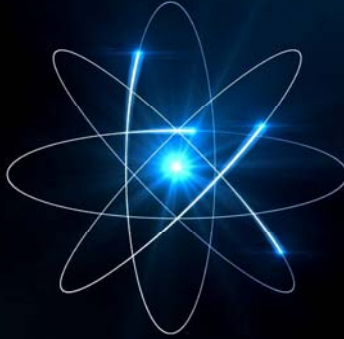


The Invisible Truth about UV Protection

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



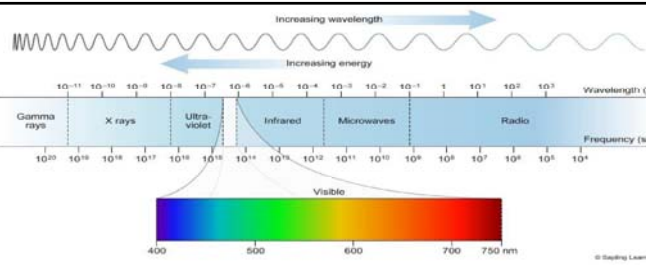
What about blue light from screens!?

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

Course Objectives

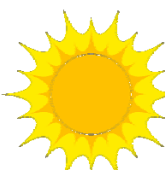
- Understand what we mean by UV Protection Gap
- Learn UV protection level for common lens materials
- Know why UV is a risk to eye health
- Know the increased risk for infants and children
- Learn about new lens technology UVProtect

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.




UVR the know and present danger!
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

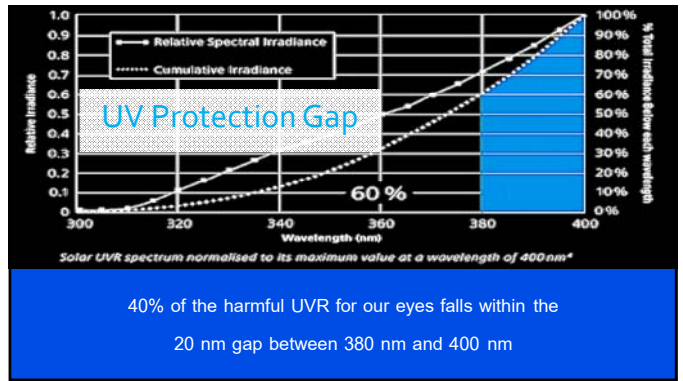
Shifting the conversation to the undisputed danger to the eye, UVR!



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.

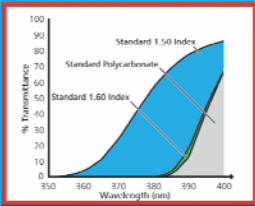


UV400 protection most important for children!

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

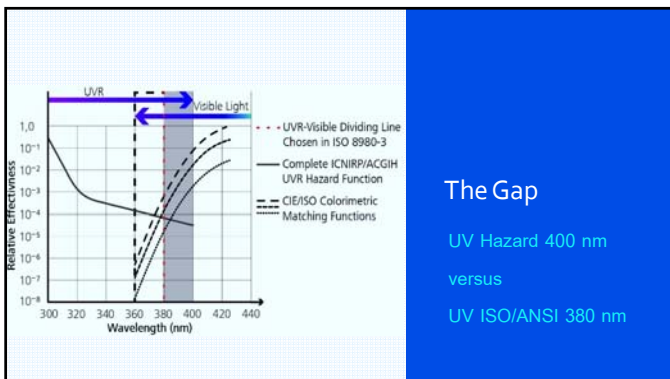



50% of lifetime UV exposure before the age of 18



Lens Material UV Protection Gap

The most sold lens materials do not have sunglass level UV 400 nm protection

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

CLEAR SKIES OVERCAST SKIES ALL FOUR SEASONS

UVR is Present 365 Days A Year
UVR is an invisible threat that is always present outdoors.

Eye Hazards	External Ocular Adnexa Hazards
● Cataract	● Carcinoma
● Keratitis	● Dermatoheiosis (photodermatitis)
● Pterygium	● Melanoma
● Melanoma	● Pinguecula

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?

Altitude and Latitude

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.

Reflective Surfaces
Water and Snow

	<p>ULTRAVIOLET RADIATION (UVR)</p> <p>UVC</p> <p>UVB</p> <p>UVA</p>
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	<p>ULTRAVIOLET RADIATION (UVR)</p> <p>UVA</p>
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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.

	<p>ULTRAVIOLET RADIATION (UVR)</p> <p>UVC</p>
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100 to 280 nm, is absorbed in the earth's ozone layer in the stratosphere

	<p>ULTRAVIOLET RADIATION (UVR)</p> <p>Life on our planet depends on UVR but...</p>
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	<p>ULTRAVIOLET RADIATION (UVR)</p> <p>UVB</p>
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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.

	<p>UVR Eye Hazard</p> <p>Cornea</p> <p>Crystalline Lens</p> <p>Retina</p>
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PHOTODAMAGE
 How does UVR (actinic rays) cause damage to our eyes and surrounding skin?


UVR Eye Hazard
 Cortical Cataract
 Preventable –
 Avoid UV Exposure

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

Chronic UVR Eye Hazard
 CANCER – PTERYGIUM - PINGUECULA

UVR Eye Hazard
 Acute
 Chronic

Chronic UVR Eye Hazard to Retina
 AMD



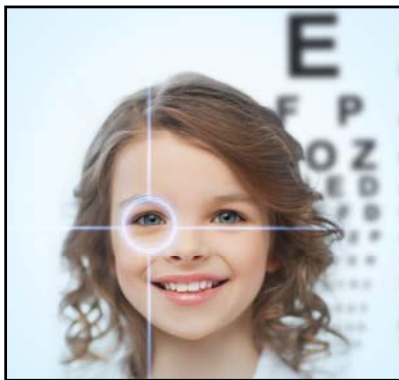
Kids Retinae at Higher Risk from UVR

70% more UV...

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



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...

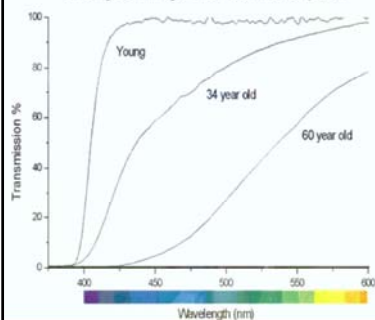


Children

Large Pupils
Clear Crystalline Lens
Infants Lack Antioxidants

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.

Changes in Age-Related Absorption



ULTRAVIOLET RADIATION (UVR)



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

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.

Seeing is Believing

Clear lens transmits UV

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

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.



ZEISS sharing Innovation for the greater good!

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

UVProtect Technology

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



Thank You

Q & A