

# Gaps between European Crohn's and Colitis Organisation quality standards of care and the real world on diagnosis and monitoring inflammatory bowel disease across Europe: results from the E-QUALITY survey

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## Abstract

**Background and aims:** Quality of care in inflammatory bowel disease (IBD) management is crucial for early detection and prevention of disease progression and complications. The European Crohn's and Colitis Organisation (ECCO) developed evidence-based recommendations and quality of care (QoC) standards for IBD management, but gaps between these standards and real-world practices still exist. The E-QUALITY task force aimed to evaluate processes related to quality standards of IBD diagnosis and management across European institutions and identify barriers to meet ECCO QoC standards.

**Methods:** A web-based survey was conducted from September 2022 to October 2024 among 245 institutions in 35 European countries. The survey assessed processes used to diagnose and monitor disease activity, to prevent infections, and to detect colorectal cancer in IBD. Subgroup analyses were performed based on institution type, patient volume, and geographical distribution.

**Results:** Across participating European centers, most ECCO recommendations were followed in 85% of institutions. Monitoring disease activity and severity within the recommended time occurred in 75% of institutions, although audit mechanisms are lacking in the majority of centers. The main challenges are difficulties in scheduling endoscopy/imaging within the recommended time frame, lack of uniform behavior among physicians in the same unit, and patients' reluctance to undergo regular monitoring.

**Conclusion:** Significant gaps in QoC standards remain across European IBD units. Most units lack specific auditing mechanisms to track true standard compliance. Enhanced support from ECCO, through education on guidelines and implementation strategies, and adaptation of recommendations to accommodate real-world challenges may help to bridge these gaps.

**Key words:** quality of care; inflammatory bowel disease; Crohn's disease; ulcerative colitis; diagnosis; monitoring; infections; colorectal cancer surveillance

## 1. Introduction

Inflammatory bowel diseases (IBD), such as Crohn's disease (CD) and ulcerative colitis (UC), are chronic diseases.<sup>1,2</sup> Diagnosis of IBD is based on clinical and laboratory findings, endoscopic, cross-sectional imaging, and histological findings that require evaluation of the whole gastrointestinal tract with appropriate diagnostic techniques.<sup>3,4</sup> Monitoring of IBD to assess response to therapies, disease progression, and development of complications is based on various parameters similar to those that account for the diagnosis.<sup>3</sup> IBD may progress with complications, such as strictures, fistulas, abscesses, and malignancies which usually require surgery.<sup>5</sup> To avoid disease progression, timely diagnosis and initiation of adequate therapy, regular monitoring, and colorectal cancer surveillance should be done within defined intervals.<sup>1,2,6</sup>

Recently, the European Crohn's and Colitis Organisation (ECCO) has developed several evidence-based guidelines,<sup>1-10</sup> and a position paper on quality-of-care standards.<sup>11</sup> The ECCO position paper on QoC standards was based on a Delphi consensus involving healthcare professionals with experience and high scientific profile in IBD as well as patient representatives. Using a previous systematic review as a base,<sup>12</sup> the panel agreed on essential points to assess QoC in IBD. Essential evidence-practice gaps, however, may exist between these recommendations and real-world practice, due to the different local and national environments.<sup>13</sup>

Evidence-practice gaps refer to the difference between the best available research evidence (such as guidelines) and actual clinical practice. These gaps exist in healthcare when clinicians are unaware of, unable to apply, or unwilling to use the most current evidence in their decision making.<sup>14</sup>

To identify these gaps, ECCO launched the E-QUALITY initiative to improve the quality of care for patients living with IBD.<sup>10</sup> ECCO members who served in ECCO committees or are committed as national experts in the field of IBD were selected to be part of the E-QUALITY task force to identify the gaps between the desired quality of care standards and real-world practice.

## 2. Materials and methods

The E-QUALITY Taskforce developed a web survey accessible to all institutions affiliated to ECCO across Europe. To avoid duplicates from the same institutions, only one person from each institution could answer the questions. Answers

were based on that person's opinion alone, and no evidence was required to substantiate their answers. Recruitment was open from September 2022 to October 2024. There was a central double-check mechanism to ensure only one survey per center was filled and that the person replying was a legitimate representative of the center.

