

ABSTRACT

REYNOLDS, T.L. Validation of knowledge of CDC skin cancer prevention protocol in a Mid-Western town. MPH in Community Health Education, May 2002, 89 pp. (J. Odulana).

This study was designed to assess the extent to which the contents of the CDC "Choose Your Cover" campaign on skin cancer has infiltrated a community of mothers of young children and family health care providers in a Mid-Western town. A single-phase distribution of a 42-item checklist was mailed to family health care providers ($n = 30$), and distributed by hand to eligible mothers of young children ($n = 74$) by health care personnel. Results indicated that out of the six mechanisms of the CDC "Choose Your Cover" campaign, knowledge information on "Use of Sunscreen" had infiltrated the most among mothers of young children and family health care providers. Knowledge information on "Use of a Hat" and "Ultraviolet Ray Protection" resulted in low infiltration among mothers of young children. Family health care providers knowledge information on "Use of a Hat" also had not infiltrated to a large extent. Knowledge on "Use of Shades" had not infiltrated among both mothers of young children and family health care providers. Results indicated that there was a statistically significant difference in the knowledge between mothers of young children and family health care providers on the various aspects of the CDC "Choose Your Cover" protocol as a protective mechanism against skin cancer. Family health care providers had a higher score than mothers of young children on the overall knowledge of the six sun protective mechanisms against skin cancer as present in the CDC "Choose Your Cover" protocol.

**VALIDATION OF KNOWLEDGE OF CDC SKIN CANCER PREVENTION
PROTOCOL IN A MID-WESTERN TOWN**

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CHAPTER I
INTRODUCTION

Background

The high incidence of skin cancer, including basal cell carcinoma, squamous cell carcinoma, and melanoma in the United States can be attributed primarily to sun exposure. According to Rigel (1992), sun protection, and how our society views it, has become an important subject of discussion among the population of the United States, since one in five Americans will develop some form of skin cancer in his or her lifetime. Buller, Callister, and Reichert (1995) asserted that cumulative and intermittent sun exposure leading to sunburn, over a lifetime, increase the risk of all forms of skin cancer.

Since 1994, the Centers for Disease Control and Prevention (CDC), have developed partnerships and conducted activities to foster the growth of its National Skin Cancer Prevention Education Program (NSCPEP), which was initiated and made accessible to the public in 1998. The program's aim is to increase public awareness towards the achievement of National Health Objectives on skin cancer as established in Healthy People 2000 (U.S. Department of Health and Human Services, 1990) and reinforced in Healthy People 2010 (U.S. Department of Health and Human Services, 2000).

In preparation for NSCPEP, the CDC established in 1998 two councils to address skin cancer protection. According to Saraiya (2000), the first, the Federal Council on Skin Cancer Prevention, was charged with promoting sun-safe behaviors among federal agency employees, their families and agency constituents, while the second, the National Council on Skin Cancer Protection, was given the following mandate to:

- a. increase skin cancer awareness and prevention behaviors among all populations, with special emphasis on those populations especially at risk;
- b. develop and support partnerships to extend and reinforce core messages for behavior change;
- c. coordinate a public health response to nationwide efforts to reduce skin cancer incidence and deaths; and
- d. develop a national skin cancer prevention and education plan.

Among the major thrusts of the CDC's NSCPEP, is a Web-based "Choose Your Cover" (CYC) campaign, which promotes and teaches primary prevention of skin cancer to the American public through:

- a. development and dissemination of educational messages for children, their parents, and other caregivers about the risk factors associated with skin cancers;
- b. provision of school education curricula guidelines for teachers; and
- c. explanation of the meaning and importance of Ultraviolet (UV) Index.

The Web site also contains educational resources for family health care providers on the etiology and preventive measures for skin cancer.

The National Health Objectives regarding skin cancer were first articulated for the years 1990 to 2000, and reinforced for the period 2000 to 2010. The objectives for 2000 were stated as follows:

- 16.8 Reverse the rise in cancer deaths to achieve a rate of no more than 130 per 100,000 people.
- 16.9 Increase to at least 60 percent the proportion of people of all ages who limit sun exposure, use sunscreens and protective clothing when exposed to sunlight, and avoid artificial sources of ultraviolet light.
- 16.10 Increase to at least 75 percent the proportion of primary care providers who routinely counsel patients about tobacco use cessation, diet modification, and cancer screening recommendations.
- 16.14 Increase to at least 40 percent the proportion of people aged 50 and older visiting a primary care provider in the preceding year who have received oral, skin and digital rectal examination during one such visit (U. S. Department of Health and Human Services, 1990, p. 425, 426, 432).

While the objectives for Healthy People 2000 seem general and broad, the objectives for Healthy People 2010 have grown over the previous ten years to be more specific in nature, and stated as follows:

- 3-9 Increase the proportion of persons who use at least one of the following protective measures that may reduce the risk of skin cancer: a.) avoid the sun between 10 a. m. and 4 p. m., wear sun-protective clothing when exposed to sunlight, use sunscreen with a sun-protective factor (SPF) of 15 or higher, and avoid artificial sources of ultraviolet light.

Under this objective, the following categorization were made:

- 3-9a. Increase the proportion of adolescents in grades 9 through 12 who follow protective measures that may reduce the risk of skin cancer.
- 3-9b. Increase the proportion of adults aged 18 years and older who follow protective measures that may reduce the risk of skin cancer (U.S. Department of Health and Human Services, 2000, p. 18-19).

The CDC's Choose Your Cover web site skin cancer prevention campaign thus provides information and education to visitors on six skin cancer protective mechanisms against the sun. The six mechanisms are:

- a. appropriate material, color, rim size, and style of hat;
- b. use of other protective coverings beside a hat;
- c. usage, types, time, and mechanisms of various sunscreen lotion;
- d. use of various types of shades to protect the skin from the sun;
- e. effects of ultraviolet rays of the sun on the skin; and
- f. positive and negative influences of sun exposure on the body (Centers for Disease Control and Prevention, 2000).

The campaign provides information and knowledge on skin cancer protective mechanisms on a web site to encourage family health care providers to:

1. plan, direct, and support cancer control efforts through collaborations with prevention partners in state health agencies, academic institutions, and national, voluntary, and private sector organizations;
2. plan and conduct epidemiological studies and evaluations to identify the feasibility and effectiveness of cancer prevention and control strategies;
3. identify problems, needs, and opportunities related to modifiable behavioral and other risk factors (Centers for Disease Control and Prevention, 2000).

The extent to which the contents of the CDC Choose Your Cover campaign has infiltrated a community of mothers of young children and family health care providers in a Mid-Western town is the focus of this study.

Purpose of the Study

The purpose of this study was to investigate the extent to which the contents of the CDC CYC campaign on skin cancer has infiltrated a community of mothers of young children and family health care providers in a Mid-Western town.

Need for the Study

Incidence of Skin Cancer

Each year, approximately one million skin cancers are detected (Centers for Disease Control and Prevention, 2000). Most people who are diagnosed with skin cancer are aged 50 or older, but because skin cancer is often the result of over-exposure to the sun, everyone, even the youngest of toddlers, is advised to take precautions that will offer protection against this disease (University of Pennsylvania Cancer Center, 1999).

Education on skin protection against the sun has been documented to be effective with various groups, including mothers of young children and family health care providers. Pion (1996) concluded that teaching mothers about sun protection mechanisms is important because children are apt to do what their mothers say and believe to be true, and family health care providers, on the other hand, have the opportunity to see children for a variety of reasons. Three years after launching the CDC NSCPEP nationwide, investigation of the extent of its infiltration among mothers of young children and primary health care providers would provide an ideal assessment of the utility of this program and others like it among these populations in a rural community.

Prevention against skin cancer has become a public health concern in many countries, including the United States. In the following section, global, national, and state skin cancer prevention programs are discussed.

Skin Cancer: The Global Scene

The concern for protection against skin cancer caused by over-exposure to the sun has not been confined exclusively to the United States. According to Marks (1999), widespread public health programs for primary skin cancer prevention have been running in Australia for almost twenty years. As a result of a rise in melanoma incidence rates in the 1970s, Australia initiated public educational programs that provided information on how to recognize signs and symptoms of skin cancer, as well as teaching physicians how to diagnose the disease. Early detection programs, originating in Queensland, were soon adopted by other communities throughout the country.

According to the report of a worldwide survey conducted by Franz (2000), the German Skin Cancer Education Foundation (founded in 1999) distributed brochures such as "The Little Sun Travelers Guide" to hotel guests and at airports. Additionally, Belgium, Greece, and Argentina have also developed skin cancer prevention programs. Belgium was reported to have developed a task force to establish a "Euro-Melanoma Day" for the purposes of providing skin cancer screenings in collaboration with the European Academy of Dermatology and Venereology. In Greece, basal cell carcinoma and squamous cell carcinoma were also reported to have received a great deal of similar public health attention, and in Argentina there were reports of a "Health

Sun Clothes" fashion show designed to demonstrate professional skin care screening and education concerning proper sun protective clothing techniques.

Skin Cancer: The National Scene

According to the CDC web site, among the states that have initiated skin cancer campaigns, Georgia, Hawaii, Massachusetts, and Missouri chose to tailor their broadcast public service announcements from the CDC substituting the information with their state name and local information. Ten additional states, Florida, Illinois, Maine, New Mexico, New York, North Carolina, Ohio, Oklahoma, South Carolina, and Virginia and Puerto Rico also collaborated with local media and the CDC to market the Choose Your Cover skin cancer campaign through public service announcements.

The CDC also provides funds for skin cancer prevention demonstration projects targeted at children, parents, and caregivers. Among the programs that have benefited from the CDC funds are Sunwise Stampede, developed by San Diego State University; Covering the Waterfront, developed by the University of Hawaii and Boston University School of Medicine; The National Coalition for Skin Cancer Prevention in Health, Physical Education, Recreation, and Youth Sports; and Maryland's state-based Coalition for Skin Cancer Prevention.

Skin Cancer: The Wisconsin Scene

Although the incidence and rates of skin cancer vary from state to state, Remington and Quenan (2000), in a study that used age-adjusted mortality rates for malignant melanoma in Wisconsin between the period 1995 to 1997, reported a rate of

2.2 per 100,000 population, and recorded an increase of 20% compared to the 1984 to 1986 rates.

According to the Wisconsin Department of Health and Family Services (2001) the Wisconsin Cancer Reporting System (WCRS) collects cancer incidence rates on Wisconsin residents newly diagnosed with pre-invasive and invasive cancers. Unfortunately, the state registry does not collect information on basal or squamous cell carcinomas of the skin. This situation has resulted in providing inconclusive evidence of current rates for basal and squamous cell carcinomas of the skin in the State of Wisconsin.

Target Populations

The target populations for this study were (a) mothers of young children (children birth to 10 years of age) whose child received health care at a Mid-Western town medical center, ($n = 74$) and (b) family health care providers employed in the departments of Family Practice and Pediatrics ($n = 30$) in the same medical center.

Mothers of young children were targeted for this study because they have a substantial impact on the health promotion and health education of their children. Freeman and Robinson (2000) stated that responsibilities of mothers involve the desire and intent to put their children's welfare ahead of their own, the ability to comprehend the essential facts of the children's health and wellness, and the capability to make rational decisions regarding the children's condition and prognosis.

According to Grubbs and Tabano (2000), knowledge of cues to action and barriers to sun protective behaviors allow family health care providers to assist patients better as they incorporate healthy lifestyles.

Hypotheses of the Study

For the purposes of this study, the following hypotheses have been formulated:

A. Null hypotheses:

1. There is no significant statistical difference between family health care providers and mothers of young children on the knowledge of the "Use of a Hat" as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.
2. There is no significant statistical difference between family health care providers and mothers of young children on the knowledge of the "Use of Other Coverings" as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.
3. There is no significant statistical difference between family health care providers and mothers of young children on the knowledge of the "Use of Sunscreen" as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.
4. There is no significant statistical difference between family health care providers and mothers of young children on the knowledge of the "Use of Shade" protocol as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.
5. There is no significant statistical difference between family health care providers and mothers of young children on the knowledge of "Ultraviolet Ray Protection" protocol as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.

6. There is no significant statistical difference between family health care providers and mothers of young children on the knowledge of "Sun Exposure Protection" protocol as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.

