Understanding and Influencing Adolescent Attitudes, Beliefs and Behaviors Regarding Ultraviolet Radiation Exposure;

How Nurse Practitioners Can Make a Difference:

A Literature Review

By

Nina Vecchio Beach RN, BSN, OCN

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To the faculty of Washington State University:
The members of the Committee appointed to examine the project of Nina V. Beach find it satisfactory and recommend that it be accepted.

Lorrie Dawson, PhD, ARNP
Chair

Louise Kaplan, PhD, ARNP

Linda Eddy, PhD, RN, CPNP
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STRUCTURED ABSTRACT

Background

All populations are being effected by an increased rate of skin cancer occurrence. Ultraviolet protection behaviors are controversial and there is extensive information available to determine best practice. The tanning industry and societal pressures continue to make it an uphill battle to curb abuse of tanning beds and the sun. Understanding that teaching adolescents is different than other populations is important when trying to influence this population. Skin cancer is the most common cancer in the United States and the incidence continues to rise.

Aims

By reviewing current literature and evidence, this paper is to help raise awareness among nurse practitioners (NPs) of the increasing occurrence of skin cancers, many of which are caused by ultraviolet (UV) radiation exposure. Since the majority of human UV exposure occurs before age 20, it is imperative that nurse practitioners and other providers address the risks of UV exposure early. This article will increase the NPs awareness of the risks of ultraviolet skin exposure and provide information and techniques to educate adolescents and their families to choose healthy behaviors.

Findings

There are guidelines, programs, brochures, and other tools to educate the public on the risks of ultraviolet exposure. However studies have shown that the level of knowledge is either not adequate or despite an accurate level of knowledge people continue to take unnecessary sun exposure risks which put their lives in danger, increasing the risk of skin cancer. Studies show that behaviors can change with adequate, consistent education but currently there is no standardized plan on how to do this for adolescents in the United States.
Conclusion

Nurse practitioners and other providers have the opportunity to provide the needed education to prevent and/or decrease harmful UV exposure. Many organizations have brochures and tools to use for educating adolescents and their families. Helping adolescents and their families sort out the controversies to determine the best methods for healthy sun and UV behaviors is a place nurse practitioners can start to attempt to deter the pending epidemic of sun-exposure induced cancers.

Keywords: Adolescent attitudes, ultraviolet exposure, UV exposure, tanning, skin cancer, nurse practitioners, literature review.
SUMMARY

What is already known on this topic?

- Skin cancer is the most common cancer in the United States and the majority of cases are caused by ultraviolet exposure.
- Pediatric and adolescent melanoma is on the rise.
- More research needs to be done on the adolescent population to determine the best way to influence safe sun behaviors and decrease risks of skin cancer.
- Nurse practitioners and other providers are in a strategic position to influence change but with all the controversial information, there are no clear guidelines on how to best educate and influence adolescents regarding ultraviolet exposure.

What this paper adds.

- The literature review gives the reader an overview of current controversies regarding UV exposure so that they can determine how they want to integrate protection strategies for adolescents into their practice.
- Techniques and examples are presented for nurse practitioners to influence and educate adolescents regarding UV protection behaviors.
Skin cancer is the most common type of cancer in the United States. Nurse practitioners and other providers play a key role in educating patients on sun-safe behaviors. With a wealth of information available to the public, it is also necessary to help sort out fact from fiction and teach patients and families using evidence based practice. Though there is increased awareness regarding sun protection, adolescents continue to expose themselves to the harmful effects of ultraviolet (UV) radiation from the sun and indoor tanning facilities. Nurse practitioners are excellent educators and have an opportunity during patient interactions to help influence adolescents to reduce the risks of UV exposure.
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INTRODUCTION

Skin cancer is the most common type of cancer in the United States. In the last 30 years, melanoma, the deadliest of all skin cancers, has increased approximately 150% (Glanz, Saraiya & Wechsler, 2002). Ninety per cent of the non-melanoma skin cancers and 65% to 95% of melanoma are estimated to result from ultraviolet (UV) exposure (Maselis, Vandaele & DeBoulle, 2005). Approximately one in five Americans will be diagnosed with skin cancer sometime in their life (Stryker et al. 2004). In the United States alone, one person will die of melanoma every hour of every day (Scarlett, 2003). The data from the National Cancer Institute’s Surveillance, Epidemiology and End Results (SEER) from 1973 to 2001 shows an increase in melanoma rates of 3% per year for adolescents and young adults (Darves, 2006).

