

# **EPIDEMIOLOGY OF INFLAMMATORY BOWEL DISEASE IN PEDIATRIC PATIENTS**

**ERIC BENCHIMOL, MD, PhD, FRCPC**  
Associate Professor of Pediatrics and Epidemiology,  
University of Ottawa

**Pediatric Gastroenterologist, CHEO IBD Centre,  
Children's Hospital of Eastern Ontario**

**Senior Scientist and Program Director,  
CHEO Research Institute**

**Core Scientist, ICES**



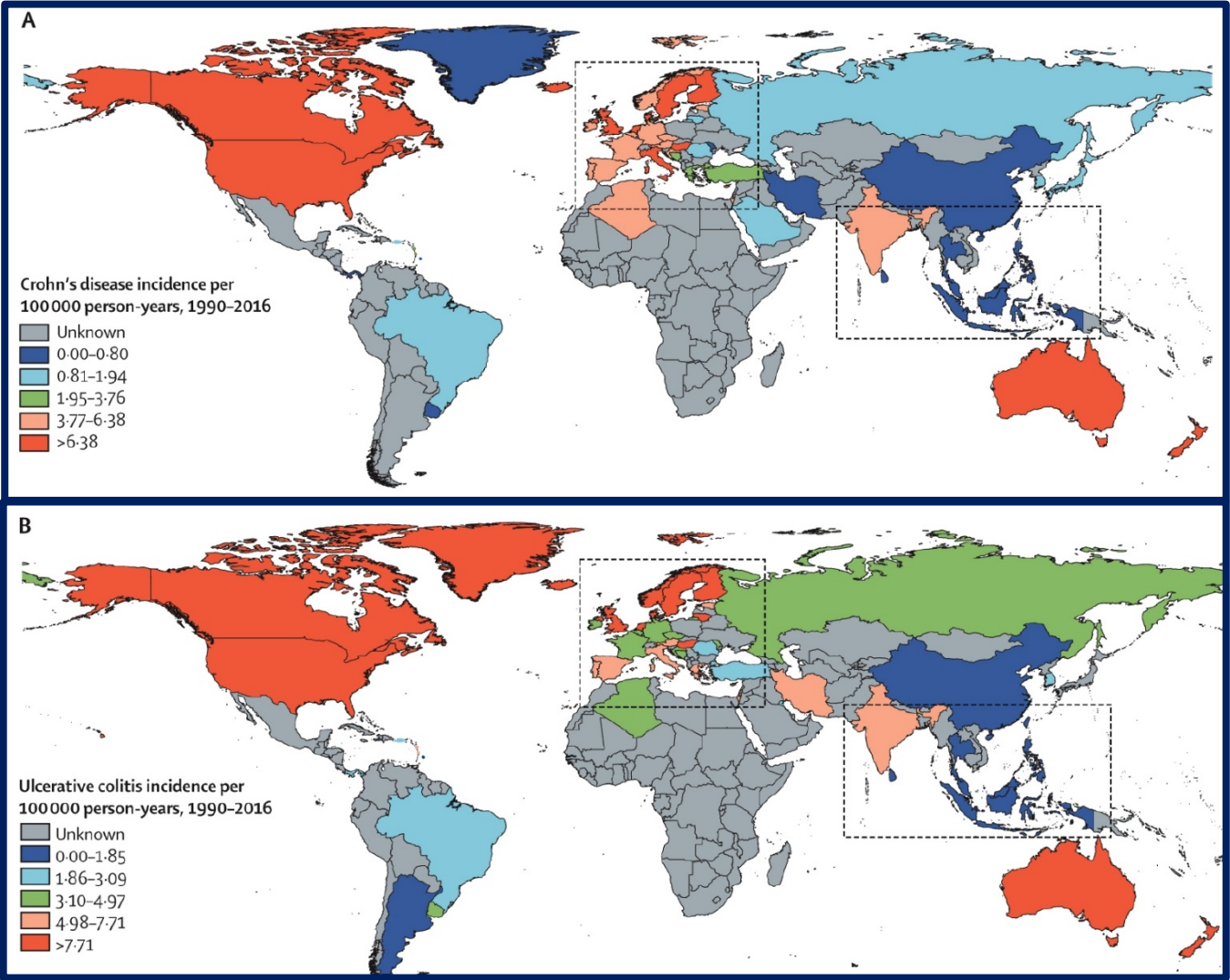
[www.cheo-ibd.ca](http://www.cheo-ibd.ca)  
[@CHEOibd](https://twitter.com/CHEOibd)



# DISCLOSURES

- I have no conflicts of interest to disclose.

# WORLDWIDE EPIDEMIOLOGY



Ng et al. Lancet 2017; 390: 3769-78.