Assumptions

For the purposes of this study, the following assumptions were made:

1. All family health care providers have access to a computer.
2. Mothers of young children have access to a television.
3. All family health care providers have gained exposure to some form of either formal or informal training in sun protection mechanism against skin cancer.
4. All family health care providers educate mothers of young children about sun protection techniques for the prevention of skin cancer.
5. Mothers of young children have discussed sun protective measures for prevention against skin cancer with their health care provider.
6. All respondents understood the questions and answered the research questions truthfully and to the best of their knowledge.

Delimitations

This study has the following delimitations:

1. Mothers of young children who participated in this study are volunteers from a convenience sample within a health care providers' waiting room.
2. Family health care providers who participated in this study were drawn from an employee list of health care providers used by the medical facility.

Limitations

In the interpretation of the findings of this study, the following limitations should be considered:

1. Generalization of the findings of this study is constrained by lack of randomization of the study sample, and inability to stratify by age, gender, race, or education.
2. Marked differences in the educational achievements of health care providers and mothers of young children are anticipated.
3. Only mothers of young children bringing a child to the health care facility as part of the requirements for school enrollment, for a well baby visit, or as a follow-up visit participated in the study.
4. Mothers of young children with an educational level of less than sixth to seventh grade may not fully comprehend some specific questions on the survey.
5. The study was conducted in the fall rather than the summer when sun protection health education programs are provided to the general public through the CDC CYC campaign.

Definitions of Terms

The following definitions are applicable to this study:

Basal Cell Carcinoma - skin cancer that develops on the top layer of the skin (American Cancer Society, 2000).

Cancer screening - assessment of outer skin and scalp by a health professional to identify irregular moles or lesions on the body (American Dermatology Association, 2001).

Carcinoma - cancer that begins on the outer skin that lines or covers an organ (American Cancer Society, 2000).

Choose Your Cover campaign - the Choose Your Cover (CYC) skin cancer prevention campaign designed to change social norms by promoting the acceptability of skin-protecting behaviors and the desirability of untanned skin.

Family health care providers - in this study, family health care providers include nurses, physicians, physician assistants, and nurse practitioners who are employed in the Family Practice and Pediatric departments at a Mid-Western medical center.

Infiltration - to enter or become established in gradually or unobtrusively (Merriam-Webster's Collegiate Dictionary, 2001).

Knowledge - an understanding of, or information about a subject which has been obtained by experience or study, and which is either in a person's mind or possessed by people generally (Webster's dictionary, 2000).

Melanoma - a skin cancer that begins in the cells (melanocytes) that produce the skin coloring (American Cancer Society, 2000).

Mothers of young children - mothers of children aged from birth to ten years of age with at least one child, but less than five children.

Program - a process of implementation of a learning activity for the public.

Protocol - the process of doing things, each section of the Choose Your Cover of the CDC campaign, for example, the "Use of a Hat," "Use of Other Coverings," etc.

Squamous cells - flat cells that look like fish scales (American Dermatology Association, 2001).

Ultraviolet light - radiation from the sun that has a wavelength shorter than visible light (toward the violet end of the visible spectrum) but longer than that of X-rays which can result in skin cancer, cataracts, and premature aging of the skin (United States Environmental Protection Agency, 2000).

Valid - sound, well-grounded.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

The purpose of this study was to investigate the extent to which the contents of the CDC CYC campaign on skin cancer has infiltrated a community of mothers of young children and family health care providers in a Mid-Western town.

In Chapter I, a background of the study, was presented. The CDC CYC campaign and the National Health Objectives 2000 and 2010 were introduced, and a review of the global, national, and Wisconsin skin cancer prevention programs were discussed.

In this chapter a review of the literature related to skin cancer knowledge among mothers of young children and health care providers are presented, and the effects of education on skin protection against the sun reaching mothers and family health care providers are analyzed.

Knowledge of skin cancer among mothers of young children

In 1995, the American Academy of Dermatology (AAD) conducted a nationwide telephone survey to assess public knowledge and awareness about melanoma. Findings concluded a high proportion (42%) of respondents had no knowledge that melanoma is a type of cancer or specifically a type of skin cancer. Awareness also varied substantially by age group: 38% of respondents aged 25-64

years were aware that melanoma is a type of skin cancer, compared with 16% of those aged 18-24 years.

A more specific account of parental knowledge was also reported by Buller et al. (1995). Parents who were Caucasian, older, and more educated had more skin cancer knowledge than those who were younger, less educated, and of other ethnic backgrounds. Parents aged 30 years or younger demonstrated the lowest level of skin cancer knowledge among all age groups. Knowledge between men and women did not differ. Findings also suggested that 44% of parents put sunscreen on their children, but only 6% put sunscreen on themselves.

Amonette, Rigel and Robinson (1997) found, in a longitudinal study spanning a period from 1986 to 1996, that the knowledge of the perceived harmful effects of the sun significantly varied among adults 18 years and older with children. Findings concluded women, younger persons, and persons residing in areas with fewer sunny days were more likely to tan intentionally.

Lee, Parker, Quarterman and Stone (1999), studied the relationship between skin cancer knowledge and preventive behaviors used by 43 females, age 20 to 40, with children ages 3 to 13. The study found no statistically significant relationship between parental knowledge of skin cancer and preventive behaviors used by participants to protect themselves. Seventeen questions assessed skin cancer knowledge of the participants. Scores ranged from 0 to 100, with scores between 80 to 100 reflecting high knowledge related to skin cancer facts, and scores between 60 to 79 reflecting a moderate knowledge. The mean skin cancer knowledge score for participants was 73.7 (SD = 16.3), reflecting moderate knowledge. Of the 43

participants surveyed, a good proportion (62.8%) had taught their children how to use a sunscreen, but only 40% had explained to their children the need to protect themselves from the sun.

Knowledge of skin cancer among family health care providers

According to Pion (1996), family health care providers play a critical role in education for the development of sun protection knowledge among the public. In addition to prevention, observation of irregular skin lesions is also necessary for prompt treatment for skin cancer abnormalities.

Despite the fact that primary health care providers are in the forefront for providing education to patients, Cohen, From, Stephenson and Tipping (1997) discovered that more than half (55.8%) of family physicians were not confident in their ability to recognize melanoma. When evaluating the importance of factors affecting a patient's prognosis, however, almost all the physicians (97%) rated the pathology report for lesion thickness as very or extremely important. In response to what needs to be done to increase provider education on skin cancer, 71% of the physicians believed hands-on teaching/patient demonstration was a very/extremely helpful manner in which to learn new information about the skin.

Boehm, Easton, Price and Telljohann (1997) also found that pediatricians felt they did not have enough sun-protection education in their residency programs. Recommendations of the study included education of health care providers in current practice through on-site training by dermatologists or additional education through continuing educational credits.

In another study conducted by Hall, Horner, Simal and Whited (1997), results indicated dermatologists were more likely than primary care providers to identify skin cancer lesions ($p < .001$). The study concluded that primary care providers' examinations for diagnosing skin cancer are not sensitive, which could make their examinations ineffective as a screening test. Recommendations include that unless primary care providers' diagnostic skills can be improved, skin cancer screening may not be an effective public health policy. Alternatively, periodic screening examinations by dermatologists may be warranted, at least among high-risk populations, if skin cancer screening is widely adopted.

Effects of sun protection educational intervention programs reaching mothers of young children

With a few exceptions, mothers of young children have been found to benefit from sun protection educational programs. Crane, Moretti, Plomer, Schneider and Yohn (1999) found the "Block the Sun, Not the Fun" intervention program did not appear to change the sun protection attitudes or practices among parents. Yet, the use of clothing and shade interventions implemented among parents and children at childcare centers resulted in increased parental satisfaction with both the sun protection practices offered and the childcare center.

Chang, Glanz, Muneoka, Silverio and Song (1998) conducted an evaluation of a four-week Hawaiian SunSmart educational program among parents of children 6 to 8-years old ($n = 156$ baseline; $n = 113$ follow-up). At baseline, mean knowledge scores for parents were relatively high, 4.9 out of a range of 0-6. At follow-up, knowledge scores were slightly higher, 5.0 out of the same 0-6 range.

In another study to evaluate the effectiveness of an educational intervention for mothers in newborn nurseries about sun protection techniques, Benjes et al. (1999) found that nearly 90% recalled the informational program and equal numbers stated that receiving educational materials in the newborn nursery was timely. Nearly two-thirds of the mothers reported that the intervention was the only sun protection information they received from a health care provider in the year preceding the program.

Beach et al. (2000), discovered that prevention messages captured the attention of parents. In a pre- and post-telephone interview study, the researchers distributed various types of skin cancer prevention curriculums by mail to parents of children for over a period of twelve months. Eighty-seven percent of the parents were reported to have either read or looked into at least one skin cancer educational newsletter, 42% read all four newsletters, and 37% read all three brochures, while 28% reported that a family member read at least one.

Effects of sun protection educational intervention programs reaching family health care providers

Family health care providers have also been found to benefit from sun protection educational programs. However, a study by Collison, Dietrich, Grant-Petersson, Hill Sox, and Woodruff (2000) of 261 primary care clinicians who participated in a Sun Save Primary Care intervention in New Hampshire found that about half (41-60%) provided sun protection counseling "most of the time" or "almost always" during "summer well care" visits of their patients. Pediatricians were found to provide sun protection counseling more often than family physicians.

Additionally, primary care clinicians involved in the study increased their use of handouts, waiting room educational materials, and sunscreen samples as a result of the Sun Safe Primary Care Intervention.

Dolan, Martin, Ng, Rademaker, and Robinson (1997) assessed the effectiveness of two 1-hour small group educational sessions on skin cancer control conducted jointly by a dermatologist and a general internist. Study participants were internal medicine house-staff and attending physicians with outpatient practices in a Mid-Western university medical school. Analysis of the data suggested that physicians who attended two sessions had greater improvement in their risk identification score (absolute difference of 12% vs. - 0.7%, $p = .004$) than physicians who attended no intervention at all. After the intervention, the percentage of physicians feeling adequately trained on skin exams increased from 35% to 47% in the control group ($n = 36$) and from 37% to 57% in the intervention group ($n = 46$).

In another study, Baldwin, Elon, Frank, McAlpine and Saraiya (2000) found that out of 3,032 female non-dermatologist physicians, only twenty-seven percent counseled or screened their typical patients on skin cancer or sunscreen use at least once a year. Almost half (49%) did so less frequently, and 24% never counseled or screened at all.

Chapter III

Methods and Procedures

Introduction

The purpose of this study was to investigate the extent to which the contents of the CDC "Choose Your Cover" program on skin cancer had infiltrated a community of mothers of young children and family health care providers in a Mid-western town.

In this chapter, the methods and procedures used for the selection of subjects, instrument development, pilot testing, data collection, and the statistical analysis methods are presented.

Subject Selection

The subjects of this study were mothers of young children ($n = 74$), whose child had an appointment with a health care provider at a Mid-Western town medical center. Family health care providers consisted of providers employed in the departments of Family Practice and Pediatrics ($n = 30$) at the same medical center.

The selection procedure for mothers of young children in this study were as follows:

- a. Within the week of data collection, trained health care personnel at the Mid-Western town medical center solicited the participation of each mother who attended the medical center with a young child.

- b. Upon agreement by the mother to participate, the trained health care personnel administered the eligibility test to determine whether or not the mother met the study inclusion criteria (see Appendix A).
- c. This process continued for the duration of one week for data collection.
- d. Samples of Neutrogena sunscreen lotion and CDC "Choose Your Cover" campaign brochures were distributed to all mothers who completed the Checklist.

The selection procedure for family health care providers utilized a non-probability convenience sampling procedure. Participants were drawn from a list of employed staff members used by the Mid-Western town medical center.

A thank you letter and CDC Choose Your Cover campaign brochures were distributed to all family health care providers who participated in the study (Appendix B).

Instrument Development

A 42-item Checklist, using multiple-choice items, (Appendix C) was constructed to measure the extent of knowledge on the six primary skin cancer protective mechanisms among mothers of young children and family health care providers. The instrument was designed as a mailed survey to family health care providers, and as a hand distributed questionnaire by health care professionals to mothers of young children.

The questionnaire, "Knowledge of CDC Skin Cancer Prevention Protocol Checklist," consisted of two sections: (a) skin cancer knowledge assessment and (b) demographic information of participants. Questions concerning skin cancer

knowledge were based on the CDC CYC program. Previous skin cancer surveys, such as Relationship Between Skin Cancer Knowledge and Preventive Behaviors Used by Parents (Lee et al., 1999), and Effectiveness of a Skin Cancer Control Educational Intervention for Internal Medicine Housestaff and Attending Physicians (Dolan et al., 1997), were consulted as guides in the development of the skin cancer and demographic questions.