Primary prevention of skin cancer is critical for our adolescent population given that during the childhood and adolescent years, a person obtains more than one half of their lifetime UV exposure. This exposure contributes to the future possibilities of developing skin cancer (Glanz et al., 2002).

The Centers for Disease Control and Prevention (CDC) has issued guidelines for school programs to prevent skin cancer. Recommendations have been made for schools to develop policies related to skin cancer, create protective environments, educate staff and involve families in the reduction of skin cancer risks (Glanz et al., 2002). Though this education is available to students, the actual knowledge level of adolescents related to skin cancer is in question. According to Robinson, Rademaker, Sylvester & Cook (1997), despite the educational programs and teens having knowledge about skin cancer, teens with high-risk skin types defined as always burns, never tans still reported three or more recent sunburns.
AIMS

The NP may be able to provide better counseling if she or he understands why sun and ultraviolet exposure continues to occur despite knowledge of the possible consequences. Further, questions often arise about the use of sun protection methods such as sunscreen and the relationship to vitamin D deficiency and if the use of sunscreen falsely reassures people to feel protected and spend more extended periods of time in the sun. Patients will turn to their care providers to answer these questions. This article will increase the NPs awareness of the risks of ultraviolet skin exposure and provide information and techniques to educate adolescents and their families to choose healthy behaviors.

METHODS

The CINAHL and MEDLINE databases were searched, identifying literature published in 1995-2006. Main keywords/phrases used were adolescent behavior, sunlight, ultraviolet exposure, teen education, attitude to health, nurse practitioner, tanning, melanoma, skin cancer, sun exposure, sun protection, prevention and risk factors. Government and professional websites were searched, references in recently published studies were evaluated, and textbooks were used for supporting information. Contemporary news reports and press releases were also reviewed for references and a full attempt was always done to look at both sides of each controversy.

FINDINGS: REVIEW OF LITERATURE

Knowledge Deficits

A study of 2775 seventh graders in Maryland was conducted to describe the knowledge, attitudes and practices with respect to UV protection and skin cancer. Seven multiple-choice questions and 13 true/false questions were asked about skin cancer risk factors, skin protection and UV radiation. The knowledge levels in this study were well below average. Less than 50%
of the students answered the multiple-choice questions correctly, and less than 70% answered the true/false questions correctly (Alberg, Herbst, Genkinger & Duszynski, 2002).

Other researchers report a higher level of knowledge in teens about sun exposure. A quantitative study of 658 teenagers between ages 11 and 19 found that in regard to general knowledge and attitudes about the sun, 85% of subjects reported that too much sun was harmful (Robinson et al., 1997). The two most common consequences of overexposure to the sun discussed by the subjects were sunburn and skin cancer.

Just the knowledge that sun exposure is harmful or may cause skin cancer is not enough to promote better preventive behaviors. Many researchers note that there is increased awareness and/or adequate knowledge among teens about sun exposure (Kim, 2001; Lower, Girgis & Sanson-Fisher, 1998; Reynolds, Blaum, Jester, Weiss, Soong & Diclemente, 1996; Vitols & Oates, 1997). Nonetheless, there is abundant documentation that there is a lack of adequate sun protection and/or a high incidence of sunburn among adolescents (Hall, Jones & Saraiya, 2001; Hall, May, Lew, Koh & Nadel, 1997; Kim, 2001; Koh et al. 1997; Lower et al. 1998; Reynolds et al. 1996; Robinson et al., 1997).

