

RESEARCH LETTERS

Forecasting the Incidence and Prevalence of Inflammatory Bowel Disease Across Nine Epidemiologic Stage 3 Regions



The incidence and prevalence of inflammatory bowel disease (IBD) follow four distinct epidemiologic stages.^{1,2} The third stage, Compounding Prevalence, is characterized by stabilizing incidence alongside rising prevalence as new diagnoses exceed mortality.³ This stage places increasing strain on healthcare systems, which must simultaneously manage newly diagnosed young individuals as well as an aging IBD population with accumulating comorbidities.^{1,4,5} Nine geographically diverse stage 3 regions were analyzed to characterize temporal trends in IBD incidence and prevalence, with incidence projected to 2025 and prevalence forecasted to 2035 collectively across stage 3 regions.

Population-based age- and sex-standardized incidence and prevalence data were acquired from Canada (incidence, 2007–2014; prevalence, 2002–2014), Catalonia (2011–2023), Denmark (1990–2017), Hungary, Veszprém Province (incidence, 2007–2017; prevalence, 2002–2018), Israel (2005–2020), New Zealand, Canterbury (incidence, 2018–2023), Scotland, Lothian (2009–2017), Sweden (2004–2021), and the United States, Olmsted County (incidence, 1990–2019; prevalence, 2000–2020).² The [Supplementary Methods](#) describe the data sources and study populations in detail and compare data sources, case-finding algorithms and validation methods, and population denominators.

Historical epidemiologic data were used to forecast future incidence and prevalence using autoregressive integrated moving average (ARIMA) models.^{6,7} For each region, ARIMA models projected incidence (per 100,000 person-years) from the last year of available data to 2025 and prevalence (per 100,000 individuals) to 2035, with 95% prediction intervals.

Next, epidemiologic data were stratified by IBD type (Crohn's disease or ulcerative colitis), sex (female vs male), and age group (pediatric, <18 years; adult, 18–64 years; or seniors, ≥65 years). ARIMA models with 95% prediction intervals were developed separately for each stratum. Temporal trends for each ARIMA forecast were then assessed by calculating average annual percentage change (AAPC), with associated 95% confidence intervals (CI), using Poisson or negative-binomial regression.

Finally, a Bayesian multilevel Poisson model with random intercepts for each region was applied to combine historical and forecasted data, generating overall incidence (2007–2025) and prevalence (2007–2035) estimates across stage 3 regions with 95% credible intervals (CrI). This approach established probability distributions for incidence and prevalence, accounting for between-region variation and allowing robust estimation of pooled trends. The [Supplementary Methods](#) offers additional explanation of the analytic approach used in this study.

Across stage 3 regions collectively, overall incidence remained stable (AAPC: −0.12; 95% CI: −1.54, 1.33)

([Supplementary Table 1](#)). Estimated incidence rates were 33.3 per 100,000 (95% CrI: 26.7, 40.8) in 2015 and 31.1 per 100,000 (95% CrI: 25.9, 37.5) in 2025 ([Figure 1A](#) and [Supplementary Table 1](#)). Incidence remained stable for Crohn's disease (AAPC: 0.10; 95% CI: −2.15, 2.39) and ulcerative colitis (AAPC: −0.17; 95% CI: −2.03, 1.72) ([Supplementary Table 1](#)).

Pediatric-onset IBD had the lowest incidence, estimated at 17.8 per 100,000 (95% CrI: 14.2, 22.0) in 2025, with stable trends (AAPC: 0.93; 95% CI: −1.08, 2.98) ([Supplementary Table 1](#)). Incidence was highest among adults, estimated at 41.4 per 100,000 (95% CrI: 30.7, 52.0) in 2025, and remained stable (AAPC: −0.26; 95% CI: −1.49, 0.99) ([Supplementary Table 1](#) and [Supplementary Figure 1](#)). Seniors were the only demographic with a decreasing incidence (AAPC: −1.60; 95% CI: −3.00, −0.19) ([Supplementary Table 1](#) and [Supplementary Figure 1](#)). In 2025, the estimated incidence was 29.1 per 100,000 (95% CrI: 24.1, 34.7) in females and 32.6 per 100,000 (95% CrI: 26.5, 39.4) in males. Incidence remained stable in both groups, with an AAPC of −0.39 (95% CI: −1.84, 1.09) in females and 0.16 (95% CI: −1.24, 1.59) in males ([Supplementary Table 1](#)).

Overall prevalence rose by 2.29% annually (95% CI: 2.12, 2.45), with similar increases observed for Crohn's disease (AAPC: 2.40%; 95% CI: 2.14, 2.66) and ulcerative colitis (AAPC: 2.03%; 95% CI: 1.81, 2.25) ([Figure 1B](#) and [Supplementary Table 1](#)). Estimated prevalence was 818 per 100,000 (95% CrI: 696, 961) in 2025 and projected to rise to 981 per 100,000 (95% CrI: 850, 1244) by 2035 ([Figure 1B](#) and [Supplementary Table 1](#)).

