**Inflammatory Bowel Disease (IBD) - Assessment Measures**

1. **Disease ACTIVITY**- **CROHN’S DISEASE**:
   * 1. **Partial Harvey-Bradshaw Index**:

**Purpose of Use:** The PHBIis a 3-item measure of disease severity for patients with Crohn’s disease that allows patients to rate 3 categories of symptom severity over the last seven days. Symptom categories include general well-being, abdominal pain, and number of liquid stools. Scores range from 0-12 with a higher score indicating more active disease (i.e., 0 = inactive disease; 1-4 = mild disease; ≥ 5 = moderate to severe disease).

**Psychometric Properties:** The PHBI has demonstrated adequate reliability and validity in prior studies and is very feasible. Previous work also documents high correlations between this measure and physician global assessments of disease activity (Markowitz et al., 2000). Internal consistency of the PHBI has ranged from 0.71 – 0.88 when used among adolescents with IBD (Hommel, Hente, et al., 2011; Hommel, Herzer, et al., 2011).

**Suggested Next Steps for Validation:** Further validation on pediatric samples is encouraged, as this is not a pediatric-specific measure.

**Citations:**

* + Harvey RF, Bradshaw JM. A simple index of crohn’s disease activity. *Lancet.* 1980;1:514.
  + Markowitz J, Grancher K, Kohn N, Lesser M, Daum F, Group TPMC. A multicenter trial of 6-mercaptopurine and prednisone in children with newly diagnosed Crohn's disease. *Gastroenterol.* 2000;119:895-902.

1. **Pediatric Crohn’s Disease Activity Index (PCDAI)**:

**Purpose of Use:** The PCDAI assesses Crohn’s disease activity using both subjective (e.g., pain) and objective criteria (e.g., physical exam), laboratory findings (e.g., hematocrit, erythrocyte sedimentation rate, albumin), and growth parameters. Scores range from 0-100: ≤10 = inactive disease; 11-30 = mild disease, and > 30 = moderate-to-severe disease activity.

**Psychometric Properties:** The PCDAI is well validated, has good reliability, and demonstrates high correlations with physicians’ global assessments (r = 0.80; Hyams et al., 1991). It has also been shown to be responsive to improvements in disease activity in CD patients over a short interval (Kundhal et al., 2003).

**Suggested Next Steps for Validation:** PCDAI requires determinations that are not always completed during routine patient care, including height velocity, analysis of lab tests, and aspects of physical exam (e.g., perirectal exam). There is some evidence that a Short PCDAI version that covers abdominal pain, patient functioning/ general well-being , stools, weight, abdominal exam, and extraintestinal manifestations is more feasible to the full scale and discriminates between disease severity in a manner similar to full scale. Further validation of the Short PCDAI is needed.

**Citations:**

* + Hyams JS, et al. Development and validation of a pediatric Crohn's disease activity index*. J Pediatr Gastroenterol Nutr*. 1991;12:439-47.
  + Hyams JS, et al. Evaluation of the pediatric Crohn disease activity index: A prospective multicenter experience*. J Pediatr Gastroenterol Nutr*. 2005;41: 416-421.
  + Shepanski MA, Markowitz JE, Mamula P, Hurd LB, Baldassano RN. Is an abbreviated pediatric Crohn’s disease activity index better than the original? *J Pediatr Gastroenterol Nutr.* 2004;39:68-72.
  + Kundhal PS, Critch JN, Zachos M, Otley AR, Stephens D, Griffiths AM. Pediatric Crohn Disease Activity Index: Responsive to short-term change. *J Pediatr Gastroenterol Nutr.* 2003;36:83-89.

1. **DISEASE ACTIVITY- Ulcerative Colitis**:
   * 1. **Pediatric Ulcerative Colitis Activity Index (PUCAI)**:

**Purpose of Use:** The PUCAI is a 6-item measure of disease severity for patients with ulcerative colitis. An interview format allows patients to report on 6 typical symptoms of ulcerative colitis including abdominal pain, rectal bleeding, stool consistency of most stools, number of stools per 24 hours, nocturnal stools, and activity level. A total score is obtained by summing the 6 items, resulting in a range of 0-85 with a higher score representing more severe disease (i.e., 0-9 = inactive; 10-34 = mild; 35-64 = moderate; ≥ 65 = severe disease).

**Psychometric Properties:** The PUCAI has demonstrated good reliability and validity in prior research, is feasible, and can be used as a primary outcome measure of disease activity. In the original validation sample of 48 children with UC, the PUCAI demonstrated high correlations with physician global assessments (r = 0.91) and colonoscopic appearance (r = 0.71), and significantly differentiated between disease severity (none, mild, moderate, severe) (Turner et al., 2007). A re-evaluation of the PUCAI’s psychometric properties on 215 young patients with UC demonstrated similar findings (Turner et al., 2009).

**Suggested Next Steps for Validations:** Further validation is encouraged.

**Citations:**

* + Turner D, Otley AR, Mack D, et al. Development, validation, and evaluation of a pediatric ulcerative colitis activity index: a prospective multicenter study. *Gastroenterology.* 2007;133:423-432.
  + Turner D, Hyams J, Markowitz J, et al. Appraisal of the Pediatric Ulcerative Colitis Activity Index (PUCAI). *Inflamm Bowel Dis.* 2009;15:1218-1223.

1. **Lichtinger Ulcerative Colitis Clinical Activity Index (LCAI)**:

**Purpose of Use:** The LCAI uses both subjective and objective criteria to assess 8 UC symptoms (score 0-21): daily stool frequency, nocturnal diarrhea, visible blood in stool, fecal incontinence, abdominal pain or cramping, general well-being, abdominal tenderness, and need for anti-diarrheal medication, with higher scores representing more severe disease. LCAI scores range from 0-21. Scores ≤ 2 indicate quiescent disease; < 10 indicate a response to therapy; ≥ 10 indicate active disease and no response to therapy.

**Psychometric Properties:** Among the small number of published manuscripts that have used the LCAI, very few provide psychometric data; available data suggest good reliability (e.g., α = 0.85). The LCAI is easy to administer and relies largely on subjective criteria of disease activity.

**Suggested Next Steps for Validations:** The LCAI can be used in both adults and children; further validation of the LCAI within pediatric UC samples is warranted as psychometric data is scarce.

**Citations:**

* + Lichtiger S, et al. Cyclosporine in severe ulcerative colitis refractory to steroid therapy*. N Engl J Med*. 1994; **330**: 1841-1845.
  + Fanjiang G, Russell GH, Katz AJ. Short- and long-term response to and weaning from Infliximab Therapy in Pediatric Ulcerative Colitis*. J Pediatr Gastroenterol Nutr.* 2007;44: 312-317.