Preventing Skin Cancer: Sun Safety Education for Children

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Skin Cancer is the most common cancer diagnosed in the United States.

Especially a big problem in VT which, from 2007-2011, had the second highest rate of melanoma in the US at 28.6 per 100,000 people (compared to the national average of 19.7).
- Chittenden has one of the higher rates of melanoma in VT at 31.3 per 100,000.

From 2001-2005, VT had the highest rate of new melanoma diagnoses, 63% higher than the national average.

In a 2004 survey, it was found that 47.1% of Vermont white adults had experienced a sunburn in the past year.
- Sunburns are a major risk factor for the development of skin cancer.

180 VT residents were diagnosed with melanoma in 2008, contributing to 75% of all skin cancer deaths.
The Need

- Melanoma is the second most common type of cancer in adolescents, and one that is significantly attributed to UV exposure as a child.
  - 80% of lifetime sun exposure is obtained prior to age 18.

- Epidemiological data has found that several skin cancers can be prevented if children are better protected from UV rays.
  - In Vermont, only 16% of high school and 27% of middle school students reported wearing sunscreen all or most of the time.

- Based on the need to protect children from excessive UV radiation, the Community Preventive Services Task Force has made recommendations to target “child care centers” for skin cancer prevention interventions.
  - Younger children, as compared to older adolescents, are more likely to practice sun safety techniques and be receptive to guidance from adults.

- A number of early interventions can make children more aware of sun safety and change attitudes about sun protection.
Public Health Costs (a)

- About 5 million people are treated for skin cancer annually in the US.

- The costs of treating skin cancer increased 5x faster than treatments for any other cancer between 2002-2011.

- Current annual cost to treat skin cancer in the US:
  - Nonmelanoma skin cancers: $4.8 billion
  - Melanoma: $3.3 billion
  - Total: $8.1 billion
Public Health Costs (b)

- Estimated annual loss in productivity due to melanoma total $2.85 billion.

- Data shows that sun safety interventions, such as the EPAs SunWise program, could prevent more than 50 premature deaths and 11,000 future cases of skin cancer between 1999-2015. This accounts for more than $30 million in medical costs and productivity losses.

- The amount of nonmelanoma skin cancers in those with Medicare rose an average of 4.2% every year from 1992-2006.
Community Perspective (a)

- Interview 1: Sharon Mallory (Coordinator – Cancer Control Program, VT Dept. Health)

- Issue: “You wouldn’t guess we have an issue with skin cancer here in VT. Media doesn’t pick up on it, it’s not well known that VT actually has some of the highest rates of melanoma in the nation. Chittenden County is especially important to target because it contains 25% of the state population and has exceedingly high rates of skin cancer in the state.”

- Why VT: “Well, we have a 94% white population, but more importantly, VT gets short bursts of sun and people are burning more, or not using enough sunscreen. Overall, it’s just more exposure to UV light.”

- Solutions: “We have a skin cancer task force committee and we’re currently trying to increase primary physician awareness. It’s hard to raise sun awareness through schools due to restrictions by the Dept. of Education. We have a sun safety coloring contest that will be distributed in schools, but hard to get beyond that. Your work and sun safety programs made by the CDC have definitely been shown to be effective, and it would be great if we could implement more of these. Younger kids seem to listen.”
Interview 2: Dr. Ted James (Director - Skin & Soft Tissue Surgical Oncology)

The Issue: “Skin cancer and melanoma are a big issue in Chittenden, and VT as a whole because of such high rates compared to the rest of the states. Melanoma is also fatal and we have a lot of people at risk.”

Why VT: “There are many hypotheses as to why VT has such high rates. My guess is that it’s multi-factorial: the climate, geography, and our majorly fair-skinned population.”

Solutions: “Targeting skin cancer is now a multidisciplinary issue, in both treatment and prevention. It takes at least 1 or 2 decades until sun damaged skin becomes cancer. Most of our exposure is during childhood. So for adults, the majority of sun damage has already been done. We have to target children so that the future generations can say ‘we have the lowest rates of cancer’. Intuitively, it seems like projects targeting youth should work, and I would like to see some follow-up trials to evaluate their effectiveness.”

Interview 3: Gabriella Strouse (Director of Community Outreach, King Street Center)

I see so many of our kids playing out in the sun and rarely ever thinking about sun protection. Even I have forgotten about the importance of staying safe in the sun. Targeting kids is the perfect idea, as many of our kids have never really learned anything about practicing sun safety.
Methods and Intervention (a)

- I designed and presented a PowerPoint on sun safety directed at 1st and 2nd grade kids, with child-friendly information gathered from the American Academy of Dermatology and Sun Smart America. (PowerPoint attached).