In 2025, the estimated prevalence was 73 per 100,000 (95% CrI: 56, 94) in the pediatric population, 959 per 100,000 (95% CrI: 802, 1139) in adults, and 1242 per 100,000 (95% CrI: 1070, 1460) in seniors ([Supplementary Figure 1](#)). Prevalence remained stable in pediatric populations (AAPC: 0.07; 95% CI: −0.45, 0.59) and increased most rapidly among seniors (AAPC: 3.30; 95% CI: 3.16, 3.44), making them the fastest-growing demographic ([Supplementary Table 1](#) and [Supplementary Figure 1](#)).

Across the nine stage 3 regions, incidence remained stable at ~33.3 per 100,000 person-years in 2015 and 31.1

Abbreviations used in this paper: AAPC, average annual percentage change; ARIMA, autoregressive integrated moving average; CI, confidence interval; CrI, credible interval; IBD, inflammatory bowel disease.

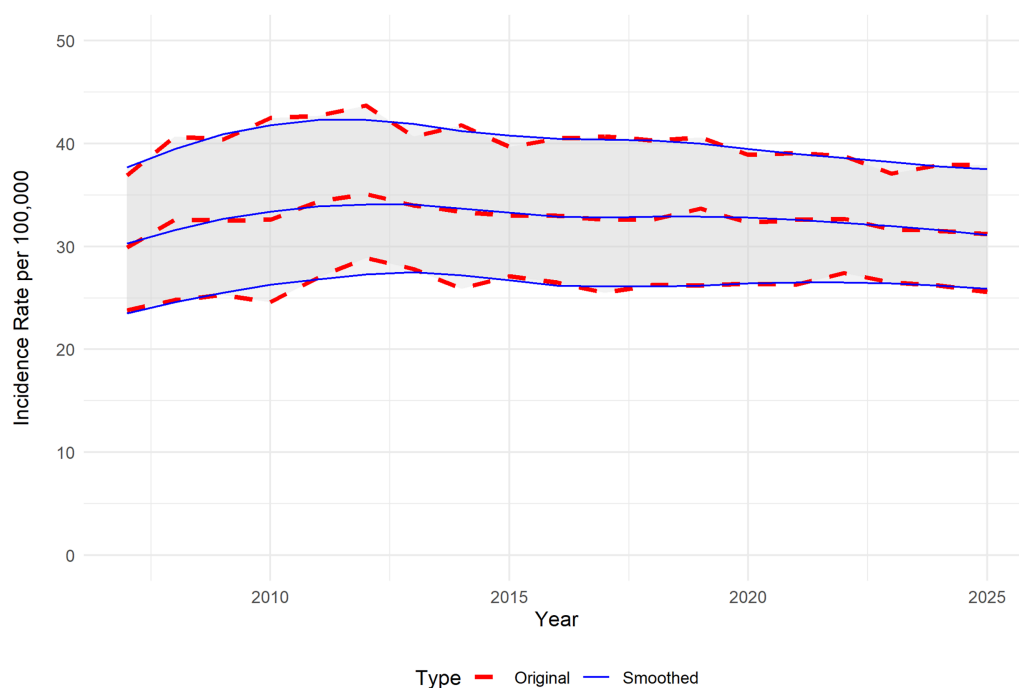
Most current article

© 2026 The Author(s). Published by Elsevier Inc. on behalf of American Gastroenterological Association Institute. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