Instrument Validation/Reliability

The instrument was analyzed for content validity and reliability utilizing an expert jury panel. The jurors were selected based on their expertise in one or more of the following areas: skin cancer and sun protection efforts and effects, program evaluation, research design, and/or instrument development. Dermatologists were utilized as members of the panel because of their expertise in skin knowledge. Other teams with expertise in the areas of survey construction and research design provided input.

Eight individuals were contacted by letter (Appendix D) to rate the acceptability of each question of the inventory using a 5-point Likert-type scale. The scale was based on the degree to which the question and/or questions would produce the responses necessary to address each hypotheses-related question. A rating scale of 1 indicated a "not acceptable" status whereas a rating of 5 indicated that the question was considered "indispensable." Space for item-related commentary was also provided.

The mean expert jury panel score was computed for each question. Items with a score below a mean of 3 lead to question revisions prior to piloting the instrument.

Instrument Readability

The Checklist was tested for readability scores utilizing Microsoft Word 2000 software. Calculations for the reading level of the Checklist were performed, including Flesch Reading Ease score and Flesch-Kincaid Grade Level score. The Flesch Reading Ease score rates text on a 100-point scale; the higher the score, the easier it is to understand the document. As suggested by Flesch Reading Ease score, a score of 60 to 70, was the aim (Microsoft Word, 2000). The Flesch-Kincaid Grade Level score is based on the U.S. grade-school level. As recommended by Flesch-Kincaid, a survey instrument should aim to achieve a score of approximately 7.0 to 8.0 (seventh to eighth grade reading level). The Checklist had a Flesch Reading Ease score of 46.2 and a Flesch-Kincaid Grade Level score of 9.4.

The questionnaire was edited through the removal of the introductory paragraphs to achieve a Flesch Reading Ease score of 70.1 and a Flesch-Kincaid Grade Level score of 5.2. Although the introductory paragraphs were included in the distribution of the Checklist to mothers and providers, the questions themselves achieved a score below the recommended seventh to eighth grade reading level.

Institutional Review Board

The research procedure involved a single-phase distribution of the "Knowledge of CDC Skin Cancer Prevention Protocol Checklist" among mothers of young children and family health care providers. The Checklist was submitted for approval to the Institutional Review Board for the Protection of Human Subjects of the University of Wisconsin-La Crosse and the Internal Review Board of the Mid-Western medical healthcare center where the data were collected.

Data Collection

The Checklist was administered to seventy-four ($n = 74$) eligible mothers of young children. The following procedures were utilized:

- a. Upon agreement to participate, each identified mother of a young child (or children) was administered the eligibility questionnaire.
- b. Eligible mothers were requested to complete the Checklist while in the Mid-Western medical center waiting room and requested to continue completion of the Checklist in the exam room, while waiting for the arrival of a health care provider.
- c. All mothers who completed the Checklist received a sample of Neutrogena sunscreen lotion and CDC Choose Your Cover campaign brochures (Appendix E) upon completion of the Checklist.

The Checklist was mailed to thirty ($n = 30$) family health care providers, within the departments of Family Practice or Pediatrics at the Mid-Western medical healthcare center, utilizing the following two-step procedure:

- a. An initial mailing of the Checklist to family health care providers employed in the Family Practice and Pediatrics departments of the Mid-Western town medical center. A cover letter accompanied the Checklist, requesting family health care providers participation (Appendix F).
- b. A follow-up e-mail was sent after one week as a reminder to complete and send the questionnaire (Appendix G).

The administration period for family health care providers covered a total of two weeks.

Statistical Method

Raw data collected through the Checklist was analyzed with SPSS 10.1 edition statistical analysis program using the following methods:

- Step 1: Descriptive data analysis was used for demographic information about the distinct groups and specific knowledge components that were helpful in completion of the checklist.**
- Step 2: Cross-tab analysis of individual questions was performed on nominal data. The percent within respondent type, identifying mothers of young children and health care providers, was calculated for individual responses.**
- Step 3: Each variable within the sun protection question was scored. The score for each question ranged from 0-1, with 0 signifying an incorrect answer and 1 signifying a correct answer.**
- Step 4: Each sun protection category was scored. The score for each category ranged from 0-4. This score is a ratio measurement. This represents the number correct for the individual on that particular section. All sections were totaled to reflect a level of knowledge on sun protection techniques for the prevention of skin cancer.**
- Step 5: Using the ratio level data, an independent sample t-test was performed to identify if there was a statistical significant difference on the average section scores for mothers and providers.**

Step 6: T-tests were conducted for independent means to determine, for each of the outcome variables, the levels of statistical significance between groups.

Step 7: Using the independent t-test, each hypothesis was tested at the .05 level of significance.

CHAPTER IV

RESULTS AND DISCUSSION

Introduction

The purpose of this study was to investigate the extent to which the contents of the CDC "Choose Your Cover" campaign on skin cancer has infiltrated a community of mothers of young children and family health care providers in a Mid-Western town.

In this chapter, results and discussion are presented.

Results

Of the 130 Checklists distributed to eligible mothers of young children, 74 were completed and included in the study indicating a response rate of 56 percent. Thirty of the 39 Checklists mailed to family healthcare providers were completed and returned, indicating a response rate of 76.9% for the study. Altogether an average response rate of 66.4% was recorded for the study.

The Checklist consisted of six knowledge sections. Additionally, one section on general questions, and another section on demographics were included. Knowledge sections utilized the six parameters of the CDC CYC advocated mechanism for sun protection against skin cancer, namely (a) Use of a Hat; (b) Use of Other Coverings; (c) Use of Sunscreen; (d) Use of Shade; (e) Ultraviolet Ray Protection; and (f) Sun Exposure Protection.

Four questions were asked for each mechanism in this section, and each question contained a stem, such as “the best hat material for protection against the sun is...” followed by four choices of response and a cell for “I don’t know”. A total of 24 questions were asked in this section.

The first general questions contained two questions relevant to weather and skin protection. Twelve demographic questions completed the Checklist (See Appendix C).

Results are presented in the following three sequences:

- I. Characteristics of the study participants.
- II. Findings that validate the extent to which the contents of the CDC Choose Your Cover program on skin cancer had infiltrated the community of mothers of young children and family health care providers in the Mid-Western town.
- III. Conclusions for each of the six hypotheses developed and tested for the study.

Sequence I: Characteristics of Study Participants

A total of 74 mothers of young children participated in this study. This compared to 17 males and 13 females who formed the core of the family health care provider population.

There was a distinct age difference between mothers of young children and family health care providers. Mothers of young children ranged from less than 18 to 54 years of age, compared to family health care providers who ranged from 25 to 64 years of age.

The majority of the participants for both populations were married (75.7% of mothers and 90% of providers), and Caucasian (94.6% of mothers and 86.7% of providers). The highest level of education was among providers, with all providers in the post-graduate/professional category and mothers placing lower with 37.8% having some college/technical school and 33.8% college graduates.

Family health care providers had fewer children in the household, with only 23.3% having more than two children, compared to 35.1% of mothers with more than two children in their household.

Both sample populations, when asked to state their skin reaction to the sun, reported their skin usually burns, then tans. Both sample populations, mothers of young children (83.8%) and family health care providers (86.7%) reported no family history of skin cancer.

Mothers of young children and family health care providers were asked about frequency of personal skin cancer assessments. Thirty-three percent of providers performed personal skin cancer assessments regularly, whereas 14.9% of mothers performed skin cancer assessments on a regular basis. Providers and mothers were also questioned regarding their frequency of skin exams on patients/children. Thirty-three percent of providers frequently performed skin cancer exams on patients, yet only 16.2% of mothers frequently performed skin cancer exams on children.

Mothers of young children and family health care providers were asked to document health information resources utilized for health education. Over 67 percent of mothers, and 90% of providers utilized health care professionals as a health information resource for health education. Medical media placed second as a health

information resource for health education among 58.1% of mothers and 46.7% of providers. Finally, family and friends were utilized by 36.5% of mothers as a health information resource for health education, yet 13.3% of family health care providers sought out employers and community groups as a health information resource for health education (See Table 1).

Table 1. Characteristics of the Study Participants

Characteristics	Mothers ($n = 74$)		Providers ($n = 30$)	
	(n)	(%)	(n)	(%)
Gender				
Male	0	0	17	56.7
Female	74	100	13	43.3
Age				
less than 18	1	1.4	-	-
18-24 years	9	12.2	-	-
25-34 years	51	68.9	4	13.3
35-44 years	11	14.9	12	40.0
45-54 years	2	2.7	13	43.3
55-64 years	-	-	1	3.3
Marital Status				
single	15	20.3	2	6.7
married	56	75.7	27	90
separated/divorced	3	4.1	1	3.3
Ethnic Origin				
Caucasian	70	94.6	26	86.7
Other ethnicity	4	5.4	4	13.3

Note. A dash in an empty cell indicates data were not obtained or not reported.

Table 1. Characteristics of Study Participants (cont.)

Characteristics	Mothers (n)	(n = 74) (%)	Providers (n)	(n = 30) (%)
Highest Level of Education				
less than H.S.	3	4.1	-	-
H.S. graduate	12	16.2	-	-
Some college/ technical school	28	37.8	-	-
College graduate	25	33.8	-	-
Post graduate/ professional	6	8.1	30	100
Number of children in household				
none	0	0	8	26.7
one	20	28.4	6	20
two	27	36.5	9	30
three	18	24.3	4	13.3
greater than four	8	10.8	3	10
Skin reaction to sun exposure				
always burns, never tans	16	21.6	2	6.7
burns, then tans	21	28.4	10	33.3
usually tans, sometimes burns	36	48.6	18	60
never burns	1	1.4	-	-
Family history of skin cancer				
Yes	10	13.5	4	13.3
No	62	83.8	26	86.7
Don't know	2	2.7	-	-

Note. A dash in an empty cell indicates data were not obtained or not reported.

Table 1. Characteristics of Study Participants (cont.)

Characteristics	Mothers (n)	(n = 74) (%)	Providers (n)	(n = 30) (%)
Perform self skin assessments				
Yes	11	14.9	10	33.3
No	63	85.1	20	66.7
How often do you perform skin exams on children/patients?				
Almost Never	27	36.5	4	13.3
Rarely	19	25.7	2	6.7
Sometimes	13	17.6	7	23.3
Frequently	12	16.2	10	33.3
Almost Always	3	4.1	7	23.3
Health Information Sources Used for Health Education				
Mass Media	43	58.1	14	46.7
Healthcare Professionals	50	67.6	27	90
Family and Friends	27	36.5	3	10
Schools and Daycare	7	9.5	-	-
Employer and Community Groups	9	12.2	4	13.3

Note. A dash in an empty cell indicates data were not obtained or not reported.

Sequence II: Validation of the extent of content infiltration

To validate the extent to which the contents of the CDC CYC program on skin cancer had infiltrated the community of mothers of young children and family health care providers in this Mid-Western town, cumulative percentage scores and means were calculated for each of the six mechanisms.

Among the six mechanisms, information on Use of Sunscreen appeared to have infiltrated higher among mothers of young children. They obtained a cumulative average score of 71% on this category and a mean of 2.9 (SD = .77). Mothers also obtained a high score on the category of Sun Exposure Protection with an average score of 57% and a mean of 2.3 (SD = .84)(Table 2).

Ultraviolet Ray Protection had low infiltration among mothers of young children with an average score of 49% ($M = 2.0$; SD = .99). The Use of a Hat category had not infiltrated even as much as Ultraviolet Ray Protection with an average of 39% ($M = 1.5$; SD = .98).

Cumulative percentage scores and means were calculated to validate the extent to which each of the six mechanisms of the CDC CYC campaign had infiltrated the community of family health care providers (Table 3).

Knowledge of information on Use of Sunscreen was also highest for infiltration of knowledge among family health care providers with an average score of 84% ($M = 3.4$; SD = .69). Sun Exposure Protection had also infiltrated higher among family health care providers with an average score of 82.5% ($M = 3.3$; SD = .84). The

categories of Use of a Hat (59%; $M = 2.4$; $SD = .85$) and Use of Other Coverings (68%; $M = 2.7$; $SD = .64$) did not show a high level of infiltration among providers.

Table 2. Cumulative Scores of Mothers on the CDC Protective Mechanisms

Mechanism	0		1		2		3		4	
	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%
Use of a Hat	12	16.2	25	33.8	22	29.7	15	20.3	0	0
Use of Other Coverings	3	4.1	13	17.6	29	39.2	26	35.1	3	4.1
Use of Sunscreen	1	1.4	2	2.7	16	21.6	43	58.1	12	16.2
Use of Shades	1	1.4	19	25.7	23	31.1	25	33.8	6	8.1
Ultraviolet Ray Protection	7	9.5	17	23.0	22	29.7	28	37.8	0	0
Sun Exposure Protection	3	4.1	8	10.7	28	37.8	34	45.9	1	1.4

Note. Score for sun protection mechanism represents the number correct for the individual on the particular section. The score for each section ranges from 0-4.

Table 3. Cumulative Scores of Providers on the CDC Protective Mechanisms

Mechanism	0		1		2		3		4	
	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%
Use of a Hat	1	3.3	2	6.7	14	46.7	11	36.7	2	6.7
Use of Other Coverings	0	0	1	3.3	8	26.7	19	63.3	2	6.7
Use of Sunscreen	0	0	0	0	3	10	13	43.3	14	46.7
Use of Shades	0	0	1	3.3	8	26.7	12	40	9	30
Ultraviolet Ray Protection	0	0	0	0	4	13.3	20	66.7	6	20
Sun Exposure Protection	0	0	1	3.3	4	13.3	10	33.3	15	50.0

Note. Score for sun protection mechanism represents the number correct for the individual on the particular section. The score for each section ranges from 0-4.

Sequence III: Hypotheses

In this sequence, the six hypotheses of the study and their test results are presented:

Hypothesis 1:

Null:

There is no significant statistical difference between family health care providers and mothers of young children on the knowledge of the Use of a Hat as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.

The Use of a Hat section of the Checklist contained four questions.

Participants were asked knowledge questions regarding best hat material, color, rim size, and style for protection against the sun. The score for Use of a Hat ranged from 0-4.

Forty-six percent of family health care providers correctly answered 2 out of 4 of the questions correctly (50%) and 36.7% answered 3 out of 4 questions correctly (75%), compared to thirty-three percent of mothers of young children answered 1 out of 4 questions correctly (25%), and twenty-nine percent answered 2 out of 4 questions correctly (50%).

Table 4 displays the comparison of right answer means for the Use of a Hat category. Family health care providers obtained an average mean of 2.4 (SD = .85), whereas mothers of young children had a lower mean average of 1.5 (SD = .98) for the Use of a Hat category.

Table 4. Comparison of Right Answer Means for Use of a Hat

Categories	n	Mean	SD	t	df	p-value
Mothers	74	1.5	.99	3.990	102	< 0.001*
Providers	30	2.4	.85			

* $p < .05$

An independent sample t-test generated a p-value of less than 0.001. Because the p-value was less than the .05 level of significance, we concluded that there is significant statistical difference between family health care providers and mothers of young children on the knowledge of the Use of a Hat as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.

Hypothesis 2:

Null:

There is no significant statistical difference between family health care providers and mothers of young children on the knowledge of the Use of Other Coverings as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.

The Use of Other Coverings section of the Checklist contained four questions. Participants were asked knowledge questions regarding best way to protect skin from the sun, best type of clothing, another way to protect skin against the sun besides clothing, and best type of shirt to wear for protection against the sun. The scores for

Use of Other Coverings ranged from 0-4. Sixty-three percent of family health care providers answered 3 out of 4 questions correctly (75%) and 26.7% answered 2 out of 4 questions correctly (50%). Thirty-nine percent of mothers of young children answered 2 out of 4 questions correctly (50%) and 35.1% answered 3 out of the 4 questions correctly (75%).

Table 5 displays the comparison of right answer means for Use of Other Coverings category. Family health care providers had an average mean of 2.7 (SD = .64), whereas mothers of young children had a mean average of 2.2 (SD = .91) for the Use of Other Coverings category.

Table 5. Comparison of Right Answer Means for Use of Other Coverings

Categories	<u>n</u>	Mean	SD	t	df	p-value
Mothers	74	2.2	.91	-3.054	102	0.003*
Providers	30	2.7	.64			

*p < .05

An independent sample t-test generated a p-value of 0.003. Because the p-value was less than the .05 level of significance, we concluded that there is significant difference between family health care providers and mothers of young children on the

knowledge of Use of Other Coverings as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.

Hypothesis 3:

Null:

There is no significant statistical difference between family health care providers and mothers of young children on the knowledge of the Use of Sunscreen as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.

The Use of Sunscreen section of the Checklist contained four questions.

Participants were asked knowledge questions regarding how sunscreens work, best time to apply sunscreen, definition of SPF, and the best SPF rating to wear for protection against the sun. The scores for Use of Sunscreen ranged from 0-4. Forty-six percent of family health care providers correctly answered all four questions correct (100%) and 43.3% answered 3 out of 4 questions correctly (75%). Sixteen percent of mothers of young children answered all four questions correctly (100%) and 58.1% answered 3 out of 4 questions correctly (75%).

Table 6 displays the comparison of right answer means for the Use of Sunscreen category. Family health care providers had an average mean of 3.4 (SD = .69), whereas mothers of young children had a lower mean of 2.9 (SD = .77) for the Use of Sunscreen category.

Table 6. Comparison of Right Answer Means for Use of Sunscreen

Categories	<u>n</u>	Mean	SD	t	df	p-value
Mothers	74	2.9	.77	-3.204	102	.002*
Providers	30	3.4	.69			

* $p < .05$

An independent sample t-test generated a p-value of 0.002. Because the p-value was less than the .05 level of significance, we concluded that there is significant statistical difference between family health care providers and mothers of young children on the knowledge of the Use of Sunscreen protocol as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.

Hypothesis 4:

Null:

There is no significant statistical difference between family health care providers and mothers of young children on the knowledge of the Use of Shade protocol as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.

The Use of Shade section of the Checklist contained four questions.

Participants were asked knowledge questions regarding best type of clothing to wear in the shade, best protection when working outside in the shade, type of rays sunglasses block, and the best type of sunglasses to wear for protection against the

sun. The scores for Use of Shade ranged from 0-4. Forty percent of family health care providers correctly answered 3 out of 4 questions (75%) and 30% answered all four questions correctly (100%). Thirty-three percent of mothers of young children answered 3 out of 4 questions correctly (75%) and 31.1% answered 2 out of 4 questions correctly (50%).

Table 7 displays the comparison of right answer means for the Use of Shade category. Family health care providers had an average mean of 2.9 (SD = .85), whereas mothers of young children had a mean of 2.2 (SD = .96) for the Use of Shade category.

Table 7. Comparison of Right Answer Means for Use of Shade

Categories	n	Mean	SD	t	df	p-value
Mothers	74	2.2	.96	-3.701	102	< 0.001*
Providers	30	2.9	.85			

* $p < .05$

An independent sample t-test generated a p-value of less than 0.001. Because the p-value was less than the .05 level of significance, we concluded that there is significant statistical difference between family health care providers and mothers of young children on the knowledge of the Use of Shade protocol as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.

Hypothesis 5:**Null:**

There is no significant statistical difference between family health care providers and mothers of young children on the knowledge of the Ultraviolet Ray Protection protocol as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.

The Ultraviolet Ray Protection section of the Checklist contained four questions. Participants were asked knowledge questions regarding the best way to protect skin against ultraviolet rays, how ultraviolet rays affect the skin, other health problems ultraviolet rays cause other than skin cancer, and which ultraviolet rays penetrate more through the top layer of human skin? The scores for Ultraviolet Ray Protection ranged from 0-4. Sixty-six percent of family health care providers answered 3 out of 4 questions correctly (75%) and 20% answered all four questions correctly (100%). Thirty-seven percent of mothers of young children answered 3 out of 4 questions correctly (75%) and 29.7% answered 2 out of 4 questions correctly (50%).

Table 8 displays the comparison of right answer means for the Ultraviolet Ray Protection category. Family health care providers obtained an average mean of 3.1 (SD = .58), whereas mothers of young children had a lower mean average of 2.0 (SD = .99) for the Ultraviolet Ray Protection category.

Table 8. Comparison of Right Answer Means for Ultraviolet Ray Protection

Categories	n	Mean	SD	t	df	p-value
Mothers	74	2.0	.99	-5.680	102	< 0.001*
Providers	30	3.1	.58			

*p < .05

An independent sample t-test generated a p-value of less than 0.001. Because the p-value was less than the .05 level of significance, we concluded that there is significant statistical difference between family health care providers and mothers of young children on the knowledge of the Ultraviolet Ray Protection as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.

Hypotheses 6:

Null:

There is no significant statistical difference between family health care providers and mothers of young children on the knowledge of the Sun Exposure Protection as a sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.

The Sun Exposure Protection section of the Checklist contained four questions. Participants were asked knowledge questions regarding environmental factors in the development of skin cancer, skin reaction to a suntan, the results of a

suntan, and the skin type at highest risk for skin cancer. The scores for Sun Exposure Protection ranged from 0-4. Fifty-percent of family health care providers correctly answered all four questions (100%) and 33.3% answered 3 out of 4 questions correctly (75%). Forty-five percent of mothers of young children answered 3 out of 4 questions correctly (25%), and 37.8% answered 2 out of 4 questions correctly (50%).

Table 9 displays the comparison of right answer means for the Sun Exposure Protection category. Family health care providers had an average mean of 3.3 (SD = .84), whereas mothers of young children has a lower mean of 2.3 (SD = .83) for the Sun Exposure Protection category.

Table 9. Comparison of Right Answer Means for Use of Sun Exposure Protection

Categories	<u>n</u>	Mean	SD	t	df	p-value
Mothers	74	2.3	.83	-5.680	102	<0.001
Providers	30	3.3	.84			

*p < .05

An independent sample t-test generated a p-value of < 0.001. Because the p-value was less than the .05 level of significance, we concluded that there is significant statistical difference between family health care providers and mothers of young children on the knowledge of Sun Exposure Protection as sun protective mechanism against skin cancer as advocated in the CDC CYC protocol.

Discussion

The purpose of this study was to investigate the extent to which the contents of the CDC CYC campaign on skin cancer had infiltrated a community of mothers of young children and family health care providers in a Mid-Western town. Results concluded that out of the six mechanisms of the CDC CYC campaign, knowledge information on Use of Sunscreen and Sun Exposure Protection had infiltrated the most among both mothers of young children and family health care providers. Knowledge information on Use of a Hat and Ultraviolet Ray Protection resulted in low infiltration among mothers of young children. Family health care providers knowledge information on Use of a Hat also had not infiltrated to a large extent. Knowledge information on Use of Shades had not infiltrated among both mothers of young children and family health care providers.

The hypotheses of this study were established to evaluate the CDC's CYC web site skin cancer prevention campaign, which provides information and education to visitors on six skin cancer protective mechanisms against the sun. Each hypothesis was formulated to evaluate statistical differences between family health care providers and mothers of young children on the knowledge of sun protective mechanisms against skin cancer as advocated in the CDC CYC protocol. Results were found to be significant. Results indicated that family health care providers had a higher score than mothers of young children on the overall knowledge of the six sun protective mechanisms against skin cancer as present in the CDC CYC protocol.

According to Bewerse, Goldsmith, and Koh (1995), sun protection education for parents and young children has been recently recommended and numerous

interventions targeting parents, caregivers, and children are under way in the United States and elsewhere. At the time that this study was conducted, a skin cancer awareness educational program was unavailable to mothers of young children or family health care providers in the Family Practice or Pediatric departments of the Mid-Western medical center. Information from this study concludes that lack of skin cancer educational programs is strongly associated with a low level of knowledge of sun protective mechanisms against skin cancer among mothers of young children.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to investigate the extent to which the contents of the CDC Choose Your Cover campaign on skin cancer has infiltrated a community of mothers of young children and family health care providers in a Mid-Western town.

In this chapter, conclusions are presented and recommendations are suggested based on the findings from this study.

Conclusions

Based on the results of this study, the following conclusions are presented:

- 1. There was a distinct age difference between mothers of young children and family health care providers.**
- 2. The majority of the participants were Caucasian and married.**
- 3. All providers were college graduates.**
- 4. Family health care providers had fewer children in the household compared to mothers of young children.**
- 5. Family health care providers and mothers of young children utilized health care professionals as a primary health information resource for health education.**

6. Knowledge information on Use of Sunscreen and Sun Exposure Protection had infiltrated the most among family health care providers and mothers of young children.
7. Knowledge information on Use of a Hat had a low level of infiltration among family health care providers and mothers of young children.
8. Family health care providers appear to have higher knowledge of all six primary skin cancer protective mechanisms of the CDC Choose Your Cover educational program.