# WHAT IS VEO-IBD?

Montreal Classification

**Under 17  
Pediatric Cohort**

# WHAT IS VEO-IBD?

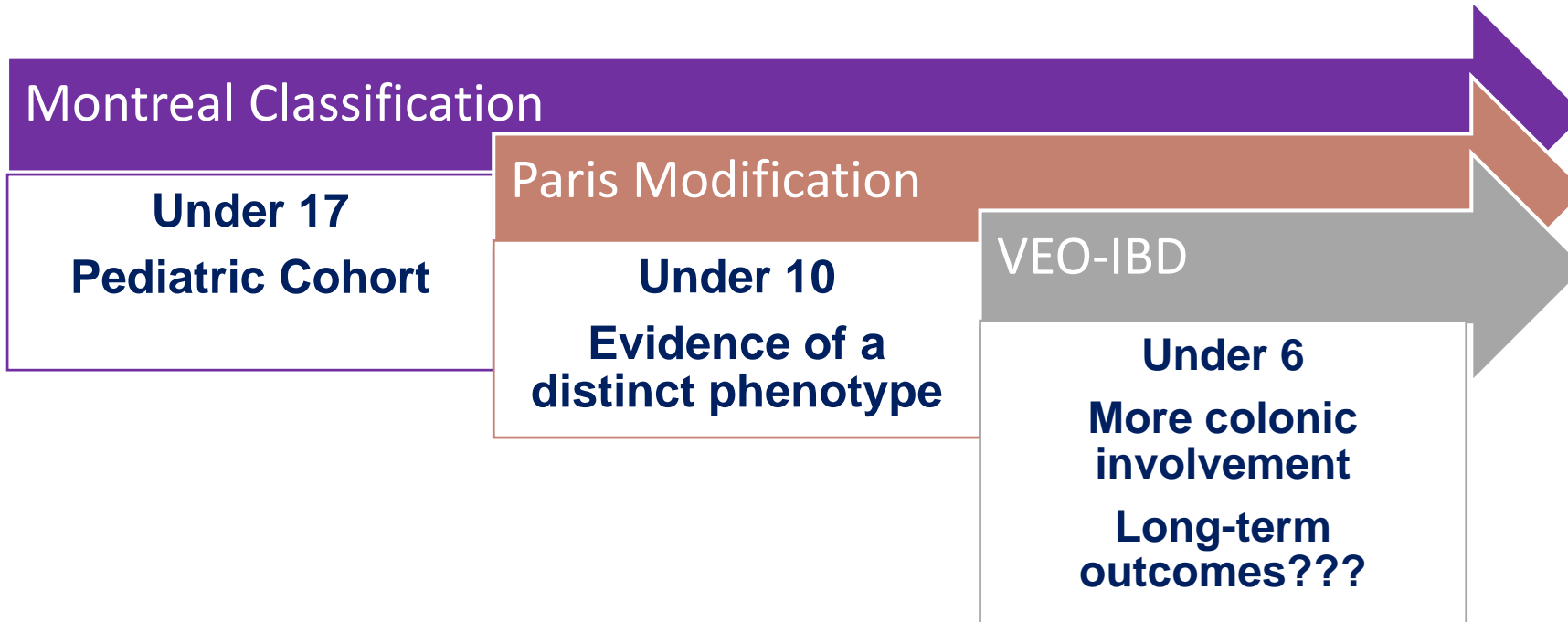
Montreal Classification

**Under 17  
Pediatric Cohort**

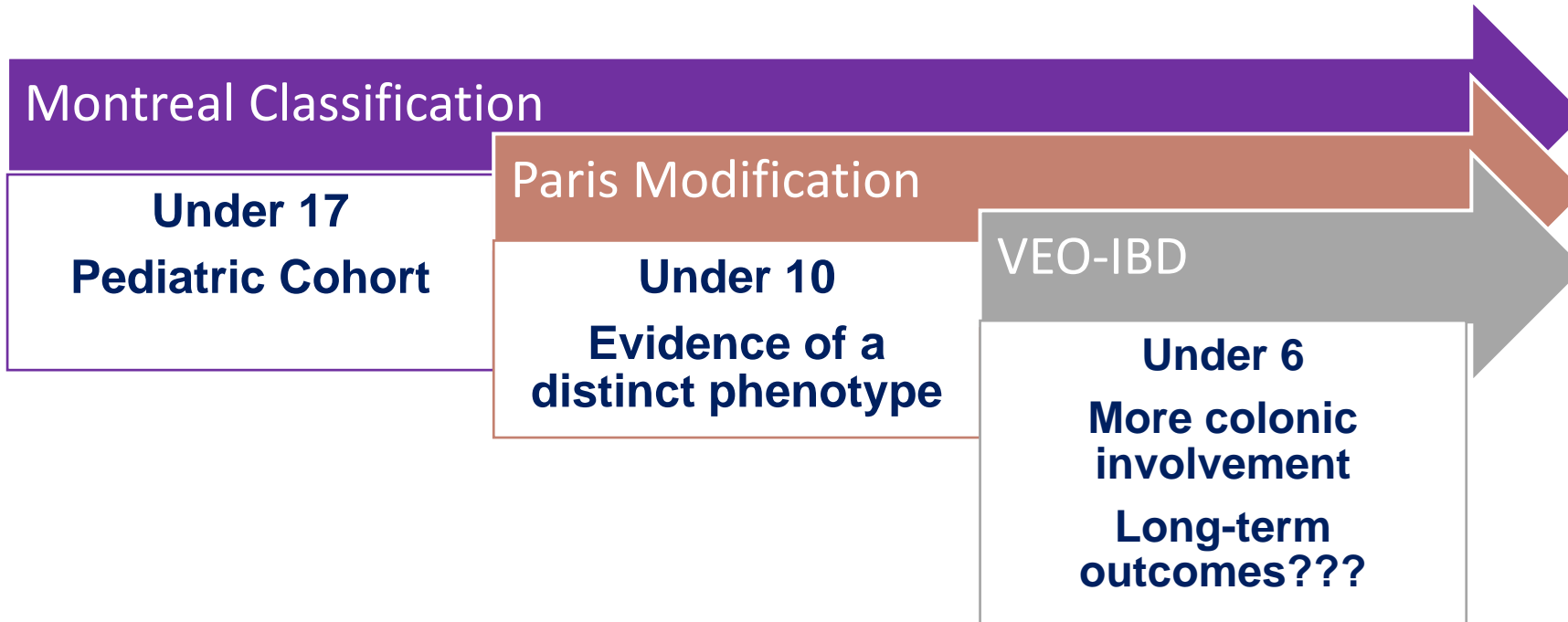
Paris Modification

**Under 10  
Evidence of a distinct  
phenotype**

# WHAT IS VEO-IBD?



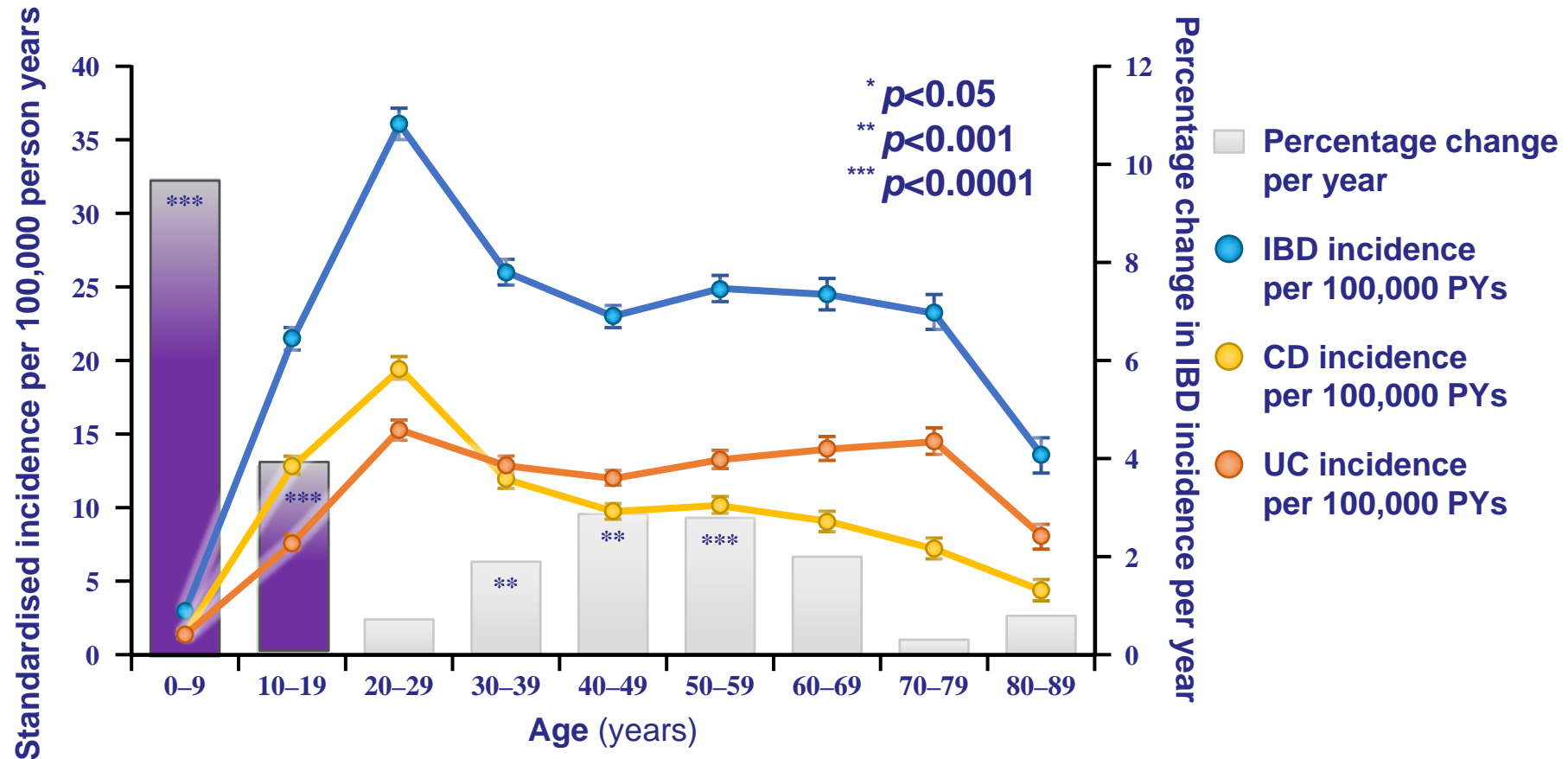
# WHAT IS VEO-IBD?



**Infants diagnosed under 1 year of age are very unique subset of VEO-IBD –  
“Infantile IBD”**

# ONTARIO, CANADA

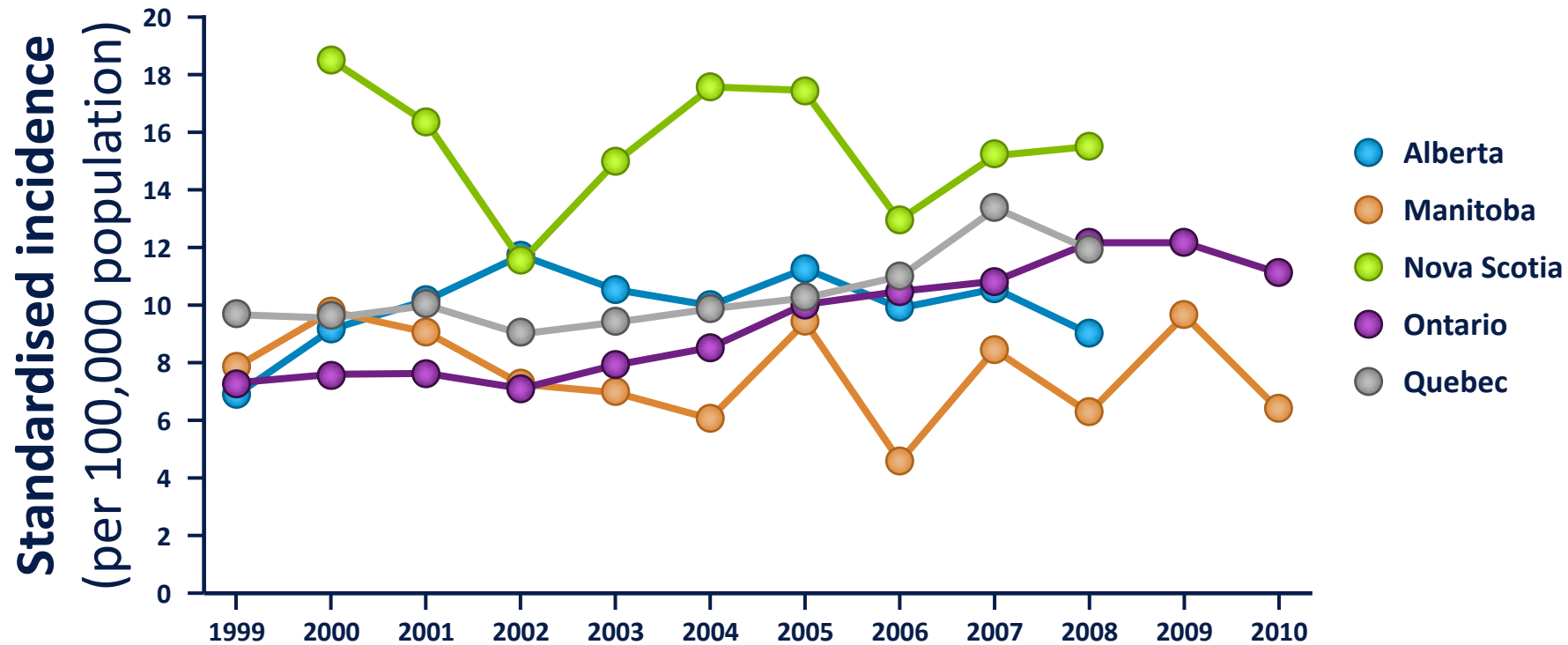
## ONTARIO CROHN'S AND COLITIS COHORT (1999-2008)