Factors Influencing Continued Sun Exposure

History

In a summarizing article on the behavior and motives of adolescents toward skin cancer, Maselis, Vandaele & DeBoule (2004) note that the public values a tanned appearance whether it is obtained outside or indoors, and this image has been linked with beauty, health and success. The societal view of whether or not tanned skin is favorable has a historical base. In the early twentieth century, people avoided a tanned appearance because tanned skin was associated with lower class folks who had to work outdoors to earn a living. Over time, that has changed.
Between the two World Wars people who worked in factories and mines all day represented the lower class, while those with money had more time to spend outside on outdoor activities and leisurely vacations.

**Parental Impact.**

Parents play a significant role in adolescent exposure to the sun according to several studies that have been done on factors that contribute to adolescent sun exposure. Children whose parents had a high level of education or who were in a high income category consistently tanned less than those in a lower socioeconomic class (Demko, Borawski, Debanne, Cooper & Stange 2003; Lazovich & Forster, 2005). Children and adolescents who had parents who tanned had an approximately 20% higher prevalence rate of indoor tanning use than the general population (Stryker et al. 2004). Teenagers whose female caregiver condoned tanning were significantly more likely to tan than those whose parents would not allow them to tan (Stryker et al. 2004).

**Social Impact.**

Peers also impact the usage of tanning (Demko et al. 2003; Lazovich et al. 2004; Lazovich & Forster, 2005). It is common in adolescence to follow what friends are doing and the influence of peer pressure often results in risky behavior. In a study of 1264 adolescents, 1155 responded that “most of their friends like to be tan” and those who responded this way were much more likely to have tanned themselves and had the intention to continue the behavior (Lazovich et al. 2004, p. 921). There are risky behaviors that teens often indulge in that help predict if they are more prone to indoor tanning. Teens who reported using two or three substances - tobacco, alcohol, or marijuana - and those who were trying to lose weight were more apt to use tanning beds (Demko et al. 2003).
Tanning Industry.

Tanning, whether indoors or outdoors is a source of ultraviolet radiation. Ultraviolet radiation is the invisible rays composed of energy emitted from the sun. There are three different types of ultraviolet rays: Ultraviolet A (UVA), ultraviolet B (UVB) and ultraviolet C (UVC). UVC rays are the most dangerous but they cannot penetrate through the earth’s ozone layer and inadvertently cause harm. UVB rays are more likely to cause sunburn and are stronger than UVA rays but UVA rays penetrate deeper in the skin. For many years, UVB rays were thought to be the cause of skin cancer but now scientists are finding that UVA rays can add to the skin damage that is responsible for causing cancer and the UV radiation does not have to cause sunburn in order to cause cancer (DeNoon, 2006).

The tanning industry became popular with the creation of minimizing burning with a much greater ratio of UVA to UVB. Despite the fact that there is at least some knowledge of UV exposure risks, the tanning industry is a booming $5 billion business. Approximately 25 million Americans use tanning facilities and up to 2 million of those patrons visit the tanning salons 100 times per year or about once every three to four days (U.S. Department of Health and Human Services, 2005). People who tan indoors significantly increase their UVA and UVB radiation exposure (Lazovich et al. 2004). A study of 106,379 Norwegian and Swedish women conducted between 1991 and 1999 indicated a 55% increase in melanoma risk in those who used a tanning bed at least once per month in the second, third and fourth decades of their lives (Autier, 2004). The National Institute of Environmental Health Sciences has listed sunlamps and tanning beds on the human carcinogen list (National Institutes of Health, 2002).

The policies in place to regulate adolescent use of indoor tanning facilities are not consistent. There are no US federal regulations addressing indoor tanning by adolescents. Only
18 states have limitations on adolescent usage of indoor tanning facilities and they are poorly enforced (Lazovich et al. 2004; Lazovich & Forster, 2005). Currently there is a House bill (H.R. 4767) that is in the first step of the legislative process proposing that the Food and Drug Administration (FDA) should conduct consumer testing to determine whether or not the labeling on tanning devices is sufficient enough to inform the consumer of the irreversible damage and/or risks associated with use (109th U.S. Congress, 2006). The tanning industry works hard to lobby against safety regulations (Lazovich & Forster, 2005; DeNoon, 2006).

