

*H. pylori* colonization density and gastric histopathology in a Northern Canadian community

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The aim of this study was to estimate the association between *H. pylori* colonization density and gastric histopathological outcomes in a Northern Canadian Aboriginal community. Participants in the Aklavik *H. pylori* Project in the Northwest Territories were invited to undergo upper gastrointestinal endoscopy with gastric biopsy in 2008. Five biopsy specimens (2 antrum, 1 incisura, 2 corpus) were collected from each participant, processed with hematoxylin-eosin and Giemsa staining, and examined microscopically by one pathologist (SG), who scored *H. pylori* density, acute inflammation (neutrophilic activity), chronic inflammation, glandular atrophy, and intestinal metaplasia on a four-point scale (0-3) according to the updated Sydney System. Each individual was assigned the highest score of examined biopsies for each variable. Trend analysis was performed by inspecting the prevalence of histopathologic outcomes across increasing *H. pylori* density grades and conducting  $\chi^2$  tests for trend. *H. pylori* density scores were available for 192 participants (age range=10-80, 57% female, 91% Aboriginal), 127 of whom had *H. pylori*-positive histology. All participants with density >0 had chronic inflammation and nearly all (except 19% with density=1) had acute inflammation (Table 1). A strong positive effect gradient was observed for atrophy but not metaplasia. These findings provide evidence of a dose-response effect of *H. pylori* density on gastric atrophy.

<i>H. pylori</i> density score	Acute Inflammation	Chronic Inflammation	Glandular Atrophy	Intestinal Metaplasia
0 (none) n=65	0%	5%	0%	3%
1 (mild) n=32	81%	100%	6%	16%
2 (moderate) n=48	100%	100%	19%	10%
3 (marked) n=47	100%	100%	35%	9%
$\chi^2$ for trend p-value	<0.001	<0.001	<0.001	0.18
*Note: Table percentages represent the prevalence of each histopathological diagnosis within an <i>H. pylori</i> density score				