<table>
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<th>DEWS</th>
<th>DRY EYE: DIAGNOSTIC TEST TEMPLATE</th>
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<tr>
<td><strong>RAPPORTEUR</strong></td>
<td>Stephen Kaye</td>
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| **TEST** | Tear Function Index *(Liverpool modification)*  
Email: TFI@clineng-liverpool-nhs.com | |
| **TO**  
**DIAGNOSE** | To evaluate the tear dynamics of production and drainage and detect subjects suffering from dry eye | Ono et al. 1991  
Xu et al. 1995(a)  
Xu et al. 1995(b)  
Kaye et al 2001 |
| **VERSION of**  
**TEST** | The test is a modification of that described by Xu et al. (1995) and depends on using prepared filter paper strips containing fluorescein. The test has been designed to allow direct measurement of the TFI using prepared tear strips. | Kaye et al 2001 |
| **DESCRIPTION** | *TFI is the quotient of the Schirmer test value and the Tear clearance rate (TCR).* | |
| **CONDUCT of**  
**TEST** | A fluorescein-coated tear strip is placed over the lower lid margin at the junction of the middle and lateral third of the lid.  
1. The eye is closed and the strip is left in place for 3 minutes  
2. On removal, the distance from the strip notch to the wetted dye front is recorded, using the scale provided.  
3. The strip is air dried and  
4. The intensity of staining is compared with that of the calibrated panel of dilutions, (ranging from 1:1 to 1:128), to determine the TCR.  
5. The TFI is defined as the quotient of the Schirmer test and the TCR. | |
| **Web Video** | Not available | |
| **Materials:** |  
- The standard kit provides a cardboard envelope, containing a docket with 4 see-through pouches.  
- Each pouch contains 4 sterile, single-use, fluorescein-coated tear-strips together with a calibrated colour scale for reference.  
- A ruled measurement scale is printed on the envelope, together with  
  - a nomogram and  
  - a set of instructions  
The kit, containing the prepared strips, together with instructions and calibrated measuring scale and colour scale are provided by the Dept. Clinical Engineering of the Royal Liverpool University Hospital, Prescot Street Liverpool L7 8XP.  For further information:  
Email: TFI@clineng-liverpool-nhs.com | |
| **Variations of**  
**technique** | TFI as described by Xu et al (1995) | |
| **Standardization** | The procedure is standardised. Strips are calibrated for use in each pack. | |
| **Diagnostic**  
**value** | Identification of subjects suffering from aqueous tear deficiency, for instance in Sjögrens syndrome. | Kaye et al 2001 |
| **Repeatability** | Intra-observer agreement. [Yes]  
Inter-observer agreement. [Yes] | Kaye et al 2001 |
| **Sensitivity** | A TFI of less than 40 is 100% sensitive for patients with SS dry eye | Kaye et al 2001 |
| **Specificity** | Patients with Sjögren’s syndrome have a TFI upper 95% confidence interval of 15 (12 if anaesthetic has been used) | Kaye et al 2001 |
| **Other Stats** | Less inter-ocular difference and less variability than the original method | Kaye et al 2001 |
| **Test problems** | As with the Schirmer’s test, it is uncomfortable. Also, staining of the ocular surface at the sites of strip contact with the conjunctiva occur after using fluorescein or Rose Bengal. | |
| **FORWARD**  
**LOOK** | Performing the TFI using prepared filter paper strips with the matched colour dilution is very sensitive for detecting patients with SS dry eye. The test can be used by non-opthalmically trained personnel. Subjects with a TFI of less than 40 can then be referred for an ophthalmic | |
References:


