1,075 contact lens-related corneal infections reported in 2005-'15
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Contact lenses are used by approximately 41 million people in the U.S. In 2014, more than 99% of contact lens users reported at least one behavior associated with increased risk of eye infection.

Inflammation of the cornea (keratitis) manifests as pain, tearing, redness and blurring of vision. Photo courtesy of the 2015 AAP Red Book.

Certain adverse events associated with contact lens use, including inflammation of the cornea (keratitis), corneal scarring, decreased visual acuity or the need for corneal transplantation, are tracked in the Food and Drug Administration Medical Device Report (MDR) database. An eye care provider or patient should file a report promptly at http://www.fda.gov/medwatch when a contact lens-related problem is suspected or experienced.

A search of the MDR database between 2005-'15 using the terms "keratitis" or "ulcer" was performed to describe corneal infections associated with contact lens use, yielding 1,075 reports of infections.

Most of the 925 (86%) MDRs were made by contact lens manufacturers, while 150 (14%) MDRs were submitted by patients or eye care providers. Soft daily wear (615 MDRs, 57%) and soft extended wear (381 reports, 35%) contact lenses were associated with the greatest number of contact lens-related corneal infections, while daily disposable lenses, rigid gas permeable lenses, decorative/cosmetic lenses and lenses purchased from an unlicensed source accounted for less than 5% of MDRs.

One hundred and thirty (12%) reports were evaluated in an emergency department or urgent care setting, and 25 (2%) required hospitalization. Eye damage resulting in decreased visual acuity, central cornea scarring or need for a corneal transplant occurred in 213 (20%) cases.

Behaviors associated with an increased risk of eye infections resulted in 270 (25%) reports (see table). The causative pathogen was isolated from 137 (13%) cases. Pseudomonas species were the most frequently isolated pathogen (48 reports, 5%) followed by Acanthamoeba (34, 3%), Fusarium (24, 2%) and Staphylococcus species (15, 1%).

 Proper use of contact lenses includes washing hands with soap and water and drying hands well before handling contact lenses; keeping water away from contact lenses, including removing contact lenses before swimming, using a hot tub or showering; avoiding extended wear; and avoiding sleeping in contact lenses. Additional information on how to use contact lenses safely can be found at http://www.cdc.gov/contactlenses/protect-your-eyes.html.
Number and percentage of contact lens-related corneal infections (n=1,075) with behaviors known to increase the risk of eye infections

<table>
<thead>
<tr>
<th>Risk factor*</th>
<th>Number (%)</th>
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</thead>
<tbody>
<tr>
<td>Extended wear†</td>
<td>121 (11)</td>
</tr>
<tr>
<td>Occasional sleeping in contact lenses</td>
<td>75 (7)</td>
</tr>
<tr>
<td>Wearing longer than prescribed period</td>
<td>85 (8)</td>
</tr>
<tr>
<td>Using expired lenses or products</td>
<td>8 (1)</td>
</tr>
<tr>
<td>Storing lenses in tap water</td>
<td>9 (1)</td>
</tr>
<tr>
<td>Wearing lenses while swimming</td>
<td>10 (1)</td>
</tr>
<tr>
<td>Unspecified hygiene problem</td>
<td>12 (1)</td>
</tr>
</tbody>
</table>

*Not mutually exclusive

†Routine continuous or overnight lens use, prescribed or not

Question

Which of the following behaviors known to increase the risk of eye infections is most common?

a. Sleeping with contact lenses in place
b. Routine continuous or extended wear of contact lenses, including overnight lens use
c. Wearing contact lenses while showering, swimming or using a hot tub
d. Storing lenses in tap water
e. Use of expired contact lenses or lens-related products

Answers: b