Recommendations

On the basis of the findings of this study, the following recommendations are offered for further investigation:

1. There is a need for more communication between family health care providers and mothers of young children about skin cancer prevention.
2. Since previous studies suggested that training increases knowledge of family health care providers, it is strongly recommended that the medical facility implement an educational program to instill skin cancer education.
3. It is essential for the medical center to team up with an institution of learning to create a joint project that will initiate and institutionalize training in this field, benefiting from the generous resources from the CDC CYC program. Resources from the CDC CYC program include grants, program development and planning, and implementation, as has been practiced in other states.
4. For the benefits of the people in the Mid-Western areas, television and radio stations must get involved in the dissemination of pertinent information

regarding skin cancer protection as presented in the CDC CYC campaign program.

5. Finally, it was noted in this investigation that mothers of young children rely on family health care providers as their primary source for health education. It is therefore recommended that every effort should be made to increase the knowledge base of family health care providers on this issue for the betterment of their clients/patients.

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APPENDIX A

**PROCEDURE FOR CONFIRMING ELIGIBILITY AS A MOTHER OF YOUNG
CHILDREN ADMINISTERED BY HEALTH CARE PERSONNEL IN THE
FAMILY PRACTICE AND PEDIATRIC DEPARTMENTS**

**PROCEDURE FOR CONFIRMING ELIGIBILITY AS A MOTHER OF
YOUNG CHILDREN ADMINISTERED BY HEALTH CARE PERSONNEL IN
THE FAMILY PRACTICE AND PEDIATRIC DEPARTMENTS**

Name of Participant _____
Date _____
Name of Staff Member _____

Mothers of young children will be identified through two questions administered by nurses in the Family Practice or Pediatric department, screening for inclusion or exclusion in the data collection process.

Question one, "Is this child yours?" Yes ___ No ___

will decipher if a female is defined as a mother.

Question two, "How old is your child?" Yes ___ No ___

will conclude if the female is defined as a mother of a young child.

In this study, mothers of young children are defined as having children aged from birth to ten years of age. Upon adequate screening completion by a nurse, determination of inclusion or exclusion for the study will occur.

APPENDIX B
FAMILY HEALTH CARE PROVIDERS
THANK YOU LETTER

October 15, 2001

Dear _____,

Thank you for your participation in the "Knowledge of CDC Skin Cancer Prevention Protocol Checklist." The results of the survey will be donated to the Gundersen Lutheran Medical Library. I will also route the findings through your department.

Enclosed are documents on Skin Cancer Prevention from the Centers of Disease Control and Prevention. If you are interested in obtaining material for parents of children, please contact me at extension 4357 or at 895-6901.

Thank you again for your participation in helping to evaluate the CDC's effort in communicating this public health topic.

Sincerely,

Terrienne Reynolds

CHE-MPH program

University of Wisconsin-La Crosse

APPENDIX C
KNOWLEDGE OF CDC SKIN CANCER PREVENTION
PROTOCOL CHECKLIST

KNOWLEDGE OF CDC SKIN CANCER PREVENTION

PROTOCOL CHECKLIST

The Centers for Disease Control and Prevention (CDC) has provided guidelines for the protection of skin and the prevention of skin cancer, resulting from exposure to sunlight. The purpose of this assessment is to measure the extent to which we understand the CDC guidelines. Information provided will assist us in developing a skin cancer prevention education program that will benefit mothers of young children. The attached survey should take approximately 15 minutes to complete.

This survey ensures both your privacy and confidentiality. No name or social security number is needed. By completing the survey, you are consenting to the use of the data for publication and presentation at public conferences. This study has been approved by the University of Wisconsin-La Crosse and Gundersen Lutheran Human Subjects Committee. If you need further information about the study you can telephone Daniel Duquette, Ph.D., chair of University of Wisconsin-La Crosse Human Subject Committee at 608-785-8161, or Bernard J. Hammes, Ph.D., chair of the Gundersen Lutheran Human Subject Committee, at 608-782-7300 or toll free at 1-800-362-9567. Thank you very much for participating in this study.

SKIN CANCER KNOWLEDGE ASSESSMENT

Please check the most appropriate answer to each of the following questions.

Use of a Hat

Check one answer only.

1. The best hat material for protection against the sun is:

- Canvas Cotton Straw Cotton/Polyester I don't know

2. The best hat color for protection against the sun is:

- White Beige Black Yellow I don't know

3. The best hat rim size for best protection against the sun is:

- 1/2 inch 1 inch 2 inch 3 inch or greater I don't know

4. The best hat style for protection against the sun is:

- Baseball hat Bonnet Wide-brimmed hat
 Straw hat I don't know

Check one answer only.

Use of Other Coverings

4. The best way to protect skin from the sun is:

- Wearing a wide-brimmed hat
- Wearing a thin-brimmed hat
- Wearing a short-sleeved shirt
- Wearing a white t-shirt
- I don't know

5. The best type of clothing for protection against the sun is:

- Tightly-woven fabric
- Loosely-woven fabric
- Wet clothing
- Light-weight fabric
- I don't know

6. Another way to protect the skin against the sun besides clothing is:

- Swimming in a pool
- Using an umbrella for shade
- Sitting in the shade
- Application of sunscreen on exposed skin
- I don't know

7. The best type of shirt for protection against the sun is:

- Dry t-shirt
- Wet t-shirt
- Tank top
- Tie-dyed t-shirt
- I don't know

Use of Sunscreen

Check one answer only.

8. Sunscreen works best by:

- Absorbing the sun's rays
- Forming a barrier around the body
- Absorbing, reflecting or scattering sun rays
- Adjusting the sun's rays
- I don't know

Check one answer only.

10. The best time to apply sunscreen for protection against the sun is:

- When you are out in the sun
- Before exposure to the sun
- After peak sun hours
- During peak sun hours
- I don't know

11. The definition of "SPF" is:

- Sun policy factor
- Sun prevention factor
- Sun protection factor
- Sun providing factor
- I don't know

12. The best "SPF" rating to wear for protection against the sun is:

- 5
- 10
- 15
- 30 or greater
- I don't know

Use of Shades

Check one answer only.

13. When in the shade, the best type of clothing to wear to protect skin from the sun is:

- A wet t-shirt
- A tank top
- To wear loose fit clothing that does not cling to skin to keep you cool
- To wear a short sleeve shirt
- I don't know

14. The best protection against the sun when working outside without shade is:

- A wide-brimmed hat
- A long-sleeved shirt
- Sunscreen
- A wide-brimmed hat, long-sleeved shirt, and lipscreen
- I don't know

15. Sunburn block:

- Ultraviolet alpha ray and gamma rays
- Ultraviolet beta rays
- Ultraviolet alpha and beta rays
- Ultraviolet gamma rays and beta rays
- I don't know

16. The best style of sunglasses to wear for protection against the sun is:

- Wrap around sunglasses
- Tinted sunglasses
- Oval sunglasses
- Colored sunglasses
- I don't know

Check one answer only.

Ultraviolet Ray Protection

17. The best way to protect skin against the sun's ultraviolet rays is:

- To avoid outdoor activities in the evening
- To wear short-sleeve shirts and shorts
- To wear sunglasses that are tinted
- To always wear a broad-spectrum sunscreen
- I don't know

18. Ultraviolet rays affect the skin by:

- Forming an invisible radiation that can penetrate & change the structure of skin cells
- A visible forming of radiation, which can penetrate & not change the structure of skin cells
- Reflecting rays which help the tanning process and are positive for the skin
- Providing radiation which contributes in health providing elasticity / young looking skin
- I don't know

19. What skin cancer appears to increase most from sunbathing with:

- Anemia
- Colon cancer
- Caracats of the eye
- Irregular pap smears
- I don't know

20. The most abundant source of solar radiation which penetrates beyond the top layer of human skin is ultraviolet:

- A B C D I don't know

Check one answer only.

Sun Exposure

21. The most important environmental factor in the development of skin cancer is:

- Smog Ultraviolet rays Ozone Pollution I don't know

22. A suntan indicates:

- Good health
 Damage to the skin
 A response to injury
 A vitamin deficiency
 I don't know

23. The skin tans when exposed to the sun by:

- Producing melanin
 Producing Vitamin C
 Producing sweat
 Producing calcium
 I don't know

24. Though everyone is at risk for skin damage as a result of excessive sun exposure, the skin type at highest risk for skin cancer:

- Always burns, never tans, and is sensitive to sun exposure
 Burns moderately and tans gradually to light brown
 Rarely burns and tans profusely to dark
 Never burns, deeply pigmented, and is not very sensitive
 I don't know

Check one answer only.

<p>General Questions</p>

23. During the year, the most appropriate months for residents of the Coulee Region to apply sunscreen are:

- All months
 May to September
 June to August
 April to October

24. The most hazardous season for ultraviolet radiation in North America is:

- Late spring to early summer Mid-summer
 Winter to spring Fall to winter

Thank you very much for completing this questionnaire. Please tell us something about yourself.

1. Gender Male Female

2. Age: less than 18 18-24 25-34 35-44 45-54
 55-64 65+

3. Marital status: Single Married Separated / Divorced Widowed

4. Ethnic origin:
 Canadian Caucasian Asian Native
 American East Indian African American Native
 Other (please list) _____

5. Highest level of education (check one):
 Less than High School diploma
 High School graduate Some college, technical school
 College graduate Post graduate/Professional

6. How many children under the age of 18 are there in your household?

- None One Two Three Four or more

7. How does your skin react to sun exposure?

- Always burns, never tans
- Burns, then tans
- Usually tans, sometimes burns
- Never burns

8. Is there a history of skin cancer in your family?

Yes

No

9. Which health information source(s) do you use most? (check all which apply)

- Mass Media (TV, Radio, Internet)
- Healthcare professionals
- Family and Friends
- Schools and Daycare
- Employer and Community Groups

10. Do you perform monthly skin exams on yourself?

Yes

No

11. How often do you perform skin cancer assessments on your children?

- Almost Never Rarely Sometimes Frequently Almost Always

12. What are some barriers you encounter when performing skin cancer assessments on your children?

Again, thank you very much for participating in our study.

APPENDIX D
PROCESS TO ESTABLISH VALIDITY FOR THE KNOWLEDGE OF CDC
SKIN CANCER PREVENTION
PROTOCOL CHECKLIST

July 12, 2001

Dear Panel Members,

This letter is a follow up of an earlier communication concerning the Skin Cancer Survey, regarding your willingness to serve as an expert jury member for a survey validation. I am truly grateful to you for your participation in this process.

The purpose of this study is to validate the extent of knowledge of the six primary skin cancer protective mechanisms of the CDC's "Choose Your Cover" program, among mothers of young children and family health care providers, in a Mid-western town.

Enclosed is a list of questions, aligned with specific hypothesis regarding the assessment of skin cancer knowledge from the CDC's "Choose Your Cover" program. Please read each hypothesis and the question or questions related to that hypothesis and use the scale provided to indicate its acceptability, based upon the degree to which the question or cluster of questions will provide the appropriate information to answer the hypothesis correctly. In this manner, you will be judging the content validity of these questions with respect to the hypotheses.

The scale values are defined as follows:

1. **Not Acceptable:** The item has no value and will not provide the needed information to answer the hypothesis listed.
2. **Somewhat Acceptable:** The item has some value in providing the needed information to answer the hypothesis listed.
3. **Acceptable:** The item is valuable in providing the needed information to answer the hypothesis listed.
4. **Very Acceptable:** The item is very valuable in providing the needed information to answer the hypothesis listed.
5. **Indispensable:** The item is absolutely necessary in providing the needed information to answer the hypothesis.

