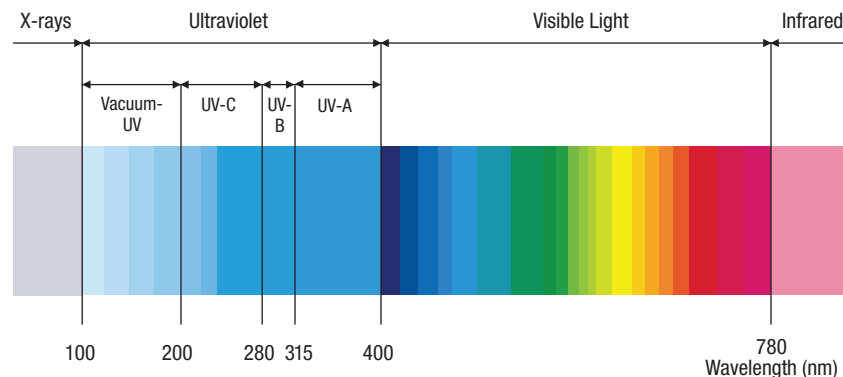


Ultraviolet Light and Sanitization

The Electromagnetic Spectrum



Types of UV light

Short-wavelength UVC (200-280nm)

- Most energy
- Can penetrate skin
- Most damaging
- Germicidal
- There is evidence that far UVC (207-222nm) does not cause epithelial or retinal damage.

Medium-wavelength UVB (280-315nm)

- Responsible for delayed tanning and burning
- Contributes to skin aging
- Promotes development of skin cancer

Long-wavelength UVA (315-400nm)

- Accounts for 95 percent of UV radiation reaching earth's surface
- Penetrates into deeper layers of skin
- Responsible for immediate tanning effect
- Contributes to skin aging and wrinkling

Use in sanitization

- What is used: UVC-producing germicidal lamps; may be for small spaces or for entire rooms
- How it works: Emits UVC light to disrupt DNA or RNA base pairing of bacteria, viruses and protozoa
- Dangers
 - To humans: Direct exposure can lead to rapid sunburn and skin cancer; eye exposure can lead to painful inflammation of cornea and vision impairment
 - Other: Can produce ozone
- Downsides to use: Can break chemical bonds and lead to accelerated aging of materials (e.g., plastics, insulation, gaskets); shielding should be used
- Time necessary for effectiveness: Refer to product directions, but peak effectiveness is a factor of energy (microwatts) and time over surface area (seconds/cm²) of the object
- Applications in the OMS office: Mask and room sanitization

Read more on this topic in the [AAOMS Paper on UV Light and its Applications.](#)