The web survey was split into two phases: the first investigated the structure of IBD units,<sup>13</sup> and the second investigated processes in the participating institutions, mainly based on a previous systematic review,<sup>11</sup> the ECCO position paper on quality-of-care standards<sup>11</sup> and the current ECCO recommendations.<sup>1-10,15-18</sup> The survey also included questions on the existing barriers to providing adequate quality of care standards. Most questions consisted of multiple-choice options, trying to capture whether a specific standard was adopted by internal protocol, followed or not in the majority of cases, or even if compliance was guaranteed through internal/external audit mechanisms. When responders answered that they have a standard internal protocol followed in the majority of cases and guaranteed by an internal/external audit mechanism, this answer was considered as a sign of adherence to the QoC standards. A descriptive analysis of the survey using frequencies and percentages was performed. Secondary analyses highlighted differences between institutions based on the number of IBD patients under active follow-up, the type of institutions (academic, nonacademic, public or private hospitals/clinic), and geographical location (Northern, Western, Southern, and Eastern Europe). Since geographical characterization may be challenging to define, this was based on international organization lists (such as the United Nations<sup>19</sup> or the World Health Organisation<sup>20</sup>), and the previous ECCO pan-European epidemiological studies.<sup>21,22</sup> The chi-square test was used to compare data between the categories as mentioned above. Statistically significant differences were considered as per  $P$  value  $< .05$ . Statistical analyses were performed using Jamovi, version 2.5.6 (<https://www.jamovi.org>).

Due to the large amount of data coming from the two phases of this survey, only data on processes about diagnosis, assessment after therapy initiation, therapeutic change, management of infections, screening of colorectal cancer, and scoring systems are presented here.

## 3. Results

Two-hundred and forty-five institutions from 35 European countries responded to the survey. The numbers by country

and their geographical distribution, and details about the characteristics of the participating institutions have been previously listed.<sup>13</sup> It is important to highlight that the option of enquiring about whether the response was based on written protocols and/or internal auditing systems was only present in 51/74 (69%) of questions.

### 3.1. Diagnosis

In patients with suspicion of IBD, ileocolonoscopy with visualization of the terminal ileum was reported by 64% of institutions. Furthermore, 88% of institutions reported having a specific protocol for taking biopsies at diagnosis, however, only 62% took at least two biopsies per explored segment to confirm/exclude a diagnosis of IBD. If ileocolonoscopy is negative, small bowel evaluation was reported to be done in 85% of centers. In contrast, the routine combination of colonoscopy/small bowel imaging/capsule endoscopy was reported in 62% of institutions, and single or double balloon enteroscopy was utilized in 34% of institutions when needed. Difficulties in scheduling an appointment for enteroscopy in a timely fashion were reported as the main obstacle. In the scenario of perianal lesions, investigations to check for CD were reported to be requested in only 50% of institutions. The main reason for failure to request small bowel investigations in 15% of institutions and for CD not being excluded in the case of perianal lesions in 50% of institutions was reported to be that some physicians do not request the appropriate investigations (73% and 82% of cases, respectively).

The reasons given for gaps between recommendations and real-world practice in IBD diagnosis varied depending but gaps were largely perceived to be due to the institution not being able to provide the test in a timely fashion or the clinicians not requesting the test rather than the patients not adhering to the investigation plan or insurance or reimbursement reasons (Table 1).

### 3.2. Assessment after therapy initiation

For patients with CD, a cross-sectional imaging technique within 6-12 months of therapy initiation was reported by 81% of institutions, although monitoring of extramural complications in CD by any imaging technique was reported in only 36%. Among institutions, intestinal ultrasound was used in 56%, magnetic resonance enterography (MRE) in 88%, computerized tomography enterography (CTE) in 33%, small bowel follow-through in 6%, while no cross-sectional imaging techniques were used or available in 2% of institutions.

For patients with UC, a combination of clinical, laboratory, and endoscopic parameters was reported in 76% of institutions to assess response to treatments. Endoscopy and/or fecal calprotectin were reported to occur within 3-6 months after therapy initiation in 64% of institutions.

In 99% of institutions, when endoscopy is done, the ileum is reportedly explored (except in case of non-passable strictures). Deep sedation was routinely used in 55% of institutions.