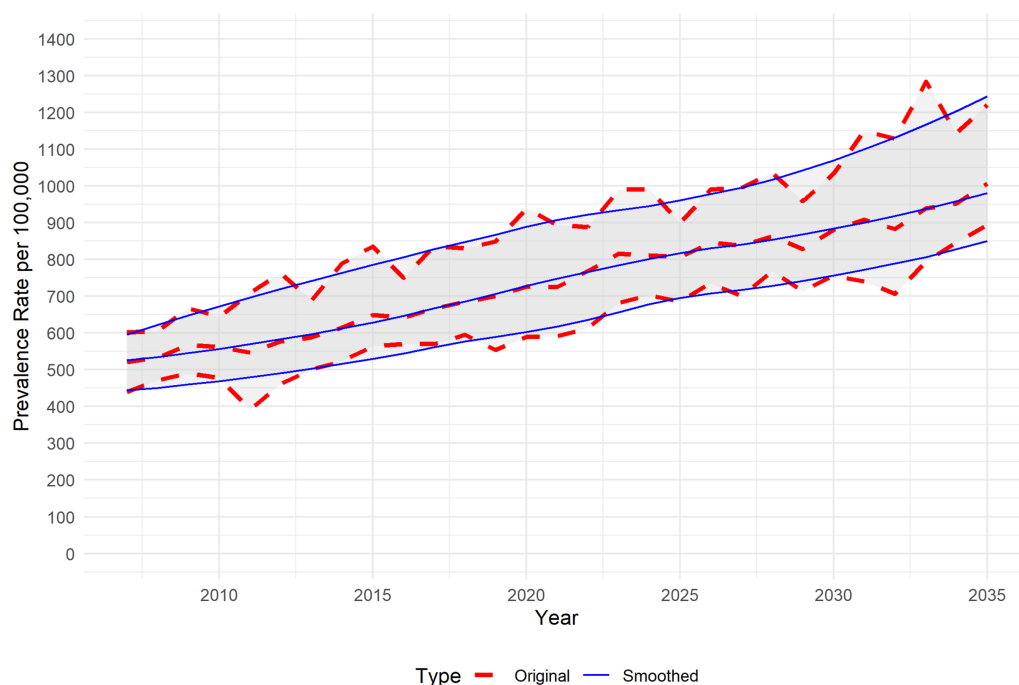
0016-5085

<https://doi.org/10.1053/j.gastro.2026.01.009>

A



B



The dashed lines are the original Bayesian estimates, and the solid lines are the smoothed Bayesian estimates—specifically those that have been smoothed through locally estimated scatterplot smoothing with a span parameter of 0.7 to account for year-to-year fluctuations that occurred due to country level data availability.

Figure 1. Bayesian estimates of (A) incidence and (B) prevalence of IBD overall across stage 3 regions.

per 100,000 person-years in 2025, consistent with previous publications.² Prevalence steadily rose, increasing by 2.29% per year. In 2025, overall prevalence across stage 3 regions is estimated at 0.82%, with projections approaching 1% of the population by 2035. These trends

were consistent across IBD-type and sex. However, the demographic composition of the prevalent population is shifting.⁸ Despite declining incidence among seniors, prevalence is increasing most rapidly, making seniors the fastest-growing segment of the IBD population, reflecting both

continued new diagnoses and aging of the existing cohort within stage 3 societies.^{4,8}

Several limitations should be acknowledged. Forecasts for incidence were extended only to 2025, whereas prevalence was projected to 2035. Validation data exist for prevalence, but not for incidence, supporting greater confidence in longer-term prevalence projections.⁶ Historical prevalence trends tend to be more stable and linear, whereas incidence is more sensitive to short-term fluctuations in diagnostic practices, healthcare disruptions, and environmental exposures. Because prevalence is cumulative, it is less subject to year-to-year variation and therefore more suitable for long-range forecasting. As with all ARIMA models, forecast accuracy depends on the quality of input data, and prediction intervals widen as projections extend further from observed periods.

In conclusion, this large, contemporary epidemiologic study integrates data from nine distinct stage 3 regions worldwide and applies a novel Bayesian approach to aggregate and forecast IBD incidence and prevalence through the first third of the 21st century. Although incidence remains stable, prevalence continues to rise, and the growing proportion of older adults living with IBD is expected to place increasing strain on healthcare systems striving to deliver affordable, accessible, and high-quality care.^{9,10}

STEPHANIE COWARD

Division of Gastroenterology and Hepatology
Cumming School of Medicine
University of Calgary
Calgary, Alberta, Canada

EDUARD BRUNET-MAS

Gastroenterology Department
Parc Taulí Hospital Universitari
Institut d'Investigació I Innovació Parc Taulí (I3PT-CERCA)
Sabadell, Catalunya, and
Departament de Medicina
Universitat Autònoma de Barcelona
Barcelona, Spain, and
Centro de investigación Biomédica en Red Enfermedades
Hepáticas y Digestivas (CIBERehd)
Instituto de Salud Carlos III
Madrid, Spain

JOHAN BURISCH

Gastrounit
Medical Division
Copenhagen University Hospital—Amager and Hvidovre
Hvidovre, Denmark, and
Copenhagen Center for Inflammatory Bowel Disease in
Children, Adolescents and Adults
Copenhagen University Hospital—Amager and Hvidovre
Hvidovre, Denmark, and
Department of Clinical Medicine
Faculty of Health and Medical Sciences
University of Copenhagen
Copenhagen, Denmark

PETER L. LAKATOS

Division of Gastroenterology
McGill University
Montreal, Quebec, Canada, and
Department of Internal Medicine and Oncology
Simmelweis University
Budapest, Hungary

EDWARD V. LOFTUS JR

Division of Gastroenterology and Hepatology
Mayo Clinic College of Medicine and Science
Rochester, Minnesota

GILAAD G. KAPLAN

Division of Gastroenterology and Hepatology
Cumming School of Medicine
University of Calgary
Calgary, Alberta, Canada

GLOBAL IBD VISUALIZATION OF EPIDEMIOLOGY STUDIES IN THE 21ST CENTURY (GIVES-21) CONSORTIA

Supplementary Material

Note: To access the supplementary material accompanying this article, visit the online version of *Gastroenterology* at www.gastrojournal.org, and at <https://doi.org/10.1053/j.gastro.2026.01.009>.