Benchimol et al., Inflamm Bowel Dis 2014; 20(10): 1761-9.



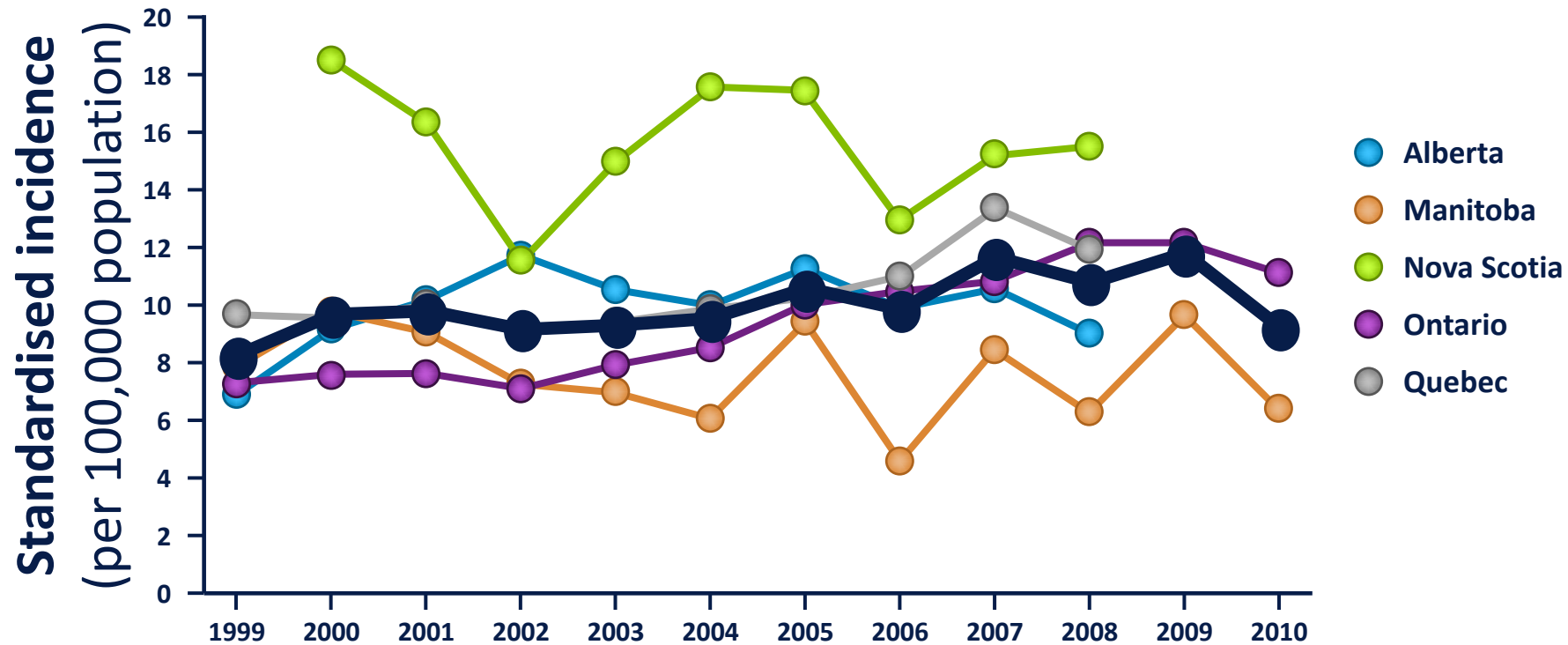
# CANADIAN GASTRO-INTESTINAL EPIDEMIOLOGY CONSORTIUM



