

# EDUCATIONAL MOMENTS

## INSPIRING CARE

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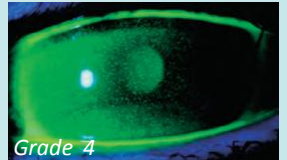
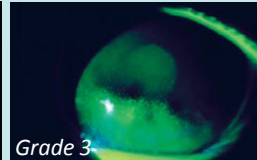
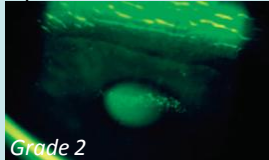
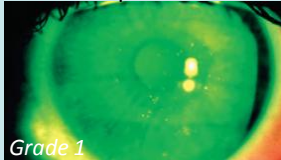
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### How to manage patients with Corneal Staining

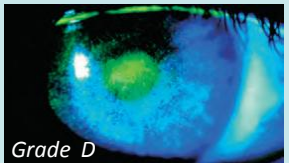
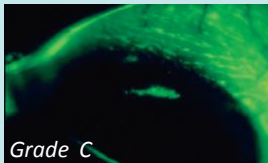
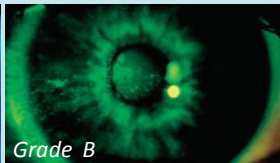
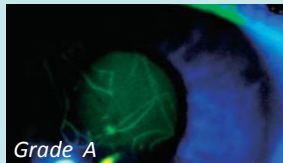
#### 1 What You Need to Know

- Slit Lamp Viewing:** (1) Parallelepiped or diffuse beam (3) Fluorescein with blue cobalt filter and yellow barrier filter  
(2) High magnification (16 – 30x) (4) Direct illumination

- Grading Extent:** 0: None 3: >40 diffuse spots and/or coalescing patches  
1: 1 – 20 punctate diffuse spots 4: Dense confluent patches  
2: 21 – 40 punctate diffuse spots



- Grading Depth:** A: No stromal diffusion C: Stromal diffusion immediate but moderate  
B: Stromal diffusion delayed (30 – 60 seconds) D: Stromal diffusion immediate and widespread



- Grading Position:** Superior, nasal, inferior, temporal, central

- Incidence:** • Common in all CL wearers (up to 60%) but often clinically insignificant • Some degree also seen in non CL wearers (35%)

- Aetiology:**
- Mechanical - trauma, foreign body, damaged lens, lens edge, material stiffness, thick lens design
  - Exposure - disruption of tear film and subsequent desiccation
  - Metabolic - hypoxia, hypercapnia (tissue acidosis and desquamation of epithelial cells)
  - Solution-induced corneal staining (SICS) seen 2-4h after insertion with some SiH/MPS combinations
  - Toxic — care regimen hypersensitivity (1-10% hydrogel lens wearers)
  - Allergic — delayed or immediate hypersensitivity reaction
  - Infectious systemic disease, poor general health (e.g. influenza, throat infection)

- Symptoms:**
- Can be asymptomatic – depends on aetiology and severity (grade 3/4, discomfort or even pain)
  - May include CL intolerance, reduced wearing time, dryness, itching
  - Reduced vision if significant and over visual axis
  - Lacrimation
- Signs:**
- Superficial punctate epithelial erosions (SPEE) (extent, depth and location depends on aetiology)
  - Bulbar conjunctival hyperaemia
  - Tarsal conjunctival changes
  - Lacrimation

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### How to manage patients with Corneal Staining

#### 2 What You Need to Recommend to Your Patients

**Recommendations:**

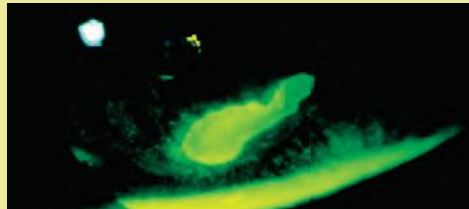
- Manage if  $\geq$  Grade 2 or if  $\geq$  1 grading scale increase
- Remove lenses for 24h with Grade 2, 2 – 3 days with Grade 3, and 7 days with Grade 4
- Consider medical intervention/ treatment for Grades 3 and 4
- Ocular lubricants to reduce symptoms
- Isolate cause and manage — change care system, refit/replace lens, improve oxygen performance, blinking, rewetting drops
- For SICS: ensure a rub and rinse step (right), alter combination of SiH and MPS, switch to non-preserved solution or change to DD lens



**Prognosis:**

Good (unless Bowman’s membrane penetrated and subsequent residual scarring)

**Differential diagnosis:**



- Infectious keratitis (left),
- Excessive eye rubbing: pressure marks

#### 3 How to Find Out More

- [CLICK HERE FOR A REFRESHER ON SLIT LAMP TECHNIQUES](#)
- [CLICK HERE FOR THE ANDRASKO CORNEAL STAINING GRID](#)
- [CLICK HERE FOR SHORT VIDEOS ON SLIT LAMP TECHNIQUES](#)
- [CLICK HERE FOR FURTHER READING/REFERENCES](#)

*This series is adapted from A Handbook of Contact Lens Management (3d Edition) published by Johnson & Johnson Vision Care Institute.*

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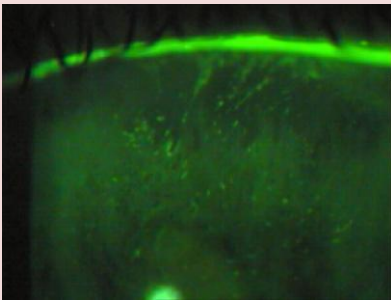


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### How to manage patients with Corneal Staining

#### Patient Case Study

When you have read this guide and our recommended resources, why not take part in Johnson & Johnson Vision Care Institute self-assessment quiz to test your clinical diagnostic and management skills. Choose only one answer to each question then check the answer at the foot of the page to see whether it's correct. Good luck!



**Patient GC** is a 38-year-old retail assistant who has worn silicone hydrogel lenses successfully for 3 years and has been symptom-free at each aftercare visit. He comes in to the practice complaining of reduced comfort with his lenses over the past week. He recently switched from the multipurpose solution you recommended to an own-brand solution.

#### Questions:

- 1 What slit lamp technique would you use to examine this patient for corneal staining?**

  - A. Narrow beam
  - B. Low illumination
  - C. White light
  - D. Fluorescein and cobalt blue light
  
- 2 What is the best time of day to examine patients for solution-induced corneal staining?**

  - A. Immediately after lens insertion
  - B. 2-4 hours after insertion
  - C. 6-8 hours after insertion
  - D. At the end of the daily wearing time
  
- 3 Slit lamp examination shows this patient has approximately 30 diffuse punctate spots on the cornea. What grade would you give to this extent of staining?**

  - A. Grade 1
  - B. Grade 2
  - C. Grade 3
  - D. Grade 4
  
- 4 Which of the following management options are you most likely to consider first?**

  - A. Refer for medical treatment
  - B. Switch to daily disposable lenses
  - C. Remove lenses for 24 hours then resume lens wear using your recommended solution
  - D. Ocular lubricants

**1** The correct answer is **D**. Instilling fluorescein and using cobalt blue and yellow barrier filters is the best method for viewing corneal staining.

**2** The correct answer is **B**. Studies have shown that the optimum time to examine for solution-induced staining is 2-4 hours after insertion.

**3** The correct answer is **B**. A total of 21-40 punctate diffuse spots with no coalescing patches indicates Grade 2 extent of corneal staining.



**4** The correct answer is **C**. Advise the patient only to use the care product you recommend and note the brand on his contact lens specification.