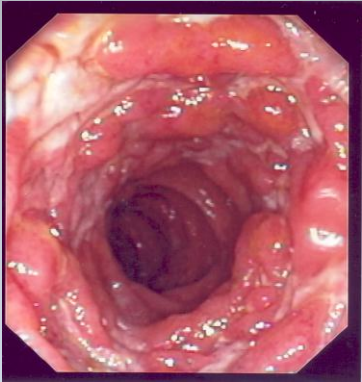




FACULTY OF
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CALGARY



Dr. Gil Kaplan
Associate Professor

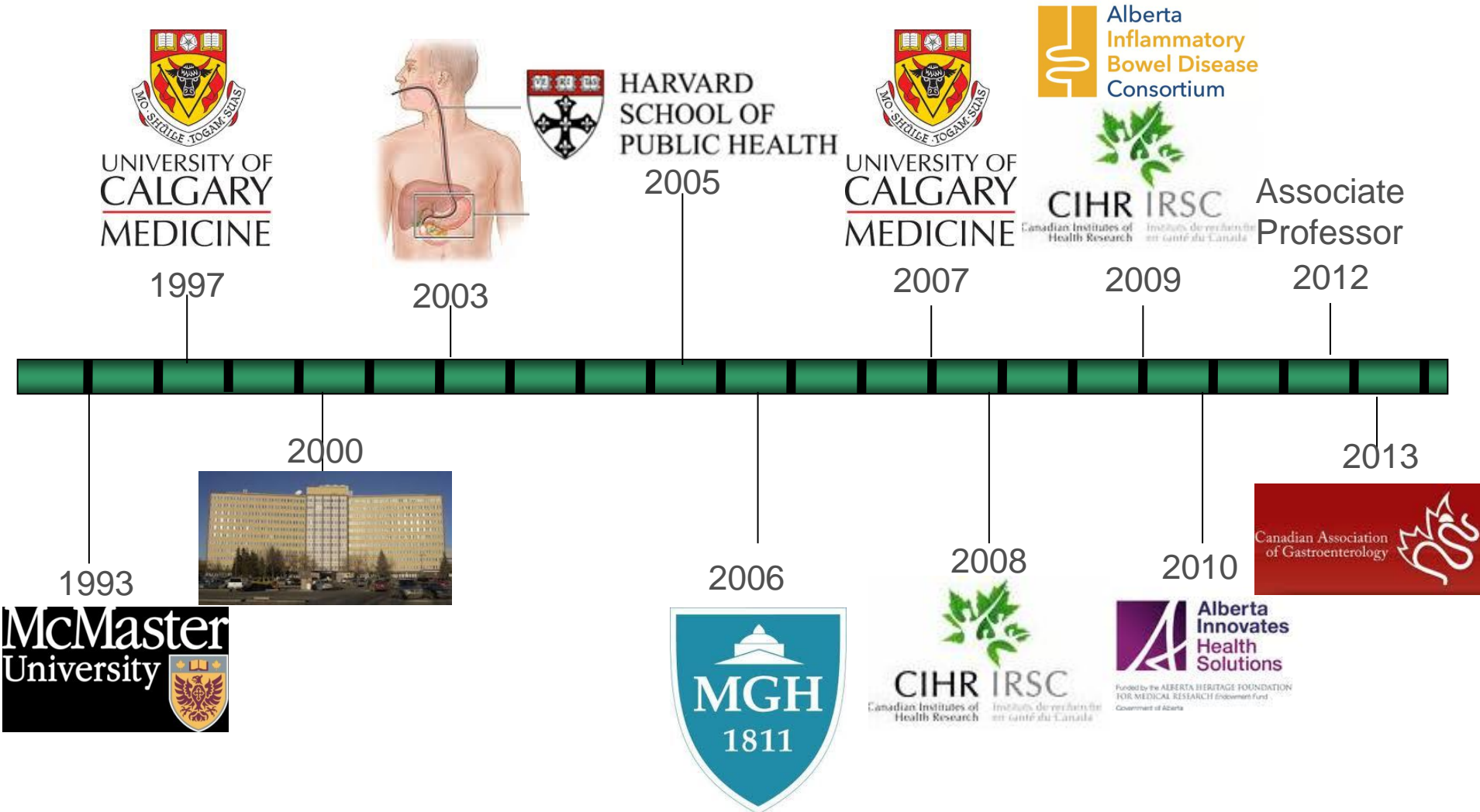


IPH Scientific Advisory Group

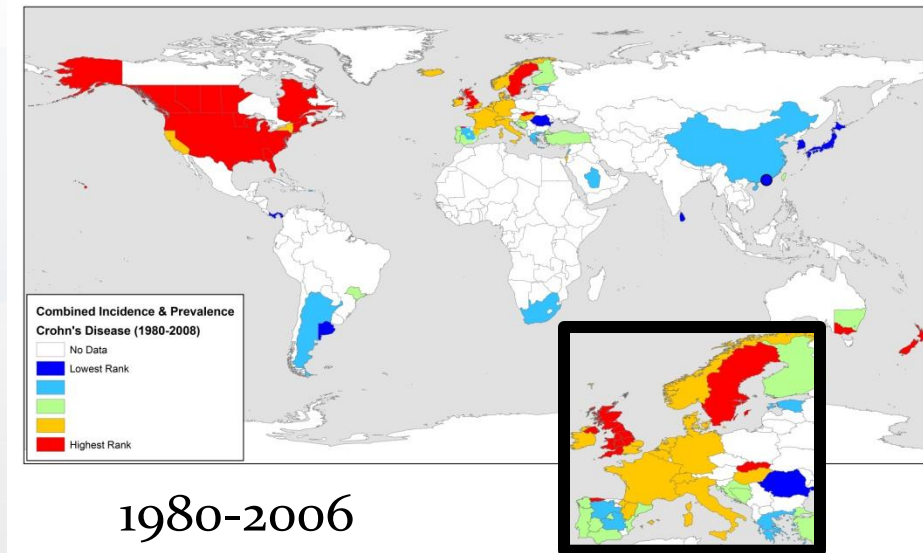
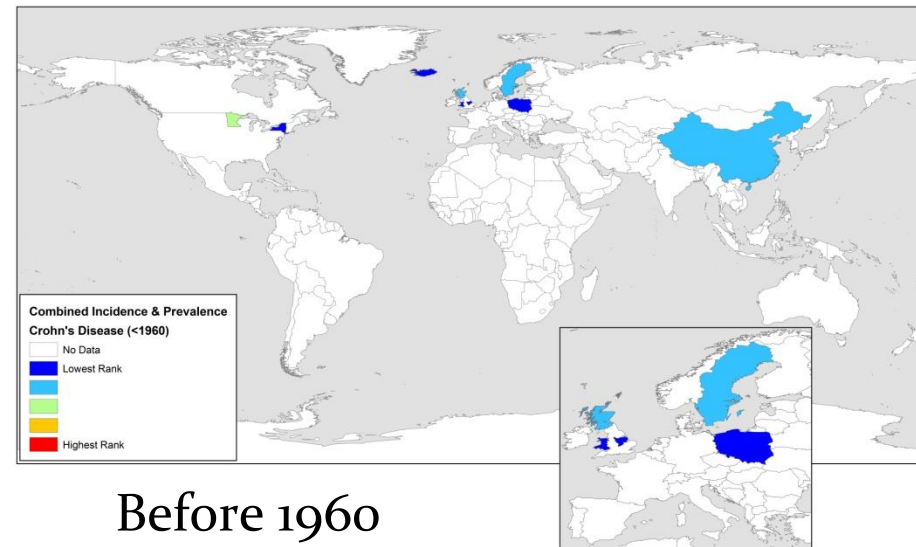
Institute for
Public Health