References

1. Kaplan GG, et al. *Nat Rev Gastroenterol Hepatol* 2021; 18:56–66.
2. Hracs L, Windsor JW, et al. *Nature* 2025;642:458–466.
3. Kaplan GG, et al. *Nat Rev Gastroenterol Hepatol* 2015; 12:720–727.
4. Shaffer SR, et al. *J Can Assoc Gastroenterol* 2023; 6:S45–S54.
5. Ananthakrishnan AN, et al. *Clin Gastroenterol Hepatol* 2020;18:1252–1260.
6. Coward S, et al. *Am J Gastroenterol* 2024;119:1563–1570.
7. Jones GR, et al. *Gut* 2019;68:1953–1960.
8. Kaplan GG, et al. *Nat Rev Gastroenterol Hepatol* 2025; 22:708–720.
9. Burisch J, et al. *Clin Gastroenterol Hepatol* 2025; 23:386–395.
10. Herauf M, et al. *Gastroenterology* 2024;166:949–956.

Received July 24, 2025. Accepted January 8, 2026.

Correspondence

Address correspondence to: Gilaad Kaplan, MD, MPH, Division of Gastroenterology and Hepatology, Cumming School of Medicine, University of Calgary, Room 3D03-18, 3280 Hospital Drive Northwest, Calgary, Alberta, T2N 4Z6 Canada. e-mail: gkaplan@ucalgary.ca.

Acknowledgments

The Global IBD Visualization of Epidemiology Studies in the 21st Century (GIVES-21) Consortia includes Joseph W. Windsor,¹ Lindsay Hracs,² Antonio Avina-Zubieta,³ Eric I. Benchimol,^{4,5,6,7} Charles N. Bernstein,⁸ Alain

Bitton,⁹ Xavier Calvet,^{10,11,12} Gili Focht,¹³ Angela Forbes,¹⁴ Anders Forss,^{15,16} Richard Geary,¹⁴ Lóránt Gónczi,¹⁷ Frank Hoentjen,¹⁸ Gareth-Rhys Jones,¹⁹ M. Ellen Kuenzig,^{4,6,7,20,21} Charlie W. Lees,^{22,23} Berkeley N. Limketkai,²⁴ Bobby Lo,^{25,26} Jonas F. Ludvigsson,^{15,27} Mathew Lyons,^{23,28} Siew C. Ng,²⁹ Ola Olén,³⁰ Anthony R. Otley,³¹ Remo Panaccione,³² Juan Nicolás Peña-Sánchez,³³ Dan Turner,¹³ and Emili Vela-Vallespin,^{34,35}; from the ¹Division of Gastroenterology and Hepatology, Cumming School of Medicine, University of Calgary, Calgary, Alberta, Canada; ²Division of Gastroenterology and Hepatology, Department of Medicine, University of Calgary, Calgary, Alberta, Canada; ³Division of Rheumatology, University of British Columbia, Vancouver, British Columbia, Canada; ⁴SickKids Inflammatory Bowel Disease Centre, Division of Gastroenterology, Hepatology and Nutrition, The Hospital for Sick Children (SickKids), Toronto, Ontario, Canada; ⁵Department of Paediatrics and Institute of Health Policy, Management and Evaluation, University of Toronto, Toronto, Ontario, Canada; ⁶Child Health Evaluative Sciences, SickKids Research Institute, Toronto, Ontario, Canada; ⁷Institute for Clinical Evaluative Sciences, Toronto, Ontario, Canada; ⁸Department of Medicine, and the University of Manitoba IBD Clinical and Research Centre, Max Rady College of Medicine, Rady Faculty of Health Sciences, University of Manitoba, Winnipeg, Manitoba, Canada; ⁹Division of Gastroenterology and Hepatology, McGill University and McGill University Health Centre, Montreal, Quebec, Canada; ¹⁰Gastroenterology Department, Parc Taulí Hospital Universitari, Institut d'Investigació i Innovació Parc Taulí (I3PT-CERCA), Sabadell, Catalunya; ¹¹Departament de Medicina, Universitat Autònoma de Barcelona, Barcelona, Spain; ¹²Centro de investigación Biomédica en Red Enfermedades Hepáticas y Digestivas (CIBERehd), Instituto de Salud Carlos III, Madrid, Spain; ¹³The Juliet Keidan Institute of Pediatric Gastroenterology & Nutrition, The Hebrew University of Jerusalem, Shaare Zedek Medical Center, Jerusalem, Israel; ¹⁴Department of Medicine, University of Otago, Christchurch, New Zealand; ¹⁵Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden; ¹⁶Centre for Digestive Health, Gastroenterology Unit, Department of Gastroenterology, Dermatovenereology and Rheumatology, Karolinska University Hospital, Stockholm, Sweden; ¹⁷Department of Internal Medicine and Oncology, Semmelweis University, Budapest, Hungary; ¹⁸Division of Gastroenterology, Department of Medicine, University of Alberta, Edmonton, Alberta, Canada; ¹⁹Institute for Regeneration and Repair, University of Edinburgh, Edinburgh, United Kingdom; ²⁰Department of Paediatrics and Department of Epidemiology & Biostatistics, Schulich School of Medicine & Dentistry, Western University, London, Ontario, Canada; ²¹Children's Health Research Institute, London, Ontario, Canada; ²²Centre for Genomics and Experimental Medicine (CGEM), Institute of Genetics & Cancer, University of Edinburgh, Edinburgh, United Kingdom; ²³Edinburgh IBD Unit, Western General Hospital, National Health Service Lothian, Edinburgh, United Kingdom; ²⁴Center for Inflammatory Bowel Diseases, Division of Digestive Diseases, University of California Los Angeles School of Medicine, Los Angeles, California; ²⁵GastroUnit, Medical Division, Copenhagen University Hospital—Amager and Hvidovre, Hvidovre, Denmark; ²⁶Copenhagen Center

