BREAST CANCER HUB℠

Age group: 7-8

Team Sun Soldiers
Sun-Cancer connection

Siri Arshanapally,Samhita Nunna, Sanvi Parimi, Shana Patel

School: Cox Mill Elementary

Corresponding author:
Dr. Lopamudra Das Roy
Questions, please reach out:
lopa@breastcancerhub.org

Abstract

- **Background:** Skin cancer is becoming an important health problem. Exposure to ultraviolet (UV), radiation can lead to skin cancer.
- **Aim:** We aim to review the literature to understand the connection between UV radiation from sunlight and skin cancer.
- **Methods:** We used pub med, National Cancer Institute and American Academy of dermatology websites. We also interviewed a pilot, Captain Evey Cormican.
- **Discussion:** Damage to our skin caused by sun exposure can be prevented. It is important to apply sunscreen, use UV filtering sunglasses, long sleeves and hats.
- **Conclusion**: Increasing awareness of the effects of sun exposure must begin at an early age. Schools can play an important role in educating kids on skin protection.

Introduction[1]

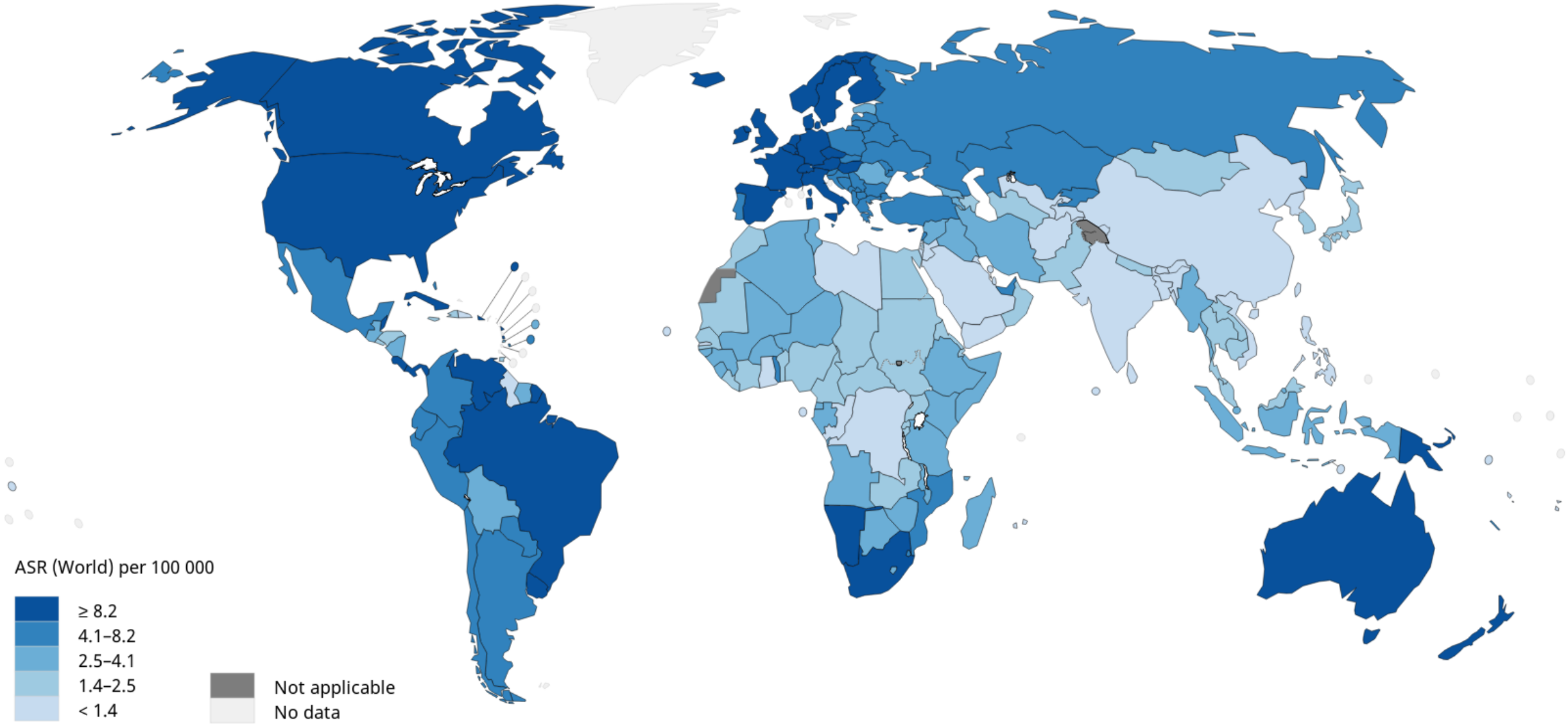
Sunlight has many positive effects on our health:

- Improves mood
- Treats depression.
- Decrease the stress
- Improved sleep
- Gives vitamin D

The harmful effects include:

- Damage to eyes
- Heat exhaustion.
- Heat stroke.
- Sunburn.
- Skin cancer.
- Wrinkles

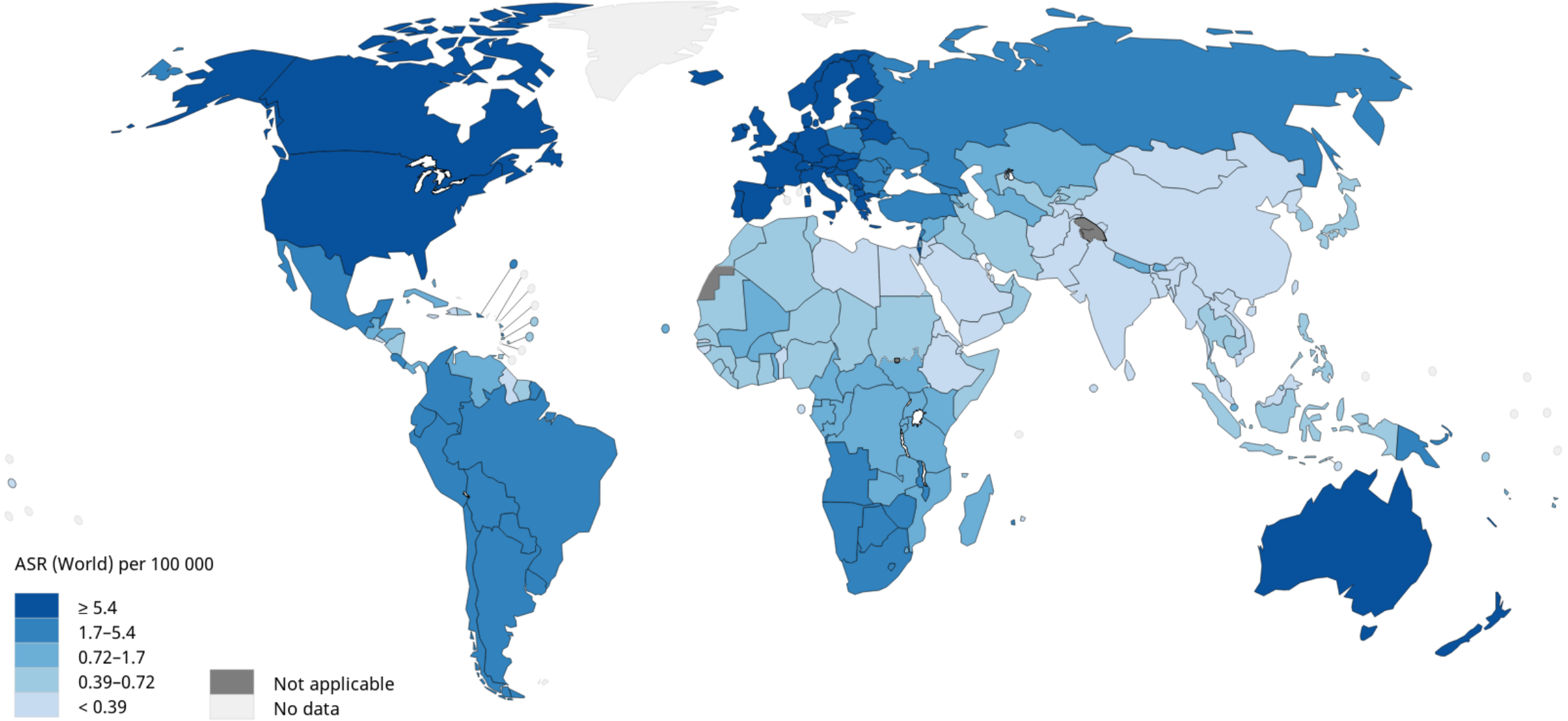
Estimated age-standardized incidence rates (World) in 2018, non-melanoma skin cancer, both sexes, all ages



Data source: GLOBOCAN 2018
Graph production: IARC (http://gco.iarc.fr/today)
World Health Organization

World Health Organization

Estimated age-standardized incidence rates (World) in 2018, melanoma of skin, both sexes, all ages



Data source: GLOBOCAN 2018
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World Health Organization

World's Highest Risk Countries

The world's highest incidence of melanoma is in **Australia** and **New Zealand** (more than twice as high as **North America**).

This may be due to how close these countries are to the **equator,** their greatly reduced ozone layer, and their population of mostly fair-skinned people.

The skin cancer mortality rate in less developed nations is up to 5 times higher than that in developed countries

Ultraviolet (UV) radiation[2]

- The sun, sun lamps and tanning booths all give off invisible rays reaching the earth, called UV radiation.
- The ozone layer is a shield around the earth that does not let most of the sun's UV radiation reach us.
- **UVA rays** can cause skin cells to age and can cause some indirect damage to cells' DNA. UVA rays are mainly linked to long-term skin damage such as wrinkles, but they are also thought to play a role in some skin cancers.
- **UVB rays** can damage the DNA in skin cells directly, and are the main rays that cause sunburns. They are also thought to cause most skin cancers.
- **UVC rays** don't reach the ground, so they are not normally a risk factor for skin cancer. But UVC rays can also come from some man-made sources, such as arc welding torches, mercury lamps, and UV sanitizing bulbs used to kill bacteria and other germs (such as in water, air, food, or on surfaces).

Does sunburn cause cancer?

- Sunburn is skin damage and your body's response to try to repair it – it's a short-term warning for potential long-term DNA damage, and is a clear sign that the DNA in your skin cells has been damaged by too much UV radiation[3].
- If enough DNA damage builds up over time, it can cause cells to start growing out of control, which can lead to skin cancer.
- Getting sunburn, just once every 2 years, can triple your risk of melanoma skin cancer.
- For example, one study published by the American Association for Cancer Research found that sunburns earlier in life were linked to higher risk of melanoma skin cancer[4].

Interview with Captain Evey Cormican

- Loves her job but misses her family and always happy to come back home
- India has the most female pilots
- Film inside glass coating in airplane protects from some UV radiation , but not all
- Evey always wears sun protective clothing, sunglasses and hat
- She is a breast cancer survivor
- Due to lack of protection from earth's atmosphere, high altitudes have cosmic radiation, which increases pilots risk of cancer
- She became a Captain after studying and getting licensed as a pilot

SAY YES TO SUN PROTECTION

SAY **NO** TO SKIN CANCER

SKIN CANCER IS THE MOST COMMON CANCER IN THE U.S.

ONE in **FIVE** Americans will develop skin cancer in their lifetime, and one person dies from melanoma, the deadliest form of skin cancer, every hour.

Since exposure to the sun's harmful UV rays is the most preventable risk factor for skin cancer, protect your skin by:

- **SEEKING SHADE**
- **WEARING PROTECTIVE CLOTHING**
- **GENEROUSLY APPLYING SUNSCREEN**

THERE ARE TWO TYPES OF SUNSCREENS:

PHYSICAL SUNSCREEN

This sunscreen **WORKS LIKE A SHIELD**; it sits on the surface of your skin, deflecting the sun's rays.

Look for the active ingredients **ZINC OXIDE** and/or **TITANIUM DIOXIDE**.

Opt for this sunscreen if you have **SENSITIVE SKIN**.