Institute for
Public Health

Timeline: My Career



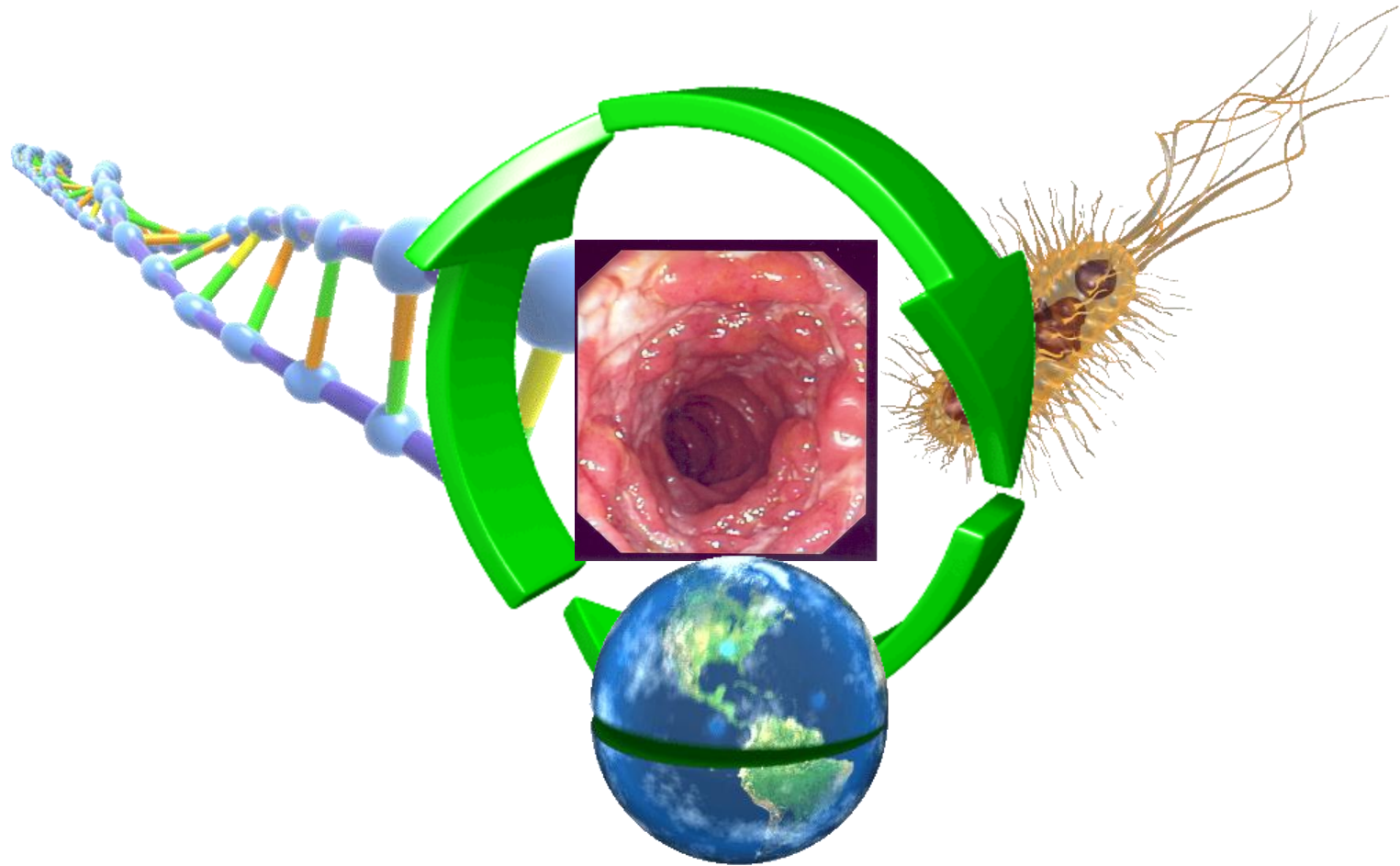
Incidence of IBD is highest in North America. Personal and economic burden of IBD climbs every decade.



