Health Professions Council of South Africa

PROFESSIONAL BOARD FOR OPTOMETRY AND DISPENSING OPTICIANS

CLINICAL GUIDELINES FOR CONTACT LENS FITTING

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ABBREVIATIONS & ACRONYMS

BOZD	Back optic zone diameter
CL	Contact lens/es
HPCSA	Health Professions Council of South Africa
HVID	Horizontal visible iris diameter
PBODO	Professional Board for Optometry and Dispensing Opticians
RGP	Rigid gas permeable
SAG	Sagital depth
SLZ	Scleral landing zone
TBUT	Tear break-up time
TTT	Tear thinning time
VVID	Vertical visible iris diameter

INTRODUCTION

This document serves as a guideline to contact lens practitioners with respect to the minimum clinical requirements and standard of care in the fitting and provision of contact lenses and the care of contact lens patients. The PBODO recognizes that the fitting of contact lenses is an integral part of the clinical care offered by optometrists and hence needs to be practiced with the same clinical competence and integrity as any other aspects of clinical care within optometry.

This guideline must be read in conjunction with the following:

1. All ethical booklets of the HPCSA (Core Operations - HPCSA)
2. Guidelines on general eye examination
3. Guidelines on Telehealth

Contact lenses are medical devices and may only be fitted by suitably qualified eye care professionals. Practitioners must at all times take full responsibility for all aspects of eye care related to contact lens fitting namely, determining the suitability of patients and products, conducting pre-fitting procedures, tolerance trials, dispensing, after-care and managing contact lens-related complications. The required minimum equipment for successful contact lens fitting is as listed below in **ANNEXURE A**.

A comprehensive general refraction and ocular health examination must be completed with a thorough examination of the anterior and posterior segments of the eye before the commencement of contact lens fitting.

1. CLINICAL PROCESSES AND PROCEDURES FOR CONTACT LENS FITTING

1.1 Pre-trial procedures

1.1.1 Document all necessary patient demographic details: Name, address, date of birth, referring practitioner, etc.

1.1.2 Conduct a thorough case history to ascertain:

a. Reason for contact lenses
b. Occupation & hobbies i.e., vocational, and non-vocational vision requirements
c. Ocular health
d. General health

e. Relevant family history
f. Medication (systemic and topical)
g. Previous injuries/trauma

1.1.3 Review whether there is any contraindication to the use of contact lenses from the case history. Should the history not preclude contact lens wear, continue to take the necessary measurements to further determine suitability for contact lens wear and determine the appropriate lens material and/design that should be used by conducting the following:
   a. Refraction – subjective & objective;
   b. Thorough examination of the anterior segment with the slit lamp biomicroscope;
   c. Tear function tests – make a diagnosis on tear function after performing at least 2 tests e.g., TBUT and TTT;
   d. Keratometry/corneal topography;
   e. Measure palpebral aperture size;
   f. Determine horizontal and vertical visible iris diameter (HVID/VVID); and
   g. Measure pupil diameter size, both photopic and scotopic.

1.1.4 Review whether there is any contraindication for contact lens wear from the pre-fitting measurements e.g., severe dry eye. If none, proceed with tolerance trials.

1.2 Tolerance trials

1.2.1 Consider all previous procedures conducted and the relevant measurements to determine whether the patient is ideally suited for a soft, rigid gas permeable (RGP), or combination contact lens, taking into consideration the patient's primary reason for wanting to use contact lenses.

1.2.2 Discuss the options with the patient, explaining your reasons for selecting the particular lens material, design and replacement schedule. The lens selected should be best suited to their needs and lifestyle and provide the best refractive correction possible.

1.2.3 Describe the procedures that will be undertaken during the trial fitting of contact lenses.

1.2.4 Perform the necessary calculations required for the specific lens design chosen.

2. CONTACT LENS FITTING

2.1 Soft lenses

2.1.1 Determine the lens of first choice from the keratometry and/or corneal topography measurements and then consider and discuss:

a. Wearing mode - daily, extended, or overnight wear
b. frequency of lens replacement i.e., daily, weekly, fortnightly, or monthly replacement, conventional/annual replacement
c. Material
d. Water content
e. Design - spherical, aspheric, molded, spun cast, lathe cut, toric, multifocal
f. Parameters - base curve, diameter, SAG, eccentricity, optic zone diameter, toricity; and
g. Power - vertex corrected