The tanning industry contributes information available to adolescents that is often inaccurate. For example, the tanning industry has created organizations such as the Smart Tan Network and the Indoor Tanning Association (ITA) to promote the benefits of tanning. A spokeswoman for ITA promotes information such as: “Tanning salons tan people safely because they warn clients about getting sunburns” and that tanning has an anticancer benefit because UV radiation exposure helps the body produce Vitamin D, a preventive agent for many other kinds of cancer (DeNoon, 2006). In actuality, casual exposure of the face, arms and hands can maintain normal vitamin D levels (Maselis, Vandaele & DeBoulle, 2005). The tanning industry’s information may lead teens to conclude that tanning is a health benefit rather than a harmful risk.

There are myths supported by the tanning industry such as promoting a “base tan to help prevent burning” (DeNoon, 2006). This can lead to a false sense of security and inadvertently lead to longer periods in the sun thinking they are protected. It is not just the burning itself that is harmful. Teens are not being warned about the long term effects of radiation exposure such as skin damage leading to skin cancer and signs of premature aging (DeNoon, 2006).
Current practitioner counseling regarding UV exposure.

A study done by Geller et al. (1998) surveyed 756 pediatricians in Massachusetts to evaluate their practice of counseling on sun protection. Almost 70% of them indicated that they recommended safe sun practices to more than 50% of their white patients and their parents. Counseling patients and/or their families on sun exposure ranked fourth behind use of seat belts, bicycles helmets and smoking prevention. Eighty percent of the pediatricians rated their confidence level as high in discussing sun protection. The conclusion of the study states that Massachusetts pediatricians have summer sun protection counseling well integrated into their practice. To look at the other side of the coin however, there are still approximately 50% of the patients who are not being educated on sun prevention by these 70% of pediatricians who say they routinely talk to patients about this issue. This demonstrates that there is still a lot of room for providers to make a difference by incorporating teaching into every patient contact.

Sorting Through The Controversy.

Patients often turn to health care providers to answer questions or clarify information that they hear or read regarding sun exposure. It is essential that NPs provide the correct responses. The issue of sun exposure is controversial and there are no evidence based guidelines on which to base clinical practice. The United States Preventive Services Task Force (USPSTF) gave routine screening for skin cancer using a total-body skin examination an “I” (insufficient) recommendation because of lack of evidence that a clinical exam is sufficient to reduce mortality or morbidity from skin cancer, and the risks and benefits have not been determined (USPSTF, 2001). The USPSTF also gave routine counseling to reduce skin cancer by primary care clinicians an “I” recommendation. It also found insufficient evidence to determine whether or not clinician counseling is effective in changing patient behaviors to reduce risk, and again the
risks and benefits of such an intervention are unable to be determined. However, other organizations such as the American Cancer Society, the American Academy of Dermatology, the American Academy of Pediatrics and a National Institutes of Health consensus panel recommend educating patients on sun-safe practices such as avoidance and sunscreen use (USPSTF, 2001).

The Oregon Health Sciences University Evidence-Based Practice Center conducted a review of literature to submit to the Agency for Healthcare Research and Quality as a basis for the USPSTF to make recommendations to practitioners (Helfand & Krages, 2003). The report included information about some of the controversial aspects of UV exposure: While early exposure to the sun is often occurs on exposed areas of the body, there is no conclusive evidence that this exposure is associated with an increased risk for melanoma. Closer to the equator where the sun is more intense, the incidence for melanoma is higher, but it often occurs in areas of the body that are not exposed to the sun. Chronic exposure to UV light resulted in a lower risk of melanoma compared to intermittent intense exposure. A safe conclusion is to stay indoors, in the shade or to wear protective clothing at least during the times of the day when the sun is most intense.

