IBD Via is a learning tool designed to help medical professionals to practice decision making and patient prognostication when managing IBD.

IBD Via would like to thank the following IBD experts for their help in building the cases:

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https://www.ibdvia.com
Sanjeet Patel
24 years old, Male

The patient is a 24-year-old man from Canada, who is of Indian descent. He works as a financial advisor. He used to smoke 5–10 cigarettes per day, but stopped smoking 6 months ago.

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<td>Laboratory Tests</td>
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**Age**

- Sanjeet is 24 years of age at diagnosis

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Age- as a Prognostic Factor:

- Although it is common to diagnose ulcerative colitis in young adults, an established diagnosis at a younger age (<30 years) has been shown to increase the risk of disease relapse (p<0.01), and is associated with a higher risk of colectomy (HR=0.28, 95% CI=0.12–0.65; p=0.003), compared with diagnosis at an older age (≥50 years). [1]

Gender

- The patient is a male

| 1: Non-Predictors | 2: Favorable prognosis | 3: Poor prognosis |
Gender-as a Prognostic Factor:

- Colectomy rates in UC have been shown to be significantly higher in men compared with women, both for early (≤90 days from diagnosis) colectomy (men vs women: 2.6% vs 1.1%; HR=2.37, 95% CI=1.43–3.93; p=0.0009), and for late (>90 days from diagnosis) colectomy (HR=1.28, 95% CI=1.08–1.60; p=0.036). [2]

### Lifestyle

- The patient is an ex-smoker

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Smoking- as a Prognostic Factor:

- Active smoking in UC was shown to be associated with a lower risk of:
  - Flares (HR=0.8, 95% CI=0.6–0.9) [3]
  - Hospitalisation (p=0.01) [4]
  - Colectomy (OR=0.57, 95% CI=0.38–0.85) [5]

Laboratory Tests

- Serum albumin 38 g/L (normal range: 30–50 g/L)
- CRP = 3.2 mg/L (normal value: <5 mg/L)

| 1: Non-Predictors | 2: Favorable prognosis | 3: Poor prognosis |
Lab-as a Prognostic Factor:

- A high serum albumin level has indirectly been shown to be associated with an improved response to medical therapy (OR: 1.10, 95% CI=1.04–1.17; P=0.001). [7]

- At diagnosis, an elevated CRP level is associated with an increased risk of colectomy (OR=4.8, 95% CI=1.5–15.1; p=0.02). [8]

- An increased CRP level is also associated with a higher risk of medical treatment failure, particularly in acute-severe colitis (p<0.01). [9]


Treatment

• The patient required steroids to induce remission at the first presentation, and was then maintained with 5-ASA treatment.

| 1: Non-Predictors | 2: Favorable prognosis | 3: Poor prognosis |
Treatment- as a Prognostic Factor:

- The need for steroids at first presentation is a surrogate marker of more aggressive disease and has been associated with higher colectomy rates in patients with UC (HR=1.8; 95% CI=1.1–2.7). [17]

A repeat endoscopy performed 6 months after the start of medical therapy showed no residual active inflammation (Mayo 0, endoscopic healing), with signs of chronic atrophic changes and mucosal scarring.
Although endoscopy showed inactive disease, the histologic examination showed active disease with the presence of neutrophils in the crypts, crypt distortion and a dense infiltrate of plasma cells at the base of the crypts (basal plasmacytosis).

| 1:Non-Predictors | 2:Favorable prognosis | 3:Poor prognosis |
Histology- as a Prognostic Factor:

- Active histology has been associated with an increased risk of colorectal cancer in patients with UC (OR=5.1, 95% CI=2.36–11.14; p<0.001). [16]  

- Also, the presence of basal plasmacytosis has been shown to be an independent predictor of disease relapse in UC (HR=4.5, 95% CI=1.7–11.9; p=0.003). [19]


Rapid step-up care approach

The following factors for treatment were considered at the outset:

• The patient’s response to steroids should be assessed after 4–8 weeks.

• The target is to obtain full symptom control (normal stools 1–2 times/day, no blood, no tenesmus) with mucosal healing (endoscopic Mayo sub-score=0/1, but ideally Mayo 0, as sustained remission is more frequent if Mayo 0 is reached versus Mayo 1).

• If this target is not achieved, a purine analogue and/or biologic treatment should be discussed with the patient. A purine alone may be insufficient if the patient does not respond properly to steroid induction. Purine may be adapted in case of full disease control but with steroid-dependency. A biologic treatment would be adapted to both steroid-refractoriness or steroid-dependency.
**Greg Adams**  
29 years old, Male  
He is Canadian and works as an accountant in a bank.