Benchimol, et al., Am J Gastroenterol 2017; 112(7): 1120-34

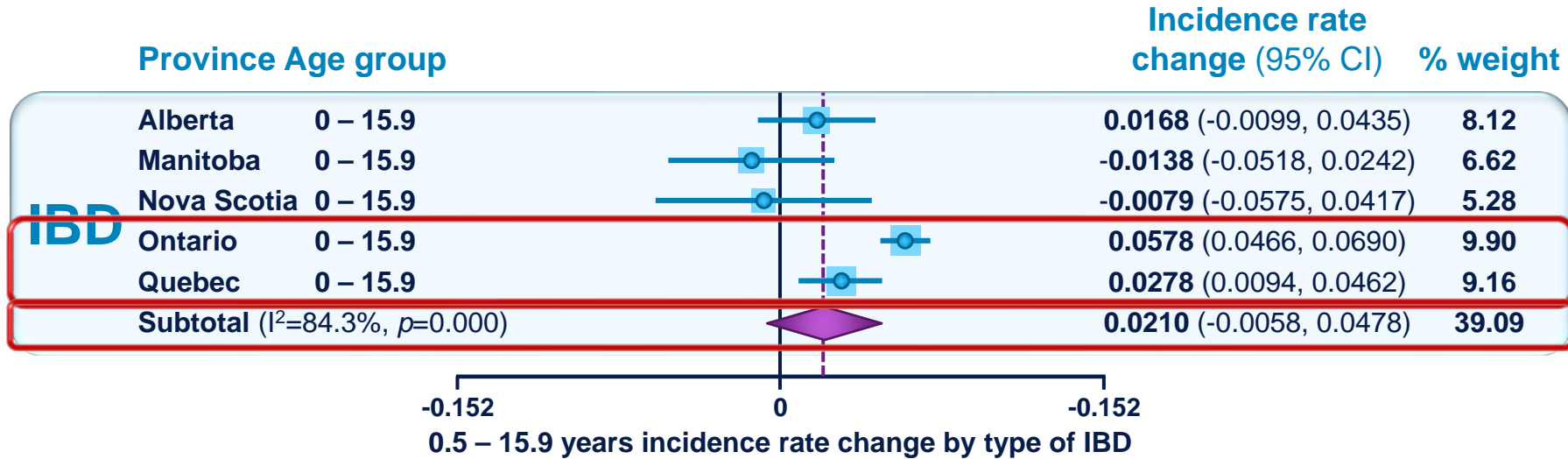


# CANADIAN GASTRO-INTESTINAL EPIDEMIOLOGY CONSORTIUM



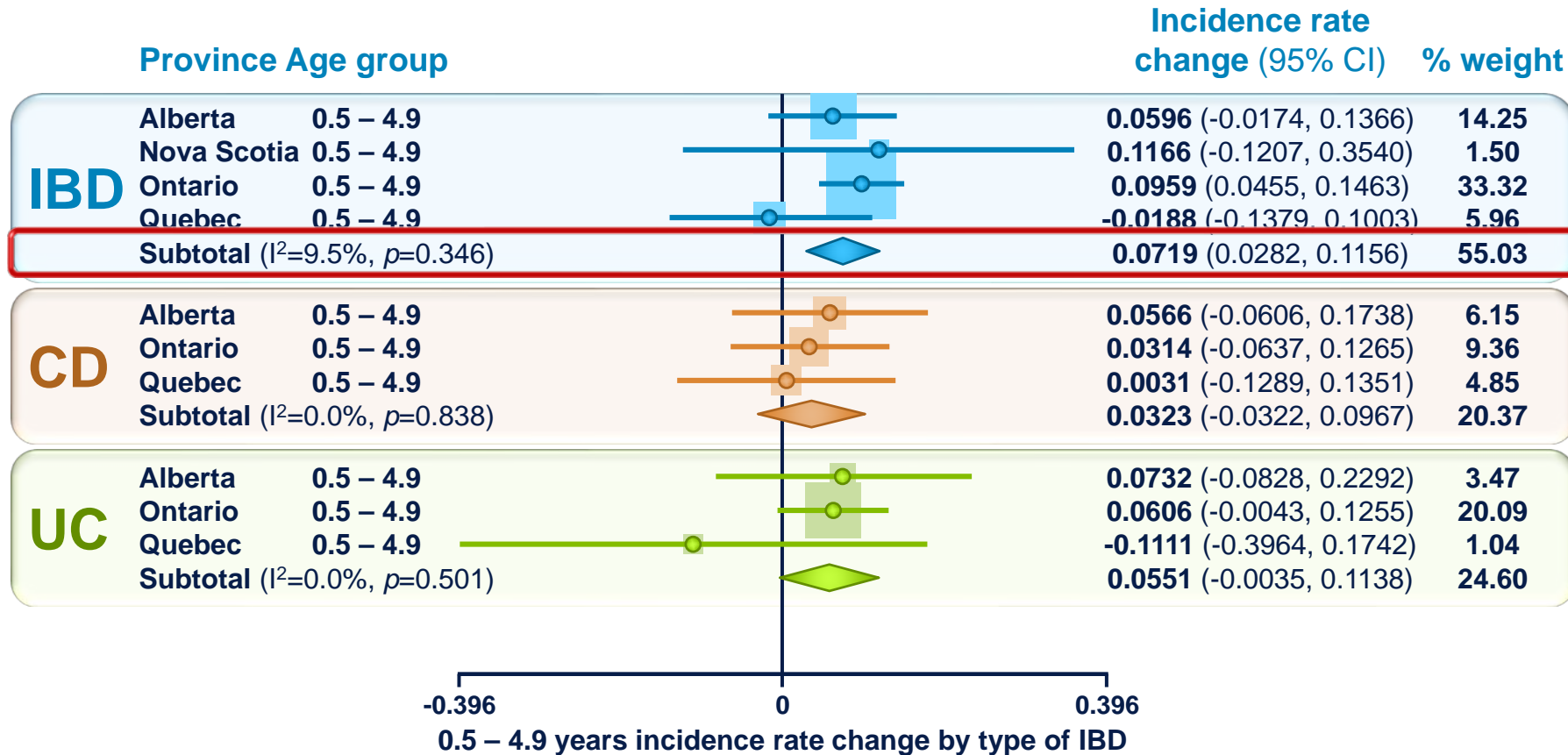
Benchimol, et al., Am J Gastroenterol 2017; 112(7): 1120-34

# CANADA: INCIDENCE RATE CHANGE



Benchimol, et al., Am J Gastroenterol 2017; 112(7): 1120-34

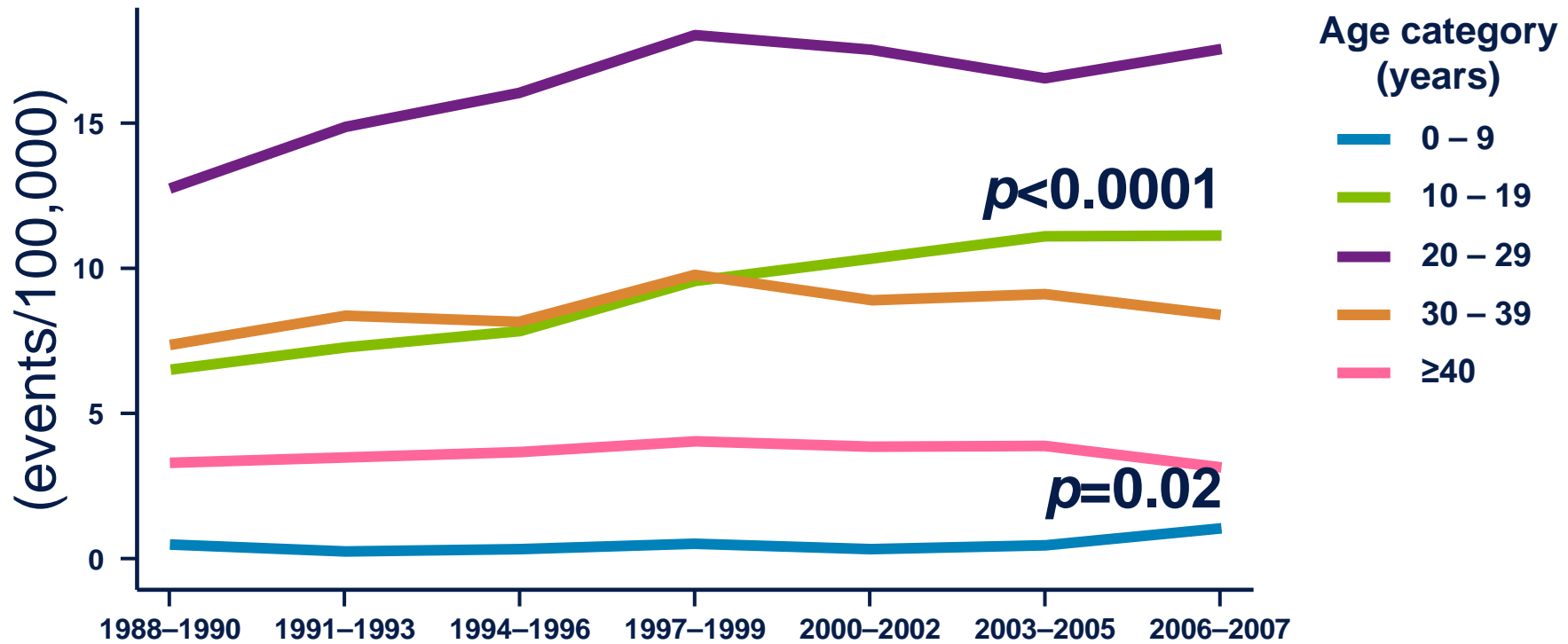
# CANADA: INCIDENCE RATE CHANGE (0-5y)