for Inflammatory Bowel Disease in Children, Adolescents, and Adults, Copenhagen University Hospital—Amager and Hvidovre, Hvidovre, Denmark; ²⁷Department of Pediatrics, Örebro University Hospital, Stockholm, Sweden; ²⁸Usher Institute, University of Edinburgh, Edinburgh, United Kingdom; ²⁹Microbiota I-Center (MagIC), Department of Medicine and Therapeutics, Li Ka Shing Institute of Health Sciences, New Cornerstone Science Laboratory, The Chinese University of Hong Kong, Hong Kong, China; ³⁰Division of Clinical Epidemiology, Department of Medicine Solna, Karolinska Institutet, Stockholm, Sweden; ³¹Department of Pediatrics, Dalhousie University, Halifax, Nova Scotia, Canada; ³²Inflammatory Bowel Disease Unit, Division of Gastroenterology and Hepatology, Cumming School of Medicine, University of Calgary, Calgary, Alberta, Canada; ³³Department of Community Health & Epidemiology, University of Saskatchewan, Saskatoon, Canada; ³⁴Unitat d'Informació i Coneixement, Servei Català de la Salut, Generalitat de Catalunya; and ³⁵Digitalization for the Sustainability of the Healthcare System (DS3), Barcelona, Spain.

CRedit Authorship Contributions

Stephanie Coward, PhD (Conceptualization: Equal; Data curation: Equal; Formal analysis: Lead; Methodology: Lead; Project administration: Equal; Visualization: Lead; Writing – original draft: Equal)

Eduard Brunet-Mas, MD, PhD (Conceptualization: Equal; Data curation: Equal; Formal analysis: Equal; Methodology: Equal; Writing – review & editing: Equal)

Johan Burisch, MD, PhD (Conceptualization: Equal; Data curation: Equal; Formal analysis: Equal; Methodology: Equal; Writing – review & editing: Equal)

Peter L. Lakatos, MD, PhD (Conceptualization: Equal; Data curation: Equal; Formal analysis: Equal; Methodology: Equal; Writing – review & editing: Equal)

Edward V. Loftus Jr, MD (Conceptualization: Equal; Data curation: Equal; Formal analysis: Equal; Methodology: Equal; Writing – review & editing: Equal)

Gilaad G. Kaplan, MD, MPH (Conceptualization: Lead; Data curation: Lead; Formal analysis: Equal; Funding acquisition: Lead; Methodology: Lead; Writing – original draft: Lead)

Conflicts of interest

The authors declare no conflicts of interest directly relevant to the data presented in this article.

Funding

Funding was received from The Leona M. and Harry B. Helmsley Charitable Trust (Grant No. 2108-04777) and the Canadian Institutes of Health Research Project Scheme Operating Grant (Ref. No. PJT-197959).

Data Availability

All aggregate data reported are provided in an open-access, online interactive map at <https://kaplan-gi.shinyapps.io/GIVES21/>.

