified both written and human resources which could assist them to enhance their coping skills in their efforts to manage and prevent illness in early childhood settings. The value and importance they placed on the public health nurse and their reliance on written information were evidence of their need for resources to enhance coping.

Epp's concepts of self care and mutual aid were evidenced

by participants high pretest and posttest perception of their ability to react to outbreaks of disease appropriately. Their knowledge scores related to reacting to and reporting disease supports this perception. A move towards creating a healthy environment has begun as evidenced by the overall improvement in knowledge and behaviour scores.

Epp proposes a fostering of public participation, strengthening existing community health services and creation of healthy public policy as strategies to influence change. While this study was not able to measure this on a large scale, evidence did emerge about childcare provider's concern about and commitment to developing health related workplace policies, continued and enhanced communication with parents and value and reliance on community health professionals.

There has never been a more exciting time to be in nursing. Nurses who work in the community are being challenged to do more with less. Work with community aggregates, in particular those who work in early childhood settings, provides nurses the opportunity to influence change in the health knowledge and behaviour of early childhood educators and child care providers. It also creates opportunities for partnership with individuals who are equally dedicated to the health and welfare of children and their families. It is only through this type of partnership that we will be effective in creating a milieu which embraces health promotion as a strategy for living.

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## Appendix A

## QUESTIONNAIRE

HEALTH IN CHILD CARE SETTINGSSection A: Demographic Data

Please answer each question. Feel free to use the back of the form if you require more space.

1. Your identification number: \_\_\_\_\_
2. What is your age in years? \_\_\_\_\_
3. Identification number of your child care centre: \_\_\_\_\_
4. Education level: Check highest achieved:
  - Grade 9 \_\_\_\_\_
  - High school diploma \_\_\_\_\_
  - Post secondary diploma/certificate \_\_\_\_\_
  - University degree \_\_\_\_\_
  - Graduate degree \_\_\_\_\_
  - Other (please specify) \_\_\_\_\_
5. Do you have formal training in Early Childhood Education?  
 Yes \_\_\_ No \_\_\_
6. Please describe the type of program you attended, i.e., length; degree or diploma; etc.

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7 (a). If you had formal Early Childhood Education training was health education a part of your curriculum?

Yes \_\_\_\_\_ No \_\_\_\_\_

7 (b). If the answer to 7(a) is yes what percentage of your curriculum in early childhood education preparation focused on children's health?

less than 5 hours \_\_\_\_\_  
 5 - 9 hours \_\_\_\_\_  
 10 - 25 hours \_\_\_\_\_  
 26 - 50 hours \_\_\_\_\_  
 51 - 75 hours \_\_\_\_\_  
 more than 75 hours \_\_\_\_\_  
 don't know or can't remember \_\_\_\_\_

8. How long have you worked in an ECE setting? \_\_\_\_\_

9. Approximately how many hours a week do you work? \_\_\_\_\_

10. What is your role at the child care centre in which you are employed? Check all that apply:

front line worker with ECE training \_\_\_\_\_  
 front line worker without ECE training \_\_\_\_\_  
 group supervisor \_\_\_\_\_  
 administrator \_\_\_\_\_  
 owner \_\_\_\_\_  
 other (please specify) \_\_\_\_\_

11. Are you involved in the following activities as part of your usual work day?

food preparation                      yes \_\_\_\_\_ no \_\_\_\_\_  
 diapering/toileting                    yes \_\_\_\_\_ no \_\_\_\_\_

12. How many child care spaces are there at your centre:

\_\_\_\_\_

13. Are these spaces full time spaces \_\_\_\_\_

part time spaces \_\_\_\_\_

full and part time spaces \_\_\_\_\_

14. What is the age range of children enrolled at your centre:

\_\_\_\_\_

15. Have you previously participated in workshops related to child health issues?

Yes \_\_\_ No \_\_\_ If yes, please describe:

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16. What other things do you do to continue learning about health issues in child care settings?

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17. Are you a parent? Yes \_\_\_ No \_\_\_

18. If yes, how many children do you have and what are their ages?

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7. All cases of chicken pox in child care centres must be reported.

