

# Previous Research Using Administrative Data to Ascertain Cases of Inflammatory Bowel Disease (IBD)

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**Table 1: Summary of previous research on methods to identify Inflammatory Bowel Disease (IBD) cases from administrative data**

Author	Data Source	Diagnosis/Treatment Codes and Algorithms	Study Cohort	Validation Methodology	Comments
Benchimol et al. (2009)	Country: Canada  Source: SickKids IBD database  Years: 1991-2008	Codes: CD <sup>i</sup> = (ICD-9 555.x, ICD-10 K50.x) UC <sup>ii</sup> = (ICD-9 556.x, ICD-10 K51.x)  Algorithm: (1) Four or more physician contacts OR two or more hospitalizations with CD or UC diagnosis within three years AND an endoscopy; OR (2) Seven or more physician contacts OR three or more hospitalizations with CD or UC diagnosis	6 months to 18 years	Medical chart review.  Max. Spec = >99.9% Max. Sens = 89.6%	No IBD medical contact within three years was necessary to be classified as an incident case  Purpose: “develop and validate a diagnostic algorithm using health administrative data to identify individuals with childhood-onset IBD...” (p. 1490)
Bernstein et al. (2006)	Country: Canada  Source: Statistics Canada’s Health Person Oriented Information Database  Years: 1994-2001	Codes: CD = ICD -9 555 UC = ICD-9 556  Algorithm: Analyzed hospitalization for IBD using two different algorithms: (1) Primary diagnosis of CD or UC with the relevant ICD code from hospital discharge abstracts; (2) CD or UC as one of the possible diagnosis on the hospital abstract with the relevant ICD code	Inpatient hospital stays of all ages were examined; grouped as: 0-9, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+ years	There was no validation data source. Specificity, sensitivity and predictive values are not reported.	Purpose: determine rates of hospitalization in individuals with IBD
Eshler et al. (2005)	Country: United States of America  Source: Medstat Group’s MarketScan Commercial Claims and Encounters Database  Years: 1999-2001	Codes: Unspecified  Algorithm: (1) “one or more hospital admissions for the condition with the diagnosis appearing in any position”; AND/OR (2) “one or more emergency room (ER) visits for the condition with the diagnosis as the first-listed (primary) diagnosis”; AND/OR (3) “two or more outpatient visits at least 30 days apart, both having the diagnosis of interest” (p.630)	18 years of age and older	There was no validation data source. Specificity, sensitivity and predictive values are not reported.	Severe cases of IBD defined at least two diagnoses of ICD-9 558.9 in hospital data within one year.  Purpose: to determine the cost of patients with anemia AND one of six chronic diseases (including IBD)
Kurina et al. (2001)	Country: England  Source: Oxford Record Linkage Study database  Years: 1963-1999	Codes: CD = (ICD-7 572.0; ICD-8 563.0; ICD-9 555; ICD-10 K50) UC = (ICD-7 572.2; ICD-8 563.1; ICD-9 556; ICD-10 K51)  Algorithm: One or more diagnosis of CD or UC on hospital abstract or death certificate	All ages were examined	There was no validation data source. Specificity, sensitivity and predictive values are not reported.	Purpose: To investigate associations between appendectomies, tonsillectomies and IBD
Seagroatt et al. (2003)	Country: England  Source: Oxford Record Linkage Study database  Years: 1979-1998	Codes: CD = (ICD-7 572.0; ICD-8 563.0; ICD-9 555; ICD-10 K50) UC = (ICD-7 572.2; ICD-8 563.1; ICD-9 556; ICD-10 K51)  Algorithm: Primary diagnosis of CD or UC from hospital admissions	All ages were examined; grouped as: 0-15, 15-24, 25-34, 35-44, 45-54, 55+ years	There was no validation data source. Specificity, sensitivity and predictive values are not reported.	Cases of IBD were restricted to those with no medical contact for IBD within the previous five years.  Purpose: To determine association between measles vaccine and IBD
Thirumurthi et al. (2009)	Country: United States of America  Source: National Patient Care Database  Years: 2000-2004	Codes: CD = (ICD-9 555.0-555.2, 555.9) UC = (ICD-9 556.0-556.6, 556.8, 556.9)  Algorithm: CD was defined as ICD-9 555.x without the co-occurrence of ICD-9 560.9. UC was defined as ICD-9 556.x without the co-occurrence of ICD-9 555.x	Veterans who were cared for at the MEDVAMC <sup>iii</sup>	Validated by “a comprehensive primary medical-record abstraction” (p.2593).  For CD: Max. Spec = 99% Max. Sens = 92%  For UC Max. Spec = 99% Max. Sens = 84%	Also used “ICD-associated conditions to maximize identification of potential cases” (p.2593)  Purpose: “To validate diagnostic codes for IBD from the Department of Veterans Affairs” (p. 2592)
Vestergaard et al. (2002)	Country: Denmark  Source: National Patient Discharge Register  Years: 1983-1996	Codes: CD = (ICD-8 563.00, 563.01, 563.02, 563.08, 563.09; ICD-10 K50.0, K50.1, K50.8 K50.9) UC = (ICD-8 563.19, ICD-10 K51.0-K51.3, K51.8, K51.9)  Algorithm: One or more hospital abstracts with the relevant ICD code	All individuals diagnosed with a new case of CD or UC	Validated using “clinical, radiological, pathoanatomic and paraclinical findings” from a random sample (p.3).  Validity = 64% for UC; 95% CD	The validity for UC is only 64% because many cases of UC should have been diagnosed as CD.  Purpose: to examine the risk for fractures in individuals with IBD

<sup>i</sup> CD = Crohn’s Disease

<sup>ii</sup> UC = Ulcerative Colitis

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