Indoor tanning facilities are also controversial. It is obvious that those in the industry would like to promote a theory that tanning is safe. Swerdlow and Weinstock's study (as cited in Helfand & Krages, 2003) found that six of nineteen case-control studies found a link between the occurrence of melanoma and sun lamp usage, however a lot of these studies did not account for recreational sun exposure or the dosage of the tanning bed exposure. More studies need to be done to make a definitive conclusion. There is no evidence proving that tanning beds promote healthfulness either, so again a safe "send home" message could be to avoid them all together.
Sunscreen products need more research to determine how effective they are in prevention of cancer. Some say that the use of sunscreen can give people the false sense of security that they are protected from the sun. As a result, they spend longer periods of time in the sun getting exposed to the ultraviolet radiation and inadvertently getting burned more (Helfand & Krages, 2003; Fry & Verne, 2003). It is especially important to educate patients to use sunscreen with an SPF of at least 15 and to reapply it every two hours using the amount stated in the directions for maximum protection. It should be used in conjunction with avoidance of midday sun and the wearing of protective clothing and glasses (Moloney, Collins & Murphy, 2002; Olbricht, 2003; ).

The tanning industry and others have brought up the concern that the avoidance of sun exposure may lead to vitamin D insufficiency. It suggests this may put people at risk for other health problems such as hyperparathyroidism and osteoporosis. Many studies have been done on vitamin D and sun exposure and have not found any conclusive evidence that those who avoid the sun have a deficiency or any increase in these disorders mentioned (Farrerons, Barnadas, Lopez-Navidad, et al. 2001; Farrerons, Barnadas, Rodriguez, et al. 1998, Marks et al, 1995; and Olbricht, 2003)

**DISCUSSION: ROLE OF THE NURSE PRACTITIONER**

Understanding Adolescents/Theoretical Implications

In order to influence an individual or a population, one must first attempt to understand the rationale for their behaviors. The Health Belief Model (HBM) is a social-psychological framework for explaining health related behaviors. The HBM can be used to understand how a teen may perceive sun exposure and rationalize risky behavior. The major concepts of the HBM include perceived susceptibility, perceived severity, and perceived costs and benefits (Polit & Hungler, 1993). The HBM has a dominant emphasis on avoidance of negative events. The
HBM is applicable here because it focuses on why some people who are illness-free take actions to avoid illness or potential harm, while others do not take protective actions (Pender, 1996).

In discussing the risk of UV radiation the components of the HBM can be applied as follows. 1) Perceived susceptibility to skin cancer – each individual’s perception of how likely they are to get skin cancer varies. 2) Perceived severity of the disease – each individual’s perception of how severe skin cancer is differs from patient to patient, whether it can be fatal or simply taken care of with minor treatment or surgery. 3) Perceived benefits of and barriers to decreased sun exposure – each individual’s perception of what good may come out of decreased sun exposure or what the barriers are to sun protection also varies (Wright & Bramwell, 2001).

When adolescents partake in risky behaviors they may perceive that they are being rebellious or just do not understand the consequences. More often however, they are just risk-taking to test out an identity by providing self-definition and separation from others, including parents (Ponton, 1997). Adolescents may not consider tanning a risky or dangerous behavior but rather a quick result to an outcome they are trying to achieve. Danger, death and disease are not perceived as personal threats in the psychology of adolescents (Maselis, Vandaele & DeBouille, 2005). Therefore, messages to teens that emphasize the short-term consequences of painful sunburns may increase the relevance of the message and enable behavioral change (Robinson et al., 1997).

Adolescents may have heard, or learned over time that a tanned appearance looks “healthier” and they may simply fail to recognize that tanning can inadvertently be dangerous (Ponton, 1997). It may be more effective to educate adolescents about the physical consequences of sun and UV exposure such as premature aging of skin and wrinkling than about death, danger and disease that are not typically perceived as personal threats in this age group.
Maselis, Vandaele & DeBoulle, 2005). This technique may be especially effective for girls (Robinson et al., 1997). In a study of 658 Midwest teens, boys reported spending more time outdoors than girls due to working outdoors for either part- or full-time summer jobs. The boys used hats more consistently than girls for sun protection. Girls participated in deliberate sunbathing activities outdoors 49% of the time, whereas only 26% of boys were deliberate sunbathers. Sixteen percent of girls reported indoor tanning at least once in the last year compared to only 1% of boys (Robinson et al., 1997).