True                      False                      Not Sure

8. Most children with a fever should be excluded from the centre until the fever is gone.

True                      False                      Not Sure

9. Hands can be washed with disposable wipes when you are in a hurry.

True                      False                      Not Sure

10. Generally, there is no such thing as washing your hands too often.

True                      False                      Not Sure

11. Children who are not fully immunized are not permitted to attend the child care centre.

True                      False                      Not Sure

12. Adults require immunization only in special circumstances.

True                      False                      Not Sure

13. Toys which children can put in their mouths should be cleaned daily.

True                      False                      Not Sure

14. The person who prepares food at the centre should not diaper children or assist with toileting.

True                      False                      Not Sure

15. Special precautions must be taken to clean up blood.

True

False

Not Sure

16. It is not necessary to report to parents if their child has had only one episode of diarrhea.

True

False

Not Sure

17. Helping children to wash their hands properly can reduce disease in child care centres.

True

False

Not Sure

## Part 11: Attitudes

The following items relate to your attitudes about health in child care settings. Using the rating scale for each statement please rate the extent to which you agree or disagree with the following statements by circling the appropriate response:

1. Once you have one case of pink eye at the centre there are things you can do to stop other children from getting it.

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
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2. Colds and flu are a fact of life for preschoolers; there is not much that you can do to prevent them from getting sick.

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
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3. It is important for me to know how to recognize some common diseases in children.

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
----------------------	----------	-------------	-------	-------------------

4. Once I suspect a child has an illness/disease I should have the parents confirm this with the family doctor.

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
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5. I do not have enough time to wash my hands properly.

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
----------------------	----------	-------------	-------	-------------------

6. I have a responsibility to make sure that all children at my centre are fully immunized.

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
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7. Immunization is as important for adults as for children.

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
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8. No matter how hard you try you can't keep most toys clean.

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
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9. I should be more careful if there is a child at my centre with AIDS so I can take every precaution.

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
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10. Health policies are really only there to protect you legally.

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
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11. Parents know when their child is sick and when the child should stay home.

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
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12. I can influence the health practices of children in my care.

Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
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## Part 111: Behaviours

The next items relate to health behaviours in child care settings.

Using the rating scale attached to each statement please indicate how frequently staff at your centre do the following:

1. Separate children who are ill from other children.

Never      Almost Never      Sometimes      Almost Always      Always

2. Wash their hands after blowing a child's nose.

Never      Almost Never      Sometimes      Almost Always      Always

3. Recognize a child who has head lice.

Never      Almost Never      Sometimes      Almost Always      Always

4. Report confirmed cases of whooping cough.

Never      Almost Never      Sometimes      Almost Always      Always

5. Wash their hands before giving medication.

Never      Almost Never      Sometimes      Almost Always      Always

6. Check the immunization status of children at your centre.

Never      Almost Never      Sometimes      Almost Always      Always

7. Update their own immunization.

Never      Almost Never      Sometimes      Almost Always      Always

8. Use gloves to help a child with a nosebleed.

Never      Almost Never      Sometimes      Almost Always      Always

9. Communicate the centre's health policies to parents.

Never      Almost Never      Sometimes      Almost Always      Always

10. Teach children about personal hygiene.

Never      Almost Never      Sometimes      Almost Always      Always

Section C: Challenges and Learning Needs

Finally, think about the challenges you face and the learning needs that you have which affect how you meet the health needs of children at your centre.

1. Please list the 5 greatest health concerns you face in your work as a child care provider/early childhood educator (be specific).

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2. What health resources are you aware of which can help you deal with child health issues at your centre? (i.e. books, resource people, etc.)

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3. Please list 5 health related topics you would like further information about in order of priority (be specific).

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APPENDIX B

**HEALTH IN  
CHILD CARE SETTINGS**

**GUIDELINES FOR CHILD CARE  
PROVIDERS AND EARLY  
CHILDHOOD EDUCATORS**

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*Parent and Child Health Division*

*Community Health Branch*

*Department of Health*

*Government of Newfoundland and Labrador*



*February 1995*

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## INTRODUCTION

**C**hildren are our greatest resource. While insuring that children are safe from injury and infection, child care providers must demonstrate, model and promote sound health practices. Children learn by example. We have an obligation to help them develop in the healthiest way possible.

This manual provides information which will assist child care providers to meet their responsibility to provide children in their care with an environment which promotes good physical, social and emotional health. Included is information related to preventing and controlling disease in child care settings; recognizing and reporting disease; caring for mildly ill children; health promotion; injury prevention; child abuse and neglect; and good adult health.

Armed with this knowledge and information, and an enthusiasm for health promotion, the quality of our children's health can be improved.

Healthy attitudes and practices must be encouraged in child care. Attitudes and practices learned by children early in life will last a lifetime and may even influence other members of the child's family.