2.1.2 Thereafter, insert the lens, having informed the patient of the expected eye sensation after insertion. The following should then be considered:

a. Allow the lens to settle and
b. Examine the contact lens in-situ, noting:
    I. lens position – central, inferior, superior, nasal, temporal
    II. corneal coverage
    III. lens movement on blinking
    IV. lag on excursion
    V. push-up test

2.1.3 Note that an ideal fit should have the following hallmarks:

a. Lens well centered and crossing the limbus by ~1- 2mm
b. Complete corneal coverage in all directions of ocular movement
c. 1mm movement on blink
d. 1.5mm on upward lag
e. 1.5mm on lateral lag

f. Retinoscope and keratometric reflexes clear before and after the blink; and
g. Edge of lens must not impinge on the conjunctiva or lift off the cornea.

2.1.4 If the lens fit is not optimal, refit with alternative lens/es until a satisfactory fit is obtained. When a satisfactory lens fit has been achieved, check the visual acuity and then perform an over-refraction to determine the final lens power.

2.2 Hybrid/rigid lenses

2.2.1 Fitting philosophies may vary with respect to the patient's eye condition and lens design. The optometrist should consider and discuss the following:

a. Factors necessitating/indicating rigid lenses over soft lenses
b. Wearing mode - daily wear, extended wear, overnight wear
c. Material - high/low Dk, RGP and hydrogel combination/hybrid lenses
d. Design - spherical, toric, tricurve, multicurve, aspheric, reverse geometry
e. Parameters - overall diameter, optic zone diameter, base curve, peripheral curve radii and widths, center and edge thickness, rotational symmetry/asymmetry
f. Power – vertex corrected

2.2.2 Calculate and select the lens of first choice

a. Insert the lens, having informed the patient of the expected corneal sensation on insertion
b. Allow the lens to settle
c. Examine the contact lens in-situ with white light, noting:
    I. lens position – central, inferior, superior, nasal, temporal
    II. eyelid position – lens lid relationship
    III. movement on blink
    IV. lag on excursion
    V. push-up test

2.2.3 Rigid lens fitting must include examination with sodium fluorescein. Apply fluorescein and evaluate the lens-cornea relationship with the aid of a cobalt blue filter and/or additional Wratten filter.

2.2.4 Observe both the static and dynamic fit patterns. Utilize the speed of the fluorescein mixing as an indicator to estimate the rate of tear exchange.

2.2.5 An ideal, regular corneal rigid lens fit is described as:

a. Lens diameter should be smaller than the corneal diameter.
b. Reasonably well-centered lens in primary gaze – visual axis must be within the back optic zone diameter (BOZD).
c. Remain on the cornea in all directions of gaze and with all eye movements
d. 2-3mm movement on blink.
e. Back surface of the lens should align with the cornea over most of the surface with a narrow band of edge clearance at the periphery for adequate tear exchange. The alignment of the back surface with the cornea allows the force of the lens to be distributed across the maximum bearing surface of the cornea.

2.2.6 Alternate fitting philosophy: Even, minimal central apical clearance with slight mid-peripheral touch/bearing and even, thin/narrow edge clearance of approximately 0.5 -1.50mm width.

2.2.7 Characteristics of an ideal scleral lens fit:

a. There should no bearing of the lens on the cornea
b. There should be adequate lift over the limbus
c. The scleral landing zone (SLZ) of the lens should rest on the conjunctiva without causing blanching or compression of the blood vessels
d. Minimal if any, lens movement
e. No bubbles under the lens

2.2.8 Optimal lens fitting characteristics of hybrid contact lenses:

a. Apical clearance over the entire rigid portion of the lens
b. Absence of large bubbles under any portion of the lens
c. Alignment of the soft skirt over the peripheral cornea and sclera
d. No gape or “fluting” of the soft skirt edge, and no scleral impingement
e. Slight movement with the blink is considered as adequate lens movement

2.2.9 Once satisfied with the lens fit, perform an over-refraction to determine the final lens power.

3. CONTACT LENS DISPENSING

3.1 General considerations

3.1.1 Allocate sufficient time to instruct the patient on insertion and removal of the lens/es

3.1.2 Discuss the care and maintenance of the contact lenses, wearing schedule, adaptive symptoms and other issues that impact on the use of their lenses

3.1.3 Explain the emergency procedure and include a contact number for such events; and

3.1.4 Written instructions should be provided in addition to verbal instructions.

3.1.5 The practitioner must verify the lens parameters to ensure that they match the order. Insert the lenses, allow them to settle and examine the fit under white light and with fluorescein. Record the vision and proceed with the instructions and observation of the insertion and removal procedures.