Please complete and return the self-addressed stamped envelope enclosed on or before July 23rd. If you are unable to complete this by the designated date, please contact myself at extension 4357 or Brenda Rooney, at extension 2152. Thank you for your assistance in this matter. Your input is greatly appreciated

Sincerely,

Terrienne Reynolds
504 South Seventh Street
LaCrescent, MN 55947
(507) 895-6901, home
(608)782-7300 ext. 4357, work

ATTACHMENT

VALIDATION OF KNOWLEDGE OF CDC SKIN CANCER PREVENTION PROTOCOL IN A RURAL COMMUNITY

Since 1994, the Centers for Disease Control and Prevention (CDC), have developed partnerships and conducted activities to foster the growth of its National Skin Cancer Prevention Education Program (NSCPEP), which was initiated and made accessible to the public in 1998. The program's aim is to increase public awareness towards the achievement of national health objectives on skin cancer as established in Healthy People 2000 and reinforced in Healthy People 2010. Among the major thrusts of the CDC's NSCPEP, is a Web-based "Choose Your Cover" (CYC) program, which promotes and teaches primary prevention of skin cancer. The purpose of this study is to validate the extent of knowledge about the six areas of primary skin cancer prevention education of the CDC "Choose Your Cover" program.

The research question being addressed is: To what degree is the Choose Your Cover campaign extending knowledge to citizens regarding proper skin cancer prevention measure for the prevention of skin cancer?

Study methodology involves collecting self-reported knowledge through mail and personal distribution, using the enclosed instrument.

Subjects have been divided into 2 categories: mothers of young children (birth to ten years of age) and health care providers (providers of health care to children, adults and the elderly). Both checklist participants will be given packets of skin cancer information and sunscreen samples upon completion of the checklist.

Two instruments have been developed, one for mothers of young children and one for health care providers. The instruments are essentially the same, with the exception of the word usage in questions 13 and 14, within the Descriptive Information for Checklist Logistics section. The mothers of young children instrument includes a section on barriers encountered when performing skin cancer assessments on children, whereas health care providers have a section on barriers encountered when performing skin cancer assessments on patients. Both are enclosed for your review.

ALIGNMENT OF SURVEY QUESTION TO HYPOTHESES

- *Please circle your selections for each question*

Hypothesis 1: There is significant statistical difference on the knowledge of "Use of a Hat" as a sun protective mechanism against skin cancer between family health care providers and mothers of young children.

Not Acceptable	Indispensable
-------------------	---------------

1. The best hat material for protection against the sun is:

1 2 3 4 5

canvas cotton straw cotton/polyester I don't know

2. The best hat color for protection against the sun is:

1 2 3 4 5

white beige black yellow I don't know

3. The best hat rim size for facial protection against the sun is:

1 2 3 4 5

1/2 inch 1 inch 2 inch 3 inch or greater I don't know

4. The best hat style for protection against the sun is:

1 2 3 4 5

baseball hat bonnet wide-brimmed hat

straw hat I don't know

Hypothesis 2: There is significant statistical difference on the knowledge of "Use of Other Coverings" as a sun protective mechanism against skin cancer between family health care providers and mothers of young children.

5. The best way to protect skin from the sun is:

1 2 3 4 5

wearing a wide-brimmed hat

wearing a thin-brimmed hat

wearing a short-sleeved shirt

wearing a white t-shirt

I don't know

6. The best type of clothing for protection against the sun is:

1 2 3 4 5

tightly-woven fabric

loosely-woven fabric

wet clothing

light-weight fabric

I don't know

Not Acceptable	Indispensable
-------------------	---------------

7. Another way to protect the skin against the sun besides clothing is:
- | | | | | | |
|--|--------------------------|---|---|---|---|
| swimming in a pool | 1 | 2 | 3 | 4 | 5 |
| using an umbrella for shade | <input type="checkbox"/> | | | | |
| sitting in the shade | <input type="checkbox"/> | | | | |
| application of sunscreen on exposed skin | <input type="checkbox"/> | | | | |
| I don't know | <input type="checkbox"/> | | | | |

8. The best type of shirt for protection against the sun is:
- | | | | | | |
|------------------|--------------------------|---|---|---|---|
| dry t-shirt | 1 | 2 | 3 | 4 | 5 |
| wet t-shirt | <input type="checkbox"/> | | | | |
| tank top | <input type="checkbox"/> | | | | |
| tie-dyed t-shirt | <input type="checkbox"/> | | | | |
| I don't know | <input type="checkbox"/> | | | | |

Conclusion: There is a significant statistical difference in the knowledge of "Use of Sunscreens" as a sun protective mechanism against skin cancer between family health care providers and mothers of young children.

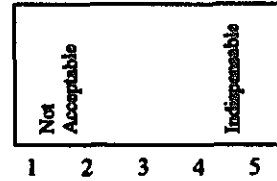
9. Sunscreens work best by:
- | | | | | | |
|---|--------------------------|---|---|---|---|
| absorbing the sun's rays | 1 | 2 | 3 | 4 | 5 |
| forming a barrier around the body | <input type="checkbox"/> | | | | |
| absorbing, reflecting or scattering sun ray | <input type="checkbox"/> | | | | |
| adjusting the sun's rays | <input type="checkbox"/> | | | | |
| I don't know | <input type="checkbox"/> | | | | |

10. The best time to apply sunscreen for protection against the sun is:
- | | | | | | |
|-----------------------------|--------------------------|---|---|---|---|
| when you are out in the sun | 1 | 2 | 3 | 4 | 5 |
| before exposure to the sun | <input type="checkbox"/> | | | | |
| after peak sun hours | <input type="checkbox"/> | | | | |
| during peak sun hours | <input type="checkbox"/> | | | | |
| I don't know | <input type="checkbox"/> | | | | |

11. The definition of "SPF" is:
- | | | | | | |
|-----------------------|--------------------------|---|---|---|---|
| sun policy factor | 1 | 2 | 3 | 4 | 5 |
| sun prevention factor | <input type="checkbox"/> | | | | |
| sun protection factor | <input type="checkbox"/> | | | | |
| sun providing factor | <input type="checkbox"/> | | | | |
| I don't know | <input type="checkbox"/> | | | | |

12. The best "SPF" rating to wear for protection against the sun is:
- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 5 | 10 | 15 | 30 or greater | I don't know |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Hypothesis 4: There is significant statistical difference on the knowledge of "Use of shade" as a sun protective mechanism between family health care providers and mothers of young children.



13. When in the shade, the best type of clothing to wear to protect skin from the sun is:

- a wet t-shirt
- a tank top
- to wear loose fit clothing that does not cling to skin to keep you cool
- to wear a short sleeve shirt
- I don't know

14. The best protection against the sun when working outside without shade is:

- a wide-brimmed hat
- a long-sleeved shirt
- sunscreen
- a wide-brimmed hat, long-sleeved shirt, and lipscreen
- I don't know

15. Sunglasses block:

- ultraviolet alpha ray and gamma rays
- ultraviolet beta rays
- ultraviolet alpha and beta rays
- ultraviolet gamma rays and beta rays
- I don't know

16. The best style of sunglasses to wear for protection against the sun is:

- wrap around sunglasses
- tinted sunglasses
- oval sunglasses
- colored sunglasses
- I don't know

Hypothesis 5: There is significant statistical difference in the knowledge of "Ultraviolet Ray" as a sun protection mechanism between family health care providers and members of young children.

Not Acceptable	Indiscrepable
-------------------	---------------

17. The best way to protect skin against the sun's ultraviolet rays is:

1 2 3 4 5

- to avoid outdoor activities in the evening
- to wear short-sleeve shirts and shorts
- to wear sunglasses that are tinted
- to always wear a broad-spectrum sunscreen
- I don't know

18. Ultraviolet rays effect the skin by:

1 2 3 4 5

- forming an invisible radiation which can penetrate
& change the structure of skin cells
- a visible forming of radiation which can penetrate
& not change the structure of skin cells
- reflecting rays which help the tanning process and are positive for the skin
- providing radiation which contributes in health providing
elasticity / young looking skin
- I don't know

19. Other than skin cancer, exposure to ultraviolet rays have been associated with:

1 2 3 4 5

- anemia
- colon cancer
- irregular pap smears
- cataracts of the eye
- I don't know

20. The most abundant source of solar radiation which penetrates beyond the top layer of human skin is ultraviolet:

1 2 3 4 5

- A B C D I don't know

Hypothesis 6: There is significant statistical difference in the knowledge of "Sun Exposure" as a sun protection mechanism between family health care providers and members of young children.

21. The most important environmental factor in the development of skin cancer is:

1 2 3 4 5

- smog ultraviolet rays ozone pollution I don't know

Not Acceptable	Indispensable
-------------------	---------------

22. A suntan indicates:

1 2 3 4 5

- | | |
|---|---|
| good health <input type="checkbox"/> | damage to the skin <input type="checkbox"/> |
| a response to injury <input type="checkbox"/> | a vitamin deficiency <input type="checkbox"/> |
| I don't know <input type="checkbox"/> | |

23. The skin tans when exposed to the sun by:

1 2 3 4 5

- | | |
|--|--|
| producing melanin <input type="checkbox"/> | producing Vitamin C <input type="checkbox"/> |
| producing sweat <input type="checkbox"/> | producing calcium <input type="checkbox"/> |
| I don't know <input type="checkbox"/> | |

24. Though everyone is at risk for skin damage as a result of excessive sun exposure, the skin type at highest risk for skin cancer:

1 2 3 4 5

- | | |
|--|--------------------------|
| always burns, never tans, and is sensitive to sun exposure | <input type="checkbox"/> |
| burns moderately and tans gradually to light brown | <input type="checkbox"/> |
| rarely burns and tans profusely to dark | <input type="checkbox"/> |
| never burns, deeply pigmented, and is not very sensitive | <input type="checkbox"/> |
| I don't know | <input type="checkbox"/> |

Descriptive Information for Checklist English

1. Gender: Male Female 1 2 3 4 5

2. Age: less than 18 1 2 3 4 5
 18-24
 25-34
 35-44
 45-54
 55-64
 65+

3. Marital status: 1 2 3 4 5

- | | |
|----------------------|--------------------------|
| Single | <input type="checkbox"/> |
| Married | <input type="checkbox"/> |
| Separated / Divorced | <input type="checkbox"/> |
| Widowed | <input type="checkbox"/> |

4. Ethnic origin:

1 2 3 4 5

- Caucasian
 Asian
 Native Canadian
 East Indian
 African American
 Native American
 Other (please list) _____

5. Highest level of education: (check one):

1 2 3 4 5

- Less than High School diploma
 High School graduate
 Some college, technical school
 College graduate
 Post graduate/Professional

6. How many children under the age of 18 are there in your household?

1 2 3 4 5

- none
 one
 two
 three
 four or more

7. What is your current profession?

1 2 3 4 5

- teacher
 health care professional
 homemaker
 child care professional
 nurse
 physician
 other (please list) _____

8. How many years have you been employed in your current profession?

1 2 3 4 5

- less than 12 months
 1-3 years
 4-6 years
 7-9 years
 10+ years

- 9. How does your skin react to sun exposure?** 1 2 3 4 5
- always burns, never tans
- burns, then tans
- usually tans, sometimes burns
- never burns

- 10. Is there a history of skin cancer in your family?** 1 2 3 4 5
- Yes No

- 11. Which health information source(s) do you use most? (check all which apply).** 1 2 3 4 5
- Mass Media (TV, Radio, Internet)
- Healthcare Professionals
- Family and Friends
- Schools and Daycare
- Employer and Community Groups

- 12. Do you perform monthly skin exams on yourself?** 1 2 3 4 5
- Yes No

Health Care Providers:

- 13. Do you perform skin cancer assessments on patients ?** 1 2 3 4 5
- Yes No

- 14. What are some barriers you encounter when performing skin cancer assessments on patients ?** _____ 1 2 3 4 5

Mothers of Young Children:

- 13. Do you perform skin cancer assessments on your children?** 1 2 3 4 5
- Yes No

- 14. What are some barriers you encounter when performing skin cancer assessments on your children ?** _____ 1 2 3 4 5

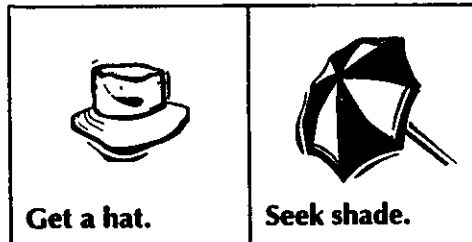
Again, thank you very much for participating in our study.

APPENDIX E
CDC CHOOSE YOUR COVER
CAMPAIGN BROCHURES

Skin Cancer: Preventing America's Most Common Cancer 2001



Choose Your Cover



"Young people need to know that the risk of getting skin cancer later can be greatly reduced if they start protecting their skin from the sun now."