## ACKNOWLEDGEMENTS

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The authors wish to thank the following:

- The Child Care Centers who participated in the initial needs assessment and review of drafts;
- The Community Health Staff, including Public Health Nurses, Environmental Health Inspectors, Communicable Disease Control Nurses, Medical Officers of Health and Child Health Coordinators who reviewed the many drafts of this manual;
- The Department of Social Services, Family and Rehabilitation Services Division, for their input and support throughout the process;
- Liz Stratton, Margie Coombs, Nancy Shouse, Linda Elkins, Pam Vokey, Leslie Tomblin, Melba Rabinowitz and Joanne MacKinnon for their major contribution to the Communicable Disease, Nutrition, Dental, Active Living and Sexuality sections of this manual;
- To Melvina Caines for word processing, editing and proofreading the many drafts;
- Arlene Coffen for formatting the manual.

In addition, the authors wish to acknowledge that portions of this manual have been adapted with permission from Well Beings: A Guide to Promote the Physical Health, Safety, and Emotional Well-Being of Children in Child Care Centres and Family Day Care Homes. Canadian Paediatric Society, (1992) Ottawa, Ontario.

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## Appendix C

Health in Child Care SettingsWorkshop

Friday, March 24, 1995

7:00 - 7:15	Registration
7:15 - 7:45	Introduction
7:45 - 8:15	Illness & Preschoolers
8:15 - 8:30	Break
8:30 - 9:00	Health Values
9:00 - 9:40	Maintaining & Promoting Health in Child Care Settings
9:40 - 10:00	Closure/Feedback

Saturday, March 25, 1995

9:00 - 9:20	Lets Get Going/Communicating About Health
9:20 - 10:10	Why Illness is Common in Child Care Settings
10:10 - 10:30	Passing the Big Test: Handwashing
10:30 - 10:50	Break
10:50 - 12:15	Recognizing and Reacting to Illness in Child Care Settings: Case Studies
12:15 - 1:15	Lunch
1:15 - 1:30	Active Living
1:30 - 2:00	Safety
2:00 - 2:40	Nutrition
2:40 - 3:10	Medication
3:10 - 4:15	Health Promotion
4:15 - 4:30	Closure/Evaluation/Where Do We Go From Here

## Appendix D

Dear

I am a Registered Nurse who has worked in community health for several years. Presently, I am a student in the Graduate Program in Community Health Nursing at Memorial University of Newfoundland. In partial fulfilment of the degree requirement, I am completing a research study. This letter is provide you with information about the study and to elicit your support as I carry out the study in licensed child care centres in the St. John's region.

The purpose of the study is to examine the impact of a targeted health education program on the knowledge, attitudes and behaviours of early childhood educators and child care providers in relation to promotion of health and management of illness in child care settings. The health education program involves provision of a Health Issues in Child Care Settings manual combined with a one and one half day workshop for early childhood educators and child care providers.

The proposed quasi-experimental evaluation study will involve collection of data using a mailout questionnaire. The pre and post test design will involve both an experimental and a control group in the Community Health - St. John's region. The questionnaire will be administered to the experimental group two weeks prior to the workshop and introduction of the manual and one month following the intervention. The control group will receive the questionnaire at the same times as the experimental group. Following completion of the study the control group will also be provided opportunity to participate in the workshop and receive the manual. Confidentiality of the subjects is ensured through use of coding system on the questionnaires.

The questionnaires will be analyzed by the investigator in cooperation with three members of her thesis committee. Following completion of the study all questionnaires will be destroyed. The proposed study will receive ethical review from the Human Investigation Committee, Memorial University of Newfoundland. I will confirm approval of the study by this committee for you prior to initiation of the study.

Following acknowledgement of support from the Department of Social Services, the Daycare Owners and Operators Association, the Association of Early Childhood Educators of Newfoundland and Labrador, and Community Health - St. John's region, the principal investigator will obtain the assistance of the daycare administrators to act as intermediaries. These intermediaries will give each participant a written

explanation of the study and ask the participant if she/he would consent to participate in the study. The intermediary will provide further explanation of the purpose and implications of the study and obtain written consent. Subjects who provide written consent will be advised that they will receive the pretest questionnaire within the next two weeks.

I am available at 738-3541 (home) or 738-4914 (work) to provide further information or clarification and to answer any questions or concerns you may have. I look forward to a favourable reply at your earliest convenience.

Sincerely,

Ann Manning R.N., B.N.

## Appendix E

## Scripted Explanation for Intermediaries

I am speaking to you on behalf of Ann Manning. Ms. Manning is a Registered Nurse who has worked in community health for several years. Presently, she is a student in the Graduate Program in Community Health Nursing at Memorial University of Newfoundland. In partial fulfilment of the degree requirement, she is completing a research study. I am acting on her behalf to provide you with information about the study and to determine your interest in participating.

The purpose of the study is to examine the impact of a targeted health education program on the knowledge, attitudes and behaviours of early childhood educators and child care providers in relation to promotion of health and management of illness in child care settings. The health education program involves provision of a Health Issues in Child Care Settings manual combined with a one and one half day workshop for early childhood educators and child care providers.

