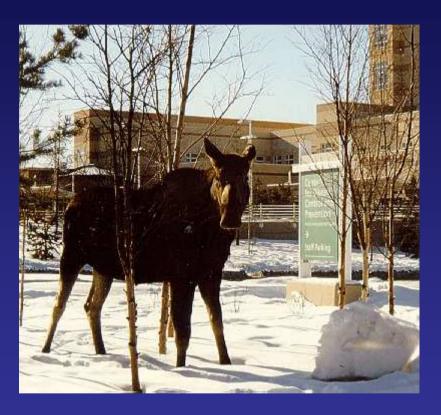
H. pylori Gastric Cancer & PUD Pilot Study in Alaska



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Peptic Ulcer Disease (PUD) Circumpolar Region

- Increased gastric ulcer (GU) to duodenal ulcer (DU) ratio
 - Alaska
 - Yip et al. *JAMA* 1997 48% with gastric ulcers/erosions
 - Thompson et al. AK Med 2005 GU:DU ratio of 1:1
 - Sacco et al. AK Med 2007 GU:DU ratio of 4:1
 - Bruce et al. In Press GU:DU ratio of 5:1
 - Greenland
 - Ingeman-Neilsen et al. *U Laeger* 1990 GU:DU ratio of 2:1
 - Fenger et al. *Int J Circ Hlth* 1997 GU:DU ratio of 5:1
 - Arctic Norway
 - Eriksen et al. *J Clin Gastro* 1995 GU:DU ratio of 2:1
- Increased # of hospitalizations associated with PUD
 - Alaska
 - − Demma et al. *Am J Trop Med* 2008 Incidence rate − 299/100,000
 - N Canada
 - Bernstein et al. Dig Dis Sci 1999 Incidence rate 394/100,000



Gastric Adenocarcinoma Circumpolar Region

- Alaska Lanier et al. AK Med 2006
 - Gastric cancer rates in ANs are 3-4 times higher than rates among Caucasians in the rest of the US
- N Canada NWT Report 2003
 - Higher rates in Northwest Territories (NWT) than lower Canada
- Greenland Friborg et al. Int J Cancer 2003
 - Gastric cancer rates are 2-3 times higher than rates in the rest of Denmark
- Sweden Hassler et al. Eur J Epi 2001
 - The Saami of N Sweden had double the risk of developing gastric cancer compared to Swedes in general



Gastric Adenocarcinoma in Alaska Native and Greenlandic People

Annual Age-Adjusted Incidence Rates per 100,000 pop

<u>Alaska Native 1996-2000</u>		Greenlandic 1988-1997
Overall	22.3	15.0
Males	27.7	22.1
Females	17.7	9.2
<u>US Caucasians, 1996-2000</u>		
US Caucasi	lans, 1996-2000	Denmark 1988-1997
US Caucasi Overall	ans, 1996-2000 5.8	<u>Denmark 1988-1997</u> 6.0



Helicobacter pylori: host and bacterial virulence factors for severe clinical outcome

- Hypothesis-generating pilot project
- Funded through the NIH's Native American Research Centers for Health grant cycle VI
- Collaboration
 - Arctic Investigations Program (AIP)/CDC
 - Alaska Native Tribal Health Consortium
 - New York University School of Medicine
 - Provide laboratory training
 - Provide technical guidance
- Increase AIP/CDC laboratory capacity
- Data generated to be used for future case/control study



Objectives

<u>Primary</u>

- To determine the frequency of putative pathogenic factors in *H. pylori* recovered from Alaska Native persons with gastric cancer or PUD and to compare with the frequency of the same putative pathogenic factors in *H. pylori* recovered from persons without gastric cancer or PUD. Cases & controls
- To determine the frequency of host pro-inflammatory polymorphisms among Alaska Native persons with gastric cancer or PUD. Cases only

Secondary

• To determine the frequency of environmental co-factors, such as diet, smoking, alcohol use, obesity, family medical history, NSAID use, concomitant medical conditions, and occupation among Alaska Native persons with gastric cancer or PUD.

Accomplishments/Goals

- Accomplishment
 - Grant application approved for funding
 - IRB and privacy board approved protocol
 - Submitted protocol for Tribal review
 - Met with collaborators at NYU to begin technology transfer
- Goals
 - 1 year
 - Begin participant recruitment
 - Begin testing control organisms
 - Year 2-3 (2011-2013)
 - Continue participant recruitment
 - Continue technology transfer to AIP/CDC
 - Continue all laboratory testing
 - 4 year
 - Complete participant recruitment
 - Complete laboratory testing
 - Complete data analysis and begin report writing
 - Share findings with partners



Future Studies – Gastric Cancer

- Prospective case-control study
 - Determine risk factors such as dietary history, family history etc.
 - Determine if there are particular bacterial genotypes associated with gastric cancer
 - Determine if there are particular host factors associated with gastric cancer