Benchimol, et al., Am J Gastroenterol 2017; 112(7): 1120-34

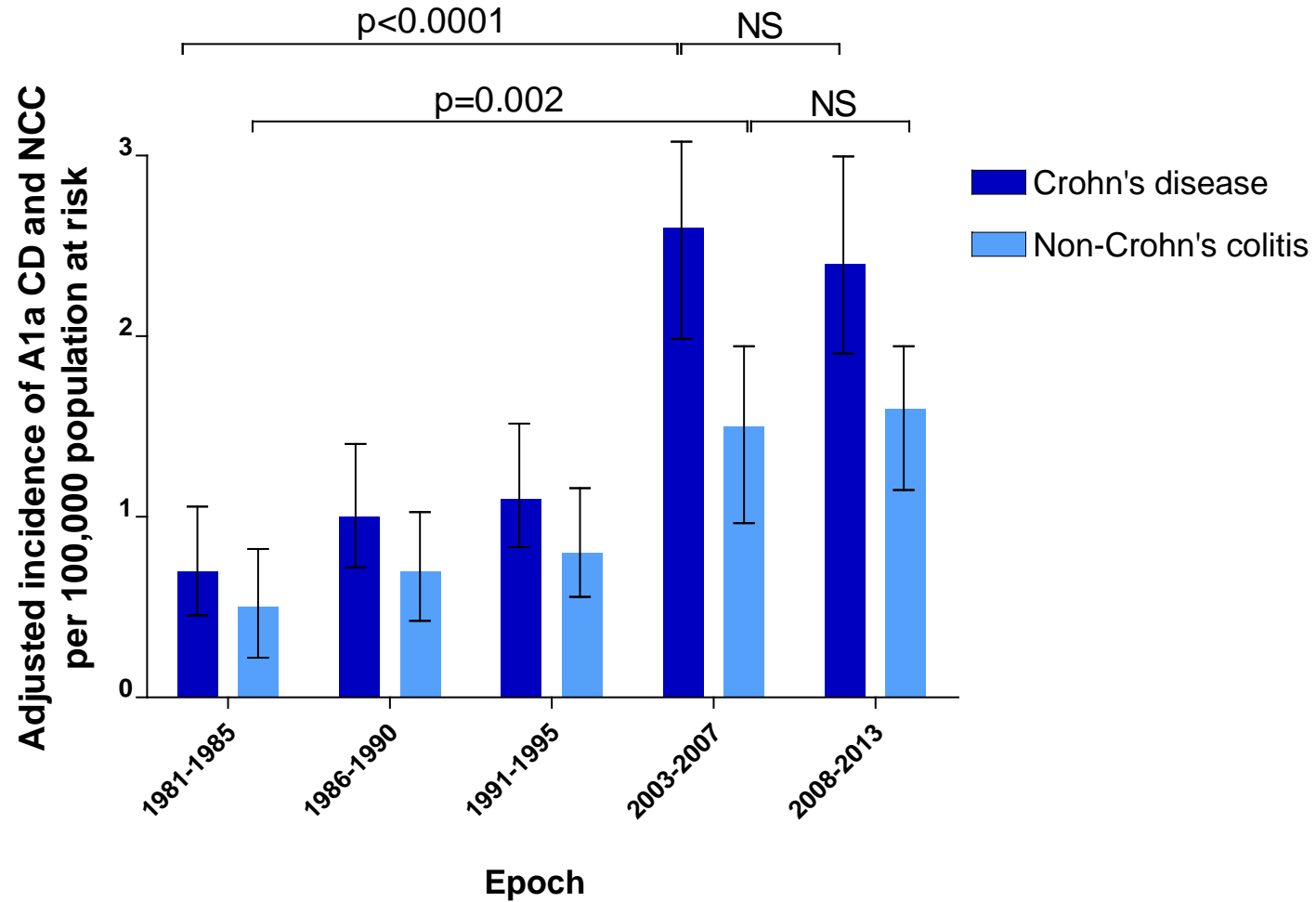
# EPIMAD: CROHN'S DISEASE TRENDS

Standardised incidence rates  
(events/100,000)



Chouraki V et al. Aliment Pharm Ther 2011;33:1133-42.

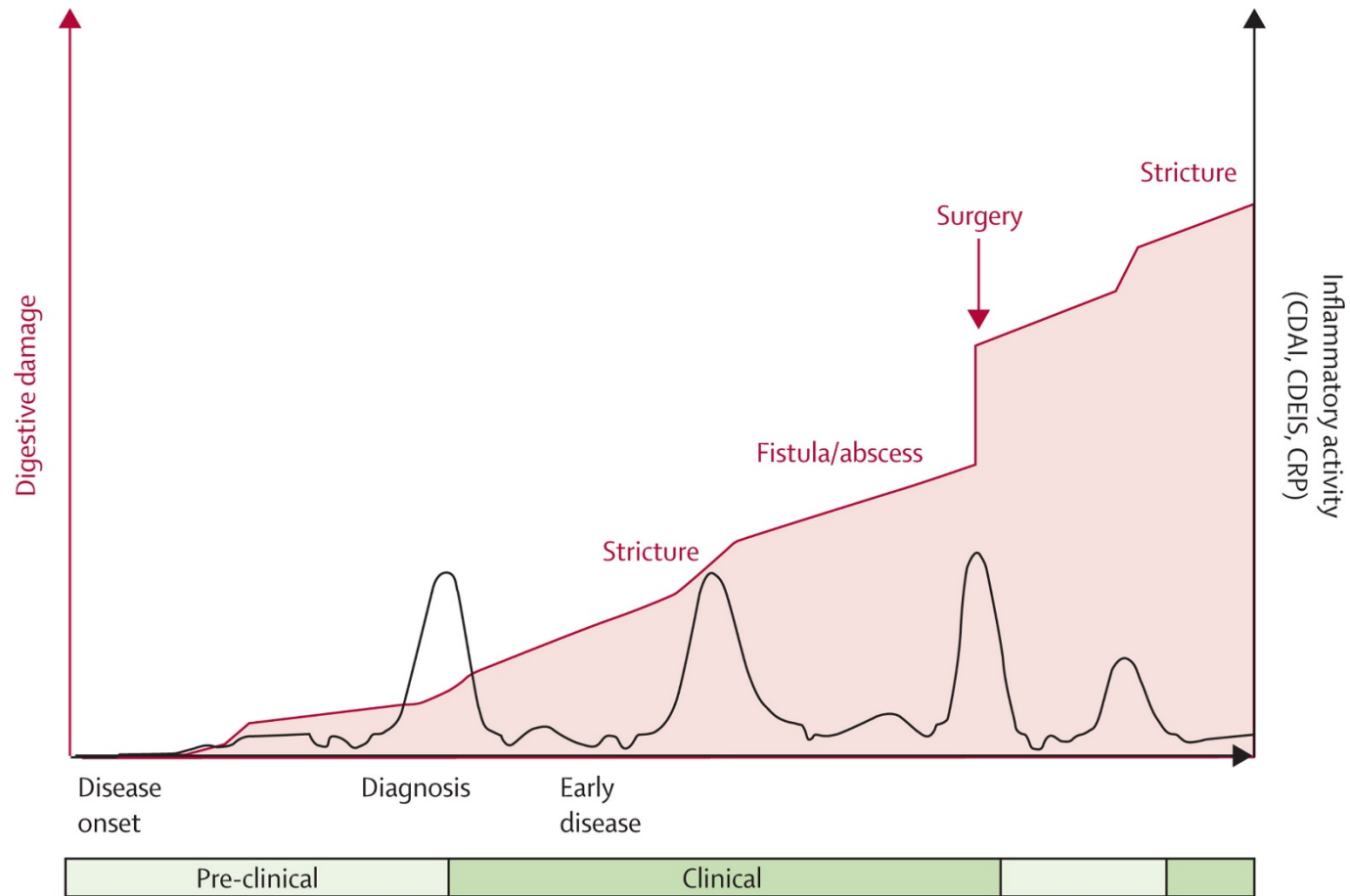
# SCOTLAND: VEO-IBD TRENDS



Henderson P et al. ECCO 2015 oral abstract OP027.  
Slide courtesy of David Wilson

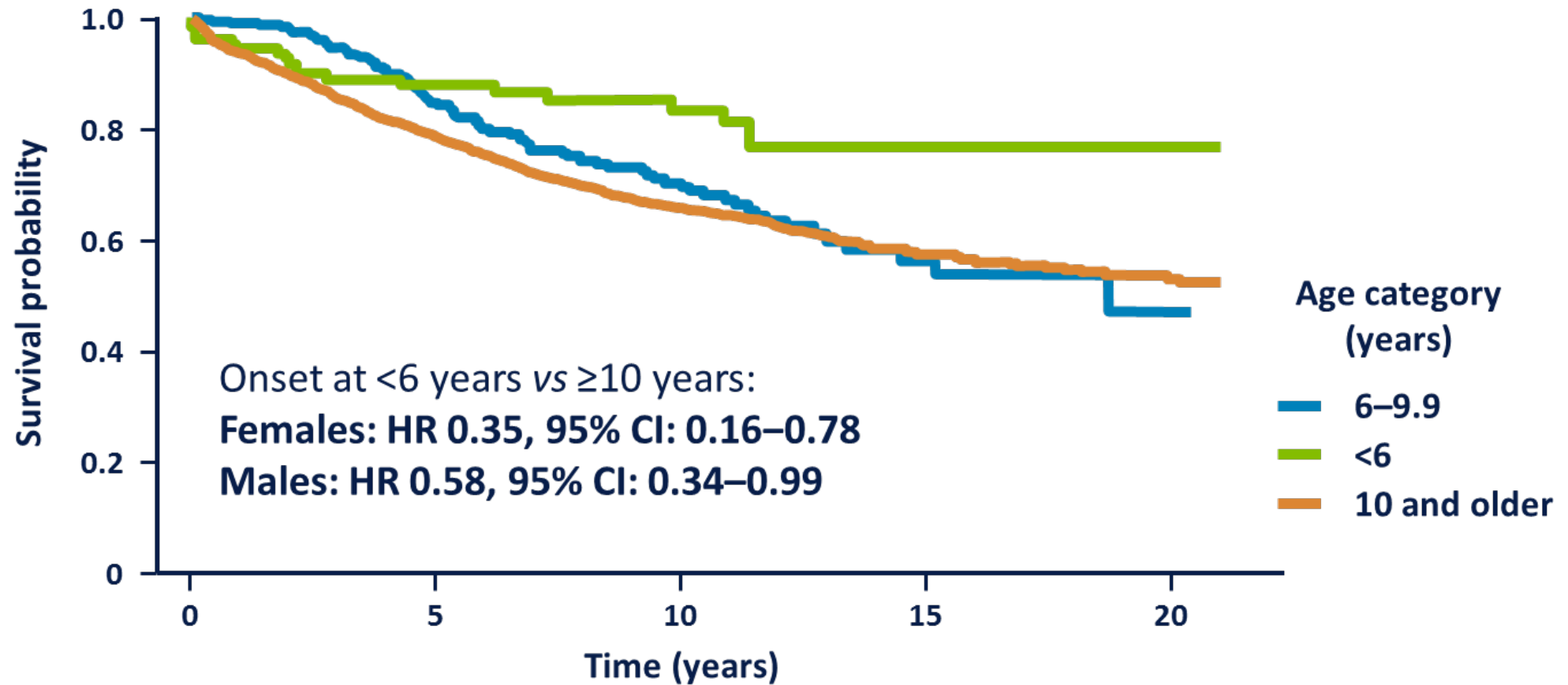


# VEO-IBD: PROGRESSION



Baumgart and Sandborn, Lancet 2012; 380:1590-1605.

