

IBD Characterization

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OHDSI Community Call

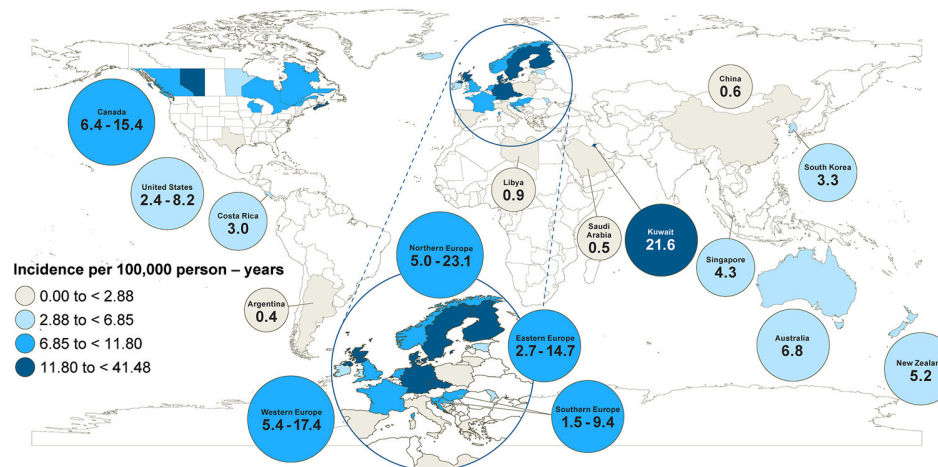
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Background


- Inflammatory bowel diseases (IBD)
 - Crohn's disease, ulcerative colitis, indeterminate colitis
- Consistently increasing incidence rates
- Significant impact on patient's and family quality of life

Pediatric inflammatory bowel disease is becoming increasingly common around the world

Kuenzig+ (2022).
Gastroenterology



 **100%**
7/7 of studies reported increasing prevalence

 **84%**
31/37 of studies reported increasing incidence

Gastroenterology

Goal, Study Design

- Goal: unified, global characterization of IBD patient cohorts
 - risk factors, symptoms, comorbidities, treatment pathways, outcomes
- Design: characterization study (à la CHARYBDIS), extracting multiple attributes in various time windows

Extracted Attributes (1)

- Demographics, condition groups, drug era groups
- 100+ IBD-specific (binary) attributes, examples
 - Risk factors: Family history of IBD, smoking
 - Related comorbidities: autoimmune diseases, malignancies
 - Symptoms: Diarrhea, abdominal pain, rectal bleeding
 - Lab tests: anemia, high CRP, high calprotectin
 - Complications: Death, hospitalization, extra-intestinal manifestations
 - Medications: immunomodulators, steroids, biologics; antibiotics, NSAIDs
 - Procedures: partial/total colectomy, colostomy, drainage of abscess
 - Vaccines: Pneumococcal, influenza, HPV, MMR
 - ...

Extracted Attributes (2)

- Time windows: entire history, 1y and 30d to index date; index date to 30d, 1y, 3y, 5y, and 10y, and entire follow-up
- Strata: follow-up time (1, 3, 5, and 10 years), sex, specific age groups, race, index date year (in 5-year windows), body mass index (BMI) categories, pregnancy
- Protocol, cohort defs, analysis code available at <https://github.com/ohdsi-studies/IbdCharacterization>



Preliminary results

- The Ajou University School of Medicine (AUSOM) data
- IQVIA Medical Research Data - UK

| | IBD | | Crohn's disease | | Ulcerative colitis | |
|--------------------------------------|--------|--------|-----------------|--------|--------------------|--------|
| | AUSOM | IMRDUK | AUSOM | IMRDUK | AUSOM | IMRDUK |
| Demographics | | | | | | |
| N | 1067 | 23852 | 402 | 6936 | 635 | 13924 |
| Sex = Female | 36.36% | 51.07% | 36.57% | 54.44% | 36.22% | 49.12% |
| Very early onset (2-6y) | – | 0.21% | – | 0.25% | – | 0.16% |
| Early onset (6-10y) | 1.12% | 0.70% | 2.49% | 1.27% | – | 0.46% |
| Pediatrics | 9.28% | 6.05% | 16.67% | 10.90% | 4.57% | 3.74% |
| Age 18 - 65 | 81.26% | 73.06% | 73.63% | 73.70% | 86.46% | 72.77% |
| Age >= 65 | 8.06% | 19.97% | 6.47% | 13.88% | 8.66% | 22.86% |
| Medications (index date – 1y) | | | | | | |
| 5-ASA exposure | 81.70% | 81.10% | 72.90% | 64.50% | 88.30% | 88.70% |
| IBD antibiotics exposure | 21.60% | 3.80% | 31.60% | 4.90% | 14.60% | 3.10% |
| Topical IBD steroid exposure | | 3.90% | | 1.40% | | 5.30% |
| IBD biologics exposure | 5.70% | 0.10% | 9.70% | 0.30% | 3.50% | 0.00% |
| Immunomodulator exposure | 22.30% | 19.40% | 35.80% | 35.00% | 13.90% | 11.90% |
| Procedures (index date – 3y) | | | | | | |
| total colectomy procedure | | 1.60% | | 0.60% | | 2.00% |
| partial colectomy procedure | | 4.50% | | 9.30% | | 2.50% |
| ileostomy procedure | – | 1.20% | – | 1.60% | – | 1.10% |

Full results: <https://data.ohdsi.org/IbdCharacterization/>



Summary

- Detailed description of disease trajectory in IBD patients
- Characteristics of Korean and British IBD cohorts; 3 Israeli hospitals (awaiting IRB approval) – **join us!**
- Setting the stage for related prediction and estimation research projects

Collaborators

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