Scheduled monitoring for asymptomatic patients was reported in 41% of institutions. Fecal calprotectin to monitor response to treatments in UC was reported in 76% of institutions, and to monitor response to treatments in colonic CD in 82% of institutions. A combination of clinical and biochemical parameters evaluation after 3 months of therapy initiation was reported in 68% of institutions in patients with CD, but only 36% of institutions reported assessment of endoscopic and/or transmural healing within 6 months. Endoscopy and/or pelvic magnetic resonance imaging (MRI) to assess response to treatments for perianal CD was reported in 65% of institutions.

The reasons given for gaps between recommendations and real-world practice in the assessment of response after therapy initiation varied depending on the assessment in question. In

**Table 1.** Main reasons for gaps between recommendations and real-world practice in IBD diagnostic process.

Reason	N of institutions (%)
<i>When there is a clinical suspicion of Crohn's disease but a normal ileo-colonoscopy, why small bowel capsule endoscopy evaluation or cross-sectional imaging are not considered? (n = 11)</i>	
Our center cannot provide the test in a timely fashion	6 (55%)
Some clinicians do not request the test	3 (27%)
Insurance and/or reimbursement issues	2 (18%)
Patients do not adhere to the planned investigation	0 (0%)
<i>For patients with negative endoscopy and a suspicion of Crohn's disease on MRI or small bowel capsule endoscopy, if diagnosis needs to be confirmed endoscopically and histologically, why device-assisted enteroscopy is not performed? (n = 73)</i>	
Our center cannot provide the test in a timely fashion	54 (73%)
Some clinicians do not request the test	13 (18%)
Patients do not adhere to the planned investigation	4 (6%)
Insurance and/or reimbursement issues	2 (3%)
<i>For patients with perianal abscesses or complex fistulae, why further investigation is not performed to check for Crohn's disease (n = 82)</i>	
Some clinicians do not request the test	67 (82%)
Patients do not adhere to the planned investigation	7 (9%)
Our center cannot provide the test in a timely fashion	6 (7%)
Insurance and/or reimbursement issues	2 (2%)

**Table 2.** Main reasons for gaps between recommendations and real-world practice in the assessment of response after therapy initiation.

Reason	N of institutions (%)
<i>Why do you not systematically perform a cross-sectional assessment, within 6 to 12 months after starting a new therapy for Crohn's Disease? (n = 33)</i>	
Our center cannot provide the test in a timely fashion	20 (60%)
Some clinicians do not request the test	7 (21%)
Insurance and/or reimbursement issues	4 (12%)
Patients do not adhere to the planned investigation	2 (6%)
<i>Why extramural complications in Crohn's disease (such as fistulae and abscesses) are not monitored by cross-sectional imaging, including intestinal ultrasound, CT and/or MRI in combination with clinical and laboratory parameters? (n = 47)</i>	
Our center cannot provide the test in a timely fashion	21 (45%)
Some clinicians do not request the test	18 (38%)
Patients do not adhere to the planned investigation	6 (13%)
Insurance and/or reimbursement issues	2 (4%)
<i>Why response to treatment in active ulcerative colitis is not determined by a combination of clinical parameters, endoscopy, and laboratory markers such as C-reactive protein and/or fecal calprotectin? (n = 40)</i>	
Some clinicians do not request the monitoring	19 (47%)
Patients do not adhere to the planned investigation	14 (35%)
Our center cannot provide the test in a timely fashion	5 (13%)
Insurance and/or reimbursement issues	2 (5%)
<i>For patients with ulcerative colitis who clinically respond to medical therapy, why endoscopic response is not determined either endoscopically or by fecal calprotectin approximately 3 to 6 months after treatment initiation? (n = 55)</i>	
Some clinicians do not request the monitoring	25 (46%)
Patients do not adhere to the planned investigation	14 (25%)
Our center cannot provide the test in a timely fashion	10 (18%)
Insurance and/or reimbursement issues	6 (11%)
<i>Why do you not systematically perform a lower gastrointestinal (GI) endoscopic assessment within 3 to 12 months after starting a new therapy (outside a clinical trial)? (n = 26)</i>	
Our center cannot provide the lower GI endoscopy in a timely fashion	17 (65%)
Patients do not adhere to the planned investigation	4 (15%)
Some clinicians do not request the lower GI endoscopy	3 (12%)
Insurance and/or reimbursement issues	2 (8%)
<i>Why scheduled monitoring for asymptomatic patients is not defined by protocol, and why have you not mechanisms to guarantee that it is performed in a majority of patients? (n = 75)</i>	
Patients do not adhere to the planned investigation	43 (57%)
Our center cannot provide the monitoring in a timely fashion	18 (24%)
Some clinicians do not request the test	9 (12%)
Insurance and/or reimbursement issues	5 (7%)
<i>Why fecal calprotectin is not used at regular intervals to monitor patients for relapse even before clinical symptoms arise? (n = 64)</i>	
Patients do not adhere to the planned investigation	24 (38%)
Some clinicians do not request the test	20 (31%)
Insurance and/or reimbursement issues	15 (23%)
Our center cannot provide the monitoring in a timely fashion	5 (8%)
<i>Why endoscopic or transmural response to therapy for Crohn's disease is not evaluated within 6 months following initiation of therapy? (n = 75)</i>	
Our center cannot provide the monitoring in a timely fashion	31 (41%)
Some clinicians do not request the monitoring	26 (35%)
Patients do not adhere to the planned investigation	13 (17%)
Insurance and/or reimbursement issues	5 (7%)
<i>Why patients with perianal CD are not reassessed by clinical evaluation in combination with endoscopic examination of the rectum and/or pelvic MRI? (n = 58)</i>	
Our center cannot provide the monitoring in a timely fashion	27 (47%)