# VEO-IBD: CD SURGERY

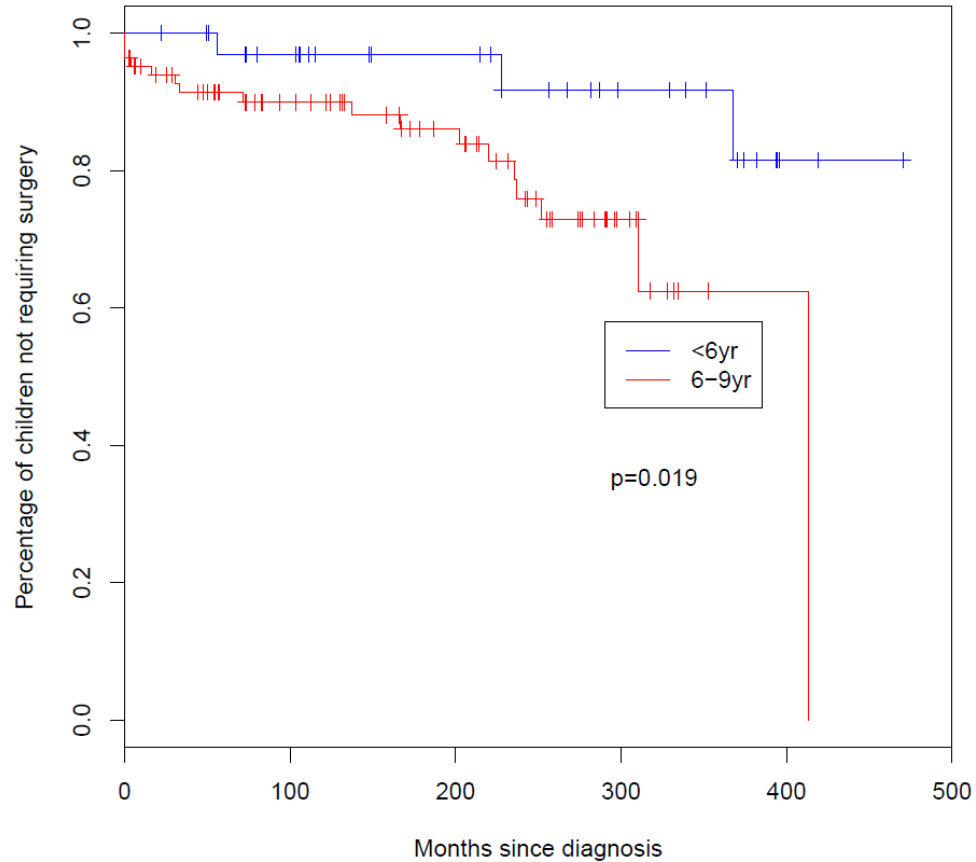


Benchimol, et al. Gastroenterology 2014;147(4):803-13.

