

Appendix: Ghana Dry Eye Survey

Demographics

1. Gender:

- ☐ Male
- ☐ Female

2. Age (in years):

- ☐ 24 - 29
- ☐ 30 - 34
- ☐ 35 - 39
- ☐ 40 - 49
- ☐ 50 - 59
- ☐ Above 59

3. What is your field of practice?

- ☐ Ophthalmology
- ☐ Optometry

4. How many years have you been in eye care practice?

- ☐ 1 - 3
- ☐ 4 - 6
- ☐ 7 - 10
- ☐ 11 - 15
- ☐ 16 - 20
- ☐ More than 20

5. In what region is your practice located?

- ☐ Ashanti
- ☐ Brong-Ahafo
- ☐ Central
- ☐ Eastern
- ☐ Greater-Accra
- ☐ Northern
- ☐ Upper East

- ☐ Upper West
- ☐ Volta
- ☐ Western

6. What is the nature of your practice?

- ☐ Independent practice
- ☐ Government practice
- ☐ Corporate/Group practice
- ☐ Training/Academic institution

Dry eye practice

7. Do you routinely (at least one case per month) treat/manage dry eye?

- ☐ Yes
- ☐ No

8. On average, how many tear film/ocular surface assessments do you perform each month?

- ☐ Zero
- ☐ 1-10 per month (less than 3 per week)
- ☐ 11-20 per month (3-5 per week)
- ☐ 21-40 per month (6-10 per week)
- ☐ 41-60 per month (11-15 per week)
- ☐ 61-80 per month (16-20 per week)
- ☐ 81-100 per month (21-25 per week)
- ☐ More than 100 per month (more than 25 per week)

9. On average, how many dry eye diagnoses do you make each month?

- ☐ Zero
- ☐ 1-10 per month (less than 3 per week)
- ☐ 11-20 per month (3-5 per week)
- ☐ 21-40 per month (6-10 per week)
- ☐ 41-60 per month (11-15 per week)
- ☐ 61-80 per month (16-20 per week)
- ☐ 81-100 per month (21-25 per week)
- ☐ More than 100 per month (more than 25 per week)

10. Which type of dry eye do you frequently diagnose?

- ☐ Aqueous-deficient dry eye
- ☐ Evaporative dry eye
- ☐ Combination (Aqueous-deficient and Evaporative)

11. From the list below, select in order the three (3) procedures that you most commonly use to diagnose dry eye where “1st” is the most frequently used and “3rd” is the third most frequently used.

	1st	2nd	3rd
Clinical History	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Standard dry eye questionnaire	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fluorescein tear break-up time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non-invasive tear break-up time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Corneal fluorescein staining	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conjunctival fluorescein staining	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lissamine green staining	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rose bengal staining	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tear lake meniscus height	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Meibomian gland expression	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lid meibography	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schirmer I test (without anesthetic)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schirmer I test (with anesthetic)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schirmer II test (with nasal stimulation)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Phenol red test	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Observation of interference fringes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tear film osmolarity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MMP-9 test (Inflammdry®)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lactoferrin test	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tear film pH	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. Rate how valuable the following tests/procedures are to you in diagnosing dry eye:

	Never Useful	Rarely useful	Sometimes useful	Useful most of the time	Always useful	I do not perform this procedure
Clinical history	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Standardized dry eye questionnaire	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fluorescein tear break up time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non-invasive tear break up time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Corneal fluorescein staining	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conjunctival fluorescein staining	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lissamine green staining	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rose bengal staining	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tear meniscus height	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Meibomian gland expression	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Meibography	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schirmer I test (without anesthetic)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schirmer I test (with anesthetic)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schirmer II test (with nasal stimulation)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Phenol red test	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Observation of interference fringes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tear film osmolarity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MMP-9 test (Inflammadry®)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lactoferrin test	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tear film pH	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Lactoferrin test

13. What technique do you use most often to grade the severity of a dry eye?

- ☐ Using my own clinical intuition
- ☐ Based upon patient's symptoms
- ☐ Combination of patient symptoms and 1-3 clinical test results
- ☐ Combination of patient symptoms and greater than 3 clinical test results
- ☐ 1-3 clinical test results (symptoms are not considered)
- ☐ Greater than 3 clinical test results (symptoms are not considered)
- ☐ Standardized dry eye grading scheme/scale (e.g. Dry Eye Workshop grading scheme, etc.)

Treatment/Management

14. Which, if any, of the following therapies do you recommend for a patient with each of the three levels of severity (mild, moderate, severe) of dry eye?

(Do not select more than 6 choices for each level of severity)

	Mild Dry eye	Moderate Dry eye	Severe Dry eye
No treatment is necessary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Non-preserved lubricant drops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Non-preserved gels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preserved lubricant drops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preserved gels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Topical ointment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Topical corticosteroids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Topical non-steroidal anti-inflammatory drops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Systemic tetracycline/doxycycline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Topical Cyclosporine (Restasis)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increased dietary intake of omega-3 fatty acid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Omega-3 supplementation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Punctal plugs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thermal Pulsation treatment (e.g. LipiFlow)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eyelid hygiene (e.g., warm compresses, lid scrubs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scleral contact lenses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Referral	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. What are the two most important influences on your current management approach for dry eye?

- ☐ Graduate professional (medical or optometry) training
- ☐ Ophthalmology residency
- ☐ Optometry residency
- ☐ Peer-reviewed journal articles
- ☐ Recommendations/opinions from colleagues
- ☐ Product information/pharmaceutical company representatives
- ☐ Continuing education conferences or events
- ☐ On-line resources

16. For each of the following case scenarios, indicate how frequently you would refer to an ophthalmologist for dry eye management? (Optometrists only)

	I would never refer this patient	I would refer approximately half of the time	I would always refer this patient
In the presence of a co-existing systemic disease (e.g., Sjögren's syndrome, Systemic Lupus Erythematosus)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When dry eye is unresponsive to treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When dry eye is observed in a child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When a surgical intervention (punctal cauterization, blepharoplasty, or tarsorrhaphy) is needed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When prescription of a systemic medication is required (e.g tetracycline/doxycycline, omega-3 supplements)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When punctal plugs are be required	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In the presence of severe dry eye	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. Do you encounter any challenges/limitations when trying to effectively diagnose and treat dry eye (e.g. equipment or medication availability, training, treatment cost, etc)?

- ☐ Yes
- ☐ No

Instrumentation/Barriers to dry eye practice

18. From the list below, select 1-2 challenge(s) you face in diagnosing and treating dry eye. If you feel that more than 2 apply, please select the two that limit you the most.

- ☐ Inadequate training on diagnostic/management strategies
- ☐ Unavailability of advanced dry eye diagnostic tools/instrumentation
- ☐ Unavailability of effective dry eye medication on the Ghanaian market
- ☐ Patients' inability to afford cost of dry eye treatment

19. From the list below, indicate which diagnostic tools are available/not available to you in your practice.

	Available	Not available
Schirmer strip	<input type="radio"/>	<input type="radio"/>
phenol red thread	<input type="radio"/>	<input type="radio"/>
Fluorescein dye	<input type="radio"/>	<input type="radio"/>
Lissamine green dye	<input type="radio"/>	<input type="radio"/>
Rose bengal dye	<input type="radio"/>	<input type="radio"/>
MMP-9 test kit (Inflammdry®)	<input type="radio"/>	<input type="radio"/>
Lactoferrin testing system	<input type="radio"/>	<input type="radio"/>
Meibography device	<input type="radio"/>	<input type="radio"/>
Slit lamp	<input type="radio"/>	<input type="radio"/>
Tear osmolarity technology (eg: TearLab®)	<input type="radio"/>	<input type="radio"/>
Dry eye symptoms questionnaire	<input type="radio"/>	<input type="radio"/>
Keratometer	<input type="radio"/>	<input type="radio"/>