Jeffrey P. Koplan, MD, MPH
 Director, Centers for Disease Control and Prevention

Each year, approximately 1 million skin cancers will be diagnosed. Studies show that reducing your exposure to the sun's ultraviolet (UV) rays can decrease your risk of getting skin cancer. Year-round, whether you're at the beach, on the ski slopes, or anywhere outdoors, you can protect your skin while still having fun.

Choose Your Cover

More and more people are looking for ways to protect themselves from the sun's UV rays. These rays can damage your skin and lead to skin cancer. Fortunately, there are many year-round options to protect your skin. So choose one or more of the following "covers":

Seek Shade

Whenever possible, avoid the midday sun, when the UV rays are the strongest and do the most damage. Remember: trees, beach umbrellas, and tents are all



good sources of shade. Use these options to prevent sunburn, not to seek relief once it's happened. If you can't avoid the midday sun or find some shade, try one of these other options.

Rub It On

Sunscreen is not just for the pool or beach. Remember to bring it with you whenever you go outside — even on cloudy days. Use sunscreen that provides protection against both UVA and UVB rays and has a sun protection factor (SPF) of at least 15.



To be most effective, sunscreen needs to be applied generously 30 minutes before going outdoors and should be reapplied throughout the day, especially after swimming or exercise. After all, many sunburns occur when outdoor activities last longer than expected.

Don't like lotions? Try other varieties of sunscreen, like sprays, wipes, and gels. Concerned about acne? Look for sunscreens that are made especially for the face and won't clog your pores.

Use Your Head

Not all sun protection comes in a bottle. When outdoors, try wearing a hat. Since almost 80% of skin cancers occur on the head and neck, wearing a



wide-brimmed hat is a great way to shade your face, ears, scalp, and neck from the sun's rays. If you choose a baseball cap, make sure you use a sunscreen with an SPF of at least 15 to protect exposed areas. When you're out in the sun, it's easy — just use your head!

Shield Your Skin

When you're enjoying your favorite outdoor activities, it's important to shield your skin with extra clothing. A shirt, beach cover-up, and pants are all good choices for cover. Keep in mind, however, that a typical t-shirt actually has an SPF rating substantially lower than the recommended SPF 15. So if your clothes don't completely shield your skin, add some sunscreen and seek some shade whenever possible.



Grab Your Shades

Grabbing a pair of shades is more than cool; it's also the best way to protect your eyes from harmful UV rays. Sunglasses protect the tender skin around the eyes and reduce the risk of developing cataracts. For maximum eye protection, look for sunglasses that block both UVA and UVB rays. Give wraparound lenses a try. They're great for keeping those damaging rays from sneaking in at the sides.



www.cdc.gov/ChooseYourCover

Protect the skin you're in.

The sun may be 93 million miles away, but its ultraviolet rays take only 8 minutes to reach Earth. These rays are strong and can damage your skin and lead to skin cancer. Covering up is your best defense.

Studies show that reducing your exposure to the sun's dangerous rays can decrease your future risk of getting skin cancer.

At the beach, on the ski slopes, or anywhere outdoors, you can keep your skin protected while having fun in the sun all year-round.

AT 93 MILLION MILES AWAY

WARNING: Exposure to the sun's UV rays can damage your skin.

YOU COULD MISS

IF YOU DON'T WEAR SUN PROTECTION



Choose Your Cover

By Moms and Dads! Not all sun protection comes in a bottle. There are lots of ways to protect your child's skin all year long. Here are five you can try.

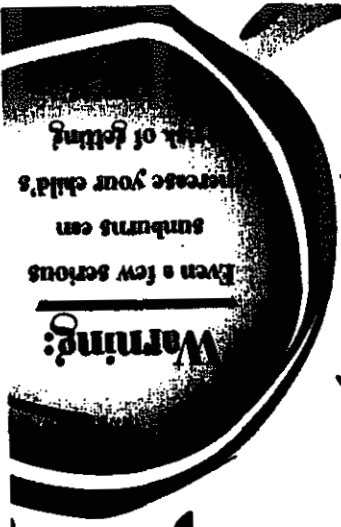
1 Hide and Seek. UV rays are strongest and most harmful during midday, so it's best to plan indoor activities then. If this is not possible, seek shade under a tree, an umbrella or a pop-up tent. Use these options to prevent sunburn, not to seek relief once it's happened.

2 Cover 'em Up. Clothing that covers your child's skin helps protect against UV rays. Although a long-sleeved shirt and long pants with a light weave are best, they aren't always practical. A T-shirt, long shorts or a beach cover-up are good choices, but it's wise to double up on protection by applying sunscreen or keeping your child in the shade when possible.

3 Get a Hat. Hats that shade the face, scalp, ears and neck are easy to use and give great protection. Baseball caps are popular among kids but they don't protect their ears and neck. If your child chooses a cap, be sure to protect exposed areas with sunscreen.

4 Shades Are Cool. And they protect your child's eyes from UV rays, which can lead to cataracts later in life. Look for sunglasses that wrap around and block as close to 100% of both UVA and UVB rays as possible.

5 Rub on Sunscreen. Use sunscreen with at least SPF 15 and UVA/UVB protection every time your child goes outside.



Warning:

Even a few serious sunburns can increase your child's risk of getting skin cancer.

Sunscreen Scoop

Sunscreen may be easy, but it doesn't protect your child's skin completely. Try combining sunscreen with other "Cheese Your Cover" options to prevent UV damage.

Sunscreen comes in a variety of forms - lotions, sprays, wipes or gels. Be sure to choose one made especially for kids with:

- Sun Protection Factor (SPF) of 15 or higher
- both UVA and UVB protection

For most effective protection, apply sunscreen generally 30 minutes before going outdoors. And, don't forget to protect ears, nose, lips and the tops of feet which often go unprotected. Take sunscreen with you to reapply during the day, especially after your child swims or exercises. This applies to "waterproof" and "water resistant" products as well.

Keep in mind, sunscreen is not meant to allow your kids to spend more time in the sun than they would otherwise. Sunscreen reduces damage from UV radiation. It doesn't eliminate it. The American Academy of Pediatrics now advises that sunscreen use on babies less than 6 months old is not harmful on small areas of a baby's skin, such as the face and back of the hands. But your baby's best defense against sunburn is avoiding the sun or staying in the shade.

Protect the Skin They're In

Too Much Sun Hurts

Do you know that just a few serious sunburns can increase your child's risk of skin cancer later in life? Kids don't have to be at the pool, beach or on vacation to get too much sun. Their skin needs protection from the sun's harmful ultraviolet (UV) rays whenever they're outdoors.

Turning pink? Unprotected skin can be damaged by the sun's UV rays in as little as 15 minutes. Yet it can take up to 12 hours for skin to show the full effect of sun exposure. So, if your child's skin looks "a little pink" today, it may be burned tomorrow morning. To prevent further burning, get your child out of the sun.

Tan? There's no other way to say it: tanned skin is damaged skin. Any change in the color of your child's skin after time outside – whether sunburn or suntan – causes damage from UV rays.

Cool and cloudy? Children still need protection. UV rays, not the temperature, do the damage. Clouds do not block UV rays, they filter them – and sometimes only slightly.

Dope! Kids often get sunburned when they are outdoors unprotected for longer than expected. Remember to plan ahead, and keep sun protection handy – in your car, bag or child's backpack.

Parents, help your children to play it safe, and protect your own skin as well. You're an important role model.



Choose Your Cover

www.cdc.gov/ChooseYourCover

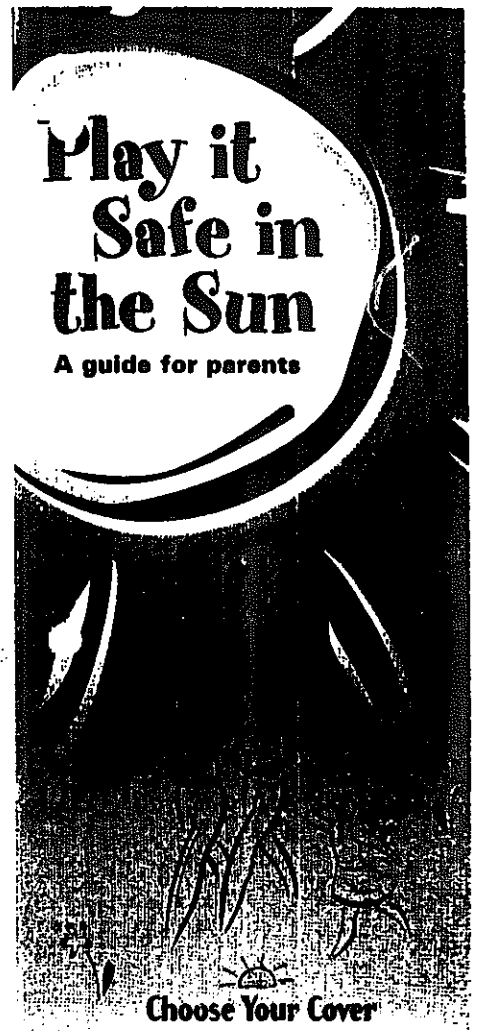
For more information about protecting your family from skin cancer, contact:

- The National Cancer Institute's Cancer Information Service at 1-800-4-CANCER for information about all cancers, including skin cancer.
- CDC's Division of Cancer Prevention and Control at 1-888-842-6355 for recorded information or to order Choose Your Cover materials or posters.
- Our Web site at www.cdc.gov/ChooseYourCover

When you play it safe, you're playing it smart.



CDC Publication #099-0044 Printed June 1999. Revised June 2000.



wide-brimmed hat is a great way to shade face, ears, scalp, and neck from the sun's rays. You choose a baseball cap, make sure you screen with an SPF of at least 15 to protect areas. When you're out in the sun, it's easy to use your head!

Shield Your Skin

When you're enjoying your favorite outdoor activities, it's important to shield your skin with extra clothing. A shirt, beach cover-up, or hat are all good choices for covering your skin. In mind, however, that a t-shirt actually has an SPF of about 5. So if you wear a t-shirt with SPF 15, you're getting an extra 10 units of protection. So if you wear a t-shirt with SPF 15, you're getting an extra 10 units of protection.



don't completely shield your skin, a sunscreen and seek some shade whenever you're out in the sun.

Grab Your Shades

Grabbing a pair of shades is more than cool; it's also the best way to protect your eyes from harmful UV rays. Sunglasses protect the tender skin around your eyes and reduce the risk of developing cataracts and maximum eye protection, look for sunglasses that block both UVA and UVB rays. Give them a try. They're great for keeping those rays from sneaking in at the sides.



good sources of shade. Use these options to prevent sunburn, not to seek relief once it's happened. If you can't avoid the midday sun or find some shade, try one of these other options.

Rub It On

Sunscreen is not just for the pool or beach. Remember to bring it with you whenever you go outside — even on cloudy days. Use sunscreen that provides protection against both UVA and UVB rays and has a sun protection factor (SPF) of at least 15. To be most effective, sunscreen needs to be applied generously 30 minutes before going outdoors and should be reapplied throughout the day, especially after swimming or exercise. After all, many sunburns occur when outdoor activities last longer than expected.



Don't like lotions? Try other varieties of sunscreen, like sprays, wipes, and gels. Concerned about acne? Look for sunscreens that are made especially for the face and won't clog your pores. Use all sun protection comes in a bottle. When outdoors, try wearing a hat. Since almost 80% of skin cancers occur on the head and neck, wearing a

Use Your Head

Use your head. When outdoors, try wearing a hat. Since almost 80% of skin cancers occur on the head and neck, wearing a



each year, approximately 1 million skin

moles will be diagnosed. Studies show

that reducing your exposure to the sun's

ultraviolet (UV) rays can decrease your

risk of getting skin cancer. Year-round,

whether you're at the beach, on the ski

slopes, or anywhere outdoors, you can

protect your skin while still having fun.

Wear Your Cover

Wear and more people are looking for ways to protect themselves from the sun's UV rays. These rays can damage your skin and lead to skin cancer. Fortunately, there are many year-round options to protect your skin. So choose one or more of the following "covers":

Wear Shade

Whenever possible, avoid the midday sun, when the UV rays are the strongest and do the most damage. Remember: trees, beach umbrellas, and tents are all



may be 93 million miles away, but violet rays take only 8 minutes to reach Earth. These rays are strong and damage your skin and lead to skin cancer.