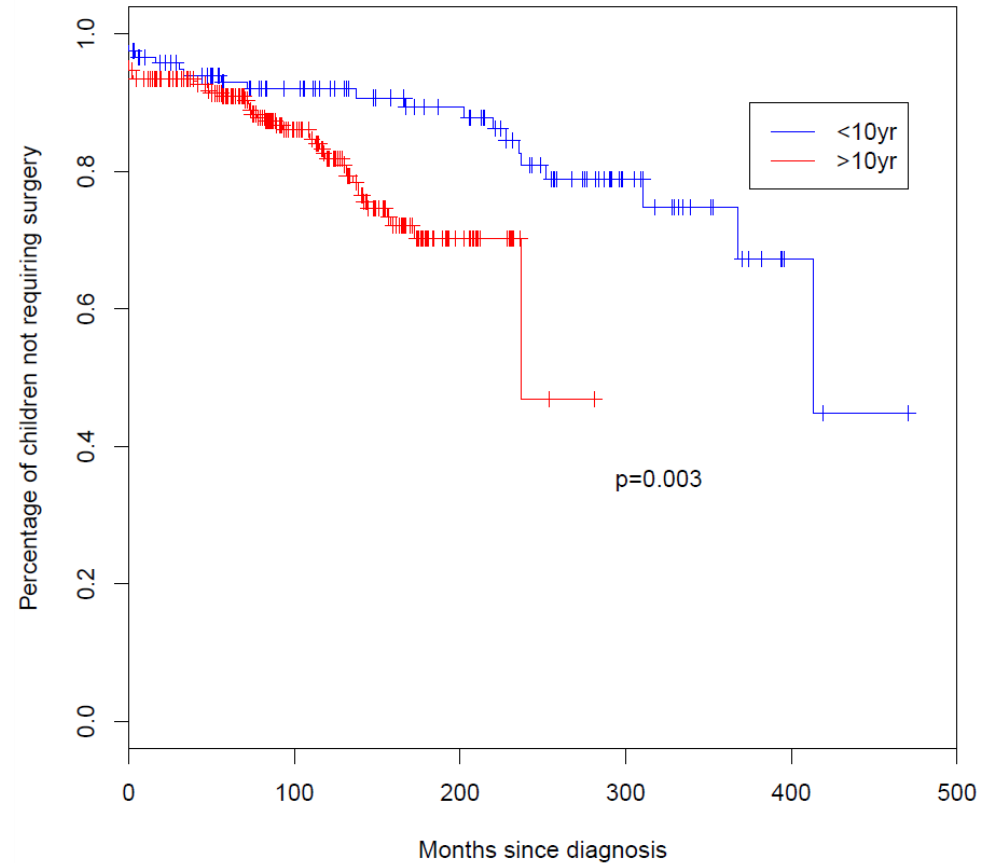


# OTHER VEO-IBD COHORTS: SCOTLAND

A1aa vs A1ab - Time to first surgery



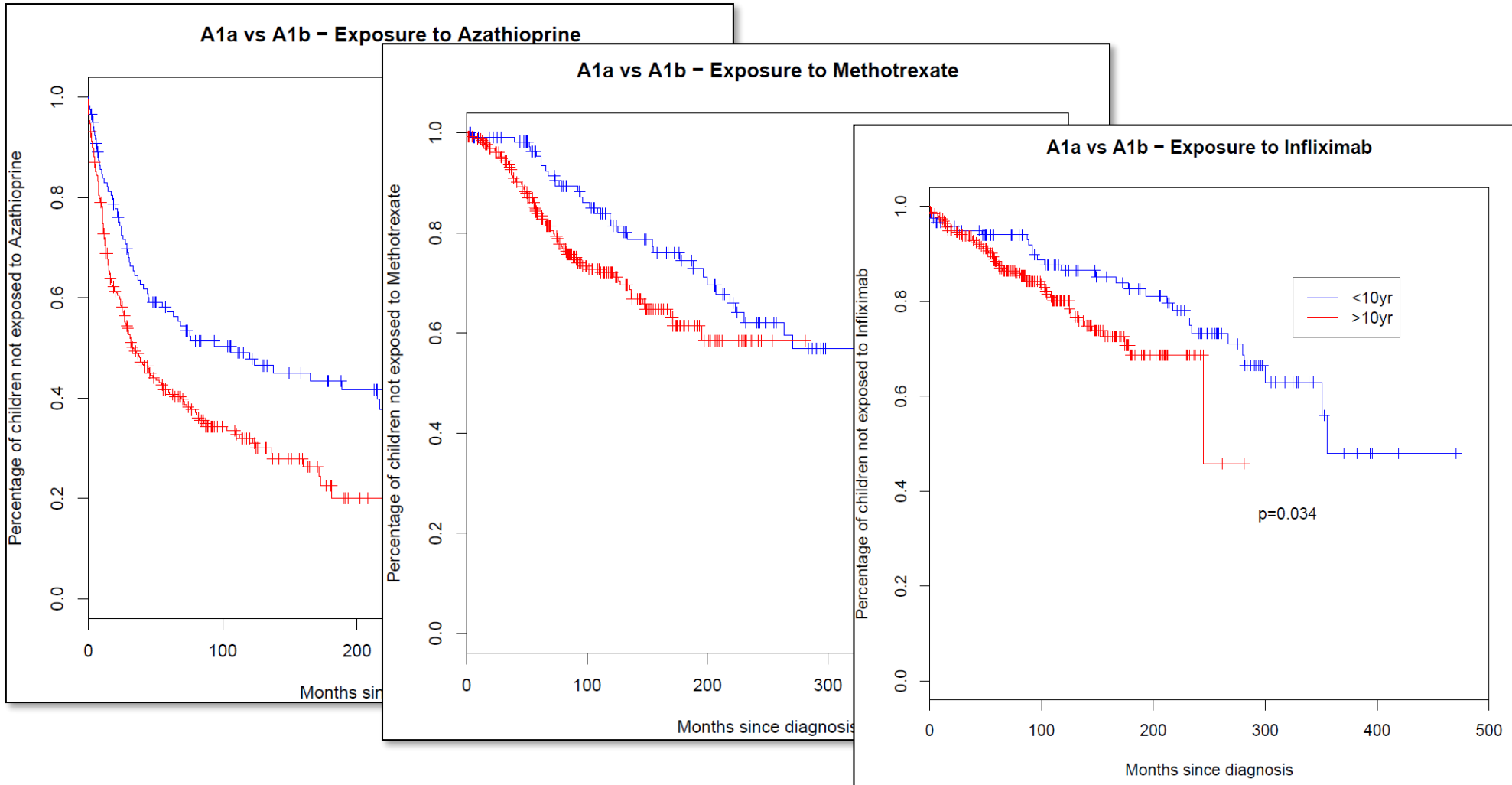
A1a vs A1b - Time to first surgery



Henderson, et al. BSPGHAN Annual Meeting 2015  
Slide courtesy of Dr. David Wilson



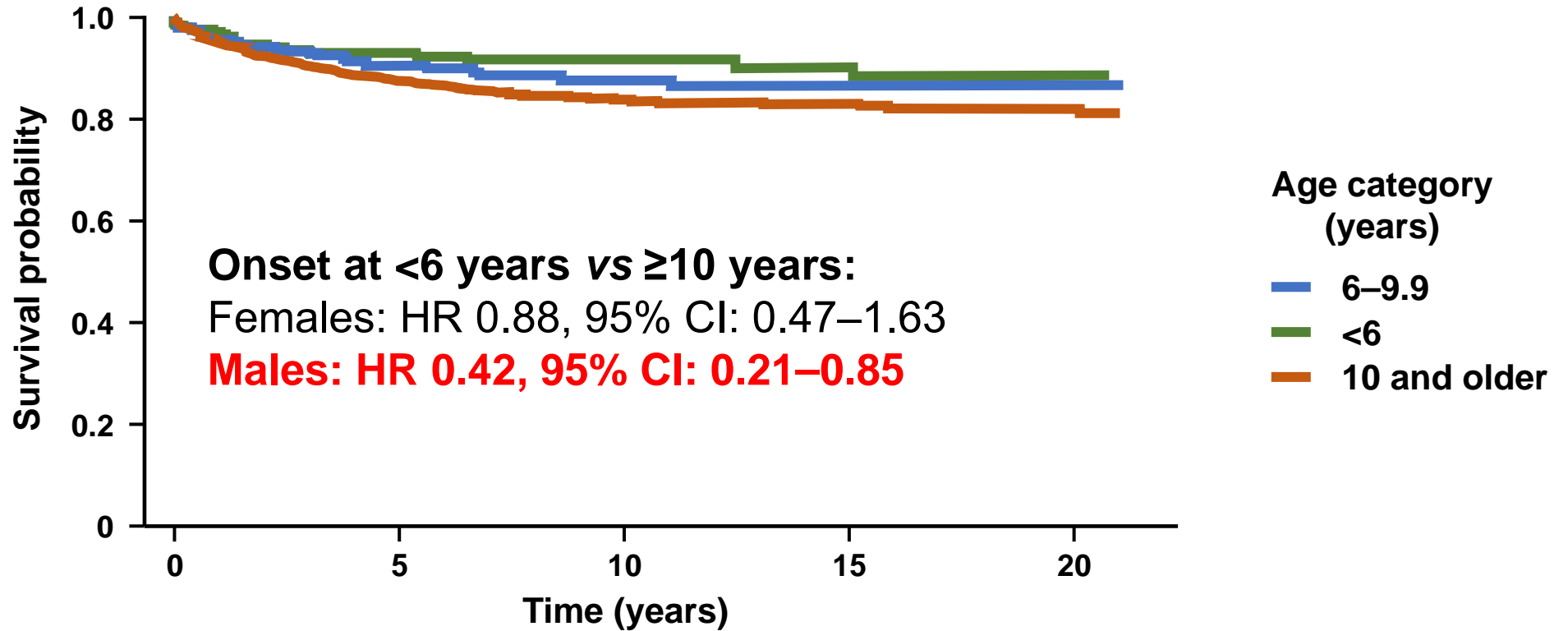
# OTHER VEO-IBD COHORTS: SCOTLAND



Henderson, et al. BSPGHAN Annual Meeting 2015  
Slide courtesy of Dr. David Wilson



# VEO-IBD: UC SURGERY

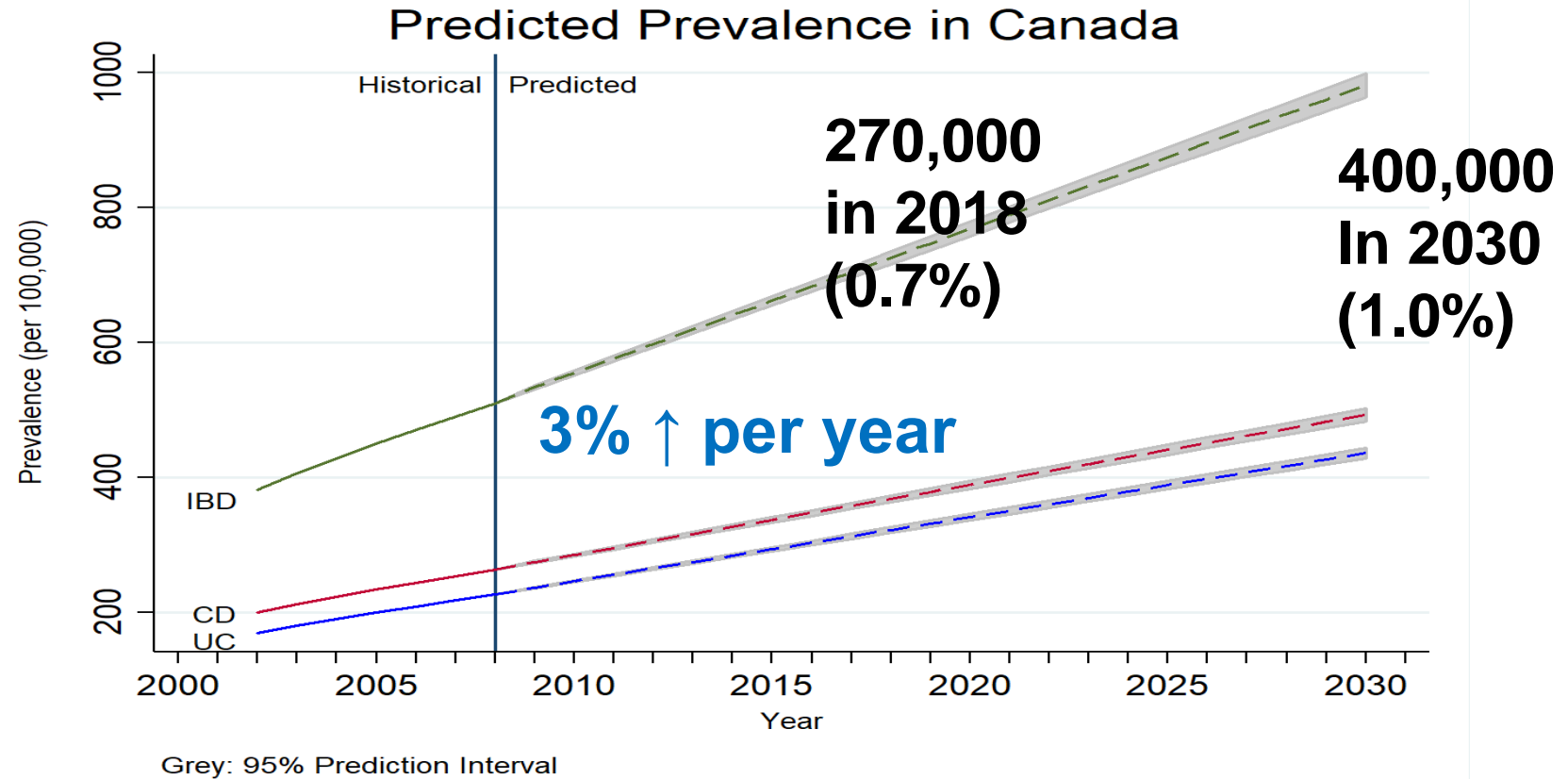


Benchimol, et al. Gastroenterology 2014;147(4):803-13.