Supplemental information

Forecasting the Incidence and Prevalence of Inflammatory Bowel Disease Across Nine Epidemiologic Stage 3 Regions

Stephanie Coward;Eduard Brunet-Mas;Johan Burisch;Peter L. Lakatos;Edward V. Loftus Jr., and Gilaad G. Kaplan;Global IBD Visualization of Epidemiology Studies in the 21st Century (GIVES-21) Consortia

Supplementary Methods

Data Sources and Study Populations for Each Region

Canada has a universal, publicly funded healthcare system administered across 13 provinces and territories. Within these single-payer systems, administrative health data are routinely collected during healthcare encounters. The Canadian Gastro-Intestinal Epidemiology Consortium (CanGIEC) provided population-based, provincial administrative IBD surveillance cohorts from eight provinces: Alberta, British Columbia, Manitoba, Newfoundland, Nova Scotia, Ontario, Quebec, and Saskatchewan, encompassing over 95% of the Canadian population. Incidence (2007–2014) and prevalence (2002–2014) were derived using validated algorithms based on the International Classification of Diseases, ninth (ICD-9) and tenth (ICD-10) diagnostic codes (ICD-9: 555.x/556.x; ICD-10: K50.x/K51.x), with a five-year washout period distinguishing incident from prevalent cases.¹⁻⁴

The Catalan Health Service provides universal coverage to all residents. Since 2011, the Catalan Health Surveillance System (CHSS) has collected comprehensive data on hospitalizations, primary care, outpatient visits, and prescriptions. Diagnostic data for hospitalizations and mental health services have been available since 2005, allowing for at least a six-year washout period. Prevalence and incidence data (2011–2023) were updated from a prior publication.⁵

Denmark has a centralized, tax-funded healthcare system providing equal access to all residents. The Danish National Patient Register contains complete nationwide inpatient and outpatient data since 1977 and expanded to ambulatory outpatient visits in 1995.^{6,7} A seven-year washout period ensured identification of incident cases. Denmark's IBD registry data demonstrate high diagnostic validity (sensitivity and specificity >93%), and incidence and prevalence cohorts provided from 1990–2017.⁸

Veszprém Province, located in western Hungary, utilizes clinical registries to capture a population-based IBD cohort. Previous studies reported incidence from 1977–2001 and prevalence in 2001.⁹ The cohort was updated to include incidence (2007–2017) and prevalence (2002–2018). Case identification was based on clinical data from four general hospitals and gastroenterology outpatient units, with centralized confirmation through the provincial IBD registry.

Israel mandates that all residents enroll in one of four Health Maintenance Organizations (HMOs), covering 97% of the population. The Israeli Inflammatory Bowel Disease Research Nucleus (epi-

IIRN) links HMO data with national registries for hospitalizations, surgeries, cancer, and mortality. A two-to-five-year look-back period (depending on HMO) without IBD-related codes or medications defined incident cases. Validation metrics include sensitivity 83%, specificity 68%, PPV 82%, and NPV 70%. Incidence and prevalence data (2005–2020) were identified using a validated algorithm.¹⁰

The Canterbury IBD Study provides the most complete incidence data for Oceania. The Canterbury District Health Board databases and private clinical records were searched prospectively for incident IBD cases from 2021–2023 and retrospectively for 2018–2020.¹¹ Earlier studies from 2004 and 2014 used the same methodology, with diagnoses confirmed by chart review.^{12, 13} Prevalence data for this period were not available.

The National Health Service (NHS) provides publicly funded healthcare across the United Kingdom. NHS Lothian serves 919,060 residents (2023), capturing 16.7% of Scotland's population. IBD cases were identified through six information sources, including ICD-10 and histopathology coding, with confirmation through electronic record review.¹⁴ Data on incidence and prevalence from 2009–2017 were provided.

Sweden has a universal, publicly funded healthcare system. The Swedish National Patient Register has been validated for IBD, with ≥ 2 diagnostic codes (hospital or outpatient non-primary care visits) yielding a PPV of 93%, with a minimum two-year washout period.^{15, 16} Incidence and prevalence from 2004–2021 were provided.

The Rochester Epidemiology Project is a comprehensive medical records linkage system capturing all healthcare encounters in Olmsted County. Population-based IBD research has been conducted since the 1930s.¹⁷⁻²⁰ Incidence from 1990–2020 and prevalence from 2000–2020 were provided.

Additional Information on Data Analysis Approach

Autoregressive Integrated Moving Average (ARIMA) modeling is a time series analysis technique that examines data trends over time by incorporating information from previous periods while accounting for dependencies in yearly prevalence or incidence data.²¹ This approach captures preceding trends that are innate within the data, such as changes in incidence, mortality, or demographic shifts like life expectancy and fertility rates. ARIMA models have been used to forecast IBD incidence and prevalence,^{14, 22, 23} with a validation study demonstrating high accuracy.²³ For example, initial forecast prevalence six years in advance was within 1.5% of the

actual measured value: in Canada, ARIMA models projected a prevalence of 640 per 100,000 in 2014, while the observed prevalence that year was 650 per 100,000.²³

Stationarity, defined as a constant mean and variance over time, was assessed using the Dickey-fuller test. If stationarity was not achieved in the crude model, first-order differencing was applied, followed by second-order differencing if necessary. If the model assumption of stationarity was not met, a Poisson or negative binomial model was used instead. ARIMA model orders were selected using a visual inspection of partial autocorrelation function plots, along with Akaike Information Criterion and Bayesian Information Criterion values. Segmented regression, with the accompanying Davies' test, was applied to data from 2000 onward to identify significant and epidemiologically relevant inflection points in incidence and prevalence trends. Where appropriate, historical data following the inflection point, with at least five datapoints including the inflection point, were used to forecast trends.

