### Supplementary table 2. Stepwise and comparative-grade endoscopic scoring systems for ulcerative colitis.

<table>
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<tr>
<th>Index</th>
<th>Setting</th>
<th>Description of Scale</th>
<th>Extent of Use</th>
<th>Level of Validation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truelove and Witts sigmoidoscopic assessment&lt;sup&gt;1&lt;/sup&gt; (1955)</td>
<td>Prospective study</td>
<td>Comparative 3-grade scale: (1) Normal or near normal (slight hyperaemia or slight granularity) (2) Improved (3) no change or worse</td>
<td>Some clinical studies</td>
<td>Not validated</td>
</tr>
<tr>
<td>Truelove and Richards sigmoidoscopic appearance&lt;sup&gt;2&lt;/sup&gt; (1956)</td>
<td>Prospective, case-controlled series study</td>
<td>Comparative 3-grade scale: (1) Normal appearances (2) Mild and Moderate Activity: mild hyperaemia, granularity, few petechiae. More advanced changes – well-marked hyperaemia, increased fragility of the mucosa, sometimes ulceration but without features being as marked as severe (3) Intense hyperaemia, marked fragility of the mucosa with oozing blood spontaneously or with very slight trauma, presence of exudate and mucopus. Gross ulceration</td>
<td>Some clinical studies</td>
<td>Not validated</td>
</tr>
<tr>
<td>Matts score&lt;sup&gt;3&lt;/sup&gt; (1961)</td>
<td>Prospective study</td>
<td>Stepwise 4-grade scale: (1) Normal (2) Mild granularity of the mucosa with mild contact bleeding (3) Marked granularity and oedema of the mucosa, contact bleeding and spontaneous bleeding (4) Severe ulceration of mucosa with haemorrhage</td>
<td>Multiple clinical studies and RCT</td>
<td>Partially validated</td>
</tr>
<tr>
<td>Baron score&lt;sup&gt;4&lt;/sup&gt; (1964)</td>
<td>Prospective study</td>
<td>Stepwise 4-grade scale: (0) Normal (1) Abnormal but not haemorrhagic: appearances between “0” and “2” (2) Moderately haemorrhagic: bleeding to light touch but no spontaneous bleeding (3) Severely haemorrhagic: spontaneous bleeding</td>
<td>Multiple clinical studies and RCT</td>
<td>Not validated</td>
</tr>
<tr>
<td>Dick score&lt;sup&gt;5&lt;/sup&gt; (1966)</td>
<td>Prospective study</td>
<td>Stepwise 5-grade scale: (0) Normal (1) Quiescent A pink finely granular abnormal mucosa, in which the vessels were not visible or only visible in places (2) Slightly active</td>
<td>Some clinical trials</td>
<td>Not validated</td>
</tr>
<tr>
<td>Study</td>
<td>Type</td>
<td>Grade Scale</td>
<td>Clinical Studies Validated</td>
<td></td>
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</tbody>
</table>
| Binder (1970) | Prospective study | Stepwise 4-grade scale:  
(1) Normal: smooth, shining mucosa  
(2) Slightly active: slight granularity and/or fragility  
(3) Moderately active: pronounced granularity and fragility with pus and/or blood in the lumen  
(4) Very active: pronounced granularity and fragility together with visible ulcerations | Some clinical studies Not validated |
| Powell-Tuck Index (1982) | Retrospective study | Stepwise 3-grade scale:  
(0) Non-hemorrhagic (no bleeding spontaneously or light touch)  
(1) Hemorrhagic (bleeding on light touch but no spontaneous bleeding ahead of instrument)  
(2) Hemorrhagic (spontaneous bleeding seen ahead of instrument at initial inspection with bleeding on light touch) | Some clinical studies Partially validated |
| Blackstone endoscopic grading activity (1984) | Prospective study | 8-point scale:  
a) Quiescent:  
(1) Distorted or absent mucosal vascular pattern  
(2) Granularity  
b) Mildly active:  
(1) Continuous or focal erythema  
(2) Friability (touch bleeding)  
c) Moderately active:  
(1) Mucopurulent exudate (mucopus)  
(2) Single or multiple ulcers (<5mm), fewer than 10 per 10-cm segment  
d) Severe colitis:  
(1) Large ulcers (>5mm): more than 10 per 10-cm segment  
(2) Spontaneous bleeding | Some clinical studies Not validated |
| Saverymuttu (1986) | Prospective study | Stepwise 4 grade scale:  
(0) Normal appearance  
(1) Loss of vessel pattern or edema  
(2) Contact hemorrhage | Some clinical studies Not validated |
<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
<th>Study Design</th>
<th>Grade Scale</th>
<th>Validation</th>
</tr>
</thead>
</table>
| **Friedmann Score**<sup>10</sup> (1986) | Randomized controlled study | Stepwise 5-grade scale:  
(0) Normal  
(1) Erythema  
(2) Friability (contact bleeding)  
(3) Spontaneous bleeding and exudate  
(4) Frank ulceration | Some clinical studies | Not validated |
| **Sutherland index**<sup>11</sup> (DAI or UCDAI) (1987) | Randomized-controlled study | Stepwise 4-grade scale:  
(0) Normal  
(1) Mild friability  
(2) Moderate friability  
(3) Exudation, spontaneous hemorrhage | Multiple clinical studies and RCT | Not validated |
| **McPhee proctoscopic grading scale**<sup>12</sup> (1987) | Prospective study | Stepwise 4-grade scale:  
(0) Normal; chronic changes may be present, ie, patchy erythema; no friability  