NPs can help adolescents define the actual susceptibility, severity, costs and benefits of tanning and help them change their perception of their own health as they define it in their own HBM. The education on this topic can potentially be enough to make a change in behavior. Knowledge of the danger of UV exposure is relatively recent. Changing the culture, perception and habits of a population takes time (Maselis, Vandaele & DeBoulle, 2005).

Nurse practitioners have a unique role in the health of our youth today. Whether the nurse practitioner is a primary care provider, working in a specialty field or conducting research advance practice nurses have the ability to provide a caring relationship that facilitates health (Hamric, Spross & Hanson, 2000). With each patient contact there is an opportunity for patient education. In primary care, sports physicals would be an excellent opportunity to discuss sun protection in adolescents involved in sports, especially those occurring outdoors. There are some existing programs that could be adapted or implemented to get the word out about UV protection. The primary source of information regarding sun/UV protection reported by adolescents was the media (53%). Others reported parents (30%) and physicians and nurses (9%), both are numbers that could be influenced by change in NP practice (Robinson et al., 1997).
Screening

The American Cancer Society (ACS) estimates that in the year 2006, 62,190 new cases of melanoma will be diagnosed and 7,910 will die from the disease (ACS, 2006). The National Cancer Institute (NCI) estimated in 2002 that there would be 53,600 people in the United States diagnosed with melanoma and 7,400 would die from the disease (Fears et al., 2002). To see the change over time, in 2000 the NCI estimated that there would be 47,700 new cases of melanoma with approximately 7,700 deaths. Although only 2% of the melanoma cases are diagnosed before age 20, the age upon diagnosis has been steadily decreasing over the last few decades. In 2000, melanoma was the sixth most common cancer among adolescents between the ages of 15 and 19 (Kim, 2001).

Since the average adolescent spends substantially more time outdoors than adults and since an estimated 80% of a person’s lifetime sun exposure occurs before the age of 21, it only makes sense to target this population to attempt to curb this trend (Kim, 2001). Being a frontline care professional, primary care providers play an integral role in screening for skin cancer. NPs should use a screening tool (Table Five) and teach patients to do skin self-examination to detect cancer early when it is much more likely to be treated successfully (Kim, 2001; United States Department of Health and Human Services, 2006). Specifically with adolescents it is important to teach in younger patients the most common presenting findings are the sudden increase in the size of a mole, a lesion that bleeds or a color change in a lesion (Darves, 2006). Though 2% is a small fraction of the population of those diagnosed with melanoma, teaching the proper techniques for screening skin will increase awareness for the future.

Knowing the risk factors for melanoma and then knowing the proper techniques for biopsy or referral are important in the diagnosis of melanoma (Goldstein & Goldstein, 2001).
Careful surveillance and screening by the NP needs to occur for those adolescents with increased risk factors. These factors include those with skin types I and II, defined as those who minimally if ever tan and always or often burn. They require sunscreen with higher sun protection factor (SPF) than those with skin types greater than III, and have a two to four time higher risk for nonmelanoma skin cancer than those with skin types III and IV. Another risk is having multiple dysplastic nevi or development of new benign nevi. When obtaining patient history, those adolescents who have a first degree relative with melanoma or who have had multiple blistering sunburns need to be monitored very closely (Darves, 2006; Kim, 2001).

Counseling

To be an effective counselor, it is fundamental to understand the individuals you are counseling. In working with adolescents and young children the developmental considerations must be taken into account. There are many changes in biological, psychological and social processes. With adolescents, developing autonomy and individuation is paramount. Ambivalence is common in this age group and a clinical approach that uses ambivalence to develop motivation for change may be very welcomed and effective. For example, asking a teen what their simultaneous and conflicting feelings are about UV exposure then helping them weigh out the consequences of each to then lead them, yet facilitate them to make their own decision can be effective in helping them choose healthy UV behaviors. In addition, using a technique such as motivational interviewing to help youth incorporate personal rather than institutional or counselor-based goals may be very effective with sun protection. If a provider can encourage a teen to be internally motivated to change, the change may be more likely to occur (Miller & Rollnick, 2002).