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<td>Imaging</td>
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<td>Extraintestinal Manifestations</td>
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<td>Histology</td>
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<td>Clinical Symptoms</td>
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<td>Endoscopy</td>
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<td>HBI Score</td>
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Lifestyle, age & clinical symptoms

- He currently smokes 12-15 cigarettes/day
- He is 29 years old at diagnosis
- He has lower abdominal pain that he scored as 7/10 subjectively.
- 7 bowel movements per day; 6 quite loose; occasional rectal bleeding and pain on defecation.
Lifestyle & age- as a Prognostic Factor:

- Smoking may predict increased need for therapy escalation [EL3], progression to complicated disease behavior [EL3], need for surgery [EL3] (relative risk=1.31, 95% CI=1.03–1.65) (2) and post-operative recurrence in CD [EL3] (p<0.001, OR=2.15; 95% CI=1.42–3.27) (3)

- Younger age, and perianal disease, at diagnosis are associated with a disabling CD course [EL4] (6-8)

  Younger age at diagnosis (adults <40 years) increases risk of surgery [EL2] (p=0.02, OR=0.84 per 5 years, 95% CI=0.73–0.97) (9)

Endoscopy
Endoscopy-

- Endoscopic severity of CD can predict development of penetrating complications [EL4] (11)

- Extensive and deep ulcers at colonoscopy in patients with colonic CD may predict the need for surgery (RR=5.43) [EL3] (11)

- However, the endoscopy results do not show severe (deep or extensive) ulceration in the colon.

A 30-cm-long segment of ileum adjacent to the cecum is narrowed with marked thickening of the ileal wall, ulcerations and hyper-enhancement on the T2 weighted image. The lumen is narrowed. Some of the ulcers penetrate into adjoining tissue. The ileum proximal to it is mildly dilated. The colon appears to be normal. The appearance is consistent with Crohn's disease.

1: Non-Predictors
2: Favorable prognosis
3: Poor prognosis
Imaging- as a Prognostic Factor:

- Disease located in the **small bowel** carries a higher risk for **surgery** than isolated colonic disease [EL2] (OR=2.39; 95% CI=1.36-4.20) (4)

- **Penetrating and stricturing phenotypes** at diagnosis are independent risk factors for surgery [EL2] (HR=8.6; 95% CI=5.8-12.8) (5)


Ulcerated mucosa. Dense inflammatory infiltrate consisting of chronic inflammatory cells in the mucosa and submucosa. No granuloma seen.

Consistent with inflammatory bowel disease.
Histology- as a Prognostic Factor:

- There is little data to support use of biopsy images for prognosis in CD; however, morphometric analysis of early biopsies may have the potential to predict clinical phenotypes and outcomes such as surgery in Crohn's colitis [EL4] (10)

Extra intestinal Manifestations: EIM

1: Non-Predictors
2: Favorable prognosis
3: Poor prognosis

He has had joint pain in both his knees and elbows but with no swelling. He has also experienced a painful eye with redness 1 year ago.
EIM- as a Prognostic Factor:

- Extra-intestinal manifestations [EL3] seem to predict disease progression to complicated behavior in CD (8)
HBI Score

Patient's general well-being (for the previous day):
0 = very well, 1 = slightly below par, 2 = poor, 3 = very poor, 4 = terrible.

Abdominal pain (for the previous day):
0 = none, 1 = mild, 2 = moderate, 3 = severe.

Number of liquid stools per day (for the previous day):
Score 1 per movement.

Abdominal mass:
0 = none, 1 = dubious, 2 = definite, 3 = definite and tender.

Complications:

| Arthralgia | ✓ |
| Uveitis | |
| Erythema nodosum | |
| Aphthous ulcers | ✓ |
| Pyoderma gangrenosum | |
| Anal fissure | |
| New fistula | |
| Abscess | |

Total: 12

Harvey-Bradshaw Index score:
Remission: <5
Mild disease: 5-7
Moderate disease: 8-16
Severe disease: >16

This sheet is based on the article Harvey RF, Bradshaw JM. A simple index of Crohn's disease activity. Lancet. 1980;315(8167):514
[online article]
Treatment

- The HBI score shows the patient has moderate disease; he receives systemic steroids (prednisone) for induction of remission on first flare based on a treatment paradigm for remission induction in moderate luminal Crohn's disease. (1)

Treatment- as a Prognostic Factor:

- Initial requirement for steroids on first flare may be an independent risk factor (OR=3.1, 95% CI=2.2-4.4) for disabling disease during the 5 years following diagnosis (6, 7)

EXPERT INSIGHT ON MANAGING GREG

Based upon the diagnosis and prognosis for Greg:

- Expedited “Step up”?
- Top down?