Table 2. Continued

Reason	N of institutions (%)
Some clinicians do not request the monitoring	23 (40%)
Patients do not adhere to the planned investigation	6 (10%)
Insurance and/or reimbursement issues	2 (3%)
<i>Why endoscopic reassessment in ulcerative colitis is not considered in cases of severe relapse, persistent disease activity, new unexplained symptoms, and before switch of therapy? (n = 50)</i>	
Some clinicians do not request the monitoring	26 (52%)
Patients do not adhere to the planned investigation	14 (28%)
Our center cannot provide the monitoring in a timely fashion	8 (16%)
Insurance and/or reimbursement issues	2 (4%)

all instances, the reason was seldom due to insurance/reimbursement reasons (Table 2).

### 3.3. Therapeutic change

When a patient needs a change in therapy, endoscopy was reported to be the basis for this decision in 72% of institutions for patients with UC. In contrast, endoscopy and/or cross-sectional imaging were reported to be the basis of this decision for patients with CD in only 36% of institutions. In regards to de-escalation of therapy, a full assessment of the disease status was reported to occur before dose de-escalation or withdrawal of therapy in 74% of institutions. For the persistence of symptoms, decisions were made based on biomarkers and endoscopy/cross-sectional imaging results in 56% of institutions. Biomarkers were requested in 42% as a first step and, if altered, further investigation with endoscopy/cross-sectional imaging was then arranged. Therapy was reported to be maintained in pregnant women with IBD in remission in 100% of institutions.

### 3.4. Prevention, diagnosis, and management of infections

Screening for latent infections prior to starting any immunosuppressive therapy was reported in 97% of institutions. If the latent infection is found, 89% of institutions reported that appropriate treatment is given. When a patient is under triple immunosuppression, prevention from *Pneumocystis spp.* infection was reported to be prescribed in 43% of institutions. Only 53% reported routinely recommending vaccinations at diagnosis or before commencing any immunosuppressive therapy. In the event of an IBD flare, 77% of institutions reported regularly ruling out infections (such as *Clostridioides difficile* and other common intestinal infections) before treating the flare. In case of a severe corticosteroid-refractory flare, cytomegalovirus was reported to be excluded in 66% and 55% of UC and colonic CD, respectively.

The reasons given for gaps between recommendations and real-world practice for the prevention, diagnosis, and management of infections showed a trend toward clinician practice, with a lack of adherence to recommendations being the predominant reason (Table 3).

### 3.5. Screening for colorectal cancer

Surveillance for colorectal cancer (CRC) was reported to be regularly scheduled in only 66% of institutions. Biopsy protocols for detecting dysplasia were reported by 54%

of institutions. 93% of institutions reported using high-definition endoscopy for CRC surveillance. The main limitations to using chromoendoscopy included difficulty with the duration of the procedure (40%), need for more knowledge and adequate training (37%), and lack of dedicated equipment (23%). Colonic lesions were reported to be classified using the Paris classification (62%), Kudo (35%), 5S (3%), or no classification (30%).

