

Protecting children from Ultraviolet Radiation

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Children are in a dynamic state of growth, and are therefore more susceptible to environmental threats than adults. Many vital functions such as the immune system are not fully developed at birth, and unsafe environments may interfere with their normal development. But most environmental hazards are preventable: reducing exposure is the most effective way of protecting children's health.

Ultraviolet radiation and ozone depletion

Ultraviolet (UV) radiation is one component of solar radiation. It is progressively filtered as sunlight passes through the atmosphere, in particular by the ozone layer.

As the ozone layer is depleted, the protective filter activity of the atmosphere is reduced and more UV radiation, in particular the more harmful UVB, reaches the Earth's surface. In the year 2000, the ozone hole over the Antarctic reached its biggest size ever covering 11.4 million square miles – an area more than three times the size of the United States. For the first time it also stretched over populated areas exposing local residents to extreme levels of solar UV radiation. Local authorities warned residents in Southern Chile that they could sunburn in less than seven minutes and should avoid spending time outdoors in the middle of the day.

Sustained ozone depletion and enhanced levels of UV radiation on Earth will aggravate UV effects on the human skin, eyes and immune system. Children are at especially high risk of suffering damage from exposure to UV radiation.

Health effects of sun exposure – a global concern

UV radiation causes sunburn and skin cancer and accelerates skin ageing. Overexposure to UV radiation can lead to inflammations of the cornea and the conjunctiva in the eye, and causes or accelerates cataract development. A health issue of growing concern is that UV radiation can reduce the effectiveness of the human immune system. Consequently, sun exposure may enhance the risk of infection and could limit the efficacy of immunization against disease. Both of this act against the health of poor and vulnerable groups, especially children of the developing world, as many developing countries are located close to the equator and hence exposed to very high levels of the UV radiation.

Skin cancer has become the focus of intervention campaigns in Australia, Europe and North America. Many believe that only fair-skinned

people need to be concerned about overexposure to the sun. Although it is true that darker skin has more protective pigment, the skin is still susceptible to the damaging effects of UV radiation. The incidence of skin cancers is lower in dark-skinned people; nevertheless skin cancers occur and are often detected at a later, more dangerous stage. The risk of other UV-related health effects, such as eye damage, premature ageing of the skin, and immunosuppression is independent of skin type. For example, a 10% decrease in total stratospheric ozone is predicted to result in between 1.6 and 1.75 million additional cases of cataract per year worldwide.

Skin cancer incidence on the rise

Between 2 and 3 million non-melanoma skin cancers and approximately 132,000 malignant melanomas occur globally each year. With a sustained 10% decrease in stratospheric ozone, an additional 300,000 non-melanoma and 4,500 melanoma skin cancers could be expected worldwide, according to UNEP estimates. Currently, one in five North Americans and one in two Australians will develop some form of skin cancer in their lifetime.

People's behaviour in the sun is the main cause for the rise in skin cancer rates in recent decades. An increase in popular outdoor activities and changed sunbathing habits often result in excessive UV exposure. Many people consider intensive sunbathing to be normal and unfortunately, even many children and their parents perceive a suntan as a symbol of attractiveness and good health. However, a suntan is merely a sign of UV damage and represents the skin's defense to prevent further harm.

Children require special protection

The United Nations Convention on the Rights of the Child states that children, including all developmental stages from conception to age 18, have the right to enjoyment of the highest attainable standard of health and to a safe environment. Children require special protection, as they are at a higher risk of suffering damage from exposure to UV radiation than adults, in particular.

- A child's skin is thinner and more sensitive and even a short time outdoors in the midday sun can result in serious burns.
- Epidemiological studies demonstrate that frequent sun exposure and sunburn in childhood set the stage for high rates of melanoma later in life.
- Children have more time to develop diseases with long latency, more years of life to be lost and more suffering to be endured as a result of impaired health. Increased life expectancy further adds to people's risk of developing skin cancers and cataracts.

- Children are more exposed to the sun. Estimates suggest that up to 80 per cent of a person's lifetime exposure to UV is received before the age of 18.
- Children love playing outdoors but usually are not aware of the harmful effects of UV radiation.