On all encounters with young patients who come in for treatment of acne or similar
problems it is often very obvious if they are tanning. This is a perfect time for counseling about the dangers of intentional tanning (Darves, 2006). This is when practitioners can dispel myths such as there is no such thing as a safe tan and at the same time promote alternatives such as creams and gels that give the look they are desiring without the damage that can occur with deliberate ultraviolet exposure (Rados, 2005).

**Current Tools/Programs with Successful Outcomes**

There are programs that have been proven effective that the NP can adapt to promote skin cancer awareness and the avoidance of risky behaviors. “Melanoma Monday” was designated as the first Monday in May by the American Academy of Dermatology. Started in the 1980s, the program was designed to raise awareness of melanoma by creating the “National Skin Self Examination Day”. Since 1985 as part of this event, volunteer dermatologists have found 135,300 suspicious lesions, including 15,600 suspected melanomas (American Academy of Dermatology, 2006). The volunteers also teach self examination with education on the ABCDs of Melanoma – asymmetry, border irregularity, color and diameter (see Figures 1 and 2).

“Slip, Slap, Slop” is another program that originated in Australia to encourage sun protection. The motto encourages people to “slip on a shirt, slop on sunscreen and slap on a hat and sunglasses to reduce their cancer risk” (Maselis, Vandaele & DeBoulle, 2005; American Cancer Society, 2005). There are numerous pamphlets available through the American Cancer Society and the American Academy of Dermatology that be found on their websites (See Table #1).

The CDC has issued guidelines for school programs to help prevent cancer. When a structured program is implemented in a school health curriculum it can help adolescents gain the knowledge, attitudes and skills required to develop healthy habits. Seven broad guidelines are
noted that schools can use to reduce the risk of skin cancer including: 1) policy implementation, 2) environmental change, 3) education for the students on sun protection, 4) family involvement, 5) professional development for the staff who have direct contact with the students, 6) health services and 7) evaluation of how well the schools are complying with the plan in place. Health care providers can be advocates in the community to help get programs such as these started in the schools (Glanz, Saraiya & Wechsler, 2002). As of 2003 only 3.4% of US schools have sun protection policies in place (Almahroos & Kurban, 2003). NPs can work with the school boards and school nurses and encourage these programs and assist with implementing an effective prevention strategy.

Using educational tools and pamphlets has proven to be effective in the clinical setting. A study done in 10 towns in New Hampshire studying 1930 children showed a significant increase in sun protective behaviors. They used programs such as Slip, Slap, Slop and SunSmart with the general message to avoid the sun between 11 AM and 3 PM, cover up using hats and protective clothing, use sun block with a sun protection factor $\geq 15$, and encourage sun protection among family and friends. This study included children ages 2-11 in primary care offices, schools, daycares and beach recreation areas. The researchers recommend primary care providers promote this intervention and recommend that similar ones be used for preteens and adolescents (Dietrich et al. 1998). Simply providing educational materials and sunscreen samples in the waiting room are an effective way to increase awareness regarding sun exposure. A study showed that in pediatricians’ offices as compared to family practitioners, the pediatricians were more likely to have these items available, 70.4% to 34% respectively (Helfand & Krages, 2003). NPs can make it a point to have these items available in their practice.

Using motivational interviewing techniques and providing handouts with the skin
protection information found in Table 3 is a way to increase awareness. Taking these interventions to the community including schools, recreational areas and other providers’ offices are proven ways to increase sun protection behaviors. When getting involved in sending the community message, NPs can actively encourage parents and others to voice their concerns to their state senators and representatives. For instance, sending letters to politicians on the support of legislation such as the TAN act of 2006 can increase awareness and more consistent regulations to protect all individuals.

CONCLUSION

Given the controversies that exist, it is a challenge to compare all available information and find the evidence to create best practice. Sun exposure is a topic that has received attention recently and hopefully that will serve to prompt more research on prevention strategies. There is sufficient evidence to indicate that sun exposure in the early years of life has a correlation with skin cancer later in life. Nurse practitioners and other providers have a unique opportunity to intervene with children and families to make a positive influence for healthy choices in the future. Positive habits are much easier to teach at an early age rather than later in life.

