Clinical Grading Scales

Grading scales are an essential tool for recording and monitoring clinical changes to ocular tissues. Standardised scales are used to assess the severity of a wide range of conditions including those associated with contact lens wear. These tools can now be considered to be an expected norm in contact lens practice.

Several illustrative grading scales are available for use in clinical contact lens practice. Examples of these include the Brien Holden Vision Institute (formerly CCLRU) and the Efron Grading Scales. The former were first published in 1993 and use photographic images for a range of conditions which may occur during contact lens wear, whereas the Efron scales (first edition 1997) use painted images. Computer-generated grading morphs have also been developed. THE VISION CARE INSTITUTE® has produced both photographic and artist rendered scales (see below).

Photographic scales have the advantage of depicting real conditions, however, creating a series of photographs that display a constant manifestation, at increasing uniform increments of severity, is unrealistic. Artist-rendered grading scales provide a simple, convenient and accurate means by which clinicians can record and communicate the severity of contact complications, and have advantages when compared to photographic scales. With painted grading scales, the severity of the condition depicted can be systematically advanced and angle of view, magnification and associated features such as iris colour standardised.
The use of these grading scales has been clinically validated for a variety of conditions. Although various systems are validated for clinical use, artist-rendered scales have been shown to be more reliable than photographic systems and there are differences in precision and reliability between observers and between conditions. Clinicians are advised to consistently use the same grading system.

Grades range from 0, where no clinical action is required to 4, where clinical action is urgently required. Management will be based on how much the normal ocular appearance has changed, with a difference in grade of 1 or less being considered within normal limits (except for staining).

It has been recommended that, for maximum precision, recording of clinical signs using grading scales should be to the nearest 0.1 scale units and that a change in grading scale units of more than one is clinically meaningful. The grading system used should be specified on the record along with any other relevant information, such as the condition being graded and the location. A sketch of the eye and/or recording the specific zone enhances the record.

Grading scales are a very useful clinical tool to improve the accuracy and consistency of record keeping. They enable direct comparisons to be made and allow communication with other health professionals on clinical cases. They can also be useful as an educational tool to help explain changes to the patient and support clinical decision-making, such as the need to change lens modality, material or replacement frequency.

The Efron Grading Scales for Contact Lens Complications provide a standard clinical reference for describing the severity of 16 contact lens complications.

- Conjunctival redness
- Limbal redness
- Corneal neovascularisation
- Epithelial microcysts
- Corneal oedema
- Corneal staining
- Conjunctival staining
- Papillary conjunctivitis
- Blepharitis
- Meibomian Gland Dysfunction
- Superior Limbic Keratoconjunctivitis
- Corneal infiltrates
- Corneal ulcer
- Endothelial polymegathism
- Endothelial blebs
- Corneal distortion

The general interpretation of each grading step is shown in the table below, although these are only guidelines and are not intended to replace professional judgement. There are some exceptions to this interpretation for certain complications.

<table>
<thead>
<tr>
<th>GRADE</th>
<th>SEVERITY</th>
<th>CLINICAL INTERPRETATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal</td>
<td>Clinical action not required</td>
</tr>
<tr>
<td>1</td>
<td>Trace</td>
<td>Clinical action rarely required</td>
</tr>
<tr>
<td>2</td>
<td>Mild</td>
<td>Clinical action may be required</td>
</tr>
<tr>
<td>3</td>
<td>Moderate</td>
<td>Clinical action usually required</td>
</tr>
<tr>
<td>4</td>
<td>Severe</td>
<td>Clinical action certainly required</td>
</tr>
</tbody>
</table>

A general interpretation of each grading step (The Efron Grading Scales for Contact Lens Complications)
THE VISION CARE INSTITUTE™ Clinical Grading Scales are an adapted version of the full Efron scales, for easy chair-side reference. They cover six key ocular signs that practitioners regularly grade in practice: limbal redness, lid redness, lid roughness, corneal staining and meibomian gland dysfunction. Under this system, grades are interpreted according to the guidelines above.

THE VISION CARE INSTITUTE™ Clinical Grading Scales App, compatible with the iPhone®, is an educational tool that allows practitioners to demonstrate to patients nine conditions with severity levels that lessen and increase with real-time animation based on touch. Pterygium, pinguecula and cortical cataract are the additional clinical signs included to aid management of conditions associated with chronic UV exposure.

The app enables severity levels in 0.1 increments to be compared side-by-side. A report can be exported for practice records without collecting personal data. An expanded Clinical Assessment Guide is also included.

A useful Clinical Assessment Guide to slit lamp illumination, staining and lid assessments, and signs of oxygen deficiency can be found on the reverse side. A guide to differentiating corneal inflammation and corneal infection is also included.

These resources from THE VISION CARE INSTITUTE™ are valuable clinical tools, supporting the eye care practitioner and enhancing patient care.
References