For the Bayesian analysis, a non-informative prior was used for the first year, while posterior estimates from each preceding year were used as informative priors for the following year. Markov Chain Monte Carlo sampling was conducted with 4,000 iterations and a burn-in of 1,000. The posterior mean estimates were smoothed using locally estimated scatterplot (LOESS) smoothing with a span parameter of 0.7 to account for year-to-year fluctuations that occurred due to nation-level data availability. Final smoothed Bayesian estimates were summarized with 95% credible intervals (CrI), and the AAPC (with 95%CI) was calculated for the smoothed midpoint.

Stata MP 15.1 and R 4.3.1 were used to conduct the analyses and create figures. The Conjoint Research Ethics Board at the University of Calgary provided ethics approval (REB21-0398) for the overall study, with each region obtaining local ethics approval in accordance with their respective governing bodies. The study was reported following the Reporting of studies Conducted using Observational Routinely-collected Data.

References for Supplementary Methods

1. Rezaie A, Quan H, Fedorak RN, et al. Development and validation of an administrative case definition for inflammatory bowel diseases. *Can J Gastroenterol* 2012;26:711-7.
2. Bernstein CN, Blanchard JF, Rawsthorne P, Wajda A. Epidemiology of Crohn's disease and ulcerative colitis in a central Canadian province: a population-based study. *Am J Epidemiol* 1999;149:916-24.
3. Benchimol EI, Guttman A, Griffiths AM, et al. Increasing incidence of paediatric inflammatory bowel disease in Ontario, Canada: evidence from health administrative data. *Gut* 2009;58:1490-7.
4. Benchimol EI, Manuel DG, Guttman A, et al. Changing age demographics of inflammatory bowel disease in Ontario, Canada: a population-based cohort study of epidemiology trends. *Inflamm Bowel Dis* 2014;20:1761-9.
5. Brunet E, Roig-Ramos C, Vela E, et al. Prevalence, incidence and mortality of inflammatory bowel disease in Catalonia. A population-based analysis. *Ann Med* 2018;50:613-619.
6. Schmidt M, Schmidt SA, Sandegaard JL, et al. The Danish National Patient Registry: a review of content, data quality, and research potential. *Clin Epidemiol* 2015;7:449-90.
7. Lynge E, Sandegaard JL, Rebolj M. The Danish National Patient Register. *Scand J Public Health* 2011;39:30-3.
8. Lo B, Vind I, Vester-Andersen MK, Burisch J. Validation of ulcerative colitis and Crohn's disease and their phenotypes in the Danish National Patient Registry using a population-based cohort. *Scand J Gastroenterol* 2020;55:1171-1175.
9. Lakatos L, Mester G, Erdelyi Z, et al. Striking elevation in incidence and prevalence of inflammatory bowel disease in a province of western Hungary between 1977-2001. *World J Gastroenterol* 2004;10:404-409.
10. Friedman MY, Leventer-Roberts M, Rosenblum J, et al. Development and validation of novel algorithms to identify patients with inflammatory bowel diseases in Israel: an epi-IIRN group study. *Clin Epidemiol* 2018;10:671-681.
11. Forbes AJ, Day AS, Frampton CMA, Gearry RB. Incidence of Inflammatory Bowel Disease in Canterbury, New Zealand, 2018-2023. *Dig Dis Sci* 2025;70:719-727.
12. Gearry RB, Richardson A, Frampton CM, et al. High incidence of Crohn's disease in Canterbury, New Zealand: results of an epidemiologic study. *Inflamm Bowel Dis* 2006;12:936-43.
13. Su HY, Gupta V, Day AS, Gearry RB. Rising Incidence of Inflammatory Bowel Disease in Canterbury, New Zealand. *Inflamm Bowel Dis* 2016;22:2238-44.
14. Jones GR, Lyons M, Plevris N, et al. IBD prevalence in Lothian, Scotland, derived by capture-recapture methodology. *Gut* 2019;68:1953-1960.
15. Jakobsson GL, Sternegard E, Olen O, et al. Validating inflammatory bowel disease (IBD) in the Swedish National Patient Register and the Swedish Quality Register for IBD (SWIBREG). *Scand J Gastroenterol* 2017;52:216-221.
16. Mouratidou N, Malmberg P, Järås J, et al. Identification of Childhood-Onset Inflammatory Bowel Disease in Swedish Healthcare Registers: A Validation Study. *Clin Epidemiol* 2022;14:591-600.
17. Sedlack RE, Nobrega FT, Kurland LT, Sauer WG. Inflammatory colon disease in Rochester, Minnesota, 1935-1964. *Gastroenterology* 1972;62:935-941.
18. Sedlack RE, Whisnant J, Elveback LR, Kurland LT. Incidence of Crohn's disease in Olmsted County, Minnesota, 1935-1975. *Am J Epidemiol* 1980;112:759-63.
19. Loftus CG, Loftus EV, Jr., Harmsen WS, et al. Update on the incidence and prevalence of Crohn's disease and ulcerative colitis in Olmsted County, Minnesota, 1940-2000. *Inflamm Bowel Dis* 2007;13:254-61.
20. Shivashankar R, Tremaine WJ, Harmsen WS, Loftus EV, Jr. Incidence and Prevalence of Crohn's Disease and Ulcerative Colitis in Olmsted County, Minnesota From 1970 Through 2010. *Clin Gastroenterol Hepatol* 2017;15:857-863.
21. G.E.P. B, Jenkins GM, Reinsel GC, Ljung GM. *Time Series Analysis: Forecasting and Control*: John Wiley & Sons Inc, 2015.
22. Coward S, Clement F, Benchimol EI, et al. Past and Future Burden of Inflammatory Bowel Diseases Based on Modeling of Population-Based Data. *Gastroenterology* 2019;156:1345-1353 e4.
23. Coward S, Benchimol EI, Bernstein CN, et al. Forecasting the Incidence and Prevalence of Inflammatory Bowel Disease: A Canadian Nationwide Analysis. *Am J Gastroenterol* 2024;119:1563-1570.

