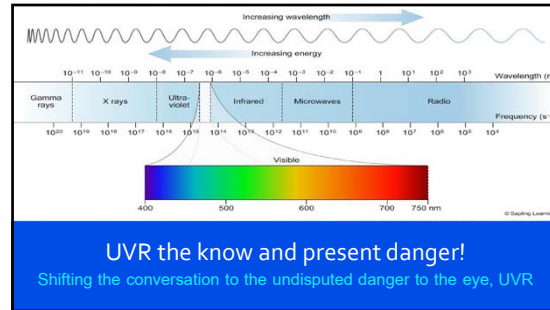


The Invisible Truth about UV Protection

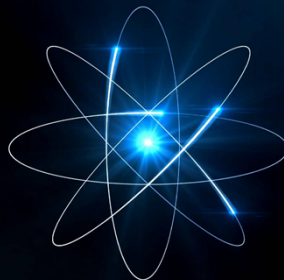
1 hour ABO Technical Level II
Cindi Davis, ABOC, CPOT – ZEISS



We don't have to debate if UV is harmful to the eye, the link between ocular UV exposure and eye disease and disorders is rooted in science-based evidence that is broadly accepted by science and medical community's.

Course Objectives

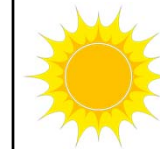
- Understand what we mean by UV Protection Gap
- Learn UV protection level for common lens materials
- Know why UV is a risk to eye health
- Know the increased risk for infants and children
- Learn about new lens technology UVProtect



What about
blue light
from
screens!?

Shifting the conversation
to the undisputed danger
to the eye, UVR

No Comparing Intensity Levels




DAYLIGHT
500 sunrise
120,000 noon
LUX



SCREEN LIGHT
40 – 470 LUX

UV is known risk!
Blue screen light
under debate

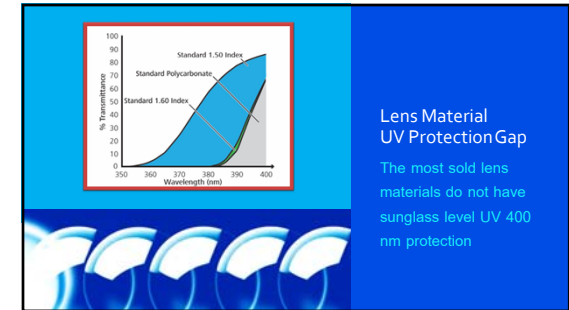
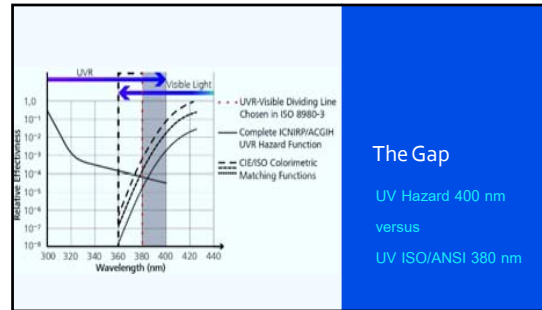
Shifting the conversation
to the undisputed danger
to the eye, UVR!



Even clear lenses should have UV400 protection

ZEISS believes that our dress pair of eyeglasses should have sunglass level UV400 nm protection.

And, that this level of protection is vital for all eyes, but especially those of our children.

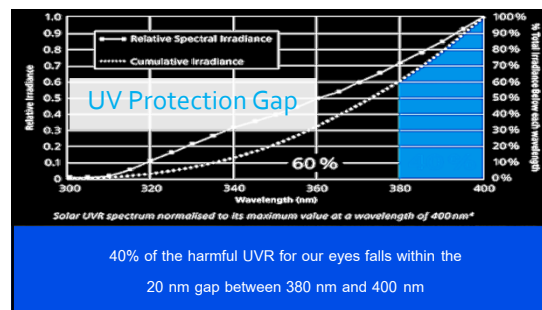
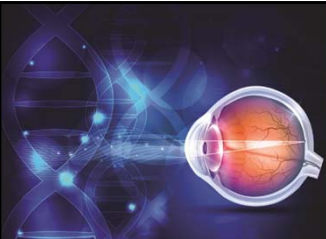


UV400 protection most important for children!

Damage from UV is cumulative and irreversible. Exposure starts in infancy and so does the damage.



50% of lifetime UV exposure before the age of 18

Difficulty Defining Visible Spectrum

In children and young adults, UVA rays as short as 365 nanometers can generate a visual response, meaning that these dangerous rays reach the retina.

In defense of the current ANSI/ISO UV380 nm standard in ophthalmic spectacle lenses...at the time that the standard for ophthalmic lenses was set the production of clear lenses with UV400 protection was not possible.

To make this point many of you remember years ago when UV400 polycarbonate lenses were available, but they had a distinct yellow hue. We did not sell many because they were unattractive.

Why is it important to close the UV Protection GAP for clear lenses?

Eye health is too important to risk!

WE are non-compliant when it comes to wearing sunglasses outdoor!

Adults report that the percent of time that they always wear sunglasses outdoors is only 31%

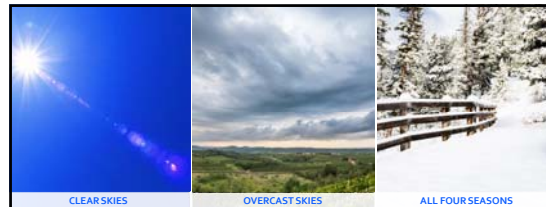
For children its worse on 7.3% report that their children always wear sunglasses when outdoors.