### 3.6. Scoring systems

For CD, institutions reported the following use of endoscopic scoring systems: 8% no endoscopic score, 16% Crohn's Disease Endoscopic Index of Severity, 67% Simplified Endoscopic Score for CD (SES-CD), and 9% did not respond. For post-operative recurrence, 64% routinely used the Rutgeerts score. For UC, the Mayo endoscopic score is used in 70% of institutions, 10% use the UC Endoscopic Index of Severity, 18% use both, and 2% use no endoscopic score.

No histological scores were used in 67% of institutions, 26% used the Nancy score, 5% the Geboes' score, and 2% the Robarts Histological Index.

### 3.7. Subgroup analyses

Significant differences in processes across European regions are reported in Table S1. Institutions with <500 patients in active follow-up were more likely to prescribe ileocolonoscopy 3-12 months after therapy initiation ( $P = .012$ ), and to use deep sedation ( $P = .006$ ), while were less likely to use biopsy protocols to detect dysplasia ( $P = .017$ ). University hospitals were less likely to prescribe ileocolonoscopy 3-12 months after therapy initiation ( $P = .006$ ). We found no other statistically significant differences based on the number of patients in active follow-up or type of institution.

## 4. Discussion

Despite ECCO recommendations being easily accessible, our results highlight some important gaps between these recommendations and real-world practice in diagnosing, monitoring, and managing complications related to IBD.

In the diagnostic process for IBD, considerable variability was found across institutions. To highlight some of these gaps: lack of ileal visualization, lack of adherence to biopsy protocols, lack of small bowel imaging, and lack of progression to device-assisted enteroscopy all jeopardize diagnostic accuracy and likely result in delayed diagnosis. It is striking that only

**Table 3.** Main reasons for gaps between recommendations and real-world practice in the prevention, diagnosis, and management of infections in IBD.

Reason	N of institutions (%)
<i>Clostridium difficile and other common intestinal infections are ruled out in every flare-up that presents as diarrhea? (n = 39)</i>	
Some clinicians do not request the monitoring	28 (71%)
Patients do not adhere to the planned investigation	7 (18%)
Insurance and/or reimbursement issues	3 (8%)
Our center cannot provide the test in a timely fashion	1 (3%)
<i>Whenever a patient with ulcerative colitis has a severe flare up while on immunosuppressive therapy, why biopsies to rule out cytomegalovirus infection are not performed? (n = 49)</i>	
Endoscopists do not adhere to the requested biopsies	24 (49%)
Some clinicians do not request a sigmoidoscopy for these patients	14 (29%)
Our center cannot provide the biopsies in a timely fashion	10 (20%)
Insurance and/or reimbursement issues	1 (2%)
<i>Whenever a patient with colonic Crohn's disease has a severe flare up while on immunosuppressive therapy, are biopsies to rule out cytomegalovirus infection performed? (n = 44)</i>	
Endoscopists do not adhere to the requested biopsies	18 (41%)
Some clinicians do not request a sigmoidoscopy for these patients	16 (36%)
Our center cannot provide the biopsies in a timely fashion	9 (20%)
Insurance and/or reimbursement issues	1 (3%)

half of the responding institutions plan further investigations to diagnose CD in patients presenting with perianal lesions alone, despite perianal involvement being an important red flag for CD.<sup>23</sup>

Treatment response for ulcerative colitis is based on normalizing biomarkers and mucosal healing but is only pursued within 6-12 months in two-thirds of institutions. Only 36% of institutions assess endoscopic or transmural healing for CD within 6 months. These data suggest that examinations such as endoscopy and cross-sectional imaging are difficult to repeat in the suggested timeframe in most institutions. This opens new perspectives and strongly needs more research about possible alternatives that may reduce this gap.

Screening for infections prior to advanced therapy is excellent (reported at 97%). We suggest this is because this has become mandatory in many units, with access to therapy being blocked without these investigations being performed. Although treatment safety is a hot topic for both healthcare professionals and patients, and despite specific ECCO guidelines, reported adherence to guidelines for the treatment of latent infections, prophylaxis for those patients on triple therapy, recommendation of vaccinations, and screening for infection during flare ups appears to be much lower than expected,<sup>7</sup> only half of the participating, leaving patients at risk for preventable infections.