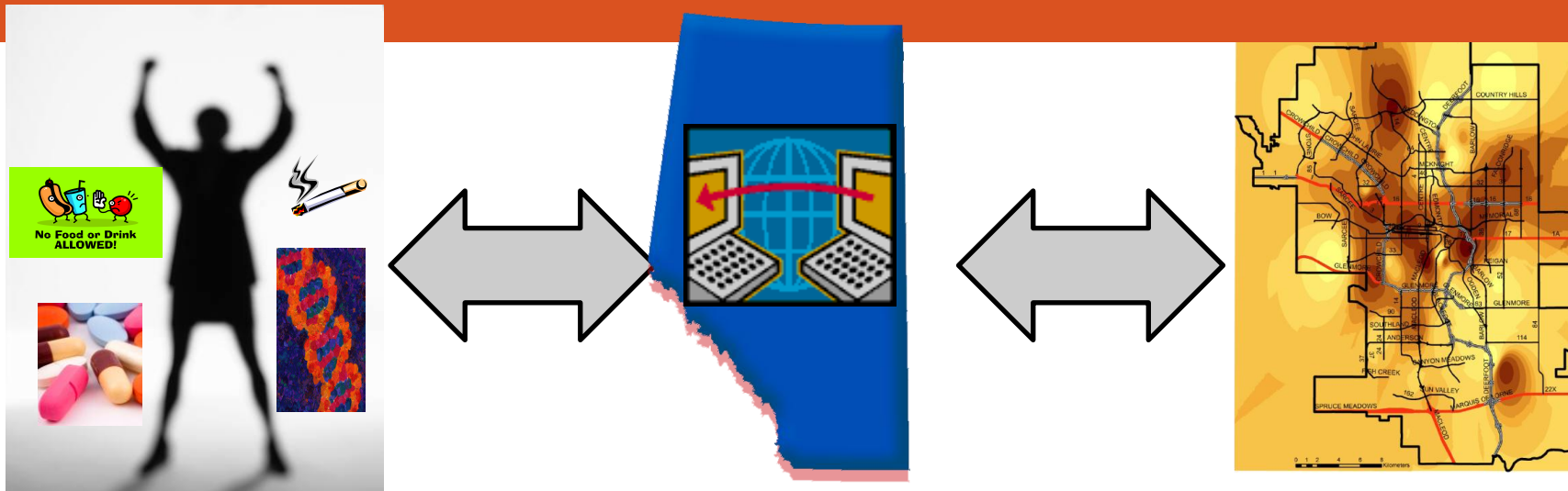
Molodecky N, et al *Gastroenterology*. 2012 Jan; 142(1): 46-54.



Etiology of IBD: Interaction between genetic susceptibility, environmental exposures, and the microbiome



Integrate Data: Administrative, Person-level, Area-level. Cross Pillar Research to Solve Public Health Problems.



Person-Level:

Phenotyped Envirotyped
Genotyped Biobank Tissue

Administrative Databases:

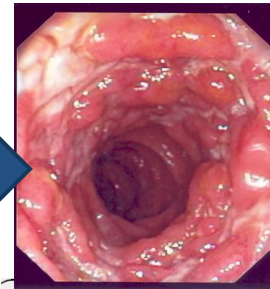
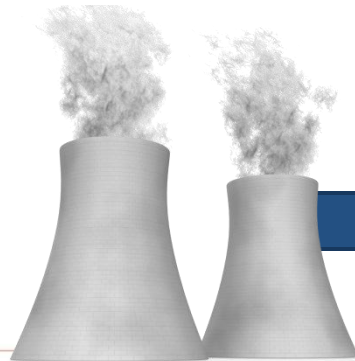
Inpatient Claims Patient Claims

Area-Level:

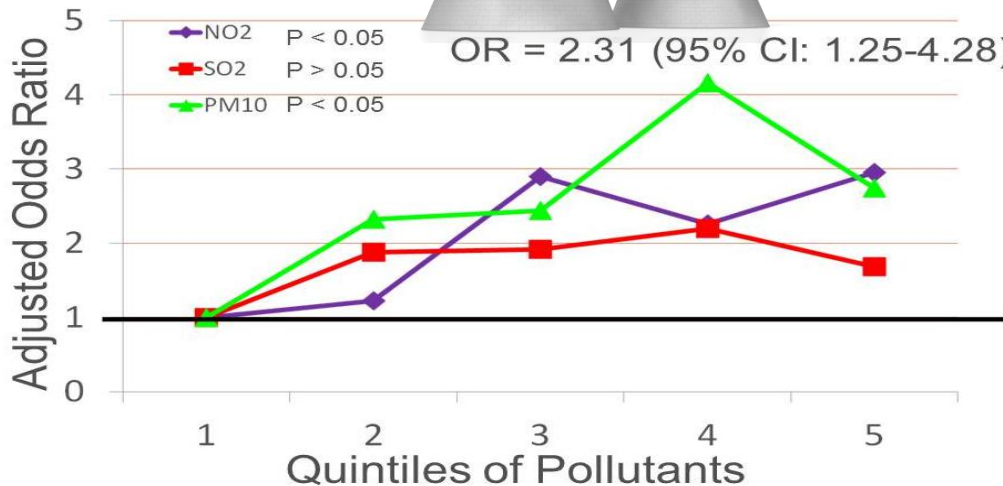
Air Land/Soil
Water Farms
Industries



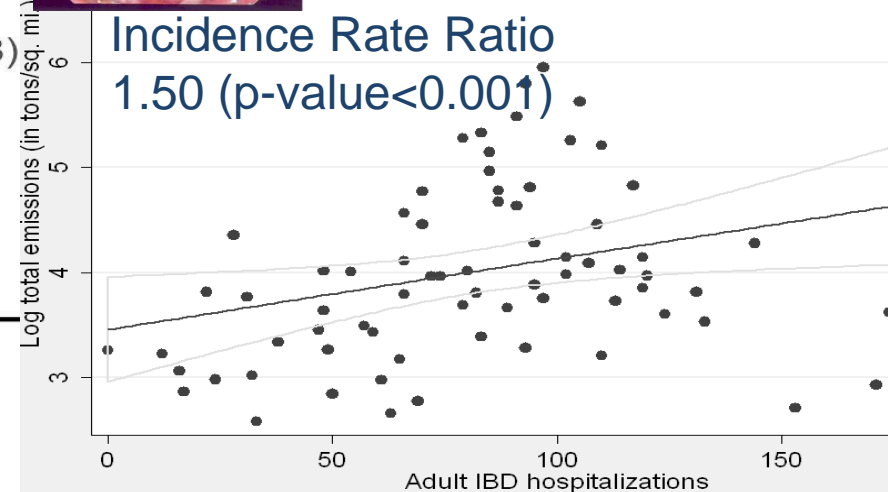
Air Pollution and Crohn's Disease: Nitrogen dioxide exposure may increase the risk of early-onset Crohn's disease.



OR = 2.31 (95% CI: 1.25-4.28)

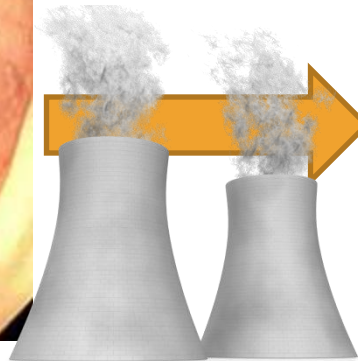
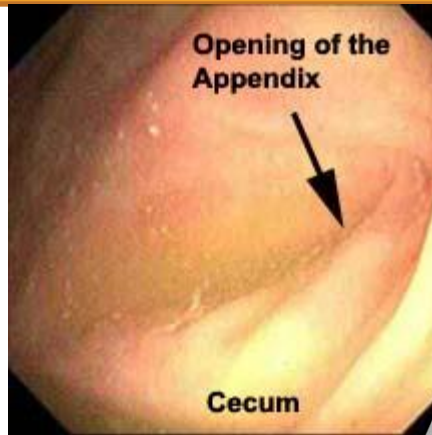