CHEMICAL SUNSCREEN

This sunscreen **WORKS AS A SPONGE**, absorbing the sun's rays.

Look for one or more of the following active ingredients: **OXYBENZONE, AVOBENZONE, OCTISALATE, OCTOCRYLENE, HOMOSALATE** and **OCTINOXATE**.

This formulation tends to be **EASIER TO RUB INTO** the skin without leaving a white residue.

If you have concerns about certain sunscreen ingredients, use the information above to choose an alternative that works for you. As long as it's **BROAD-SPECTRUM, WATER-RESISTANT** and has an **SPF 30 OR HIGHER**, it can effectively protect you from the sun. Make sure you reapply it every **TWO HOURS**, or after swimming or sweating.

AMERICAN ACADEMY OF DERMATOLOGY
SPOT SKIN CANCER

If you have questions about how to protect your skin or choose a sunscreen, talk to a board-certified dermatologist or learn more at **SpotSkinCancer.org.**

18-575-CMM

Reference 5


THE SUN'S HOT.
SKIN CANCER'S NOT.
Every time you go outside or use an indoor tanning bed, your skin is exposed to damaging ultraviolet (UV) rays. Not only can this cause premature skin aging (hello, wrinkles!), it also increases your risk of getting skin cancer, including melanoma — the second most common cancer in women ages 15 to 29.
TO PROTECT YOUR SKIN, FOLLOW THESE TIPS:
Don't skimp on sunscreen.
Generously apply sunscreen to all exposed skin, including your ears, neck, hands, feet and lips. Make sure your sunscreen is broad-spectrum, water-resistant and has an SPF of 30 or higher. Reapply every two hours or after swimming or sweating.
SUN SCREEN
Treat yourself to protective clothing and sunglasses (...seriously!)
Since no sunscreen can block 100% of the sun's rays, wear clothing for added protection. Look for lightweight, long-sleeved shirts and pants and sunglasses with UV protection.
Make shade your new best friend.
When possible, seek shade, especially from 10 a.m. to 2 p.m. when the sun's rays are the strongest. If there's no shade around, create your own using an umbrella or a wide-brimmed hat.
Even 1 indoor tanning session can increase your risk of developing melanoma by 20%.
Say goodbye to tanning.
Tanning – both indoors and out – can lead to wrinkles, age spots and skin cancer. If you want that golden glow, use a self-tanning product instead.
Be extra careful around water, sand and snow.
These surfaces reflect the sun's rays, increasing your chance of sunburn.
Women younger than 30 are 6 TIMES more likely to develop melanoma, the deadliest form of skin cancer, if they tan indoors.
If you see something, say something.
When detected early, skin cancer – including melanoma – is highly treatable. Check your skin regularly. If you notice any new or suspicious spots on your skin, or anything that is changing, itching or bleeding, see a board-certified dermatologist.
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To learn more about skin cancer prevention and detection, or to find a board-certified dermatologist in your area, visit SpotSkinCancer.org.
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18-256-CMM

Reference 6

Sun Safety Awareness at home and School[7]

- Schedule weekend activities and practices to avoid peak sun intensity hours between 10 AM – 2 PM.
- Use extra caution near water, snow, and sand because they reflect and intensify the damaging rays of the sun, which can increase your chances of sunburn.
- Talk to your child's teacher and coach about how they incorporate sun safe behaviors. Does your child need a note at school to apply sunscreen?
- Enhance the school property by creating shaded areas where the kids play outside.
- Educate staff and children about the UV index number. Check it every day with their
teachers and write it on the white board. The message is we need protection every day
and the higher the UV index number the more protection you need.

A IS FOR AWAY

SPOT Skin Cancer™

Reference 7

B IS FOR BLOCK

SPOT Skin Cancer™

Reference 7

C IS FOR COVER UP

SPOT Skin Cancer™

Reference 7

AWAY, BLOCK, & COVER UP

SPOT Skin Cancer™

SpotSkinCancer.org

Reference 7

References

1. https://www.unitypoint.org/livewell/article.aspx?id=9a64f6ba-8855-44dd-82d7-fe32b00f4e06
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