Additionally, despite CRC being a well-known risk in colonic IBD since decades,<sup>6</sup> regular CRC screening is scheduled in only two-thirds of institutions. The vast majority of institutions do use high-definition endoscopy for CRC detection, with the adoption of chromoendoscopy being limited by challenges, such as procedure duration (40%), insufficient training (37%), and lack of equipment (23%).

In terms of delving into the evidence-practice gap, three main barriers were found by this survey to adhere to quality-of-care standards. First, a recurring reason for investigations not being performed was that the clinicians were not requesting the

appropriate investigations. This is in contrast to the first part of this survey,<sup>13</sup> which highlighted that 62% of institutions develop and update in-house departmental guidelines. Education and standardization of processes, not only at an international and national level but also at the local level are crucial. Second, difficulties in providing tests and procedures in a timely fashion were common, and this affected institutions with higher numbers of patients in active follow-up (>500). This was also found in the first part of this survey.<sup>13</sup> As the right timing to assess response to treatment comes from indirect evidence, there is a need for further high-quality evidence to set this timeframe more accurately, and, on the other hand, there is the need to take into considerations these limitations when specific guidelines are developed, perhaps with more flexibility on timing. Since radiology and endoscopic units serve not only IBD patients but also patients with other diseases, waiting lists will remain a long-term challenge in all healthcare systems. Finally, there was a perception that there is a patient barrier to investigation in some instances, especially when related to stool testing or endoscopic procedures but less so for radiological investigations. Further research is needed to ascertain whether this perception is true, what patients would find more acceptable, and consideration of more patient-friendly monitoring tools as this may improve adherence to future recommendations.

These challenges were common in all institutions, regardless of the geographical location or the type of institution, requiring wide and coordinated efforts from ECCO and partner societies to work on possible solutions.

There are multiple weaknesses of this study. Although the questions were based on the previously published recommendations, the choice of answers was formulated by the E-Quality group and was not validated. There was also a selection bias for participating institutions. Many centers were asked to participate (exact denominator unknown) with 245 institutions from 35 countries completing the questionnaire. Perhaps the biggest weakness though is that the answers for

**Table 4.** Top 5 priorities of ECCO to improve their quality in standards of care to patients with IBD.

Priority	Description
Global survey	<i>Survey on gaps between ECCO recommendations and real-world practice in institutions outside Europe to be compared with the results of the European survey</i>
Patients' involvement	<i>Specific projects to fill the gaps in QoC from the patients' perspective through collaboration between ECCO and the European Federation of Crohn's and Colitis Associations</i>
Educational programs	<i>Twice-a-year ECCO webinars on improvement of QoC in IBD</i>
National group involvement	<i>Close collaboration with ECCO National Representatives and national IBD groups to plan actions to improve QoC at national and local level</i>
Survey on QoC	<i>Relaunch the same survey in a 3-year period to investigate whether improvements have been achieved in the same institutions participating in the current survey.</i>

each institution were based on the responder's opinion alone with no evidence required for their answer. Considering this, it is likely that the gaps may be larger than reported.

This is, to our knowledge, the survey on quality of care applied to the highest number of European centers, aiming to boost quality of care awareness and understand the pitfalls and pushbacks preventing ECCO recommendations from being adopted in the real world. The drive is to empower teams and patients to improve the quality of care and gain more support to ensure timely access to all the diagnosis, monitoring features, and treatment options. Only then can structural damage be prevented, disease burden reduced and quality of life improved. These results will help ECCO and other scientific societies design educational and advocacy initiatives to pressure stakeholders to view quality of care as a priority, hopefully prioritizing real-world data auditing rather than relying on perception alone to measure compliance (Table 4).

## 5. Conclusion

The E-QUALITY survey identified important gaps between the desired quality-of-care standards and real-world practice, which may impact diagnostic delay, disease progression, and complications. Joint efforts between healthcare professionals and patients on education, research, and adaptation of recommendations to the real-world situations may be needed to fill these gaps.

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## Author Contributions

Gionata Fiorino led the project, performed the statistical analyses, and drafted the manuscript; Alissa Walsh and Catarina Fidalgo coordinated the project, and drafted the web surveys; all Authors revised the surveys, enrolled the participating institutions, planned the statistical analysis, and critically revised the data, and the manuscript; all Authors approved the final version of the manuscript.

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## Conflicts of interests

Gionata Fiorino served as a consultant and Advisory Board member for Takeda, Abbvie, Janssen, Pfizer, Celltrion, Sandoz, Ferring, Galapagos, Alfasigma, STADA, Eli Lilly; Alissa Walsh received grants from AbbVie, BMS, Buhmann, Helmsley Trust, Janssen, Lilly, Pfizer, Takeda, and Norman Collisson Foundation, consultancy fees from AbbVie, Buhmann, Falk, Ferring, Janssen, Lilly, Pfizer, Takeda, and speaker fee from AbbVie, Falk, Ferring, Janssen, Lilly; Pfizer, Shire, Takeda; Manuel Barreiro-de-Acosta received fees as a speaker, consultant and advisory member, or has received research funding from MSD, AbbVie, Janssen, Kern Pharma, Celltrion, Takeda, GALAPAGOS, Pfizer, Sandoz, Biogen, Fresenius, Lilly, Ferring, Faes Farma, Dr. Falk Pharma, Chiesi, Gebro Pharma, Adacyte and Vifor Pharma; Johan Burisch received grants from Janssen, MSD, Takeda, Tillots Pharma, BMS, Novo Nordisk, and consultancy fees from Celgene, MSD, Pfizer, AbbVie, Takeda, Tillots Pharma, Samsung Bioepis, BMS, Pharmacosmos, Galapagos; Axel Dignass received consultancy fees from AbbVie, Amgen, Arena Pharmaceuticals, Biogen, Boehringer Ingelheim, Bristol Myers Squibb/Celgene, CED Service GmbH, Celltrion, Dr Falk Foundation, Falk Foundation, Ferring Pharmaceuticals, Fresenius Kabi, Galapagos, Gilead, High5MD, Janssen, Lilly, Materia Prima, Medfyle, Med Today, MSD, Pfizer, Pharmacosmos, Roche/Genentech, Sandoz/Hexal, Streamed-up, Takeda, Tillots, and other fees from Vifor Pharma, Abivax, AbbVie, Arena Pharmaceuticals, Bristol Myers Squibb/Celgene, Dr Falk Foundation, Galapagos, Gilead, Janssen, and Pfizer; David Drobne received grants from MSD, and consultancy fees from Abbvie, Amgen, Biogen, Janssen, Krka, MSD, Pfizer, Takeda; Marc Ferrante received grants from AbbVie, Biogen, EG, Janssen, Pfizer, Takeda and Viatrix, consultancy fees from AbbVie, AgomAb Therapeutics, Boehringer Ingelheim, Celgene, Celltrion, Eli Lilly, Janssen-Cilag, MRM Health, MSD, Pfizer, Takeda and ThermoFisher; Lihi Godny received grants from Helmsley Charitable Trust, and consultancy fees from Abbvie, Takeda, Pfizer, Janssen, Galapagos, Altman; Marietta Iacucci received grants from Pentax, Olympus, Ely Lilly, and consultancy fees from Pentax, Pfizer, Galapagos; Konstantinos Karmiris has served as speaker, consultant and/or advisory board member for Abbvie, Amgen, Bristol Myers Squibb, Ferring, Galenica, Genesis, Janssen, MSD, Pfizer, Roche, Takeda and Vianex; Julien Kirchgessner received lecture fees from Pfizer, Janssen, and Lilly, and consulting fees from Roche, Pfizer, Gilead, Takeda, Abbvie, Celltrion, Galapagos, Janssen, Pfizer, Tillots, and Lilly; Sophie Restellini

received speaker and/or advisory board member fees from AbbVie, Janssen, Takeda, Bristol Myers Squibb, Sandoz, Vifor, Dr Falk, iQone, Lilly and UCB; Dror Shouval received grants and lecture fees from Takeda; Henit Yanai received grants from Pfizer, ISF, and consultancy fees from AbbVie, Janssen, Pfizer, Takeda, and Bristol Myers Squibb, and Eli Lilly; Edyta Zagórowicz received speaker fees from AbbVie, Eli Lilly, Bristol Myers Squibb, Takeda, and Janssen, and consultancy or advisory board member fees from Janssen, Eli Lilly; Susanna Jäghult received speaker fees from Orion Pharma, Takeda Pharmaceuticals, Eli Lilly; the other Authors declare no conflict of interests.

## Data Availability

Data cannot be shared for privacy reasons.

## Supplementary Data

Supplementary data are available online at *ECCO-JCC* online.

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