- The sessions were 30 minutes in duration and were done at both the King Street Center and Boys & Girls Club of Burlington.
  - Each group consisted of 20-25 mixed 1st and 2nd grade children.
The curriculum consisted of three sections:

- What do children already know about the sun and common facts about sun rays and sunburns.
- The ABCs of sun safety (an easy tool for practicing sun safety for kids to remember):
  - A for Away
  - B for Block
  - C for Cover up
- Question and answer session with lip balm awarded as incentive for correct answers.

I made sure the entire presentation was interactive - filled with pictures, sounds, live examples (hats, sunglasses, sunscreen, lip balm) - and encouraged full class participation and repetition of high yield points.
Responses (a)

From King Street Center:

- Full participation by all children through engagement, eye contact, and raising of hands to ask and answer questions. All questions were answered correctly by different children, demonstrating recall of material just learned.

- Student responses included “thank you for coming”, “I need sunscreen now”, and “I want to keep my skin healthy”. At conclusion, all students affirmed they learned something new they would practice with a “Yes!”.

- Counselor responses included “I can’t believe how quiet and engaged they were” “they definitely enjoyed the presentation,” and “this was really helpful.”

- Director e-mailed me commenting that the session was an invaluable experience for the kids and would want me to come back routinely and present to children rotating through the center.
Responses (b)

From Boys&Girls Club:

- Also had full participation of all students in attendance. Demonstrated by most students making eye contact and eagerly raising their hands to answer questions in order to receive lip balm. Appropriate questions were asked including “can I still burn if there’s no sun out?” and “why do I get sunburns?”.

- Student responses included “can you come back again?” , “can you tell my mommy and brothers about the sun too?”, and “that was actually fun.”

- Counselor responses included “we definitely feel this is a great program for the children and would like to be involved in future sessions,” and “thank you so much for putting this together for the kids, they needed something like this.”
Evaluation of Effectiveness (a)

- Effectiveness assessed in domains of:
  - Participation:
    - In both sessions, all the kids showed engagement through vocal responses and hand-raising with questions. They were able to follow along throughout the presentation as demonstrated by whole class vocal repetition of the ABC's of sun safety, asking appropriate questions, and answering questions correctly.
  - Attention:
    - Children remained seated throughout the entire program with heads up, appropriate eye contact, and timely raising of hands to answer questions.
  - Recall:
    - Among all the students that answered questions, the correct answers were provided each time to the questions, demonstrating appropriate recall of material. Received pertinent questions from students at conclusion of session that validated knowledge of the material.
Evaluation of Effectiveness (b)

- **Children responses:**
  - Children were incredibly enthusiastic to get involved in the session by providing their own comments, asking timely questions, and racing to answer questions.

- **Adult responses:**
  - The counselors and directors at the centers were impressed at how involved all the children were and their curiosity in sun safety and memory of the facts learned in the session. Coordinators at both centers desired to have the sessions again or as a routine program at their facilities.

- **Limitations:**
  - Difficult to assess each individual child’s understanding of the curriculum.
  - Lack of quantifiable data and follow up data to evaluate session effectiveness.
  - Only 2 sessions were done – more are needed for proper evaluation.
  - Lack of resources (hats, lip balm, sunscreen) necessary at home for kids to practice sun safety.
  - Limited state resources and barriers to implementing and/or funding state-wide sun safety education programs.
Future Recommendations (a)

- A large scale trial and follow up to evaluate implementation effectiveness of different child sun safety programs, such as mine, is paramount.

- Wide scale youth sun safety programs will require more time and resources (such as state allowances and grants through CDC) earlier in the timeline in order to practice cancer prevention, instead of future cancer treatment.

- A combined effort between the VT Dept. of Health and VT Dept. of Education will be necessary in order to centrally implement the most effective sun safety curricula in as many schools as possible. Sessions that are streamlined, easily adoptable and enforced are most likely to be implemented.

- Programs should be continually monitored and evaluated over time in light of future skin cancer rates.
Future Recommendations (b)

- In addition to child education, parental education and involvement will be important in supporting effective sun protection practices.

- As even physicians I worked with were not cognizant of the skin cancer issue in VT, it is of utmost importance to increase general awareness of sun safety and skin cancer, especially among primary care physicians who serve as the first line health providers. Regular booster training sessions may be necessary to sustain health care worker awareness and support of sun protection measures.
References