While there is information about skin cancer in the media, the urgent need for prevention of the consequences seems to be missing. Many do not know that melanoma and other skin cancers can be lethal. With the incidence that all skin cancers are increasing at alarming rates, it is imperative that action must be taken. Helping adolescents and their families sort out the best methods for healthy sun and UV behaviors is a place providers can start to attempt to deter the pending epidemic of sun-exposure induced cancers.
REFERENCES


http://www.ahrq.gov/clinic/cps3dix.htm#cancer


http://www.cancer.org/docroot/PED/content/ped_7_1x_Sun_Basics_for_Kids.asp?sitearea=PED


<table>
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<th><strong>Table 1: Helpful websites for patients and care providers:</strong></th>
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<tr>
<td><strong>American Academy of Dermatology</strong></td>
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<tr>
<td><a href="http://www.aad.org">www.aad.org</a></td>
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<tr>
<td>call 1-800-462-DERM (3376) to find free skin cancer screenings</td>
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<tr>
<td>Free download of book called Living with Sun, written for children in 1st, 2nd and 3rd grade. It focuses on sun-safe lifestyles, not skin cancer. Music and lyrics to the “Slip, Slap, Slop” song included.</td>
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<tr>
<td><a href="http://www.cancer.ca/ccs/internet/publicationlist/0,3172_247810681_269835599_langId-en.html">http://www.cancer.ca/ccs/internet/publicationlist/0,3172_247810681_269835599_langId-en.html</a></td>
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<td><strong>Skin Cancer Foundation</strong></td>
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<td><a href="http://www.skincancer.org/prevention/index.php">http://www.skincancer.org/prevention/index.php</a></td>
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<td><strong>American Cancer Society</strong></td>
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<td><a href="http://www.cancer.org/docroot/home/index.asp">http://www.cancer.org/docroot/home/index.asp</a></td>
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<td><strong>United States Department of Health and Human Services, Agency for Healthcare Research and Quality. The United States Preventive Services Task Force Guide to Clinical Preventive Services:</strong></td>
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<td><a href="http://www.preventiveservices.ahrq.gov/">http://www.preventiveservices.ahrq.gov/</a></td>
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Table 2: American Academy of Dermatology Sun Protection Guidelines.

| Use a sunscreen with a sun protection factor (SPF) of 15 or higher that provides broad-spectrum protection from both ultraviolet A (UVA) and ultraviolet B (UVB) rays. Re-apply every two hours for maximum effectiveness. |
| Avoid outdoor activities between 10 a.m. and 4 p.m. when the sun’s rays are the strongest. |
| Seek shade whenever possible. |
| Wear protective clothing and accessories, such as long-sleeve shirts and pants, wide-brimmed hats and sunglasses. |
| Follow the “Shadow Rule” – if your shadow is shorter than you are, the sun’s damaging rays are at their strongest and you are likely to sunburn. |
| Avoid tanning beds. |

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Table 4: The ABCDs of Melanoma

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<td><strong>Asymmetry</strong> - Meaning one half is different than another. Draw an imaginary line through the middle of the lesion, either up and down or side to side. Are the two sides the same size and shape (symmetric)? Melanomas are usually asymmetric.</td>
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<td><strong>Border Irregularity</strong> - The edge, or border, of melanomas are usually ragged, notched, or blurred.</td>
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<tr>
<td><strong>Color</strong> - Benign moles can be any color, but a single mole will be only one color. Melanoma often has a variety of hues and colors within the same lesion.</td>
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<td><strong>Diameter</strong> - Melanomas continue to grow, while moles remain small. Is the lesion larger than a pencil eraser</td>
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Table 5:

How To Perform A Skin Self-Examination

Examine your body front and back in the mirror, then right and left sides with arms raised.

Bend elbows and look carefully at forearms, upper underarms and palms.

Look at the backs of your legs and feet, the spaces between your toes and on the sole.

Examine the backs of your neck and scalp with a hand mirror. Part hair for a closer look.

Finally, check your back and buttocks with a hand mirror.

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