Leah Clearly
19 years old, Female

She is a 19-year-old woman from Canada who is studying Biological Sciences at University. She is a non-smoker and has no relevant travelling history.

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Colonoscopy shows the epithelium to be ulcerated in the transverse colon and sigmoid colon. A small anal fissure is present, and the ileocelecal valve and distal ileum both appear normal.

**1:** Non-Predictors  
**2:** Favorable prognosis  
**3:** Poor prognosis
Endoscopy- as a Prognostic Factor:

- Extensive or deep ulcers at colonoscopy in patients with colonic CD may predict the need for surgery in adult patients (RR=5.43, 95% CI=2.64–11.18). [EL3] (11)

- Endoscopic severity of CD can predict development of penetrating complications. [EL4] (11)

MR enterography (MRE) reveals extensive deep ulceration of the colon with patchy involvement. The sigmoid colon and transverse colon appear to be most involved and ulcerated. There is marked thickening of the colonic wall, ulcerations and hyper-enhancement on the T2 weighted image. The appearance is consistent with Crohn’s disease (CD).
Imaging- as a Prognostic Factor:

- The MRE image supports the colonoscopy image showing deep and extensive ulceration of the colon which may predict the need for surgery in adults with colonic CD (RR=5.43, 95% CI=2.64–11.18). [EL3] (11)

Histology

Deep ulcerations present in the mucosa and submucosa. Dense inflammatory infiltrate consisting of chronic inflammatory cells in the mucosa and submucosa. No granuloma seen.

Rectal mucosa has mild inflammatory cell infiltration only with no ulceration. Appearance is consistent with inflammatory bowel disease and favors Crohn’s disease.

1: Non-Predictors
2: Favorable prognosis
3: Poor prognosis
Histology- as a Prognostic Factor:

- There are few data to support use of biopsy images for prognosis in CD but morphometric analysis of early biopsies may have the potential to predict clinical phenotypes and outcomes such as surgery in Crohn's colitis. [EL4] (12)

- However, in this case, the histology confirms that ulceration observed on colonoscopy is deep which, when taken together, may be associated with prediction of surgical need (RR=5.43, 95% CI=2.64–11.18). [EL3] (11)


MANAGING LEAH

• Based on the diagnosis and prognosis for the patient...

Francis Colman
52 years old, Male

The patient is a 52-year-old male from Belgium. He works as a commercial representative for a local company, spending much of his time on the road visiting customers. He is a non-smoker, with only occasional alcohol consumption.
Colonoscopy shows active inflammation up to 45 cm above the anal margin. There is complete loss of the vascular pattern, moderate friability with bleeding upon contact, small erosions, but no large or deep ulcers. A series of inflammatory pseudopolyps is also present in the sigmoid. The mucosa is normal beyond 45 cm up to the caecum.

- Ulcerative colitis endoscopic index of severity (UCEIS) = 6
- Endoscopic Mayo score = 2
Colonoscopy shows active inflammation up to 45 cm above the anal margin. There is complete loss of the vascular pattern, moderate friability with bleeding upon contact, small erosions, but no large or deep ulcers. A series of inflammatory pseudopolyps is also present in the sigmoid. The mucosa is normal beyond 45 cm up to the caecum.

• Ulcerative colitis endoscopic index of severity (UCEIS) = 6
• Endoscopic Mayo score = 2
Endoscopy- as a Prognostic Factor:

- There is no sign of severe colitis (deep ulcers, mucosal abrasion, well-like ulcers, etc.) or extensive disease. [EL3] (18)

- However, presence of multiple pseudopolyps may be associated with an increased risk of colorectal cancer development (OR=2.5; 95% CI=1.4–4.6). [EL3] (19)

EXPERT INSIGHT ON MANAGING FRANCIS:

Based on the diagnosis and prognosis for the patient, including the background risk of colorectal neoplasia

The following factors for treatment were considered at the outset:

• Steroids with low systemic bioavailability (budesonide or beclomethasone) are recommended to avoid systemic toxicity. (23) As colonic release of the drug is important suppositories or foam are preferred and are better tolerated by patients than enemas, where available. (24)

• Response to steroids should be assessed after 4–8 weeks (22). The target is to obtain full symptom control (normal stools 1–2 times/day, no blood, no tenesmus) with mucosal healing (endoscopic Mayo sub-score=0/1, but ideally Mayo 0, as sustained remission is more frequent if Mayo 0 is reached versus Mayo 1). [EL3] (24, 25)

• If this target is not achieved, a purine analogue and/or biologic treatment should be discussed. Purine alone may be insufficient if the patient does not respond properly to steroid induction. Purine may be adapted in case of full disease control but with steroid-dependency. A biologic treatment would be adapted to both steroid-refractoriness or steroid-dependency. (26)