Altitude and Latitude



As the patients trusted eye care professional shouldn't we be erring on the side of higher levels of protection in clear lenses? And shouldn't we be starting this protection at an early age to protect young children?




UVR is Present 365 Days A Year

UVR is an invisible threat that is always present outdoors.


Reflective Surfaces Water and Snow





ULTRAVIOLET RADIATION (UVR)


- UVC
- UVB
- UVA



280 – 315 nm, causes damage at the molecular level to the fundamental building block of life DNA. Strong contributor to premature aging and malignant changes to the skin. Our cornea absorbs most but a small amount reaches the retina even in adult eye and more with excess exposure.

ULTRAVIOLET RADIATION (UVR)

- UVB



ULTRAVIOLET RADIATION (UVR)


Life on our planet depends on UVR but...



100 to 280 nm, is absorbed in the earth's ozone layer in the stratosphere

ULTRAVIOLET RADIATION (UVR)

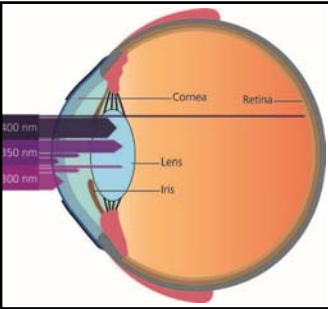
- UVC



315 to 400 nm, represent 99% of the UVR reaching the earth's surface and is the most prominent UVR that our eyes and skin absorb. It penetrates deep into the layers of our skin and eyes.

ULTRAVIOLET RADIATION (UVR)

- UVA



UVR Eye Hazard

- Cornea
- Crystalline Lens
- Retina

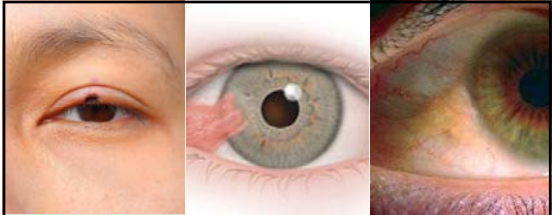
PHOTODAMAGE

How does UVR (actinic rays) cause damage to our eyes and surrounding skin?



UVR Eye Hazard

Acute
Chronic



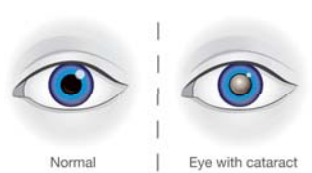
Chronic UVR Eye Hazard

CANCER – PTERYGIUM – PINGUECULA



UVR
Photochemical
Damage

Photochemical damage to the skin shows both the acute affect sunburn and the long term effect photo-aging.



UVR Eye Hazard

Cortical Cataract
Preventable –
Avoid UV Exposure

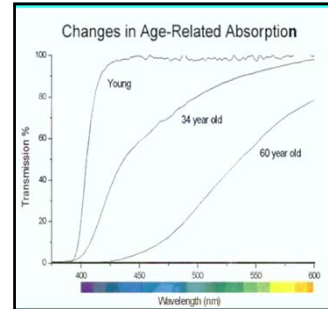
Chronic UVR
Eye Hazard
to Retina
AMD



Kids Retinae at Higher Risk from UVR

70% more UV...

Important since the Retina is more susceptible to UV damage than visible light



ULTRAVIOLET RADIATION (UVR)

Only 3% of Parents are aware that 50% of ocular UV damage occurs before age 18

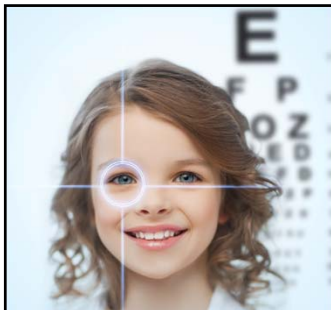
Dr. Roberts recommends sunglass UV400 level protection but, how many children own sunglasses let alone wear sunglasses outdoors to protect their eyes from UV radiation? According to Vision Watch, only 7.6% of parents report that their children always wear sunglasses outdoors. These low rates of sunglass wear for children make it all the more critical that they have sunglass level UV 400 protection in their clear general purpose pair of eyewear.

Children

Large Pupils

Clear Crystalline Lens

Infants Lack Antioxidants



Joan E. Roberts, Ph.D. states in '*Ultraviolet Radiation as a Risk Factor for Cataract and Macular Degeneration*' that "Both ultraviolet-A (UV-A) and UV-B induce cataract formation and are not necessary for sight. Ultraviolet radiation is also a risk factor for damage to the retinas of children. The removal of these wavelengths from ocular exposure will significantly reduce the risk of early cataract and retinal damage. One way this may be easily done is by wearing sunglasses that block wavelengths below 400 nm (marked 400 on the sunglasses)". But...

Acute UVR Eye Hazard

Photokeratitis
Conjunctivitis



None of these conditions are produced from viewing a smartphone, tablet or computer screen. We must make sure that patients understand that the danger comes from the sun and UV exposure.



UVProtect Technology

ZEISS scientist developed proprietary UV400 additives that are cast into the lens material then molded into clear ZEISS materials.



ZEISS sharing Innovation for the greater good!



Providing sunglass level UV protection in all of their clear lens materials at no additional charge

Our patients place their trust and confidence in us. We owe it to them to provide the highest level of protection available. Especially when chronic UVR exposure is universally **KNOWN** to be harmful to our eyes. We all deserve sunglass-level UV400 protection in our clear dress pair of eyeglasses.



Seeing is Believing

Clear lens transmits UV

Dark lens is UVProtect
Absorbs all UV - none transmits to the eye

Thank You

Q & A