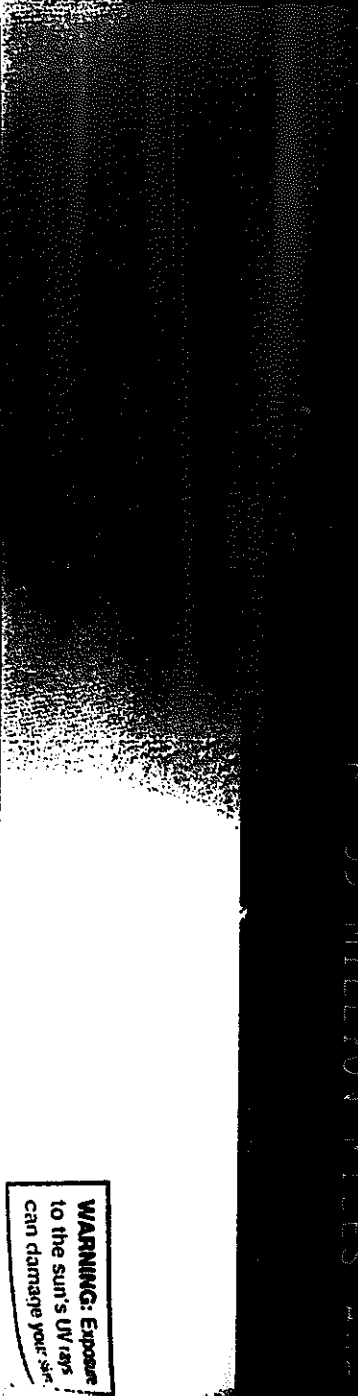
Covering up is your best defense.

Remember that reducing your exposure to the sun's dangerous rays can decrease your risk of getting skin cancer.

Wash your face, neck, and arms each day, on the ski slopes, or at the beach. Use sunscreen outdoors, you can keep your skin protected while having fun in the sun.

Remember to wear sunglasses.

Choose Your Cover.



WARNING: Exposure to the sun's UV rays can damage your skin.

CDC's Division of Cancer Prevention and Control at 1-888-842-6355 for recorded information or to order "Choose Your Cover" materials or posters.

YOU COULD MISS

THE WARNING LABEL.



Choose Your Cover

CDC Support for Skin Cancer Prevention Education Initiatives

CDC currently funds four skin cancer prevention demonstration projects targeting children, parents, and caregivers to reduce illness and death from skin cancer.

- **Pool Cool**, developed by the University of Hawaii with Boston University School of Medicine, is an intervention offered at public swimming sites across the country. Targeting parents, lifeguards, pool managers, and children aged 5–10 years, its goal is to increase their awareness about skin cancer prevention, teach them skills to protect themselves, and influence their intentions and practices regarding sun safety at the pool. The program also aims to increase sun-safe policies at swimming sites—for example, by promoting the use of sunscreen and hats and the availability of portable shading, particularly during swim time. The program has a new partner, the National Parks and Recreation Association, which manages pools. Sun protection habits increased significantly where the Pool Cool program was in place, whereas these habits decreased among visitors to sites where the program was not offered.



- The **Sunwise Stampede** program at San Diego State University is an environmentally based program to promote sun safety among zoo visitors. It targets children and uses animal skin protection as its theme. At the entrance to the San Diego Zoo, visitors receive sun safety tip sheets and



discount coupons for hats and sunscreen.

Inside the zoo, children have

their hands stamped with sun safety reminders, and they can participate in arts and crafts projects that

reinforce sun safety messages. On bus tours and in signs posted throughout the zoo, visitors are reminded about sun safety. Study results suggest that the program was successful in increasing sun safety behaviors directly (hat wearing) and indirectly (hat and sunscreen purchasing).

- **The National Coalition for Skin Cancer Prevention in Health, Physical Education, Recreation, and Youth Sports**, sponsored by the American Association for Health Education, is developing a national action plan for providing education about preventing skin cancer to professionals and volunteers who work with youth sports programs, outdoor school activities, parks and recreation programs, and elementary- and middle-school health education. A skin cancer prevention Web site (www.sunsafety.org) and other channels will be used to disseminate skin cancer prevention messages and materials nationwide. The coalition is also developing an action kit to help member organizations assess their skin cancer prevention programs.

- **The Coalition for Skin Cancer Prevention in Maryland**, coordinated by the Maryland State Medical Society, develops skin cancer prevention education that targets children aged 10–13 years and their parents and caregivers. The coalition's middle-school educational program, SunGuard Your Skin, reached over 15,000 seventh graders in 1999. The coalition's multimedia Web site



(www.sunguardman.org) features *The Adventures of SunGuard Man*, a cartoon with sound effects and narration. A SunGuard Man mascot hands out sunscreen and educational materials at community and sporting events throughout the summer.

For more information or additional copies of this document, please contact the
Centers for Disease Control and Prevention,
National Center for Chronic Disease Prevention and Health Promotion, Mail Stop K-64,
4770 Buford Highway NE, Atlanta, GA 30341-3717, (770) 488-4751.
Voice Information System: 1 (888) 842-6355 Fax: (770) 488-4760
cancerinfo@cdc.gov <http://www.cdc.gov/cancer>

CDC's National Leadership

CDC's skin cancer prevention and education efforts are designed to reduce illness and death and help achieve the *Healthy People 2010* skin cancer prevention goals of increasing to at least 75% the proportion of adults who regularly use at least one protective measure, limit sun exposure, and use sunscreen. With fiscal year 2001 funding of approximately \$1.6 million,* CDC supports the following activities to prevent skin cancer.

Collecting and Applying Vital Information

CDC develops epidemiologic research and monitoring systems to determine national trends in sun protection behaviors and attitudes about sun exposure. Findings are being used to better target and evaluate skin cancer prevention efforts. In addition, detailed information about skin cancer is being collected through the National Health and Nutrition Examination Survey to assess risk factors for skin cancer. Photographs are taken of each participant to identify certain skin conditions, including those related to skin cancer. The photographs are being included in a database that will be used to determine the prevalence of skin cancer and other conditions.

Activities also are under way to help communities sort through the plethora of data on interventions to prevent skin cancer. CDC and other federal agencies provide expertise to the independent Task Force on Community Preventive Services, which is reviewing studies of population-based interventions to prevent skin cancer and is recommending interventions proven to be effective. These recommendations will be widely disseminated and published in the *Guide to Community Preventive Services*. This guide will help communities make the best use of available scientific information as they plan and implement interventions to prevent skin cancer.

Getting the Message Out

CDC's national "Choose Your Cover" media campaign helps states increase people's awareness about skin cancer and its causes as well as influence social norms regarding sun protection and tanned skin—all in an effort to get people to practice sun-safe behaviors. The campaign features TV and radio public service announcements, brochures, posters, and a Web site (www.cdc.gov/chooseyourcover). It targets adolescents, young adults, and parents.

* This funding includes salaries and expenses as appropriated in the congressional conference report no. 106-1033.

National Council on Skin Cancer Prevention

AMC Cancer Research Center and Foundation
 American Academy of Dermatology
 American Academy of Family Physicians
 American Academy of Pediatrics
 American Association for Health Education
 American Cancer Society
 American College of Obstetricians and Gynecologists
 American Optometric Association
 American Pharmaceutical Association
 American Public Health Association
 American School Health Association
 Association of State and Territorial Directors of Chronic Disease Programs
 Association of State and Territorial Directors of Health Promotion and Public Health Education
 Centers for Disease Control and Prevention
 Dermatology Nurses' Association
 Melanoma Research Foundation
 National Association of Physicians for the Environment
 National Association of School Nurses, Inc.
 National Cancer Institute
 National Institute of Arthritis and Musculoskeletal and Skin Diseases
 National Medical Association
 Skin Cancer Foundation
 Skin Cancer Program, California Department of Health Services
 U.S. Environmental Protection Agency

Building Critical Partnerships

CDC has convened the National Council on Skin Cancer Prevention, an alliance of organizations that share these goals:

- Increase skin cancer awareness and prevention behaviors in all populations, particularly those at high risk.
- Develop and support partnerships to extend and reinforce core messages for behavior change.
- Coordinate nationwide efforts to reduce skin cancer incidence and deaths.
- Develop a national skin cancer prevention and education plan.

CDC has also convened a Federal Council on Skin Cancer Prevention to promote sun-safe behaviors among federal agency employees, their families, and agency constituents.



Skin Cancer: A Largely Preventable Cancer

The Burden of Skin Cancer

Skin cancer is the most common form of cancer in the United States. The three major types of skin cancer are the highly curable basal cell and squamous cell carcinomas and the more serious malignant melanoma. The American Cancer Society estimates that a combined total of more than 1 million new cases of basal cell and squamous cell carcinomas and an additional 51,400 new cases of malignant melanoma will be diagnosed in 2001. In 2001 alone, skin cancer will claim the lives of almost 9,800 people.

Although death rates from basal cell and squamous cell carcinomas are low, these cancers can cause considerable damage and disfigurement if they are left untreated. However, when detected and treated early, more than 95% of these carcinomas can be cured.

Malignant melanoma, the most rapidly increasing form of cancer in the United States, causes more than 75% of all deaths from skin cancer. This disease can spread to other organs, most commonly the lungs and liver. Malignant melanoma diagnosed at an early stage can usually be cured, but melanoma diagnosed at a late stage is more likely to spread and cause death.

Who Is at Risk?

Although anyone can get skin cancer, people with certain characteristics are particularly at risk. The risk factors for skin cancer include

- Fair to light skin complexion.
- Family history of skin cancer.
- Personal history of skin cancer.
- Chronic exposure to the sun.
- History of sunburns early in life.
- Atypical moles.
- A large number of moles.
- Freckles (an indicator of sun sensitivity and sun damage).

Preventing Skin Cancer

Exposure to the sun's ultraviolet (UV) rays appears to be the most important factor in the development of skin cancer. Skin cancer is largely preventable when sun protection measures are consistently used. However, approximately 70% of American adults do not protect themselves from the sun's dangerous rays. According to the results of CDC's 1992 National Health Interview Survey,



- Only 30% of adults sought shade.
- Only 28% wore protective clothing when exposed to sunlight.
- Only 32% routinely used sunscreen lotion.

Three-fourths of adults reported that their children (aged 12 and younger) used some form of sun protection, according to the results of a 1997 American Academy of Dermatology household telephone survey. However, specific sun protection measures reported by adults for their children varied:

- 54% of children sought shade.
- 27% wore hats, and 8% wore shirts.
- 53% used sunscreen.

These results highlight the need for educating children and adults about the preventive measures that can be taken to reduce or avoid UV exposure. Research suggests that healthy behavior patterns established in early childhood can influence future behaviors and



sometimes set lifetime patterns. Parents, health care providers, schools, and community organizations can play a major role in reinforcing sun protection behaviors (e.g., staying out of direct sunlight or timing outdoor activities for hours when UV light is less intense) and changing attitudes about exposure to the sun (e.g., the opinion that a person looks more attractive with a tan).

“There is good news: skin cancer can be prevented. The challenge, however, lies in changing the attitudes and behaviors that increase a person’s risk of developing skin cancer.”

—David Satcher, MD, PhD, Surgeon General

APPENDIX F
FAMILY HEALTH CARE PROVIDERS
COVER LETTER

September 24, 2001

Dear ,

The University of Wisconsin-LaCrosse is conducting a survey of Family Practice Physicians and Pediatricians, to assess their knowledge of the Centers for Disease Control Skin Cancer Prevention Protocol. Gundersen Lutheran has agreed to participate and I would like to invite you to take part in this survey.

This is a confidential survey. Do not write your name on the questionnaire. You do not have to complete this survey if you do not want to.

Read each question very carefully. Answer each question truthfully and to the best of your knowledge.

Please mail the completed survey with the attached self-addressed stamped envelope by October 1, 2001.

I appreciate your help in taking this survey and hope you enjoy taking part in it. Thank you for your help!

Terriane Reynolds
MPH-CHE Program
Gundersen Lutheran
Decision Support Specialist
Corporate Research, Planning and Development

APPENDIX G
FAMILY HEALTH CARE PROVIDERS
E-MAIL REMINDER LETTER

Good Morning,

I recently sent out a survey on Knowledge of CDC Skin Cancer Prevention Protocol Checklist.

If you have completed the survey, please disregard this message.

If not, I would like to please request return of the survey by Monday, October 8th. I would really appreciate the information you have to offer regarding skin cancer. I am looking to provide feedback to your department for implementation of a skin cancer awareness program.

Thank you again for your participation!!

Please call extension 4357 if you are in need of another copy of the survey.

Sincerely,

**Terrienne Reynolds
CHE-MPH Student**