Kaplan et al *Am J Gastroenterol.* 2010; 105 (11): 2412-9



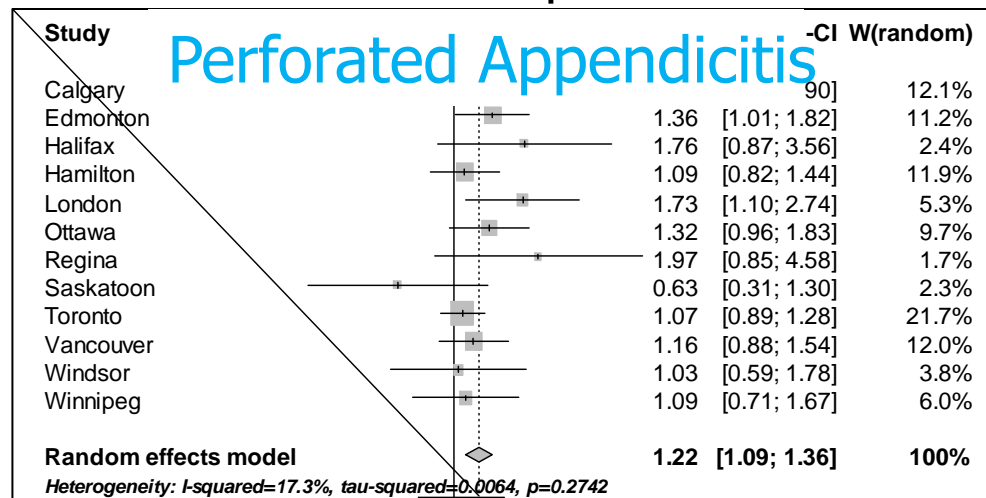
Ananthakrishnan et al *IBD* 2011; 17(5): 1138-45.

Higher levels of ozone exposure may shift the phenotype of appendicitis towards a perforating phenotype.



Kaplan et al *CMAJ* 2009

Kaplan et al *Env Health Perspect.* 2013



Pooled OR= 1.22 (95% CI: 1.09 – 1.35)

Ingestion of air pollutants stimulated a pro-inflammatory response and altered the intestinal microbiome.

Ouch!



Particulate matter & IL-10^{-/-} mice

- ▶ Increased IL-17 response
- ▶ Decreased microbial composition
- ▶ Elicit pain

Kish et al 2011 PLOS One 2013.

Kaplan et al PLOS One 2012; 7 (10): e47669



The Honour of the Academic Ladder

Mentor



Supervisor

Natalie Molodecky:
AI-HS & CCFC Studentship Award
First Author Publication:

1. Gastroenterology (2011)
2. Hepatology (2011)
3. IBD Journal (2011)
4. Liver International (2011)
5. Gastro Hepatology (2010)

Trainee



Trainees: Multidisciplinary & Collaborative

Supervisor

1. Natalie Molodecky
MSc Epi (2011)
2. Ing Soon (Ped GI)
MSc Epi (2012)
3. Alex Frolkis **PhD Epi**
4. Ellen Kuenzig **PhD Epi**
5. Stephanie Coward MSc Epi

Co-Supervisor

1. Maria Negrón
PhD Vet Medicine
2. Fox Underwood
MSc Geography

Post-Doctoral Graduate

1. Vineet Saini (Vet Med)

GI Fellows

1. Liisa Meddings
2. Matthew Sadler

IBD Fellows

1. Shani de Silva
2. Allen Lim
3. Gordon Moran
4. Ali Rezaie



- Research Team
 - Marie-Claude Proulx
 - James Hubbard
 - Divine Tanyingoh
 - Hong Yang
 - Adrijana Sevo



Health
Canada

Santé
Canada

Institute for
Public Health



IPH: The Weight that Keeps the Ship Afloat



- **Multidisciplinary Membership**
- **Space: Office and research staff**
- **Financial and Administrative support**
- **Environmental Health Research Group**
- **THIN Database**
- **Mentorship & Guidance**
- **Internal Peer Review**
- **Knowledge Translation**

Success Achieved by IPH Support



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[http://www.scientificamerican.com/
article.cfm?id=do-air-pollutants-play-a-role-in-bowel-disease/](http://www.scientificamerican.com/article.cfm?id=do-air-pollutants-play-a-role-in-bowel-disease/)

Time Magazine:

<http://healthland.time.com/2009/10/05/can-air-pollution-cause-appendicitis/>

New York Times:

<http://well.blogs.nytimes.com/2013/07/11/air-pollution-may-raise-appendicitis-risk/>

A⁷Ny
Que¹⁶S¹⁶tions?