Caring for children in the sun

According to an Australian study, four out of five cases of skin cancer are preventable by sensible behavior. Encouraging children to take simple precautions will prevent both short-term and long-term damage while still allowing them to enjoy the time they spend outdoors. Parents should serve as role models, and it is their responsibility to ensure that their children are protected adequately. Always keep infants of less than 12 months in the shade and make sure your children:

- Cover up with protective clothing, a hat and sunglasses.
- Apply broad-spectrum sunscreen of SPF 15+.
- Limit their time in the midday sun.
- Seek shade.
- Avoid sunlamps and tanning parlours.

Shade, clothing and hats provide the best protection for children – applying sunscreen becomes necessary on those parts of the body that remain exposed like the face and hands. Sunscreen should never be used to prolong the duration of sun exposure.

Sun protection is relevant in all settings

Sun protection is not only necessary on the beach or at the swimming pool but applies to all outdoor settings. In many situations sunburn arises because people do not realize the need for protection. Children can be exposed to intense sunlight on the balcony at home, on weekend trips or a visit to the zoo, during breaks at kindergarten or school, and during outdoor sporting activities.

Particular attention should be paid in the mountains, as UV levels increase by approximately 8 per cent with every 1000 meters altitude. Although UV radiation is most intense under cloudless skies it may be high even on an overcast day. Many surfaces such as snow, sand and water reflect the sun's rays and add to the overall UV exposure.

Sun protection programmes can make a difference

Sun protection programmes to raise awareness and achieve changes in life-style is urgently needed to slow down and eventually reverse the trend towards more and more skin cancers. An effective campaign can have an enormous impact on public health: the regular use of sunscreen with sun protection factor 15 or higher up to the age of 18 could decrease the frequency of skin cancer in Australia by more than 70 per cent. Beyond the health benefits, effective education programmes can significantly decrease

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costs in the health system and strengthen the economy. Current prevention campaigns in Australia invest approximately US\$ 0.08 per person per year, while the direct costs of skin cancer treatment have been estimated at US\$ 5.70 per head of the population during the same period of time.

WHO's Activities to Promote Children's Sun Protection

INTERSUN PROJECT

INTERSUN. WHO's Global UV Project aims to reduce the burden of disease resulting from exposure to UV radiation. The programme encourages and evaluates research to fill gaps in scientific knowledge, assesses and quantifies health risks, and develops an appropriate response through guidelines, recommendations and information dissemination. Beyond its scientific objectives, INTERSUN provides guidance to national authorities and other agencies about effective sun awareness programmes. These address different target audiences such as occupationally exposed people, tourists, schoolchildren

and the general public. The programme is working towards the development of a framework for children's sun protection education that comprises an educational package as well as recommendations on best practices.

Global Solar UV Index

The UV Index (UVI) was developed by WHO, the United Nations Environment Programme, and the World Meteorological Organisation as part of an international effort to raise public awareness of the risks of sun exposure. It is a simple measure of the intensity of the sun's ultraviolet rays at the earth's surface, and in many countries is presented as part of the weather forecast. INTERSUN promotes the harmonized use of the UVI, and advises governments to employ this educational tool in their health promotion programmes. WHO encourages dissemination channels such as the media and tourism industry to publish the UVI forecast and promote sun protection messages.

Global School Health Initiative

WHO's Global School Health Initiative seeks to mobilize and strengthen health promotion and edu-

cation activities to improve the health of students, school personnel, families and other members of the community. Schools are vitally important settings to promote sun protection, and play a significant role in increasing awareness and changing behaviour among children and the people taking care of them. As part of the WHO Information Series on School Health, INTERSUN is preparing a document that will describe the essential steps in setting up a school initiative on sun protection.

Task Force for the Protection of Children's Environmental Health

In response to new knowledge about the special vulnerability of children and to growing concerns about the health impact of unsafe environments, WHO set up a Task Force for the Protection of Children's Environmental Health in July 1999. Its objectives are to raise the awareness of member states and general public, to assist countries in mitigating the effects of environmental threats and to develop methodologies for risk assessment and the dissemination of information. Protecting children from harmful ultraviolet radiation is one of the topics covered by the Task Force's activities.