3.2 Wearing schedules

For RGP and scleral lenses the optometrist should instruct patients to adapt to the lens by starting off using the lenses for 2-3 hours on the first day and increasing the wearing time by an hour a day.

For soft contact lenses, patients should have the lenses on for a 3-hour period on day one with an hour break in between and increase the wearing periods by 1 hour every day, retaining the 1 hour break in between.

4. CONTACT LENS AFTER-CARE

4.1 Frequency of after-care visits

4.1.1 The patient should be instructed to visit the optometrist for after-care evaluation as indicated hereunder:

a. Appointment 1 – week 1
b. Appointment 2 – week 3/4
c. Appointment 3 – 4 months later
d. Appointment 5 – 6 months later
e. Annual appointment thereafter

4.1.2 **IMPORTANT NOTE:** An extended wear patient must be seen on the morning after they have used the lenses overnight for the first time. Keratoconus patients must be seen every 6 months as opposed to annually. Also, the optometrist must provide the patient with contact lens solution when he/she dispenses contact lenses. Furthermore, as is the case in soft contact lenses, the patient must sign a document acknowledging that they have been advised on all the necessary procedures related to insertion and removal of the lens, wearing schedule and care.

4.2 Examination at after-care visits

The following procedures must be completed during the after-care visit/s:

4.2.1 Supplementary case history – including lens comfort, additional or new signs or symptoms, patient's ability to handle and care for the lenses, and tolerance or wearing time.

4.2.2 Contact lens visual acuity.

4.2.3 Examination of lenses in situ with white light.

4.2.4 In situ fluorescein assessment for rigid lenses.

4.2.5 Thorough slit lamp examination of the anterior segment and adnexa with special attention to the cornea and conjunctiva.

4.2.6 Removal of the lenses and staining of the cornea with fluorescein

4.2.7 Eversion of the lids to examine the tarsal conjunctiva

4.2.8 Examine the contact lenses under high magnification for surface deposits and/or defects, edge defects, or contact lens warpage of rigid/scleral lenses

4.2.9 K-readings/corneal topography for contact lens distortion/s and/warpage; and

4.2.10 When necessary, the patient should be asked to demonstrate handling and care procedures.

5. IMPORTANT CONSIDERATIONS

5.1 Contact lenses are medical devices, therefore only optometrists registered with the HPCSA may stock, fit and/or dispense any type of contact lenses, including cosmetic/tinted lenses.

5.2 It is a criminal offence for an unregistered person to sell contact lenses directly to the public

5.3 Contact lenses may not be sold via mail order or online as it is mandatory for the supply of contact lenses to be accompanied by the defined clinical eye care. Patients who buy their contact lenses online are less likely to adhere to wearing and cleaning instructions. They are also less likely to consult a practitioner when they experience symptoms that may result in a loss of vision

5.4 Online purchase of contact lenses increases the risk of microbial keratitis fivefold; and

5.5 Optometrists must at all times act in accordance with the statutory regulations and clinical guidelines regarding the fitting and sale of contact lenses.

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ANNEXURE A: MINIMUM EQUIPMENT LIST

A general/comprehensive examination including accurate refraction with a thorough examination of the anterior and posterior segments of the eye must precede contact lens fitting. The practice will therefore need to have the minimum equipment for a general/comprehensive vision and ocular health examination in addition to the equipment listed below.

a) A slit lamp biomicroscope is essential, with a recommended magnification range of approximately 6X - 16X and adequate resolution to decipher the endothelial mosaic of the cornea.

b) An instrument for measuring the corneal curvature and quality, e.g., a keratometer or corneal topographer

c) Appropriate consumables - used to evaluate tears and diagnose contact lens related complications and ocular surface changes/disease etc. including but not limited to:

- Sodium fluorescein stain
- Rose Bengal
- Schirmer Strips/Hamano thread etc.