Supplemental Table 1: Overall prevalence (2015, 2025, and 2035) and incidence (2015 and 2025) of IBD, with temporal trends, across stage 3 nations, stratified by IBD type, age, and sex.

	Incidence			Prevalence			
	2015 Rate per 100,000 person-years (95%CrI)	2025 Rate per 100,000 (95%CrI)	AAPC of midpoint (95%CI)	2015 Rate per 100,000 persons (95%CrI)	2025 Rate per 100,000 (95%CrI)	2035 Rate per 100,000 (95%CrI)	AAPC of midpoint (95%CI)
IBD	33.3 (26.7, 40.8)	31.1 (25.9, 37.5)	−0.12 (−1.54, 1.33)	629 (530, 786)	818 (696, 961)	981 (850, 1244)	2.29 (2.12, 2.45)
Crohn's Disease	13.1 (10.4, 16.2)	12.9 (10.3, 15.9)	0.10 (−2.15, 2.39)	254 (204, 308)	335 (281, 408)	406 (309, 492)	2.40 (2.14, 2.66)
Ulcerative Colitis	19.9 (15.0, 26.1)	18.7 (14.6, 23.7)	−0.17 (−2.03, 1.72)	369 (290, 478)	464 (354, 605)	541 (419, 710)	2.03 (1.81, 2.25)
IBD Age and Sex Stratum							
Pediatric <18 years	16.4 (12.3, 21.1)	17.8 (14.2, 22)	0.93 (−1.08, 2.98)	68 (55, 82)	73 (56, 94)	66 (44, 102)	0.07 (−0.45, 0.59)
Adult 18–64 years	44.2 (36.1, 53.4)	41.4 (30.7, 52)	−0.26 (−1.49, 0.99)	771 (647, 912)	959 (802, 1139)	1151 (992, 1365)	2.06 (1.91, 2.21)
Senior ≥65 years	35.8 (27.4, 45.9)	28.0 (22, 35.1)	−1.60 (−3.00, −0.19)	883 (720, 1085)	1242 (1070, 1460)	1610 (1424, 1905)	3.30 (3.16, 3.44)
Female	31.8 (25.0, 39.5)	29.1 (24.1, 34.7)	−0.39 (−1.84, 1.09)	605 (492, 743)	771 (640, 941)	945 (728, 1151)	2.01 (1.84, 2.18)
Male	34.5 (27.6, 42.8)	32.6 (26.5, 39.4)	0.16 (−1.24, 1.59)	631 (533, 759)	819 (703, 982)	984 (826, 1207)	2.34 (2.17, 2.5)

Prevalence data ranged from 2007 to 2035 and incidence data from 2007 to 2025. No inflection points were identified.
Red = significantly increasing; Yellow = stable; Blue = significantly decreasing
CI: confidence interval; CrI: credible interval; AAPC: average annual percent change

Supplementary Figure: Overall incidence (A) and prevalence (B) of IBD in pediatric populations (<18 years), overall incidence (C) and prevalence (D) in adults (18–64 years), and overall incidence (E) and prevalence (F) in seniors (≥65 years).