If you agree to participate in the study you will be assigned to one of two groups. Both groups will be asked to complete a mailout questionnaire two weeks before the first workshop. The questionnaires will examine your knowledge, attitudes and behaviours related to child health. The workshop and manual will then be provided to one group only. One month after this workshop both groups will again be asked to complete the questionnaire. Once the second questionnaire has been completed the second group will be given the opportunity to attend the workshop and receive the manual.

Information obtained from the questionnaires will be identified only by a code number to which only Ms. Manning will have access. Following completion of the study all questionnaires will be destroyed. You will not be identified in the report of the study. You are free to refuse to answer any of the questions or withdraw from the study at any time. Your decision to participate will not affect your job at the centre. Should you choose not to participate, you will be provided an opportunity to participate in the workshop and receive the manual at some later date.

Although participation in the study may not be of direct benefit to you, the results may help to improve health education programs for early childhood educators and child care providers.

Ms. Manning will be happy to provide you with further information or answer any questions you may have about the study.

Are you interested in participating in the study? If no, thank you for your time and continued success in your work with young children. If yes, please read and complete the consent. You will receive a written copy of the consent and the written explanation of the study.

Thank you for your time and participation. Please feel free to contact Ms. Manning if you have any further questions or have any difficulty completing the questionnaire. Ms. Manning may be contacted at work 738-4914 or home 738-3541.

## Appendix F

## CONSENT

SCHOOL OF NURSING  
MEMORIAL UNIVERSITY OF NEWFOUNDLAND  
ST. JOHN'S, NEWFOUNDLAND A1B 3V6

**TITLE: PREVENTING AND MANAGING ILLNESS IN CHILD CARE  
SETTINGS:A PROGRAM EVALUATION**

**INVESTIGATOR: ANN MANNING**

You have been asked to participate in a research study. Your participation in this study is voluntary. You may decide not to participate or to withdraw at any time. You may also decide not to respond to any questions posed during the course of the study.

Confidentiality of questions concerning participants will be maintained by the researcher. The researcher will be available at all times during the study should you have any concerns or questions about the study.

Purpose of study

The purpose of the study is to examine the impact of targeted health education on the knowledge, attitudes and behaviours of early childhood educators and child care providers in relation to promotion of health and management of illness in child care settings. The health intervention involves provision of a Health Issues in Child Care Settings manual combined with a one and one half day workshop for early childhood educators and child care providers.

Description of procedures and tests

Respondents will be asked to complete a questionnaire two weeks prior to group one receiving the workshop and receipt of the manual and a second questionnaire one month afterwards. Names will not be used on the questionnaires. Questionnaires will use number codes for identification and will be kept in a locked file. Only the investigator will have access to them. Upon completion of the study they will be destroyed. The second group will have an opportunity to participate in the workshop and receive the manual as soon as the second questionnaire has been completed.

**Duration of subject participation**

You are requested to complete two questionnaires. The first questionnaire is to be completed two weeks prior to group one receiving the workshop and manual and the second questionnaire will be completed one month after the workshop. Each questionnaire will take approximately one half hour to complete.

**Foreseeable risks, discomforts or inconveniences**

There are no foreseeable risks to you through your participation in the study. If, however, you feel any uneasiness in answering any question, please indicate this on the questionnaire and omit that question. You have the right to refuse any question that might be asked.

**Benefits which participants may receive**

While there is no direct benefit from your participation in this study, an indirect benefit is your receipt of the Health Issues in Child Care Settings Manual and ability to participate in the workshop. The information you provide may help nurses and other health professionals to develop and strengthen future health education programs for early childhood educators and child care providers.

**Alternate procedures or treatments for those not entering the study**

Participation in this study is entirely voluntary and you may withdraw at any time. Should you choose to withdraw or not to participate at all, an opportunity will be provided for you to complete the workshop and receive the health issues in child care manual at a later date.

Other relevant information

If you have any questions, please feel free to contact the investigator prior to signing the consent form.

I, \_\_\_\_\_, the undersigned, agree to participate in the research study described above.

Any questions have been answered and I understand what is involved in the study. I realize that my participation is voluntary and that there are no direct benefits for me from my involvement. I acknowledge that a copy of this consent form has been offered to me.

\_\_\_\_\_

(Signature of participant)

(Date)

To the best of my ability I have fully explained to the participants the nature of this research study. I have invited questions and provided answers. I believe that the subject fully understands the implications and voluntary nature of the study.

\_\_\_\_\_

(Signature of intermediary)

(Date)

\*\*\*\*\*  
\*\*\*\*\*

Code number assigned: \_\_\_\_\_



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