# WHAT DOES THE FUTURE HOLD?



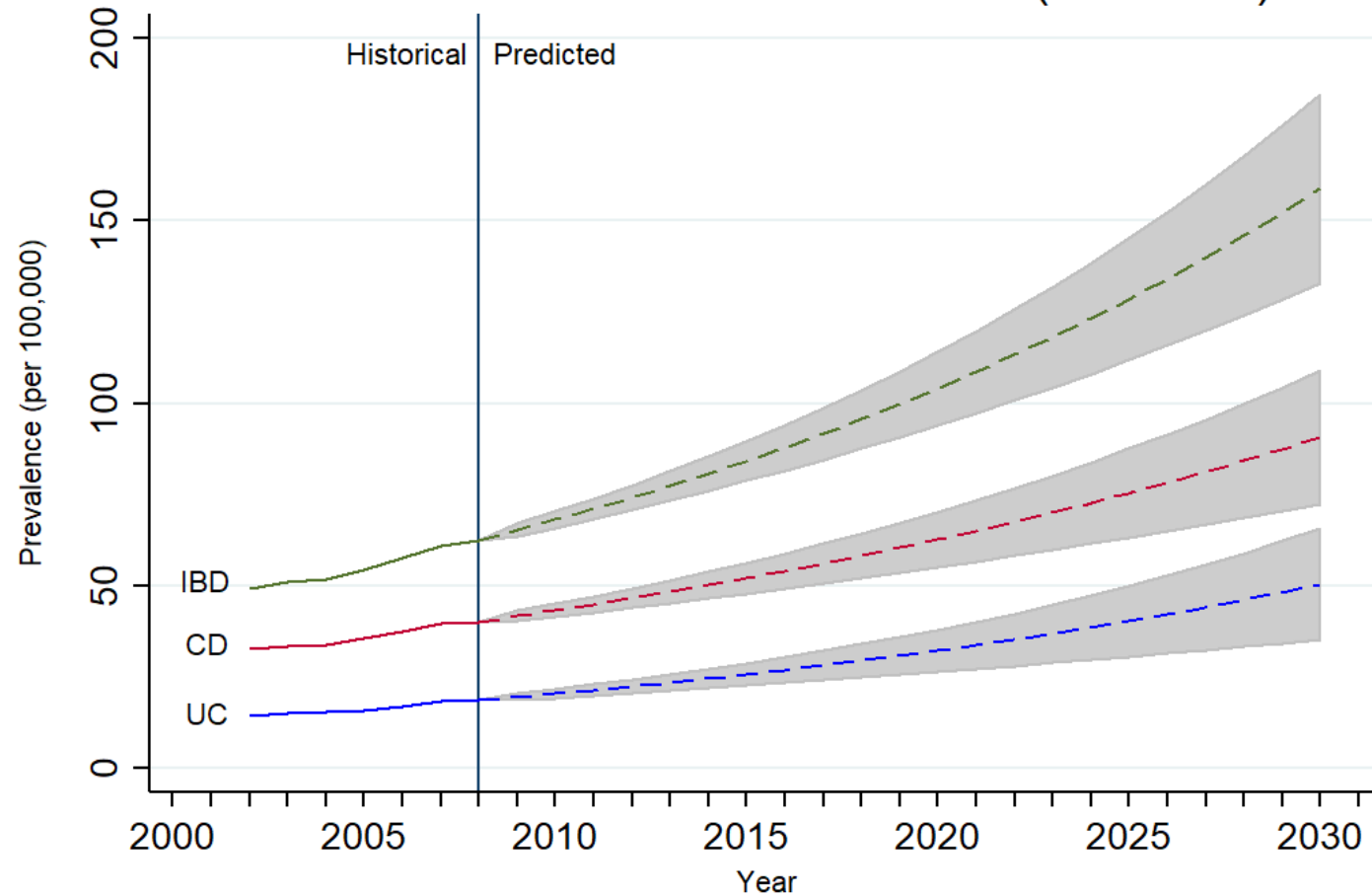
# RISING FUTURE BURDEN



Coward, et al. JGAG 2018; 1(Suppl 2): 49-50.  
Manuscript submitted for publication.

# RISING FUTURE BURDEN

## Predicted Prevalence in Canada (Pediatric)







Grey: 95% Prediction Interval





Coward, et al. JGAG 2018; 1(Suppl 2): 49-50.  
Manuscript submitted for publication.



# PEDIATRIC IBD EPIDEMIOLOGY

	2003-2004	2008	2018	2030
Canada  (per 100,000)		62	101	159
USA  (per 100,000)				
Canada  (raw number)		4,730	7,254	12,647
USA**  (raw number)				





# PEDIATRIC IBD EPIDEMIOLOGY

	2003-2004	2008	2018	2030
Canada  (per 100,000)		62	101	159
USA  (per 100,000)	71*	71	115	181
Canada  (raw number)		4,730	7,254	12,647
USA**  (raw number)				

\*In people <20 years, from: Kappelman et al., Clin Gastroenterol Hepatol 2008;135:1907-13



# PEDIATRIC IBD EPIDEMIOLOGY

	2003-2004	2008	2018	2030
Canada  (per 100,000)		62	101	159
USA  (per 100,000)	71*	71	115	181
Canada  (raw number)		4,730	7,254	12,647
USA**  (raw number)	52,043	52,611	84,870	138,103

\*In people <20 years, from: Kappelman et al., Clin Gastroenterol Hepatol 2008;135:1907-13

\*\*Based on estimated population of children <18 years according to childstats.gov

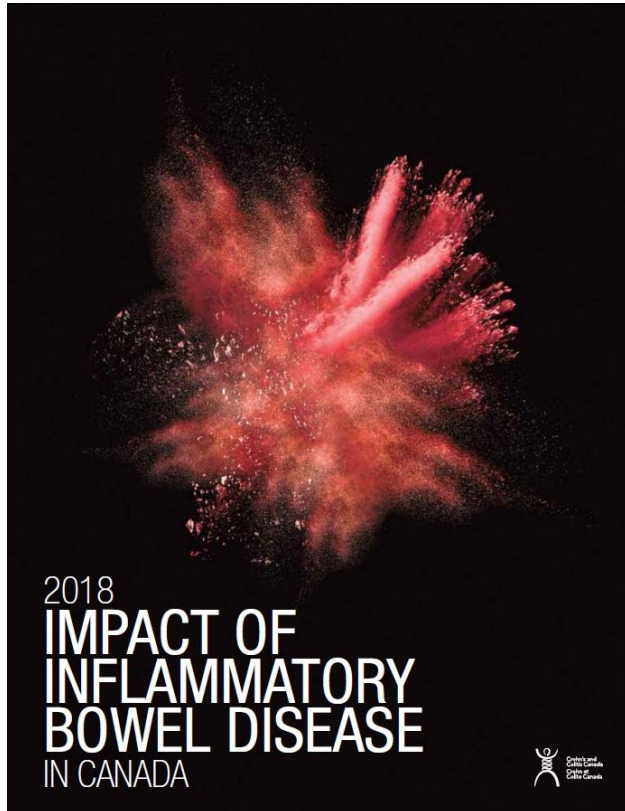


# CONCLUSIONS

- **Pediatric IBD is increasing internationally**
  - ▶ Rates are rising most rapidly in young children
- **Children with disease onset <10y:**
  - ▶ More often have colonic involvement
  - ▶ More inflammatory, less stricturing
  - ▶ UC: More mild endoscopic findings
- **Rising prevalence may result in strain on the health system**

# QUESTIONS?

## ACKNOWLEDGEMENTS:



IN CANADA  
BOWEL DISEASE  
INFLAMMATORY  
IMPACT OF  
2018



Canadian Association  
of Gastroenterology



## IBD Impact Report

<http://crohnsandcolitis.ca/impactreport>