(1) Erythema; edema (loss of vascular pattern); minimal friability  
(2) Marked edema and erythema; friability; small amount of exudate or pus  
(3) Spontaneous bleeding; ulceration; gross pus and mucus | Some clinical studies | Not validated |
| **Danielsson-Löberg score**<sup>13, 14</sup> (1987) | Prospective RCT and Randomized, double-blind, prospective, pilot study | Mean scoring system (0-3) generated by averaging the scores of each colonic segment assessed (ascending, transverse, descending, sigmoid and rectum):  
(0) Normal/non-inflamed mucosa  
(1) Granularity, edema and lack of normal vascular pattern  
(2) Hyperemia, friability and petechiae (and all of score 1)  
(3) Ulcerations (and all of score 1 and 2) | Some clinical studies | Not validated |
| **Maier**<sup>15</sup> (1988) | Prospective study | Stepwise 4-grade scale:  
(0) No visible pathological change  
(1) hyperemia, lack of the typical vascular pattern  
(2) contact bleeding  
(3) Mucous, plaques of fibrin, blood, ulcers | Some clinical studies | Not validated |
| **Carbonnel score**<sup>16</sup> (1994) | Retrospective study | Stepwise 2-grade scale:  
Moderate: Erythematous/swollen mucosa, superficial ulcerations, deep/non-extensive ulcerations  
Severe: Deep extensive ulcerations, well-like ulcerations, large mucosal abrasions, mucosal detachment | Some clinical studies | Not validated |
| Sigmoidoscopic Inflammation | Randomized, double-blind, | Stepwise 4-grade scale:  
(0) Normal mucosa | Some clinical trials | Not validated |
<table>
<thead>
<tr>
<th>Grade Score</th>
<th>Study Design</th>
<th>Scoring System</th>
<th>Details</th>
<th>Validation Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Score (Lemann) (1995)</td>
<td>Comparative, single centre study</td>
<td>(1) Granularity, oedema, lack of normal vascular pattern (2) Hyperaemia, friability, petechiae (3) Ulceration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lindgren score (2001)*</td>
<td>Randomized, double-blind, prospective study</td>
<td>Stepwise 4-grade scale: (0) No visible signs of inflammation (1) Granularity, edema, lack of normal vascular pattern (2) Hyperaemia, friability, petechiae and all of score 1 (3) Ulcerations and all of score 2</td>
<td>Some clinical studies</td>
<td>Not validated</td>
</tr>
<tr>
<td>Sigmoidoscopic grade (Levine) (2002)</td>
<td>Randomized, double-blind, prospective study</td>
<td>Stepwise 4-grade scale: (0) Normal – normal mucosa (1) Mild – edema, loss of vascular pattern, fine granularity without ulceration (2) Moderate – friability, petechiae, coarse granularity with pinpoint ulceration (3) Severe – Visible ulcers, spontaneous bleeding</td>
<td>Some clinical trials</td>
<td>Not validated</td>
</tr>
<tr>
<td>Simple 5-point score (Rutter) (2004)</td>
<td>Retrospective study</td>
<td>Stepwise 5-grade scale: (0) Entirely normal appearance (1) Quiescent disease (mild edema or chronic features, but no active inflammation) (2) Mild active inflammation (3) Moderate active inflammation (4) Severe active inflammation</td>
<td>Some clinical trials</td>
<td>Not validated</td>
</tr>
<tr>
<td>Modified Baron score (Feagan) (2005)</td>
<td>Prospective study</td>
<td>Stepwise 5-grade scale: (0) Normal, smooth, glistening mucosa, with vascular pattern visible; not friable (1) Granular mucosa; vascular pattern not visible; not friable; hyperaemia (2) As 1, with a friable mucosa, but not spontaneously bleeding (3) As 2, but mucosa spontaneously bleeding (4) As 3, but clear ulceration; denuded mucosa</td>
<td>Multiple clinical studies and RCT</td>
<td>Partially validated</td>
</tr>
<tr>
<td>Froslie endoscopic score (2007)</td>
<td>Prospective study</td>
<td>Stepwise 3-grade scale: (0) Normal (1) Light erythema or granularity (2) Granularity, friability and bleeding, with or without the addition of ulceration</td>
<td>Some clinical studies</td>
<td>Not validated</td>
</tr>
<tr>
<td>Osada Modified 6-point Activity Index</td>
<td>Retrospective study</td>
<td>Stepwise 6-grade scale: (1) Normal or inactive disease. ramifying vascular pattern clearly visible (2) Mild erythema, decreased vascular</td>
<td>Some clinical studies</td>
<td>Partially validated</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>(2010)</th>
<th>pattern</th>
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</thead>
<tbody>
<tr>
<td>(3) Marked erythema, absent vascular pattern. Edema, friability or granularity of mucosa.</td>
<td></td>
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<tr>
<td>(4) Erosions, small ulcer with regenerating epithelium (&lt;4 mm)</td>
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<tr>
<td>(5) Active ulcers, fewer than 10 per 10-cm segment</td>
<td></td>
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<tr>
<td>(6) Multiple and deep ulcers, more than 10 per 10-cm segment (&gt;5 mm)</td>
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</table>

Reference:


