DEWS	**DRY EYE: DIAGNOSTIC TEST TEMPLATE**	
RAPPORTEUR	Asbell, Penny	May 7, 2007
TEST	**Fluorophotometry**	
TO DIAGNOSE	Corneal epithelial permeability; Dry eye disease	
VERSION of TEST	(V 1) Joshi et al. 1996 (V 2) McNamara et al. 1997 (V 3) Fahim et al. 2002	Joshi et al. 1996 McNamara et al. 1997 Fahim et al. 2002
DESCRIPTION	Epithelial barrier function can be assessed objectively and quantitatively in a non-invasive manner with a scanning computerized fluorophotometer (Fluorotron Master)	
STUDY	Repeatability study	
CONDUCT of TEST	• 2 baseline fluorescence scans averaged • micropipette used to instil 2 ul of 0.25% F to 1.5% F into lower conjunctival cul-de-sac • 20 minute timer started and eye scanned every 2 minutes to total approximately 10 scans. • Eye rinsed with NSS at least 1 minute • Eye scanned again 2x • 3 baseline scans • 2 ul of 0.35% F • 10 scans approximately 2 minutes apart • Eye rinsed 3x • 4 additional scans • 1 baseline scan • 50 ul of 1% F • after 10 minutes – eye rinsed with 50cc NSS • Eye scanned at 10,20,30,40 and 60 minutes after washing	(V 1) Joshi et al. 1996 (V2) McNamara et al. 1997 (V 3) Fahim et al. 2002
RESULTS of STUDY	Reproducible values for epithelial permeability (0,15 nm/second) in normals	
Web Video	Not available	
Materials:	• Fluorotron Master Fluorophotometry machine • Fluorescein eyedrops • Sterile eyewash – isotonic buffered solution • stopwatch	
Variations of technique	• different concentrations of Fluorescein • different amount of Fluorescein • different amount of irrigation	
Standardization	Nil additional[ ]	
Diagnostic	No statistics supplied.	

value	.	
Repeatability	Intra-observer agreement. [NA] Inter-observer agreement. [NA]	
Sensitivity	**(true positives)** [NA]	
Specificity	**(100 – false positives)** [NA]	
Other Stats	-	
Test problems	The Fluorotron cannot distinguish between the tear film and the cornea. Tear film thickness is assumed. In reality, thickness of tear film can vary from person to person as well as for the same person from blink to blink	
Test solutions	Larger sample size required	
FORWARD LOOK	Use fluorotron as an objective non-invasive diagnostic/ screening test for dry eye and objective endpoint for clinical trials in dry eyes.	

References

Fahim M, Asbell P, et al. Fluorophotometry as a diagnostic tool for the evaluation of dry eye disease. *BMC Ophthalmol* 2006;6:20

Joshi A, Maurice D, Paugh J. A new method for determining corneal epithelial barrier to fluorescein in humans. *Invest Ophthalmol Vis Sci* 1996;37:1008-16.

McNamara NA, Fusaro RE, et al. Measurement of corneal epithelial permeability to fluorescein: a repeatability study. *Invest Ophthalmol Vis Sci*1997;38:1830-39.